REPORT
ON THE ENERGY SECTOR IN SLOVENIA 2020

20
20

Agencija za energijo

REPORT
ON THE ENERGY SECTOR
IN SLOVENIA 2020

Table of Contents

DIRECTOR'S FOREWORD

It is with great pleasure that we present the 2020 Report on the Energy Sector in Slovenia, the twentieth in a row. With it, the Energy Agency is also entering its twentieth year of work. During this period, the Energy Agency was ensuring compliance with the European energy regulations, participated in its development within the framework of ACER, and adapted its requirements to national specifics and energy trends.

The year 2020 will go down in history, as no one expected a pandemic of this magnitude and such consequences, which also posed a significant challenge for the Energy Agency and all energy market participants. The volume of energy-dependent economic activities has declined, to a large extent transport too, some activities even stopped, changing the world´s image, including energy markets. While energy consumption fell, the uncertainty of the operation of energy systems, on the other hand, decreased. At the same time, we have seen reductions in greenhouse gas emissions and reduced pressure on the climate. Such results undoubtedly confirm that it is humans' way of life and activities that are the most important factor in changing the environment. As the environmental impact of energy has been clearly demonstrated, processes and decisions leading to a lower carbon economy and energy systems need to be accelerated, agreed upon as a matter of urgency, and provided in national strategies and concepts, including for energy-related industries.

Last year was also an outstanding test for the energy sector, which has shown that energy systems are robust and resilient to situations–major crises. Energy companies were aware that the spread of contagion threatened their ability to ensure a smooth supply of energy. They quickly and efficiently adopted measures for operating the systems in new situations while also applying criteria for the operation of critical infrastructure. At the Energy Agency, we find that quality supplies of electricity, natural gas, and heat have been provided to consumers at all times. The investments already planned for the maintenance and development of networks are running smoothly on the whole. We are also pleased to note that special attention was given to the protection of consumers during this period.

In the changed circumstances in 2020, final electricity prices for household consumers were lower on an annual basis than in the previous year. The Energy Agency reduced the network charges for household and small business consumers for three months. For the same period, the Government of the Republic of Slovenia exempted these consumers from paying the contribution for renewable sources. Some energy suppliers reduced prices at certain times, payment deadlines were extended, and compared to the previous year, there were fewer disconnections and cancellations of supply contracts.

A contraction in economic activity resulted in a 6% reduction in final electricity consumption. The coverage of electricity consumption with domestic production was the highest in the last five years, at 92.6%.

According to the Jožef Stefan Institute, we achieved a 38% share of renewable sources in the electricity sector, which is only 1.3% less than the target share for 2020. Two public calls have been made in the implementation of the support scheme for investments in renewables. Still, for the third year in a row, almost 16 million of the EUR 20 million of the funds provided remained undistributed. The question of the feasibility of, in particular, wind production installations remains open.

The number of final customers has increased, as well as the percentage of all electricity consumers that are already acting as electricity producers. As a result, there is a substantial increase in self-supply, with the number of production installations almost doubling in 2020, with a total of 8641 at the end of the year. At the same time, we note that the planning of distribution networks and the activities of operators will have to pay significantly more attention to active consumers and the growing dispersed electricity generation.

It is encouraging that competition in the retail electricity market in Slovenia has increased over the last five years. However, there is still considerable untapped potential in the area of supplier switching.

Some 82.9% of electricity distribution system users are already equipped with advanced measuring devices. The roll-out of smart grids, new technologies, and services continues with an incentive scheme for investment in smart grids and a scheme promoting research and innovation, for which there was significant interest in 2020. In this way, we are seeing a transformation of the

power system towards the efficient exploitation of the potential of active demand and flexibility. It is encouraging that we are still seeing the trend of reducing losses in the power system and improving the level of quality of supply. Progress has also been made in establishing an effective exchange of information in the market and by defining the role of an independent aggregator in the public consultation process.

In the wholesale natural gas market, the number of short-term contracts is increasing; in 2020, they already covered 84% of purchases. The natural gas supply was not interrupted; 91% of natural gas was imported from Austria. Unfortunately, the retail market remains highly concentrated, with the final price of natural gas for household consumers remaining below and for business consumers above the EU-27 average. In the gas market, the number of supplier switches is also declining, indicating a lack of consumer activity in finding potential savings. Natural gas consumption remained at the same level as the previous year.

At the beginning of the year, the National Energy and Climate Plan was adopted in Slovenia, which co-formulates a common European image on the basis of binding national targets. The adoption of the Green Deal and the new package of legislation "Fit for 55" will accelerate the achievement of the climate objectives and thus the dynamics of the national energy transformation.

The establishment of a normative framework with the necessary changes to support the national development of the energy sector started last year with the adoption of the legislation on energy efficiency and the public consideration of the proposals for new legislation on electricity supply and the promotion of the use of renewable sources, which are already under review by the National Assembly at the time of drafting this report.

Slovenia has committed itself to energy climate goals, which require profound changes in the economy and energy sector, thus changing social relations. The conceptual changes in energy infrastructure and new roles for energy consumers demand a revision of all existing sectoral national concepts and policies, particularly the national energy concept. The current situation also calls for more complex transmission and distribution energy systems planning, about which we have learned and are still learning from pilot smart grids projects.

This report presents the state of the national energy sector as a reflection of the economic situation resulting from the pandemic. It shows how vulnerable relationships can be and how important it is to develop long-term national strategies and national concepts and develop appropriate regulatory models and practices.

On this occasion, allow me to thank the energy market participants for providing the data needed for this report and my conscientious work colleagues for careful data collection, analysis and all joint efforts to make this energy report as meaningful as possible.

MAG. DUŠKA GODINA

DIRECTOR

35% RES

PRIMARY ENERGY SOURCES
35% OF RES
26,6% OF FOSSIL FUELS
38,4% OF NUCLEAR FUEL

7.3%

OF ELECTRICITY WAS PRODUCED IN FACILITIES INCLUDED IN THE SUPPORT SCHEME

731 GWh

LESS ELECTRICITY TO COVER DISTRIBUTION SYSTEM LOSSES OVER A TEN-YEAR PERIOD

92.6%

OF ELECTRICITY DEMAND COVERED BY DOMESTIC PRODUCTION

6% LOWER

CONSUMPTION BY END CONSUMERS

Electricity - an essential part of modern life, technological development, and achieving climate neutrality

82.9% OF CONSUMERS CONNECTED TO THE DISTRIBUTION SYSTEM WERE EQUIPPED WITH ADVANCED METERING DEVICES – EU DIRECTIVE OBJECTIVE ACHIEVED

THE EPIDEMIC DID NOT AFFECT THE IMPLEMENTATION OF THE SYSTEM OPERATORS' DEVELOPMENT PLANS

STRONG INTEREST IN THE RESEARCH AND INNOVATION INCENTIVE SCHEME

A 62% ANNUAL GROWTH IN THE TOTAL NUMBER OF ELECTRIC VEHICLES

WELL-DEVELOPED WHOLESALE AND GRADUAL STRENGTHENING OF COMPETITION IN RETAIL ELECTRICITY MARKET

MORE THAN 80% OF HOUSEHOLD AND MORE THAN 65% OF BUSINESS CUSTOMERS ARE PASSIVE

12.6% LOWER NETWORK CHARGE AND 4.8% LOWER FINAL ELECTRICITY PRICE FOR HOUSEHOLD CUSTOMERS

ELECTRICITY

Electricity Balance

Inputs and Outputs of Electricity in the System

15.748 GWh of electricity delivered into the electricity system, 35% of which was generated in production facilities using RES

Inputs into the Slovenian electricity system from generation units connected to either the transmission or the distribution system totalled 15,748 GWh, which is 1007 GWh more than the year before. Compared to the previous year, electricity inputs from renewable sources and the nuclear power plant increased, while inputs from fossil fuel power plants decreased. These quantities are taken from the balance sheets of the electricity system operators and are based on physical flows.

The quantity of electricity produced by facilities connected to the distribution system, which includes closed distribution systems (CDS), increased by 46 GWh to a total of 1089 GWh. In the internal consumers' networks, an additional 452 GWh of electricity was consumed, which represents 29% of all the electricity generated in facilities connected to the distribution system and closed distribution systems.

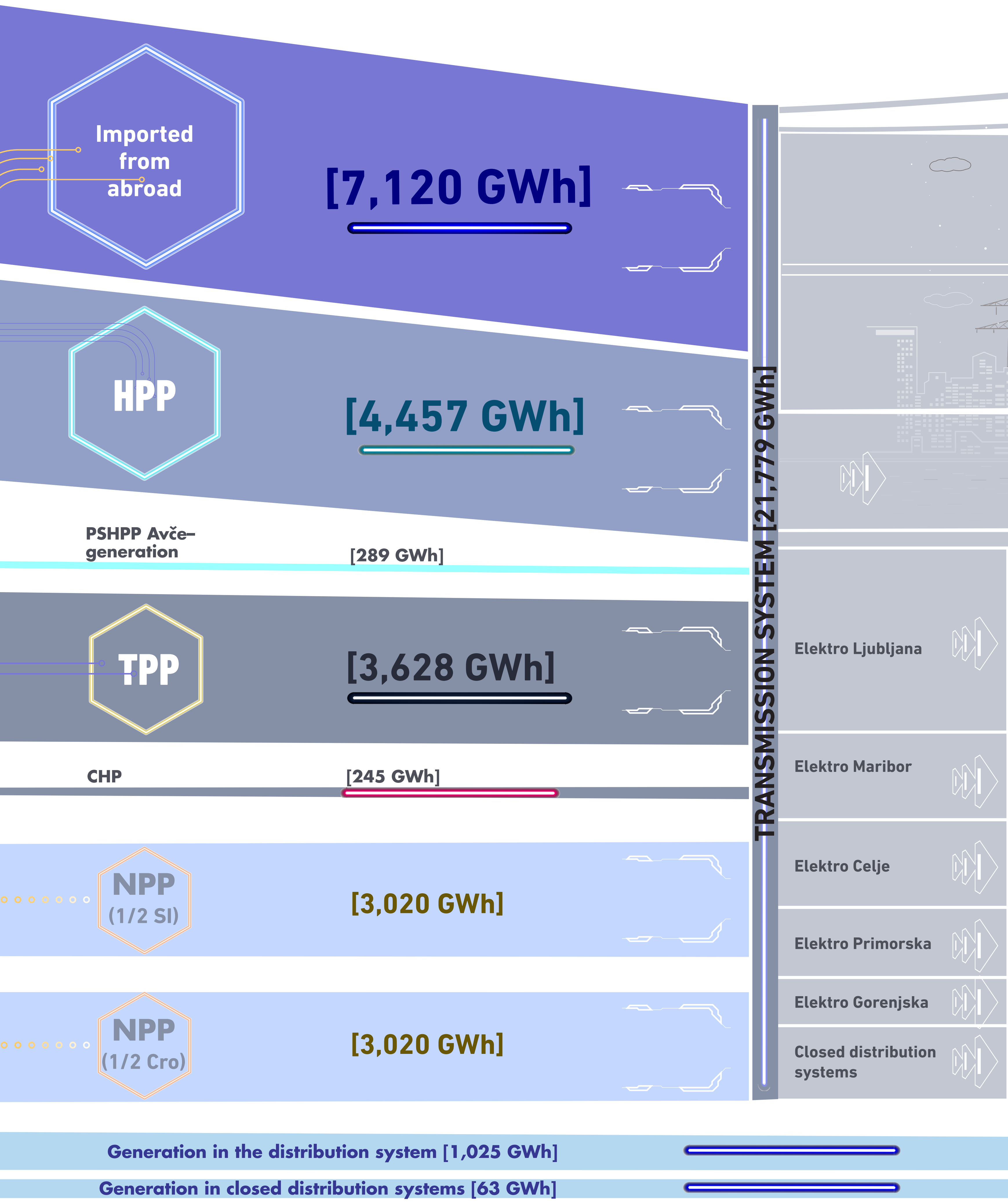
A 46 GWh increase in generation in the distribution system

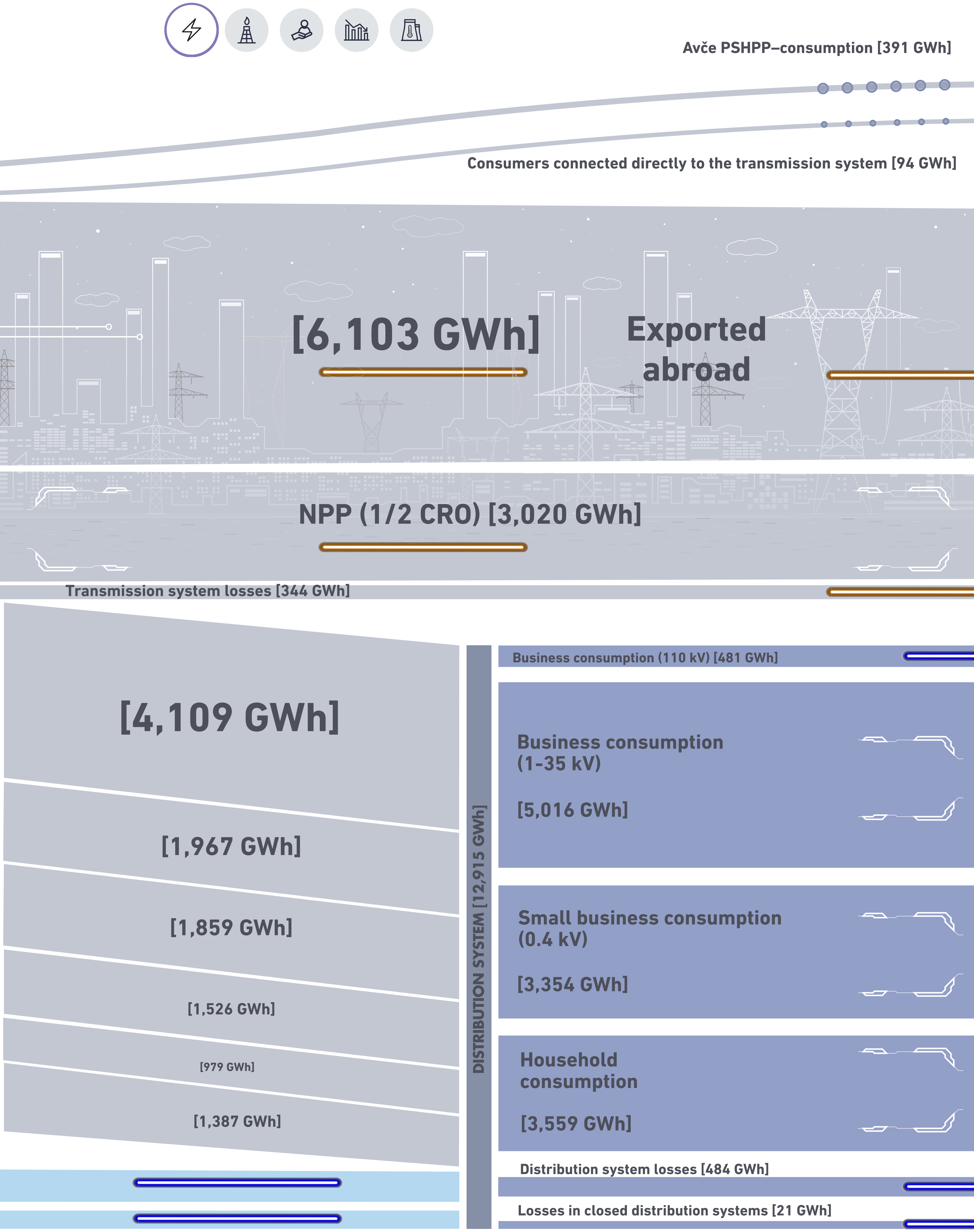
TABLE 1: ELECTRICITY INPUTS INTO THE TRANSMISSION AND DISTRIBUTION SYSTEMS IN THE 2018–2020 PERIOD, IN GWh

Electricity input into the transmission system [GWh]	2018	2019	2020
Dravske elektrarne Maribor	2,913	2,731	3,182
Savske elektrarne Ljubljana	352	335	327
Hidroelektrarne na spodnji Savi	590	542	525
Soške elektrarne Nova Gorica	378	415	423
Avče PSHPP in the generation regime	188	202	289
Total Hydro	**4,421**	**4,225**	**4,746**
Šoštanj TPP	3,698	3,663	3,582
Brestanica TPP	7.09	21.20	48.00
Trbovlje TPP	-1.64	-1.43	-1.67
Javno podjetje Energetika Ljubljana	346	264	245
Total TPP and CHP	**4,049**	**3,947**	**3,873**
Krško Nuclear Power Plant	**5,483**	**5,526**	**6,040**
Total electricity input into the transmission system	**13,954**	**13,698**	**14,659**
Electricity input into the distribution system [GWh]	**2018**	**2019**	**2020**
HPP up to and including 1 MW	196	196	199
HPP above 1 MW	166	154	160
Facilities using woody biomass	53	52	58
Wind farms	6.02	6.14	6.21
Solar power plants	225	239	250
Facilities using biogas	103	77	89
Waste-to-energy plants	5.56	4.85	4.46
Total RES	**756**	**729**	**767**
Total conventional sources	**294**	**314**	**322**
Total electricity input into the distribution system	**1,050**	**1,043**	**1,089**
TOTAL ELECTRICITY INPUT	**15,003**	**14,741**	**15,748**

SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

FIGURE 1: THE BALANCE OF ELECTRICITY INPUTS AND OUTPUTS IN THE TRANSMISSION AND DISTRIBUTION SYSTEM IN 2020





SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

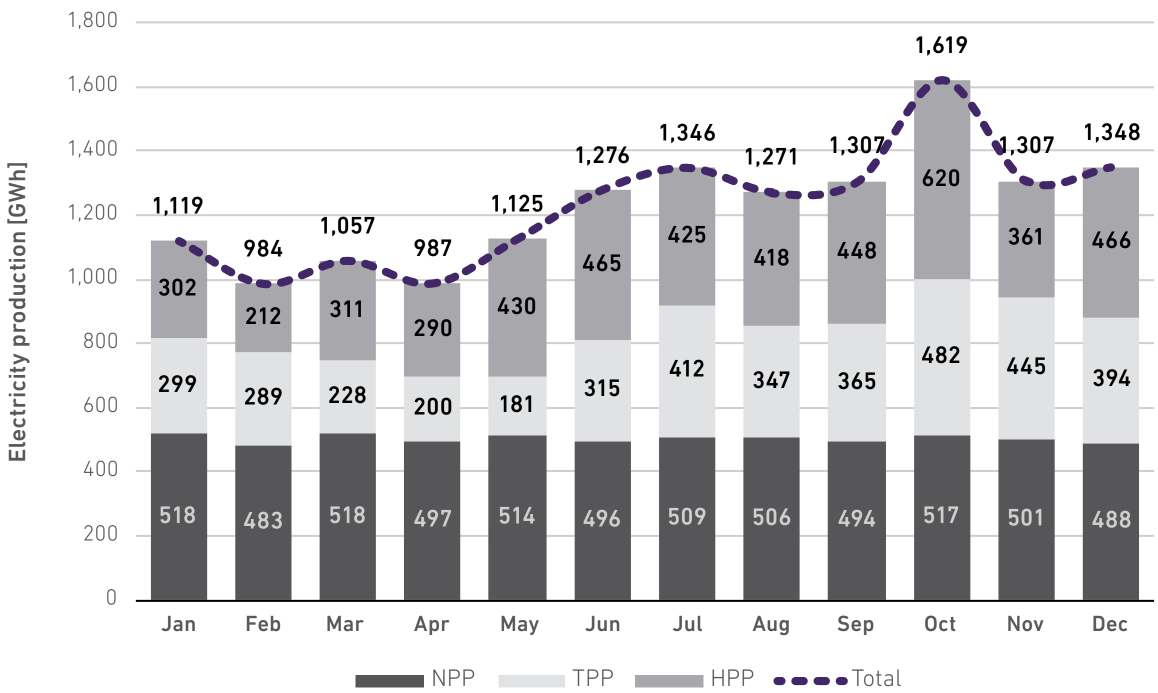
Domestic production sources–which include half of the production from the Krško NPP–contributed 12,727 GWh of electricity to the Slovenian electricity system. The demand from end-consumers, including system losses, amounted to 13,742 GWh. In 2020, 92.6% of the electricity demand from end-consumers in Slovenia was covered by domestic production sources; you can find the details in the chapter Demand Covered by Domestic Production.

Twice as much generation capacity was newly connected compared to 2019

No major production facilities began operating in 2020; likewise, no production facility of more than 10 MW ceased operation. A total of 66.1 MW of production facilities were newly connected, the vast majority of which were solar power plants with a total capacity of 56 MW. Solar power plants represent an 87.1% share of all newly connected power plants. They are followed by fossil-fuelled CHP (the co-generation of heat and power) production facilities with an 8.02% share of the new capacity and woody biomass-fuelled CHP installations with 3.44%. In the fourth place among the new production facilities are small hydropower plants, whose share of newly connected capacity in 2020 was 1.43%. A total of 6.5 MW of the production capacity was taken offline in 2020. Most of this was fossil-fuelled CHP installations with a total capacity of 4.1 MW, representing 62% of all production facilities shut down in 2020. In addition to that, 1.3 MW of woody biomass-fuelled CHP installations, 0.8 MW of biogas power plants and 0.3 MW of small hydropower plants were taken offline.

Figure 2 shows the monthly variation in electricity production in large power plants connected to the transmission system in 2020. There was a marked increase in production in October 2020, largely due to the favourable hydrological and market conditions.

FIGURE 2: MONTHLY VARIATION IN ELECTRICITY PRODUCTION IN LARGE POWER PLANTS CONNECTED TO THE TRANSMISSION SYSTEM

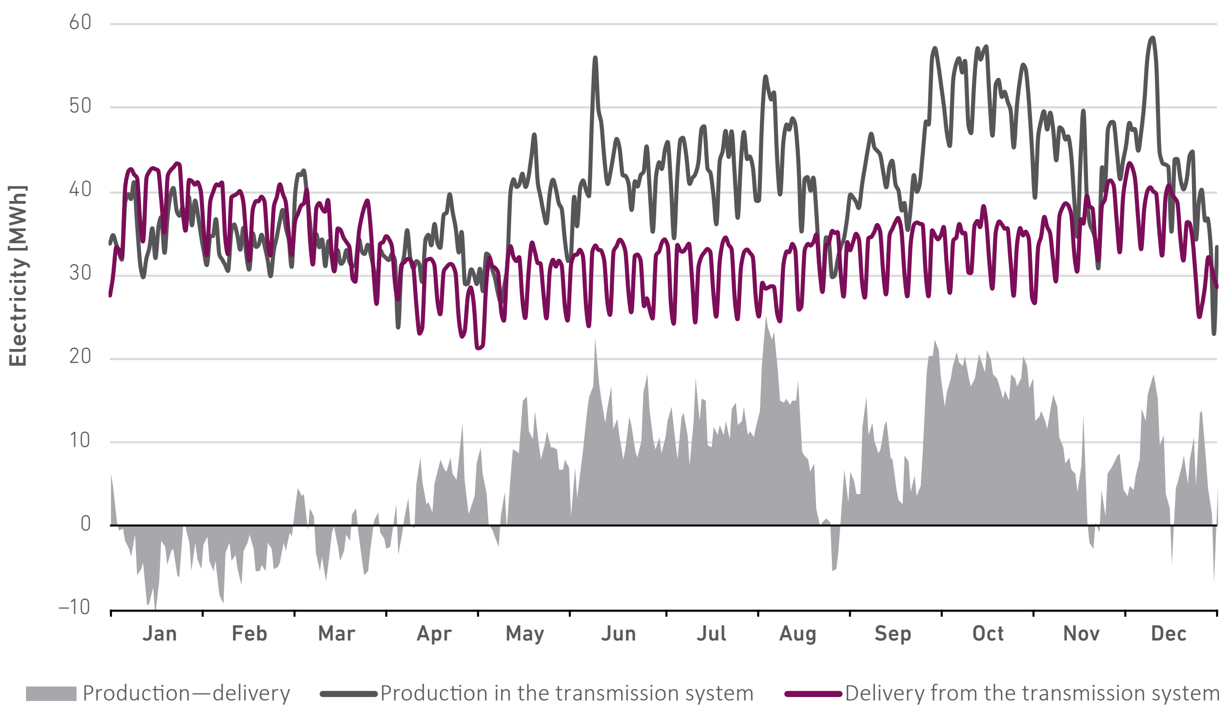


SOURCES: ELES, ENERGY AGENCY

Figure 3 illustrates the daily variation in electricity production and delivery from the transmission system, showing that at the beginning of 2020, before the epidemic was declared in March, delivery from the transmission system had already been steadily decreasing, despite the unchanged dynamics of electricity generation. In the period between March and June, during which the epidemic was declared, delivery from the transmission system was decreasing even more rapidly. This downward trend ended in May and for the rest of the year, we noted a slight but steady increase in the delivery of electricity from the transmission system, alongside a marked increase in electricity generation from large power plants. During this period, the electricity consumption by end-consumers in Slovenia was almost fully covered by domestic production, something that Figure 3 also shows.

The epidemic impacted the input and output of electricity in the transmission system

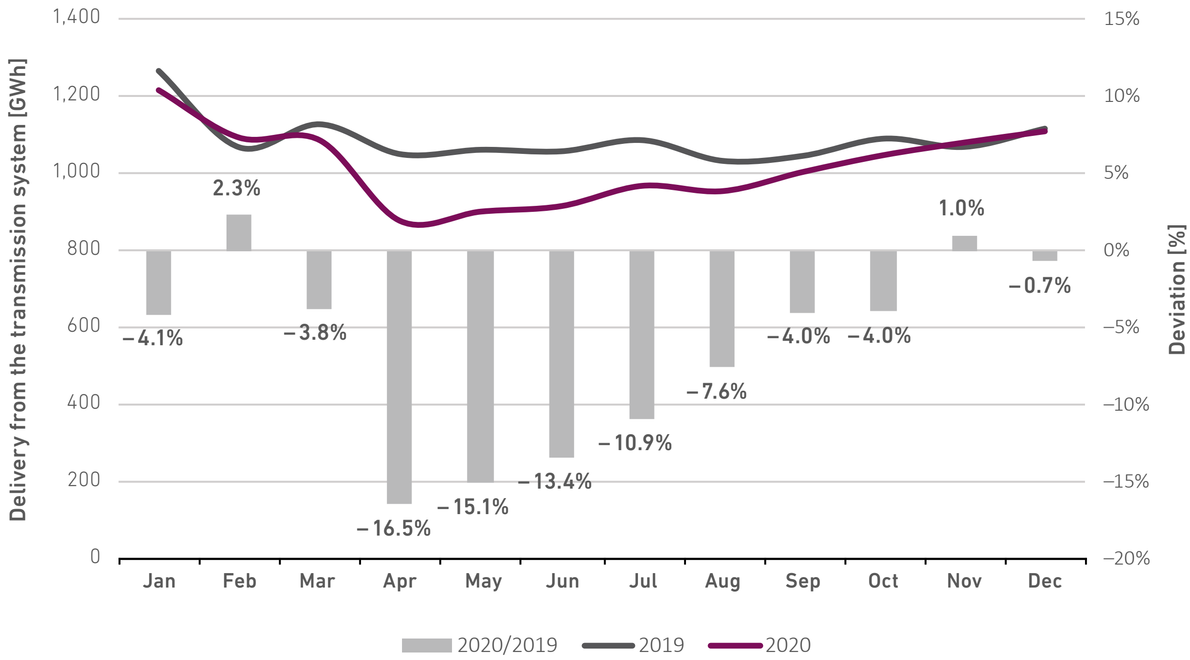
FIGURE 3: DAILY VARIATION IN ELECTRICITY PRODUCTION AND INPUT INTO THE TRANSMISSION SYSTEM



SOURCES: ELES, ENERGY AGENCY

The Slovenian electricity transmission system is connected to the transmission systems of neighbouring countries on the borders with Italy, Croatia and Austria, while in the future, it will also be connected with Hungary. Data on the physical flows at the borders with the neighbouring countries tells us whether, at any point, the need to balance the electricity system required the importing of energy to cover the deficit or exporting the surplus electricity from the transmission system. Figure 5, in addition to showing the movement of individual physical flows, also indicates the net sum of physical electricity flows across each of the three borders (SI-IT, SI-HR and SI-AT).

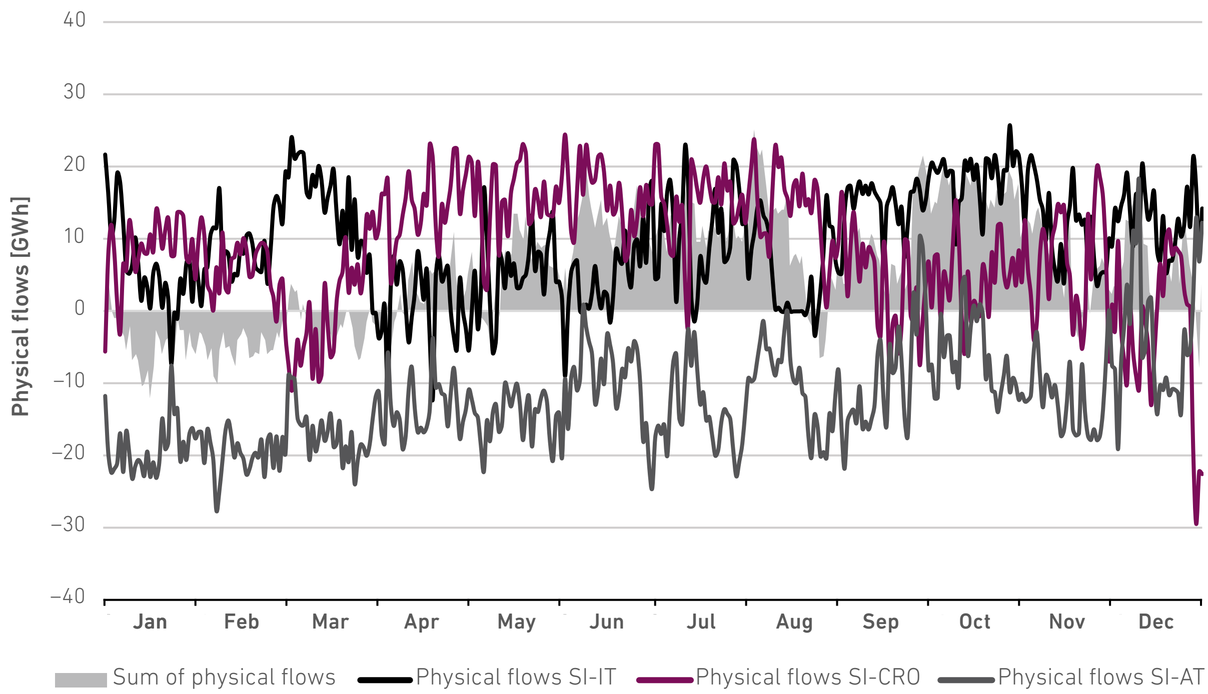
FIGURE 4: MONTHLY DELIVERY OF ELECTRICITY FROM THE TRANSMISSION SYSTEM IN 2019 AND 2020, ALSO SHOWING MONTHLY DEVIATIONS



SOURCES: ELES, ENERGY AGENCY

The Slovenian electricity transmission system is connected to the transmission systems of neighbouring countries on the borders with Italy, Croatia and Austria, while in the future, it will also be connected with Hungary. Data on the physical flows at the borders with the neighbouring countries tells us whether, at any point, the need to balance the electricity system required the importing of energy to cover the deficit or exporting the surplus electricity from the transmission system. Figure 5, in addition to showing the movement of individual physical flows, also indicates the net sum of physical electricity flows across each of the three borders (SI-IT, SI-HR and SI-AT).

FIGURE 5: PHYSICAL ELECTRICITY FLOWS AT THE BORDERS WITH NEIGHBOURING COUNTRIES AND THE NET SUM OF THE PHYSICAL FLOWS



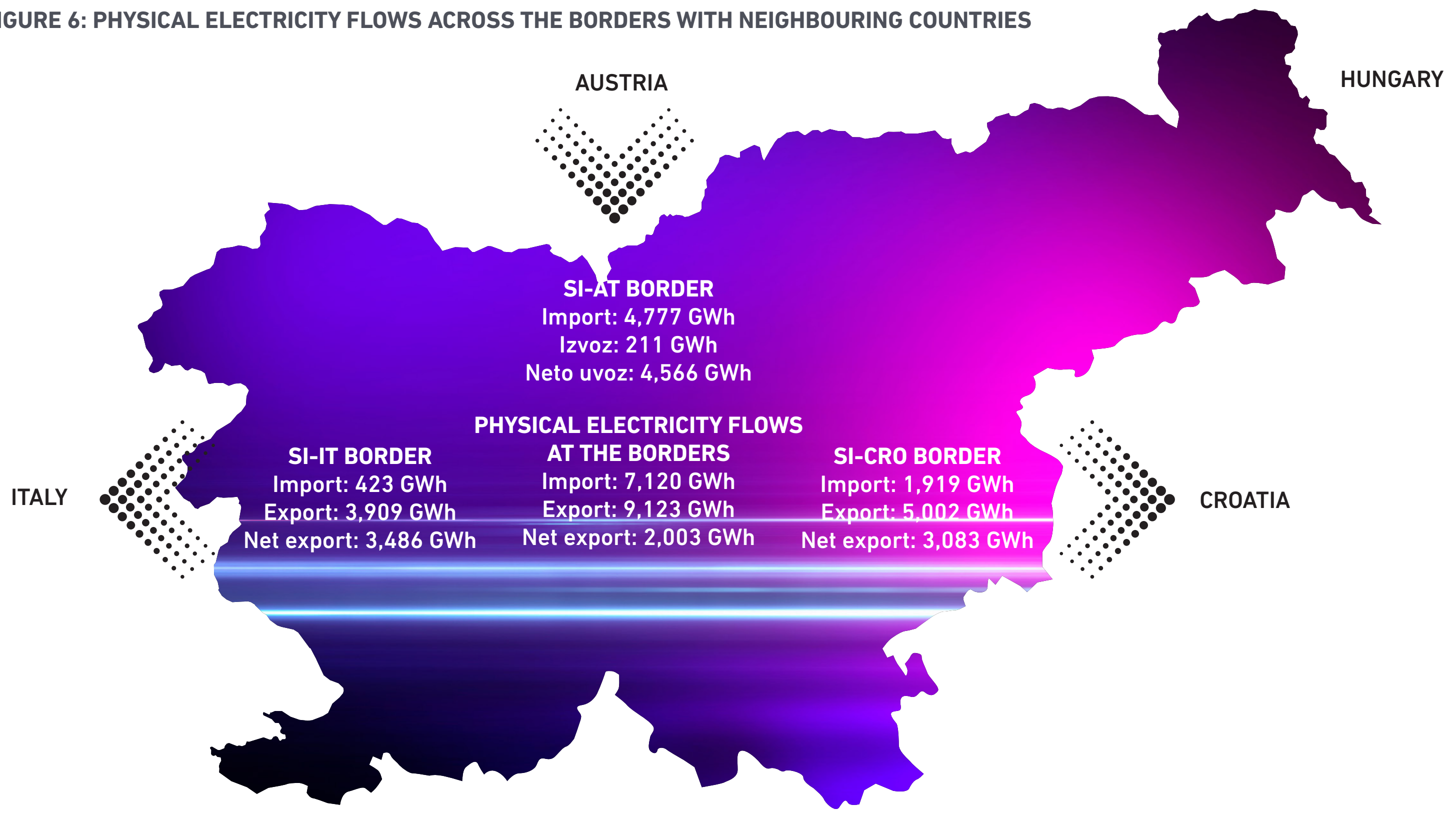
SOURCES: ELES, ENERGY AGENCY

To keep the electricity system balanced, it is important to exchange electricity with Austria, Italy and Croatia using cross-border interconnectors. Considering the separate observation of physical flows at individual borders with neighbouring countries, Slovenia was a net exporter of electricity to Croatia and Italy in 2020 (taking into account half of the electricity produced in the Krško NPP, which is delivered to Croatia). At the Austrian border, Slovenia was a net importer of electricity. The increased export at the Croatian border in 2020 compared to the previous year is mainly due to the fact that the Krško NPP was undergoing a regular overhaul in October 2019. However, excluding the half of the Krško NPP's production that belongs to Croatia, in terms of the total electricity exchanged, Slovenia was once again a net importer of electricity in 2020.

Figure 6 shows the annual volumes of the physical flows at the borders with neighbouring countries.

Increased exports at the Croatian border

FIGURE 6: PHYSICAL ELECTRICITY FLOWS ACROSS THE BORDERS WITH NEIGHBOURING COUNTRIES

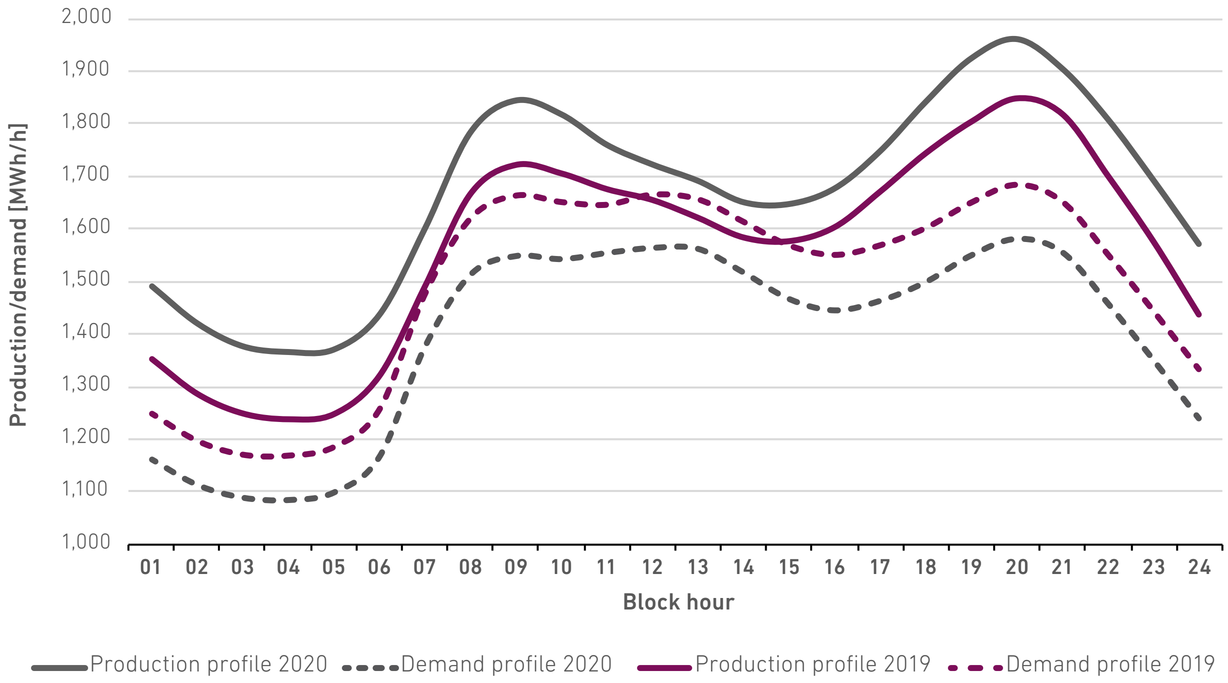


SOURCES: ELES, ENERGY AGENCY

Figure 7 shows the average hourly profile of electricity generation and delivery from the transmission system in the years 2019 and 2020. The transmission system saw the lowest load at night (between 3 a.m. and 4 a.m.). There were two peaks, first in the morning (between 9 a.m. and 12 a.m.) and the second in the evening at 8 p.m. The profiles also tell us that in 2020, the average hourly generation in the transmission system exceeded the average hourly demand in all block hours.

The difference between the hourly production and demand averages was the highest at 8 p.m., when it reached 383 MWh/h, while the lowest difference, 132 MWh/h, occurred at 1 p.m. The highest hourly load on the electric transmission system was 2102 MW–96 MW less than in 2019. This was reached on Wednesday, 2 December 2020, in the 12th block hour (between 11 a.m. and 12 p.m.).

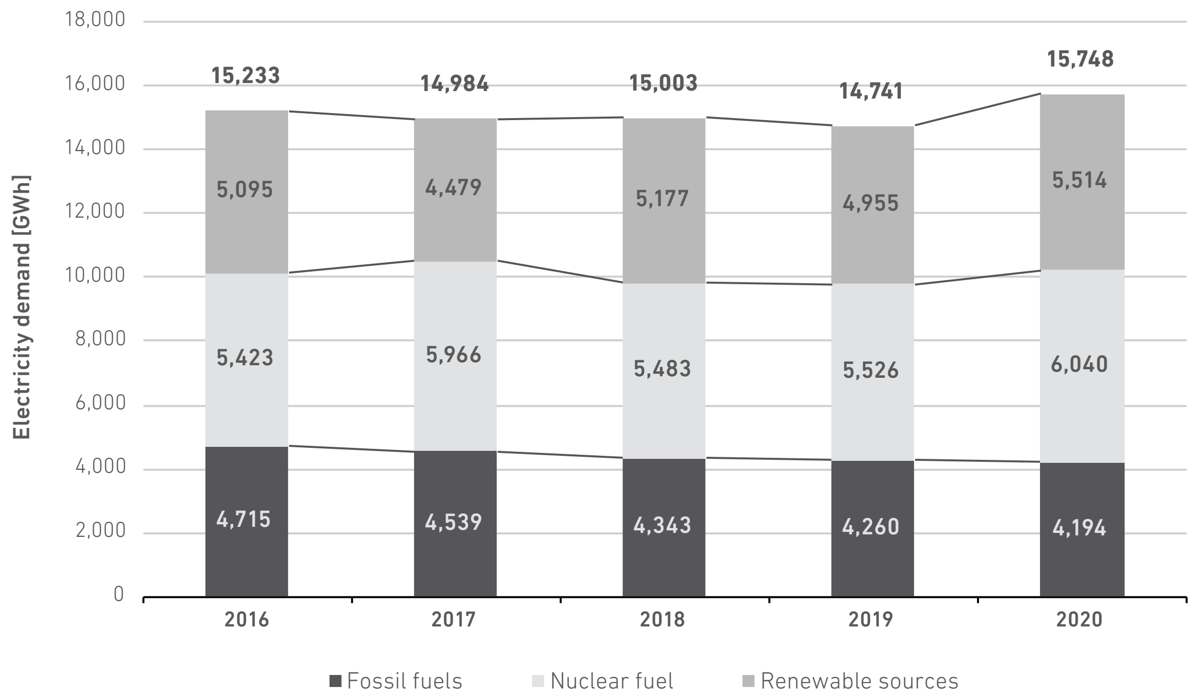
FIGURE 7: THE AVERAGE HOURLY PROFILE OF ELECTRICITY GENERATION AND DELIVERY FROM THE TRANSMISSION SYSTEM IN THE YEARS 2019 AND 2020



SOURCES: ELES, ENERGY AGENCY

The share of electricity generated in hydropower plants and facilities using RES varies annually, depending on the hydrological and other conditions and investments in new generating facilities using RES. In 2020, renewables accounted for 35% of all electricity produced in Slovenia, an increase of 1.4% compared to the previous year. Fossil-fuel power plants contributed 26.6% of the total generation, 2.3% less than in 2019, while the Krško NPP contributed 38.4% of the total electricity generation.

FIGURE 8: ELECTRICITY DELIVERED TO THE TRANSMISSION AND DISTRIBUTION SYSTEMS IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

TABLE 2: PRIMARY ENERGY SOURCES FOR ELECTRICITY GENERATION IN THE 2018–2020 PERIOD

Primary energy sources for electricity generation	2018		2019		2020	
	GWh	Share	GWh	Share	GWh	Share
Fossil fuels	4,343	28.9%	4,260	28.9%	4,194	26.6%
Nuclear fuel	5,483	36.6%	5,526	37.5%	6,040	38.4%
RES	5,177	34.5%	4,955	33.6%	5,514	35.0%
• hydro	4,784	92.5%	4,576	92.4%	5,106	92.6%
• wind	6.02	0.1%	6.14	0.1%	6.21	0.1%
• solar	225	4.3%	239	4.8%	250	4.5%
• biomass	162	3.1%	134	2.7%	151	2.8%
TOTAL ELECTRICITY INPUT	**15,003**		**14,741**		**15,748**	

SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Losses in the Electricity System

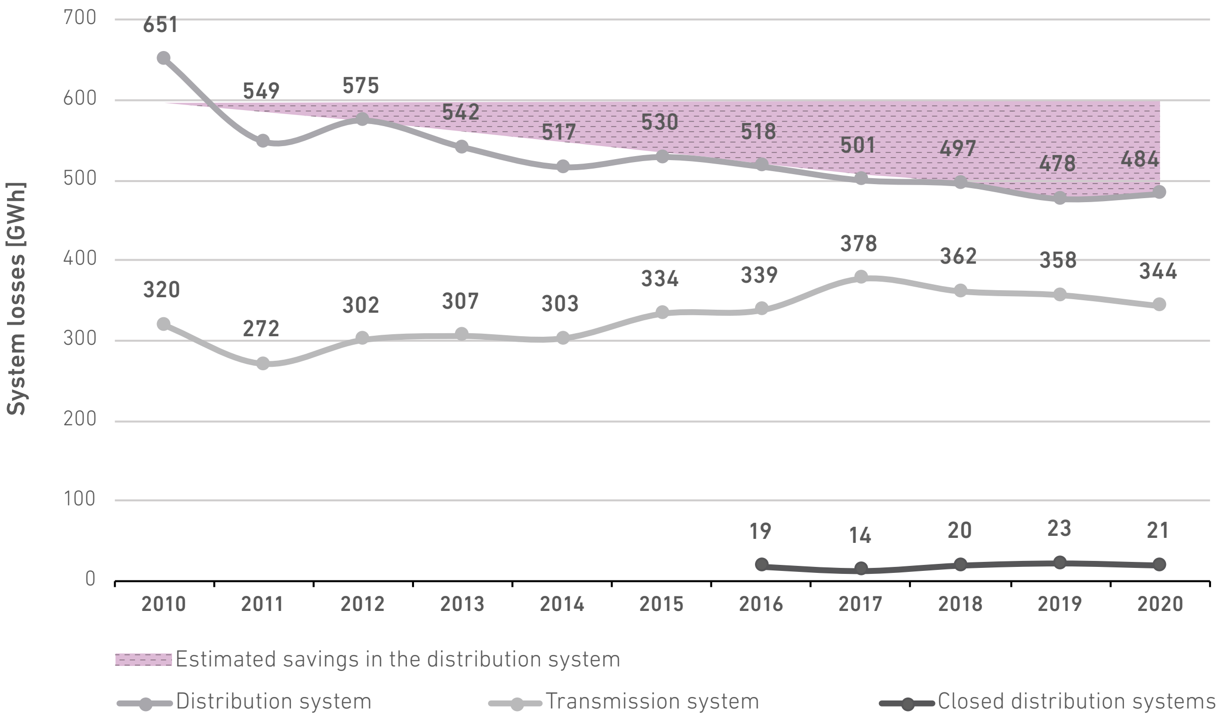
Due to various measures, such as the introduction of advanced metering systems and increasing the share of underground cables in the medium- and low-voltage networks, the losses in the distribution systems have been decreasing. In the 2010–2020 period, these measures led to an estimated 731 GWh of savings in electricity to cover losses.

However, in 2020, after several years of decline, we observed a small increase in both the quantity and percentage of losses, largely as a result of the increased electricity consumption in the low-voltage network, particularly household consumption (see the chapter Electricity Consumption), due to the changes in electricity consumption patterns during the pandemic.

While the losses in the distribution system are decreasing in the long term, no comparable trend can be observed in the transmission system. The varying amount of electricity losses in the transmission system is significantly influenced by the inclusion of the Avče PSHPP after 2014 and the increased share of cross-border electricity trading in exports, imports and transit. Electricity losses in transmission, distribution and closed distribution systems along with an estimation of the savings in the 2010–2020 period, are shown in Figure 9.

731 GWh less electricity to cover distribution system losses over a ten-year period

FIGURE 9: ELECTRICITY LOSSES IN TRANSMISSION, DISTRIBUTION AND CLOSED DISTRIBUTION SYSTEMS ALONG WITH AN ESTIMATION OF THE SAVINGS IN THE 2010–2020 PERIOD



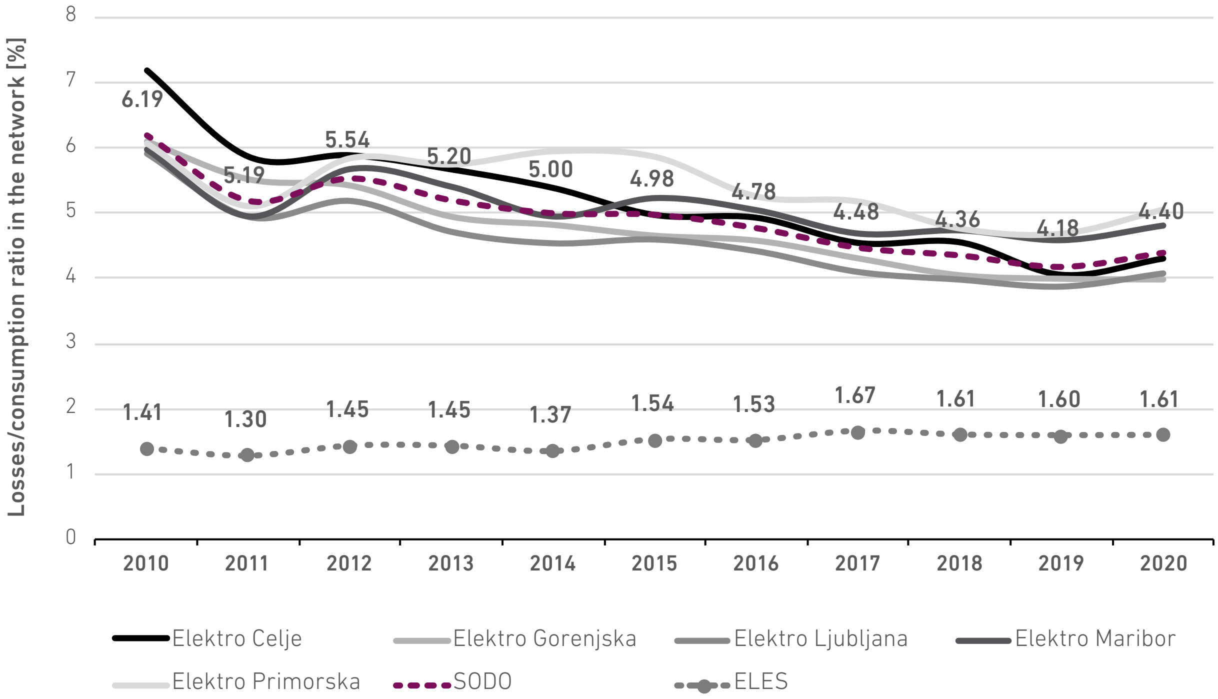
SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Among the duties of the electricity system operators is the effective management or reduction of losses in the electricity system, as well as the market purchase of electricity needed to offset these losses. By employing various market strategies that take into account the mechanisms for forecasting the required quantities of electricity and the diversification of (long-term and short-term) purchases, the operators can significantly impact the costs of purchasing the electricity to offset losses, which are considered an eligible cost in terms of the network charge. In order to be as successful as possible, an incentive mechanism has been set up to provide both operators with a financial incentive to achieve a lower price than the reference price set by the Energy Agency when purchasing electricity to cover losses.

The share of losses is calculated based on the quantities consumed from the transmission or distribution system. We have been recording a decrease in the amount and share of losses in the distribution system for many years. In the 2010–2019 period, the percentage of losses in the distribution system fell by more than 2 percentage points. However, in 2020, due to the aforementioned rise in electricity consumption in the low-voltage network, the losses in the distribution system increased by 0.32% compared to the previous year. In recent years, ELES has managed to reduce the share and amount of losses in the transmission system; this reduction was maintained in 2020. Figure 10 shows the shares of losses for ELES, SODO and distribution companies in 2010–2020.

849 GWh of total losses in the electricity system, of which 57% occurred in the distribution system

FIGURE 10: SHARES OF LOSSES FOR ELES, SODO AND DISTRIBUTION COMPANIES IN THE 2010–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Electricity Generation

In 2020 there were nine companies operating production facilities with an installed capacity of more than 10 MW in the Slovenian market. One of them is Energetika Ljubljana, while the rest are consolidated into two groups: the HSE group, which represents the first energy pillar of the Slovenian wholesale market, and the GEN group, representing the second energy pillar. At the same time, the GEN group owns 51% of HESS, while the remaining part of this company belongs to the HSE group. Energetika Ljubljana is wholly owned by Javni Holding Ljubljana.

TABLE 3: INSTALLED CAPACITIES OF THE PRODUCTION FACILITIES AND THE QUANTITY OF ELECTRICITY PRODUCED

PRODUCER	Installed capacity [MW]	Share–installed capacity, all producers in Slovenia (%)	Generation [GWh]	Share–generation, all producers in Slovenia (%)
HSE, d.o.o.	**1,928.4**	**52.6%**	**7,627.0**	**57.3%**
Hydropower plants	937.5		3,985.6	
Thermal power plants	990.0		3,640.3	
Other (CHP, solar, wind, etc.)	0.9		1.1	
GEN-Energija, d.o.o.	**926.3**	**25.3%**	**3,931.3**	**29.5%**
Hydropower plants	277.3		857.0	
Thermal power plants	300.0		52.8	
Nuclear power plant*	348.0		3,020.4	
Other (CHP, solar, wind, etc.)	1.0		1.1	
Javno podjetje Energetika Ljubljana (JPEL)	**117.9**	**3.2%**	**282.8**	**2.1%**
CHP	109.0		241.2	
Generation using woody biomass	8.9		41.6	
Other small producers in the distribution network and in closed distribution systems**	**693.5**	**18.9%**	**1,474.0**	**11.1%**
Hydropower plants	127.0		418.7	
Solar power plants	367.6		350.2	
Wind farms	3.3		6.2	
Facilities using woody biomass	16.4		103.3	
Geothermal power plants	0,0		0.0	
Facilities using biogas	36.8		96.7	
CHP	138.0		498.8	
Other	4.4		0.1	
Total in Slovenia	**3,666.1**	**100%**	**13,315.1**	**100%**
- in the transmission system	**2,972.6**		**11,841.1**	

* taking into account the 50% share of the Krško NPP's installed capacity and production
** other minor producers connected to closed distribution systems (Talum, Acroni, Ravne, Štore in Jesenice), not counting self-supply

SOURCE: PRODUCERS

In 2020, there were no changes in the installed capacities operated by groups HSE and GEN energija and the Energetika Ljubljana company compared to the previous year. Electricity production by the HSE group increased by just over 6.6% in comparison with the previous year, largely due to the high generation by hydropower plants. Electricity production by the GEN group saw an even greater increase of 7%, largely due to the exceptionally high production of the Krško NPP. The JPEL company produced 8.7% less electricity in 2020 compared to the previous year.

Most of the electricity generated by small producers connected to the distribution system and to closed distribution systems is produced in industrial CHP plants; this is followed by small hydro and solar power plants. In 2020, small producers generated just over a tenth of all electricity. Data on the installed capacities of these production facilities is taken from the data provided in the connection approvals for individual production facilities.

Due to the intergovernmental agreement between Slovenia and Croatia, half of NEK's production belongs to Croatia, which reduces the Krško NPP's share in the actual Slovenian electricity production. In 2020, power plants in Slovenia thus generated a total of 16,335 GWh of electricity, while Slovenia's actual electricity production was lower, at 13,315 GWh. Compared to 2019, production increased by 812 GWh, which represents 6.5%.

Electricity Consumption

The total electricity consumption in Slovenia (taking into account consumption by Avče PSHPP) in 2020 was 13,746 GWh, or 12,897 GWh without counting transmission and distribution system losses. Compared to 2019, the total consumption decreased by 677 GWh, which represents 4.7%.

6% lower consumption by end consumers

The three direct consumers connected to the transmission system consumed 92 GWh of electricity in 2020. 1.8 GWh of electricity was exported to Italy over the distribution system from DTS Vrtojba and DTS Sežana. The consumption of electricity by consumers in closed distribution systems was 1,435 GWh, 297 GWh less than in 2019, mainly due to lower consumption in CDS Talum. The Avče pumped-storage hydropower plant consumed 391 GWh for pumping water into the storage basin, 119 GWh more than the year before. Losses in the transmission and distribution system amounted to 849 GWh of electricity; this includes losses due to the import, export and transit of electricity.

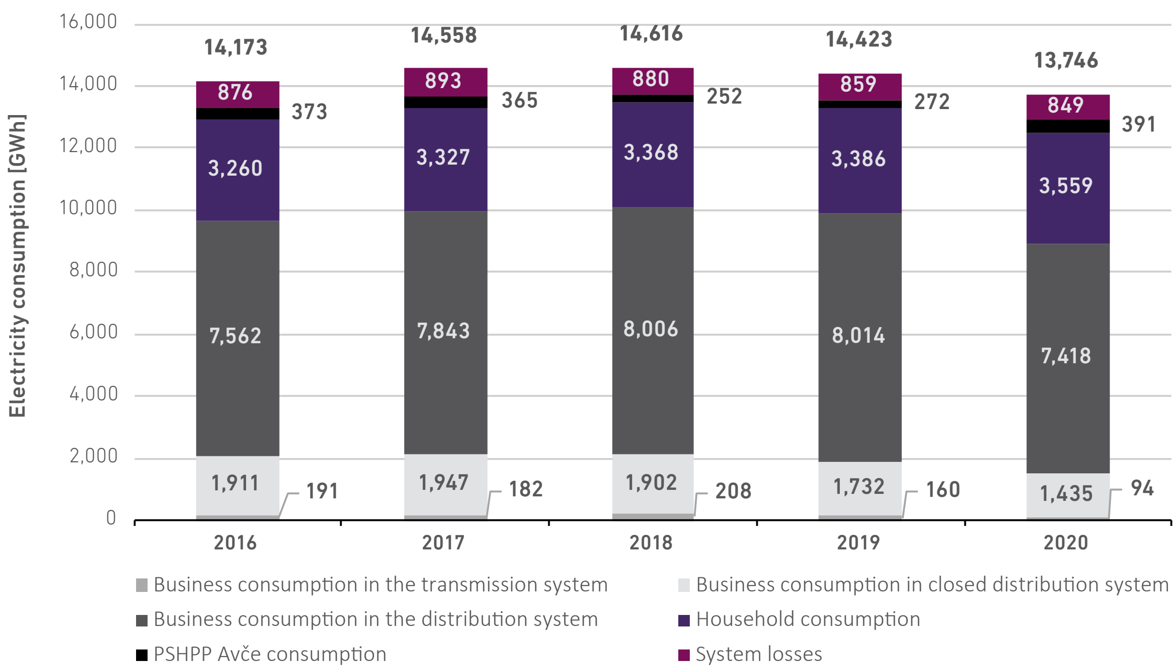
Consumption by business and household consumers in the distribution system was 10,977 GWh, which represents a decrease of 3.7% in comparison with 2019. In 2020, household consumers consumed 3559 GWh of electricity, an increase of 5.1% compared to the previous year. Consumption by business consumers in the distribution system in 2020 was 7,418 GWh, which is 7.4% less than in 2019. The total consumption by all end-consumers (not including losses and consumption by Avče PSHPP) in 2020 was 6% lower than in 2019.

The overall decrease in electricity consumption in the Slovenian electricity system was driven exclusively by business consumers, with a 9.7% share, due to lower economic activity as a result of the epidemic, even though consumption by household consumers increased by 5.1% compared to the previous year.

5.1% higher consumption by household consumers

9.7% lower consumption by business consumers

FIGURE 11: ELECTRICITY CONSUMPTION IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

TABLE 4: ELECTRICITY CONSUMPTION IN THE 2018–2020 PERIOD

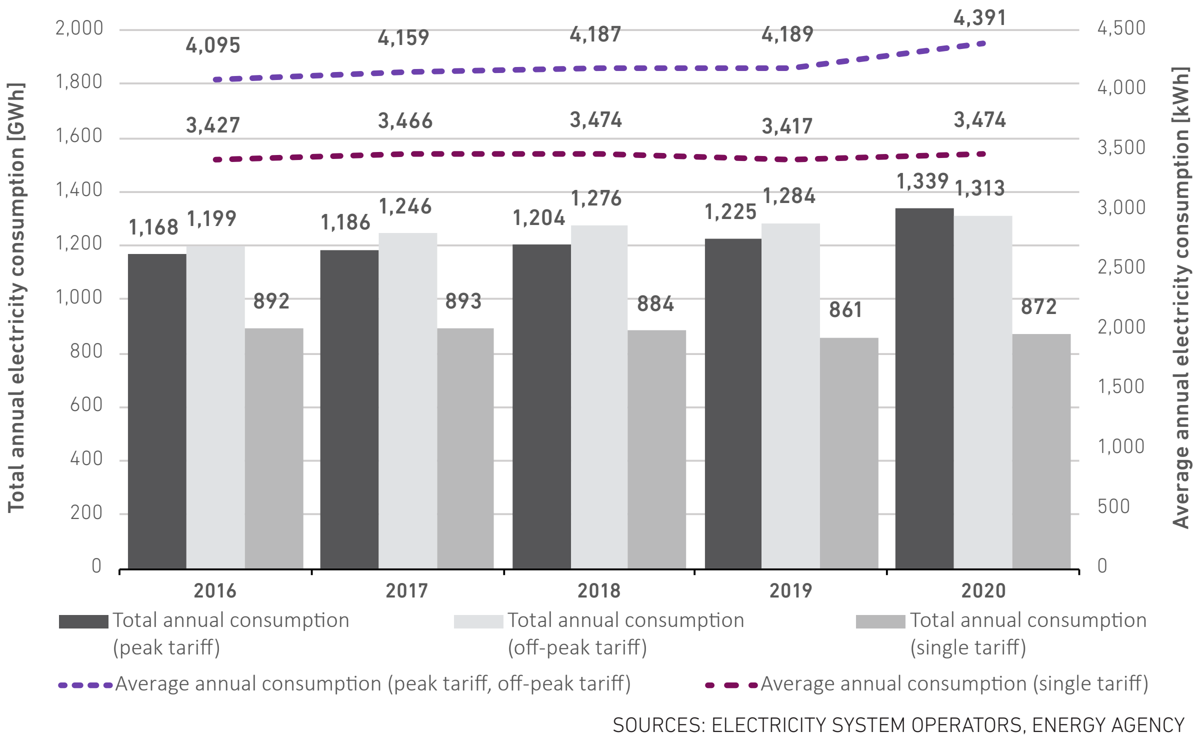
Electricity consumption [GWh]	2018	2019	2020
Business consumption in the transmission system	208	160	94
Business consumption in the distribution system	8,006	8,014	7,418
Business consumption in closed distribution systems	1,902	1,732	1,435
Total business consumption	**10,116**	**9,906**	**8,947**
Total household consumption	**3,368**	**3,386**	**3,559**
- single-tariff metering	888	877	902
- dual-tariff metering	2,480	2,509	2,657
Total consumption by end-consumers	**13,484**	**13,292**	**12,506**
Avče PSHPP consumption in the pumping regime Avče PSHPP consumption in the pumping regime	252	272	391
Losses in the transmission and distribution system	880	859	849
Total electricity consumption	**14,616**	**14,423**	**13,746**

SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Figure 12 shows the total and the average annual electricity consumption by household consumers with single- and dual-tariff metering; when calculating the average annual consumption, we also take into account the number of household consumers with each metering type.

For household consumers with dual-tariff metering, steady increases in the total and average annual electricity consumption were recorded over a five-year period. The number of household consumers with dual-tariff metering is also increasing by an average of 1.1 percentage points per year. On the other hand, the average annual consumption by household consumers with single-tariff metering increased again, after a decline in 2019. That said, the number of these household consumers has been declining by an average of one percentage point per year.

FIGURE 12: THE TOTAL AND THE AVERAGE ANNUAL ELECTRICITY CONSUMPTION BY HOUSEHOLD CONSUMERS WITH SINGLE- AND DUAL-TARIFF METERING IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Demand Covered by Domestic Production

Demand covered by domestic production represents the ratio of electricity consumption by end-consumers to electricity production in Slovenia [1]. Since the total electricity demand in 2020 (excluding the electricity exported to Italy through the distribution system via DTS Vrtojba and DTS Sežana) declined by 4.2%, while electricity production increased by 6.3% compared to 2019, the percentage of demand covered by domestic production was the highest in the period of observation, as shown in table 5.

92.6% of electricity demand covered by domestic production, the highest percentage in five years

TABLE 5: DEMAND, PRODUCTION AND COVERAGE OF THE DEMAND BY DOMESTIC PRODUCTION IN THE 2016–2020 PERIOD

	2016	2017	2018	2019	2020
Generation in the transmission system [GWh]	**11,405**	**10,969**	**11,212**	**10,934**	**11,639**
- hydropower plants	4,293	3,725	4,421	4,225	4,747
- thermal power plants	4,401	4,262	4,049	3,946	3,872
- nuclear power plant (50% share)	2,712	2,983	2,742	2,763	3,020
Generation in the distribution system [GWh]	**1,116**	**1,032**	**1,050**	**1,044**	**1,088**
Total domestic production [GWh]	**12,521**	**12,001**	**12,262**	**11,978**	**12,727**
Total electricity consumption [GWh]	**14,056**	**14,468**	**14,501**	**14,341**	**13,744**
- total consumption by end-consumers	12,924	13,300	13,484	13,292	12,506
- system losses	876	893	880	858	849
- Avče PSHPP consumption	373	365	252	271	391
- export to Italy (DTS Vrtojba and Sežana)	–117	–90	–115	–81	–2
Demand covered by domestic production	**89.1%**	**82.9%**	**84.6%**	**83.5%**	**92.6%**

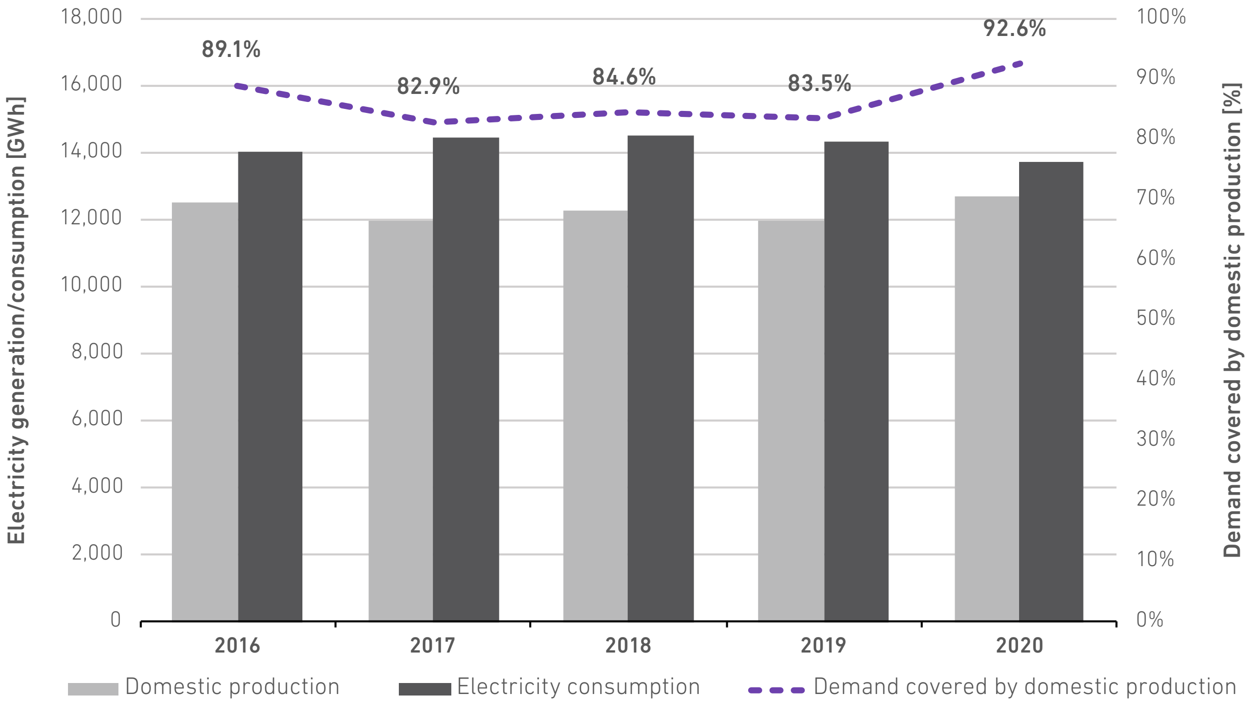
SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

In the 2016–2020 observation period, we observe inter-annual fluctuations in the amount of demand covered by domestic production. This amount is also directly affected by changes in electricity consumption. The dynamics and structure of the total demand are explained in more detail in the previous chapter. In addition to the consumption by end-consumers in the transmission and distribution system, the total electricity demand also includes losses in the entire electricity system. In the analysis of demand covered by domestic generation, the quantities of electricity exported to Italy through the distribution system via DTS Vrtojba and DTS Sežana are not counted as final consumption in Slovenia.

As figure 13 illustrates, the proportion of demand covered by domestic production during the observation period peaked in 2020 (92.6%), when electricity production from domestic sources, particularly hydropower plants, but also, to an extent, Krško NPP, was at its highest point, while the total consumption by end-consumers reached its lowest point in the observation period, mainly due to the decreased consumption by business consumers. The combined influence of both factors led to the percentage of demand covered by domestic production in 2020 reaching its highest point in the last five years.

1 The percentage of demand covered with domestic production was explained in detail in the Report on the Energy Situation in Slovenia in 2018

FIGURE 13: CONSUMPTION, PRODUCTION AND COVERAGE OF DEMAND WITH DOMESTIC PRODUCTION IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Consumers in the Electricity System

0.4% more end consumers of electricity

By the end of 2020, 963,779 end-consumers of electricity were connected to the Slovenian electricity system. Their number has increased by 3,728 or 0.4% compared to 2019.

The number of household consumers with dual-tariff metering increased by 0.8%, while the number of household consumers with single-tariff metering decreased by 0.3%. The total number of household consumers increased by 0.5%.

Consumers in the distribution system includes those with an installed production unit (connection scheme PS.2), as well as those who are connected to a self-supply system. In 2020, there were 717 business and 49 household consumers with an installed production unit connected to the distribution system. 462 business and 8207 household consumers were connected to the distribution system in the self-supply regime. 1% of all consumers in the distribution system were both consumers and producers of electricity, an increase of 0.4 percentage points compared to the year before.

The number of business consumers connected to the transmission system remained unchanged from the previous year. These included three business consumers at five delivery points, as well as four closed distribution system operators at five locations supplying electricity to 231 business consumers. 13 business consumers with installed production units were connected to a closed distribution system, while nine were connected to a CDS in the self-supply regime.

1% of all consumers in the distribution system were both consumers and producers of electricity

TABLE 6: THE NUMBER OF END-CONSUMERS OF ELECTRICITY BY TYPE OF CONSUMPTION IN THE 2018–2020 PERIOD

The number of end-consumers of electricity by type of consumption	2018	2019	2020
Business consumers in the transmission system	3	3	3
Avče PSHPP consumption in the pumping regime	1	1	1
Total number of end-consumers in the transmission system	**4**	**4**	**4**
Business consumption in the distribution system	109,117	108,943	108,505
Household consumers	846,575	850,874	855,039
• single-tariff metering	254,491	251,912	251,112
• dual-tariff metering	592,084	598,962	603,927
Total number of end-consumers in the distribution system	**955,692**	**959,817**	**963,544**
Business consumers in closed distribution systems	228	230	231
Household consumers	0	0	0
Total number of end-consumers in closed distribution systems	**228**	**230**	**231**
TOTAL NUMBER OF END-CONSUMERS	**955,924**	**960,051**	**963,779**

SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

TABLE 7: THE NUMBER OF END-CONSUMERS OF ELECTRICITY BY TYPE OF CONNECTION IN THE 2018–2020 PERIOD

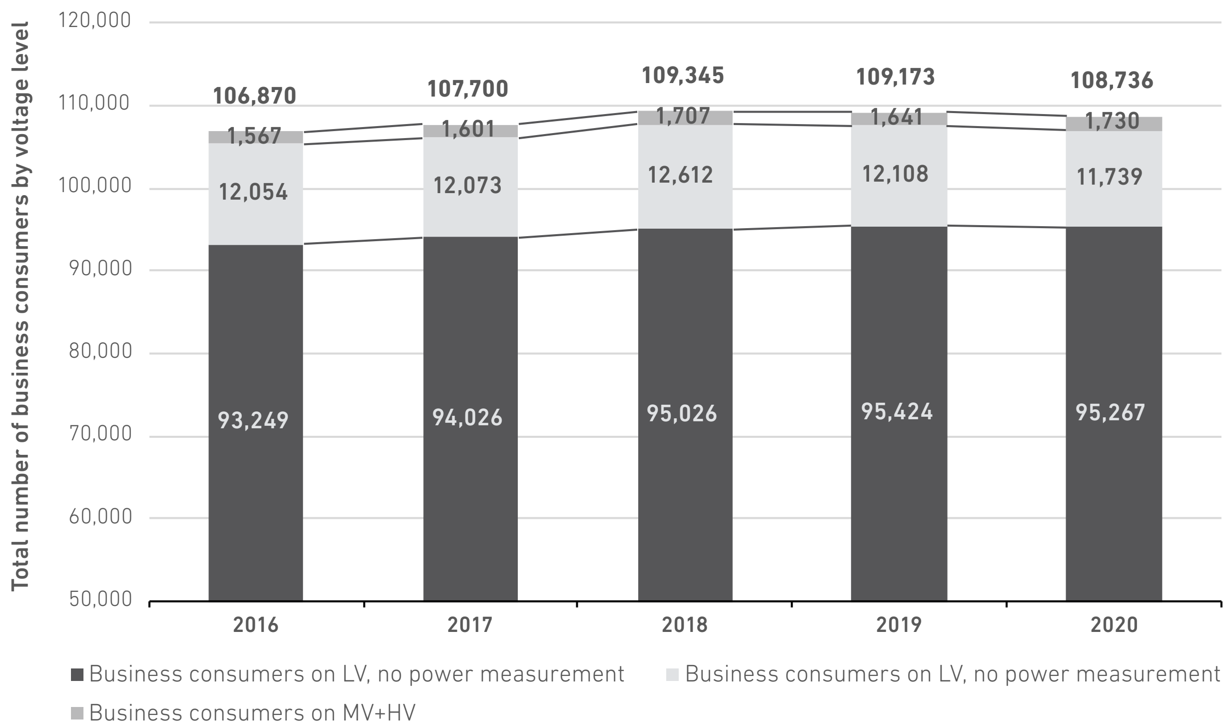
TYPE OF END-CONSUMER CONNECTION	End-consumers in the distribution system			End-consumers in closed distribution systems			TOTAL		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Without grid-connected production facilities									
Business	108,359	108,094	107,326	207	209	209	108,566	108,303	107,535
Household	844,417	846,248	846,783	0	0	0	844,417	846,248	846,783
TOTAL	952,776	954,342	954,109	207	209	209	952,983	954,551	954,318
Installed production unit									
Business	689	649	717	12	12	13	701	661	730
Household	20	102	49	0	0	0	20	102	49
TOTAL	709	751	766	12	12	13	721	763	779
Self-supply									
Business	69	200	462	9	9	9	78	209	471
Household	2,138	4,524	8,207	0	0	0	2,138	4,524	8,207
TOTAL	2,207	4,724	8,669	9	9	9	2,216	4,733	8,678
End-consumers in the distribution system and in the closed distribution systems									
Business	109,117	108,943	108,505	228	230	231	109,345	109,173	108,736
Household	846,575	850,874	855,039	0	0	0	846,575	850,874	855,039
TOTAL	955,692	959,817	963,544	228	230	231	955,920	960,047	963,775
End-consumers in the transmission system							**4**	**4**	**4**
TOTAL NUMBER OF END-CONSUMERS							**955,924**	**960,051**	**963,779**

SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

0.4% decline in the number of business consumers for the second year in a row

Figure 14 shows the evolution of the total number of business consumers in the distribution system and in closed distribution systems, shown by individual voltage level. The five-year observation period shows that, after several years of growth in the number of business consumers, a decline of 0.4% in the number of these consumers has now been observed for the second year in a row. Representing the largest share of business consumers, at 87.6%, is the LV consumer group, whose consumption is not measured directly, but instead determined on the basis of the current limiting device rating.

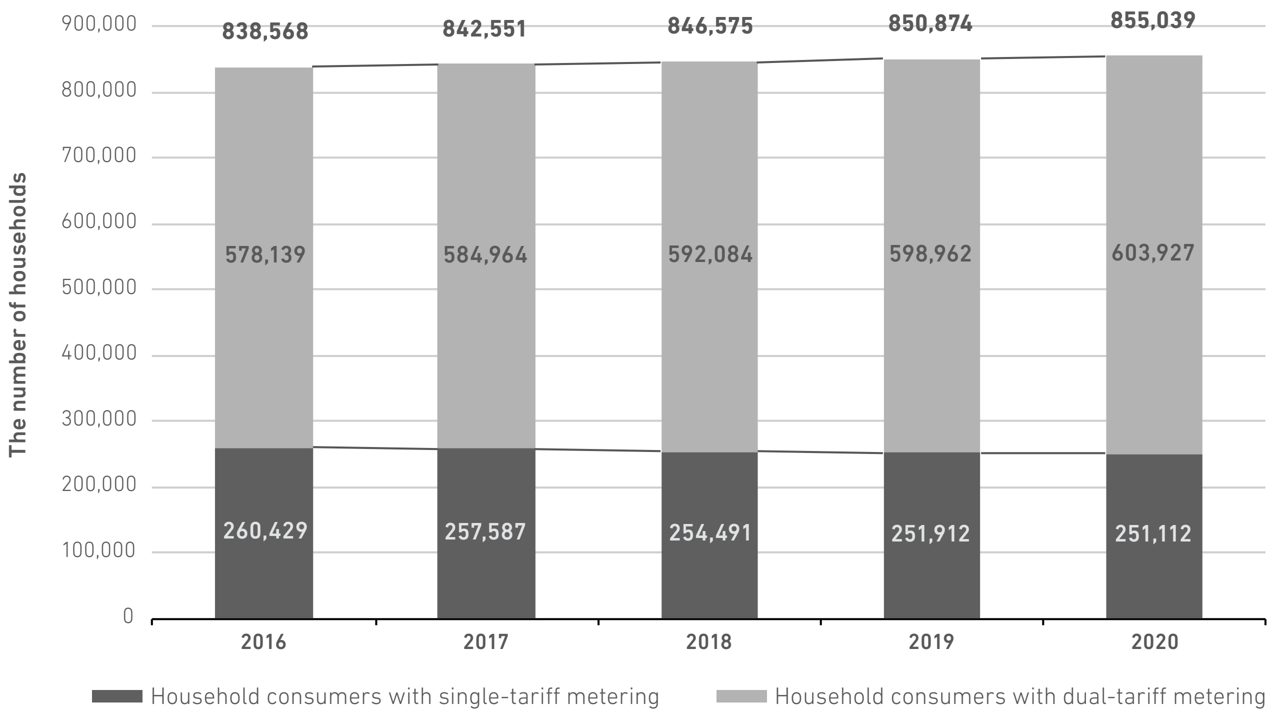
FIGURE 14: THE NUMBER OF BUSINESS CONSUMERS IN DISTRIBUTION SYSTEMS AT DIFFERENT VOLTAGE LEVELS IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Figure 15 shows the evolution of the number of household consumers in the 2016–2020 period. The total number of household consumers increased by an average of 0.5% per year during this period. The number of household consumers with dual-tariff metering was increasing by an average of 1.1%, while the number of household consumers with single-tariff metering kept decreasing by 1%. Observing the number of household consumers over several years reveals a steady increase in the share of consumers with dual-tariff metering; these consumers have the option of timing their consumption so that it is higher when the lower tariff is in effect, thus reducing their electricity costs. Consumers with combined metering and control devices or advanced metering devices can benefit from lower rates between 10 p.m. and 6 a.m., as well as at weekends and on public holidays, which gives them an additional incentive to save money by reducing their electricity costs.

FIGURE 15: THE NUMBER OF HOUSEHOLD CONSUMERS IN THE 2016–2020 PERIOD



SOURCES: ELECTRICITY SYSTEM OPERATORS, ENERGY AGENCY

Renewable Sources

Share of Renewables in the Final Consumption

The commitments under the EU Climate and Energy package, which was adopted in 2009, needed to have been fulfilled at the EU level by 2020. The objectives of the package were a 20% increase in the share of renewable energy sources (RES) in the final consumption, a 20% increase in energy efficiency and a 20% decrease in greenhouse gas emissions. Slovenia had to achieve a 25% overall share of RES in final energy consumption by 2020. The RES target shares for individual sectors set in AN-OVE 2020 that together ensure the overall target share were as follows: electricity sector 39.3%, heating and cooling sector 30.8% and transport 10.5%. Increases in the RES share in the final energy consumption stem from changes in RES utilisation and final consumption. According to SURS data published at the beginning of 2021 after an audit of energy statistics data was completed, Slovenia reached a 22% share of RES in the final energy consumption in 2019, which is 3% below the 2020 target. The estimate for 2020 shows a remaining gap of only 1.5% from the 25% target. Part of last year's progress must necessarily be attributed to a reduction in final energy consumption as a result of the COVID-19 epidemic.

While the target RES share in the heating and cooling sector has been exceeded for several years, the 2019 share of RES in the overall final energy consumption in this sector was 32.2%, which is 0.1% less than in 2018. That said, the estimated RES share in this sector for 2020 is 31.7%, exceeding the target for 2020 by 0.9%. While Slovenia continued to lag behind the sectoral targets for electricity and transport in 2019, transport made significant progress in the 2017–2019 period, a trend that is estimated to continue in 2020 with an estimated 10% share. However, the share of RES in the electricity sector in 2019 was 32.6%, an increase of 0.3% compared to 2018. While the estimate for 2020 shows a significant improvement in this sector as well, with an estimated 34.7% share compared to the previous year, this improvement is mainly attributable to the lower final energy consumption due to the epidemic.

1.5% shortfall on the 2020 RES target

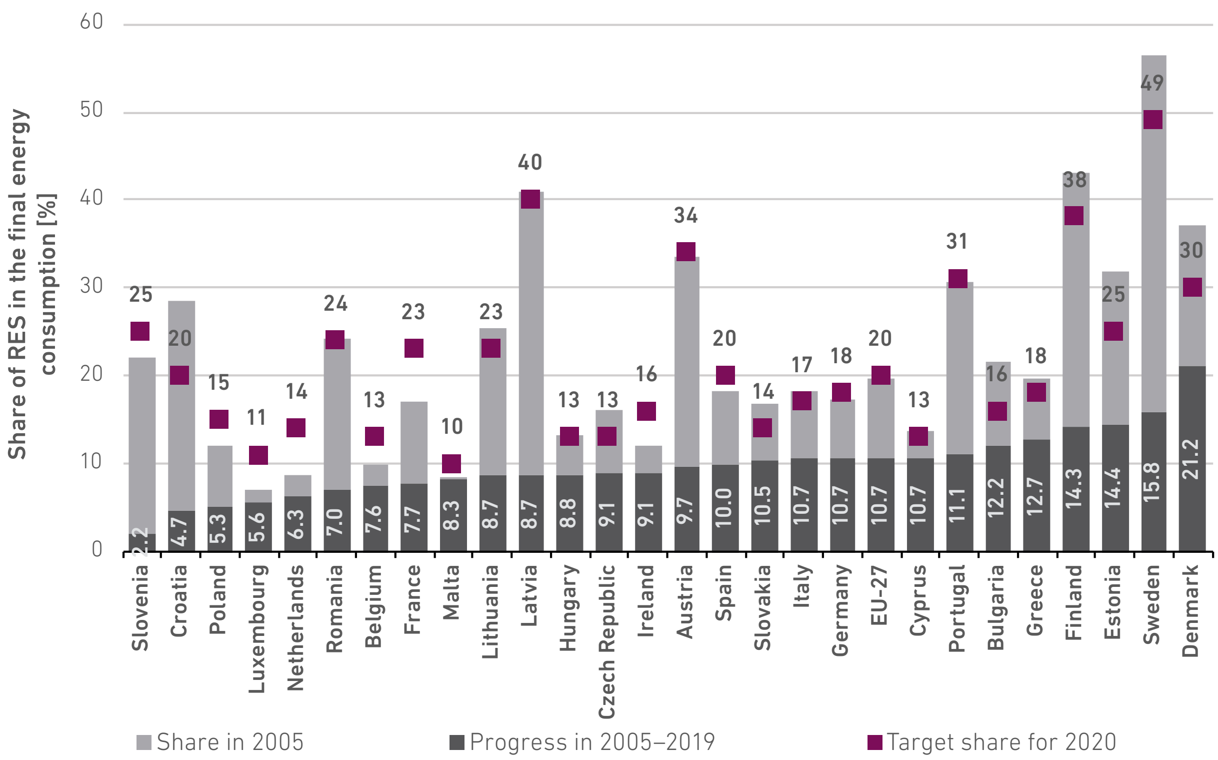
TABLE 8: RES TARGETS ACHIEVED WITH 2005 AS THE BASE YEAR AND IN THE 2010–2019 PERIOD, ALONG WITH AN ESTIMATE FOR 2020

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020
RES share [%]												estimate	Target share
RES share	**19.8**	**21.1**	**20.9**	**21.6**	**23.2**	**22.5**	**22.9**	**22.0**	**21.7**	**21.4**	**22.0**	**23.5**	**25.0**
RES–heating and cooling	26.4	29.5	31.8	33.1	35.1	34.6	36.2	35.6	34.6	32.3	32.2	31.7	30.8
RES–electricity	28.7	32.2	31.0	31.6	33.1	33.9	32.7	32.1	32.4	32.3	32.6	34.7	39.3
RES–traffic	0.8	3.1	2.5	3.3	3.8	2.9	2.2	1.6	2.6	5.5	8.0	10.0	10.5

SOURCES: THE JOŽEF STEFAN INSTITUTE, SURS[2]

Slovenia's progress towards the target RES share in the final energy consumption by 2019 compares poorly to the EU average. Slovenia has made the smallest progress in RES utilisation since 2005 among all the EU countries; its shortfall from the target share puts it among the countries that in 2019 were still lagging behind the national RES utilisation targets that they were obliged to achieve by 2020 (Figure 16).

FIGURE 16: PROGRESS IN ACHIEVING THE TARGET RES SHARE IN THE 2005–2019 PERIOD FOR VARIOUS EU COUNTRIES



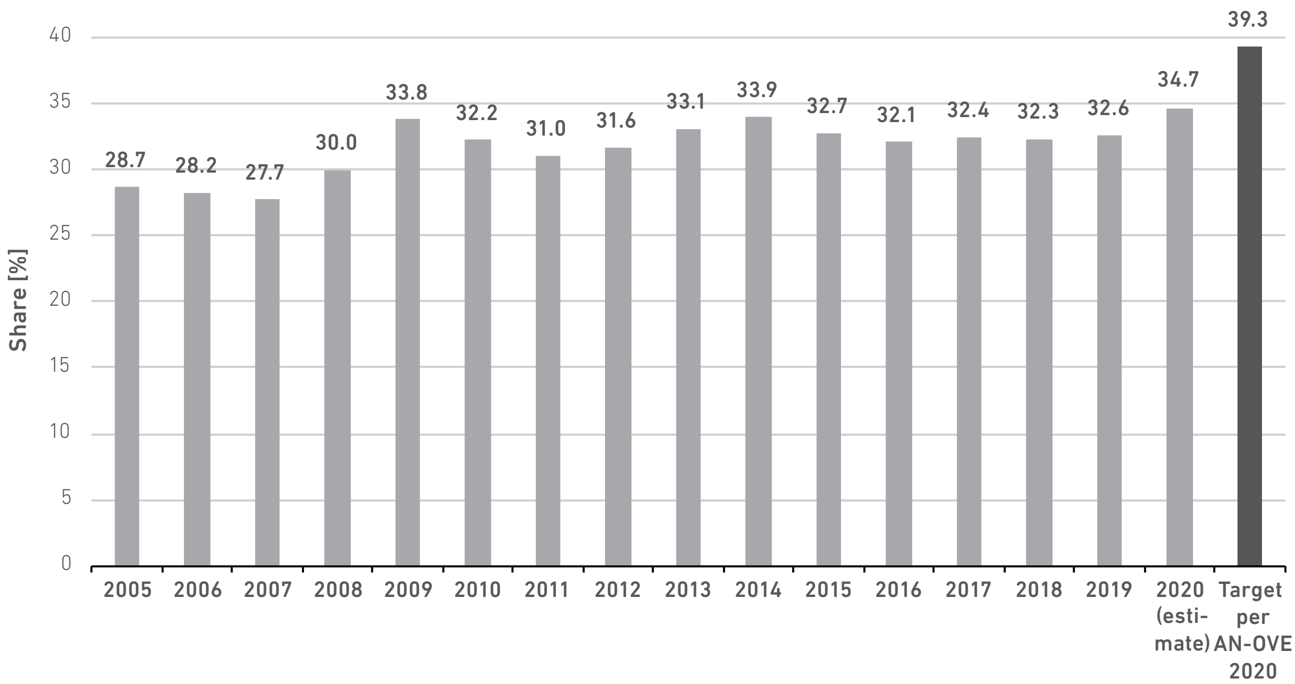
SOURCES: SURS, EUROSTAT

2 Data for previous years is harmonised with SURS data published after the energy statistics audit in 2020.

Share of Renewables in the Electricity Sector

In addition to measures to improve energy efficiency, electricity production from RES is key to achieving the target share of electricity from RES in the final energy consumption in the electricity sector. Until 2020, Slovenia is bound by AN-OVE 2020, which requires it to achieve a 39.3% share of electricity from RES in the final energy consumption in this sector by 2020. While the share of RES in the final energy consumption in the electricity sector increased by 3.9% over the 2005–2019 period, it fell short of the 2020 target by an unenviable 6.7% in 2019. With an estimated share of 34.7%, 2020 shows a clear improvement compared to the previous year, but this is mainly due to the lower final consumption of electricity as a result of the epidemic.

FIGURE 17: RES SHARES IN THE ELECTRICITY SECTOR IN THE 2005–2020 PERIOD



SOURCES: THE JOŽEF STEFAN INSTITUTE, SURS DATA

The biggest advancement in terms of actual RES utilisation in the electricity sector took place in the 2007–2009 period. The advancement was, to a great extent, related to the calculation methodology, which does not take into account the actual annual electricity production; instead, the quantity of electricity produced from RES is determined in accordance with the methodology[3] prescribed in Directive 2009/28, which, for example, excludes the impact of variable hydrology in the case of hydropower plants, where the bulk of the energy from RES in Slovenia is produced.

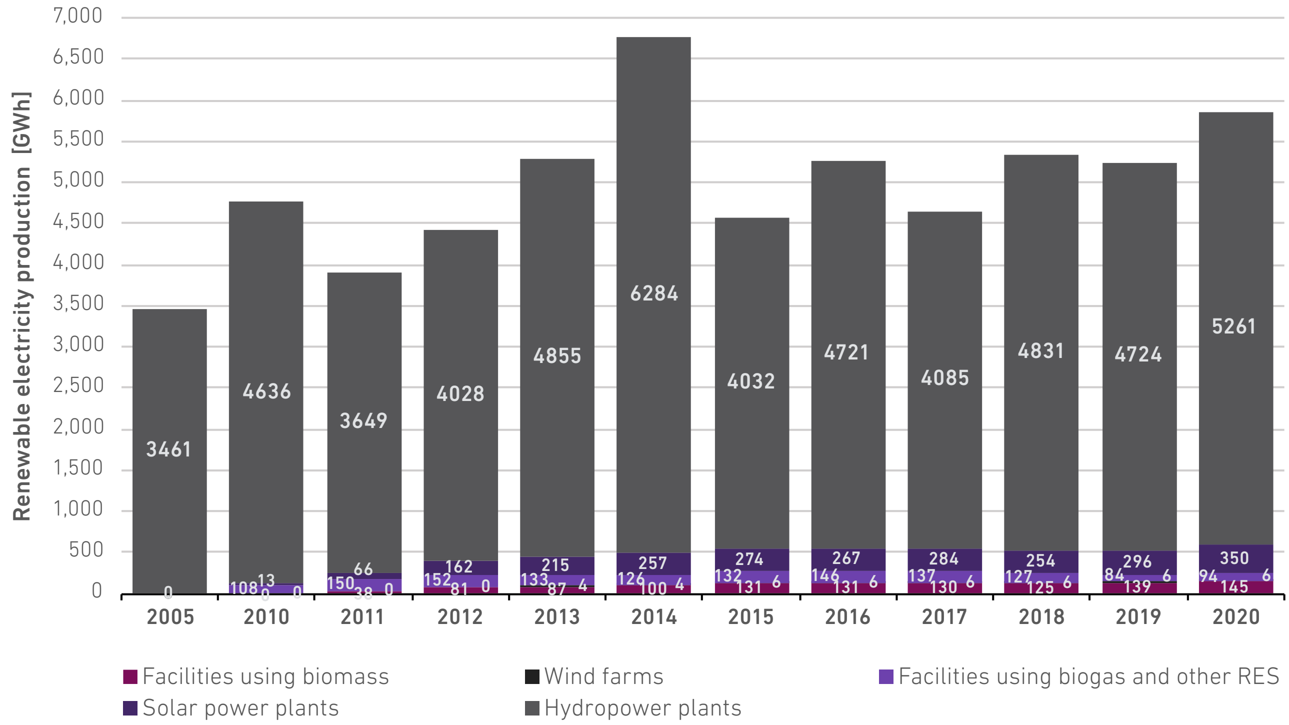
3 The normalised generation of hydropower plants is taken into account, which is derived by multiplying the actual output of the hydropower plants (excluding pumped storage facilities) in the current year by the average of the operating hours in the last 15 years. It is important to note that in the base year for the determination of the RES share, i.e. 2005, the 15-year average of the annual operating hours of hydropower plants according to Eurostat data was 4,225 hours; by 2018, this had decreased by 7.9% to 3,893 hours. This was part of the reason for the lower contribution of hydropower plants to the RES share.

Production from Renewable Sources

Electricity production using RES is highly dependent on weather factors, in particular the hydrological conditions, which impact hydropower plants, and solar insolation, which influences the output from solar power plants.

The production of electricity from RES in the 2010–2020 period and for the base year used to define the target share is shown in Figure 18. Electricity produced by hydropower plants accounts, on average, for more than 90% of the electricity production from RES in Slovenia. The introduction of the RES and CHP support scheme in 2009 and the possibility of securing state aid in an amount that encouraged investors to invest in electricity production from other RES has contributed to the development of electricity production from renewable sources such as solar, biomass, biogas and wind, the utilisation of which is currently negligible in Slovenia, despite the interest of investors in the construction of wind farms.

FIGURE 18: ELECTRICITY PRODUCTION USING RES IN THE BASE YEAR OF 2005 AND IN THE 2010–2020 PERIOD



SOURCES: ENERGY AGENCY, BORZEN, ELECTRIC SYSTEM OPERATORS, SURS

Incentives for Production from Renewable Sources

For a number of years, EU commitments in connection with the transition of electricity production to using primarily RES have also given the member countries the opportunity to introduce and implement a wide variety of measures, including in the form of state aid, which, although incompatible with the internal market in principle, are admissible in the context of the defined exemptions for the promotion of this type of electricity generation.

One of the more important measures to promote the production of electricity from RES, which has been in place in Slovenia since 2009, is the state aid schemes, also known as support schemes for electricity production using RES and CHP, which come in the form of guaranteed prices and premium tariffs. Funds for RES development are also available in the form of investment incentives, mostly as part of cohesion policy measures.

In recent years, self-supply by end-consumers has been increasing in prominence as an important measure in the development of RES, especially solar energy. This measure is implemented on the basis of the Decree on the self-supply of electricity from renewable energy sources and is aimed at household and small business consumers who install production facilities to generate electricity from RES for their own final consumption and connect them to the internal installation of the buildings where they are installed.

RES and CHP Support Scheme

The Slovenian state aid scheme for the promotion of electricity production using RES and CHP, introduced in 2009, is an energy policy measure that has contributed significantly to the development of distributed electricity generation using these technologies. Under this resource, electricity producers using RES and CHP are eligible for support covering the portion of the costs of electricity production, including the normal market return on invested capital, which cannot be covered by selling that electricity on the market due to the market price of electricity being lower than the production costs. Since the adoption of the Energy Act, support can only be obtained if these production facilities' projects are selected beforehand in a competitive procedure as part of an open call to investors for participation in the support scheme. Before the Energy Act was adopted, on the other hand, the support scheme was open to any producer of electricity using RES or CHP who installed a suitable production facility and had a declaration issued for it.

Producers are eligible for support for electricity generated in production facilities using RES, specifically, those utilising hydro, wind, solar and geothermal energy, energy from biomass, biogas, landfill gas and sewage treatment gas, as well as energy from biodegradable waste, provided that the production facilities do not exceed 10 MW of rated electrical capacity, or 50 MW in the case of wind power. In the case of CHP facilities, however, the support is only available to producers who generate electricity in high-efficiency co-generating facilities not exceeding 20 MW of rated electrical capacity and who deliver the required primary energy savings.

The support for the electricity produced can take the form of a guaranteed purchase of electricity at a predetermined fixed purchase price or operational support, under which the difference between the reference market price and the fixed cost of production is paid as state aid to producers who themselves sell the electricity on the market. Producers are free to choose the type of support, with the exception of guaranteed purchase–a choice that is limited to production facilities not exceeding 0.5 MW of rated electrical capacity. Irrespective of the chosen type, the support period is limited to a maximum of 15 years for production facilities utilising RES and 10 years for CHP facilities. The support scheme applies to the owners or operators of production facilities who have obtained a declaration for their facility from the Energy Agency along with a decision granting the support and who have entered into a support contract with the Centre for RES/CHP support.

The Energy Act stipulates the agency's obligation to annually publish an open call admission to the support scheme, while the plan of operation of the support scheme is set out in more detail in the Annual energy balance of the Republic of Slovenia, which is adopted by the Government of the RS at the proposal of the ministry competent for energy. The tasks, policies and competencies of the Energy Agency and the Centre for RES/CHP support in their capacity as support scheme providers are defined in the Rules on support for electricity generated from renewable energy sources and from high-efficiency cogeneration.

Projects for RES and CHP Production Facilities Chosen in Open Calls

In 2020, the Energy Agency published two open calls inviting investors to apply with their RES and CHP production facility projects for admission to the support scheme. In accordance with the plan of operation of the support scheme, €10 million has been allocated for each of the open calls. The first open call in 2020 was published in July and the second in December, concluding in early 2021. Only projects with a valid building permit could apply to the open call. For the first time, the call was also open to promoters, who can have their approved project carried out in whole or in part by individual investors under the conditions applicable to the promoter. In order to ensure the legitimacy of the promoters' applications, a promoter is required to provide adequate insurance for their approved project in the amount of 2% of the project's investment value.

53 projects applied in response to the first open call in 2020, one of which was a project submitted by a promoter involving solar power plants with a total rated electric capacity of 4 MW. There were 44 projects for new production facilities and nine that involved the renovation of existing ones. The second open call in 2020, published in December and concluding in April 2021, attracted 89 applications, 77 of which were projects for new production facilities; there were 13 projects by promoters and 12 renovations of existing production facilities.

TABLE 9: AN OVERVIEW OF THE PRODUCTION FACILITY PROJECTS APPLYING TO THE OPEN CALLS IN 2020, GROUPED ACCORDING TO THE TECHNOLOGY EMPLOYED FOR ELECTRICITY GENERATION

		Open call–July 2020		Open call–December 2020	
Technology	**Renovated/new**	**No. of projects**	**Installed capacity (MW)**	**No. of projects**	**Installed capacity (MW)**
Hydropower plants	**New**	2	0.03	1	0.09
Hydropower plants	**Renovated**	8	1.88	9	0.92
Solar power plants	**New**	27	12.27	53	18.00
Wind farms	**New**			11	77.00
Facilities using biogas	**New**	1	0.21	1	0.99
Facilities using woody biomass	**New**	3	3.30	2	1.10
Facilities using woody biomass	**Renovated**			1	2.10
Fossil fuelled CHP	**New**	11	2.27	9	5.66
Fossil fuelled CHP	**Renovated**	1	2.63	2	1.40
Total number of applications		**53**	**22.59**	**89**	**107.26**

SOURCE: ENERGY AGENCY

In the two open calls, €11.02 million of the €20 million available was administratively allocated among the 120 approved projects €2.51 million in the July call and €8.51 million in the December call. All the projects meeting the formal conditions for application to the open call were approved–37 in the July open call, with a total rated electrical capacity of 17.17 MW. This included 35 RES projects with a total rated electrical capacity of 14.49 MW and two CHP projects with a total rated electrical capacity of 2.68 MW. In the December open call, 83 projects were approved, with a total rated electrical capacity of 102.58 MW, including 74 RES projects with a total rated electrical capacity of 96.92 MW and nine CHP projects with a total rated electrical capacity of 5.66 MW. Over the two calls, 22 of the applying projects were rejected for not fulfilling the formal conditions for application, totalling 10.10 MW in rated capacity, leaving €8.98 million administratively unallocated.

120 RES and CHP projects with a total electricity capacity of 119.75 MW selected over two open

TABLE 10: AN OVERVIEW OF THE PROJECTS FOR PRODUCTION FACILITIES SELECTED IN THE OPEN CALLS IN 2020 GROUPED ACCORDING TO THE TECHNOLOGY EMPLOYED FOR ELECTRICITY GENERATION

		Open call–July 2020		Open call–December 2020	
Technology	Renovated/new	No. of projects	Installed capacity (MW)	No. of projects	Installed capacity (MW)
Hydropower plants	**New**	2	0.03	1	0.09
Hydropower plants	**Renovated**	6	0.98	6	0.68
Solar power plants	**New**	25	10.27	52	14.96
Wind farms	**New**			11	77.00
Facilities using biogas	**New**	1	0.21	1	0.99
Facilities using woody biomass	**New**	1	3.00	2	1.10
Facilities using woody biomass	**Renovated**			1	2.10
Fossil fuelled CHP	**New**	1	0.05	9	5.66
Fossil fuelled CHP	**Renovated**	1	2.63		
Total for all selected projects		37	17.17	83	102.58
Total RES		35	14.49	74	96.92
Total fossil fuelled CHP		2	2.68	9	5.66

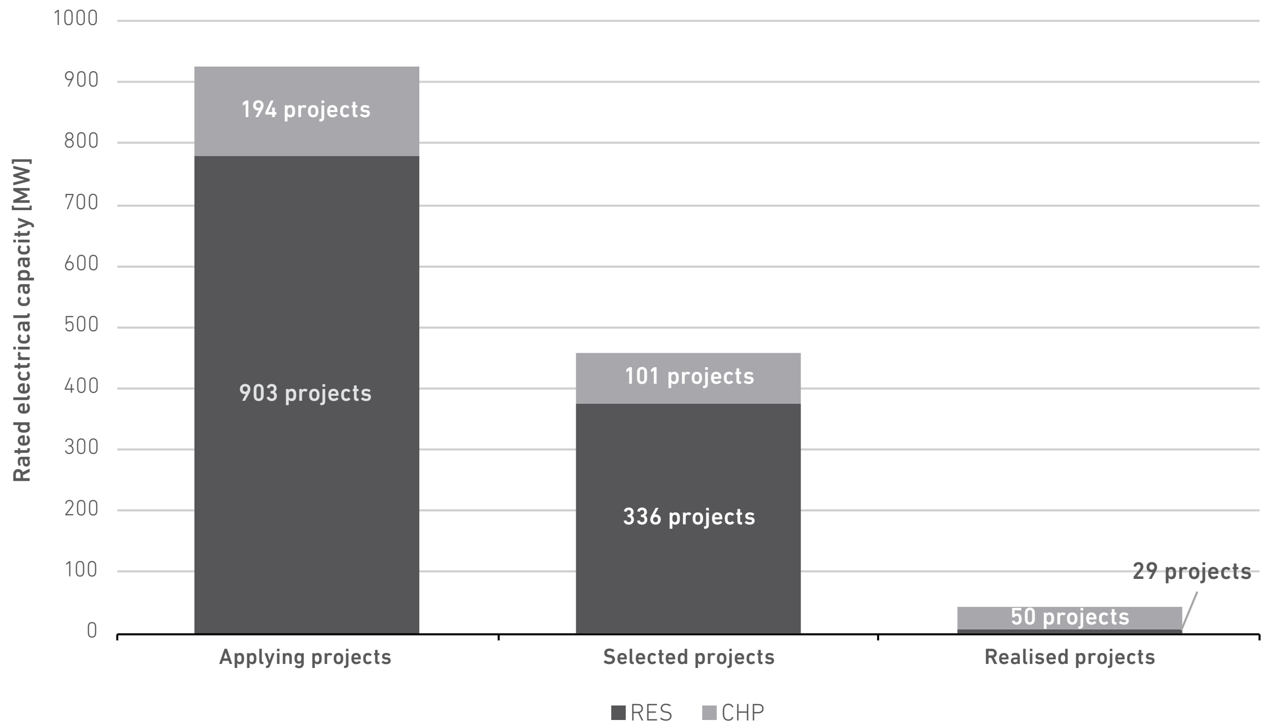
SOURCE: ENERGY AGENCY

The fact that all the applying projects fulfilling the formal conditions have been approved and that none have been rejected for being uncompetitive suggests a lack of interest among the applicants or potential investors in carrying out RES and CHP production facility projects under the terms of the published open calls. This low interest is partly a consequence of the mandatory submission of a valid building permit for the project (building permits are mainly required due to the difficulties in siting certain technologies–hydropower plants, wind farms etc.) and partly due to the reference cost definitions of electricity production as an upper limit of the offered electricity prices per MWh of generated electricity in the project applications, which put a ceiling on the return on investment that can be expected by the applicants as set out in the state aid approval by the European Commission, which is 7.2%.

Since 2016, when the changes to the support scheme came into force, the agency has carried out eight open calls for participation in the support scheme. A total of 1097 projects were applied for, with a total rated electrical capacity of 926.65 MW; 437 projects with a total capacity of 459.19 MW were selected. The selected projects included as many as 336 RES projects with a total output of 375.02 MW and 101 CHP projects totalling 84.17 MW. However, out of all the selected projects, only 79 were realised, totalling 44.62 MW, of which 50 involved RES production facilities featuring only 7.88 MW of total output and 29 CHP projects with a total output of 36.74 MW.

Out of the 437 selected RES and CHP projects with a total electrical output of 459.19 MW, 79 projects were realised by the end of 2020, with a total electric output of 44.62 MW

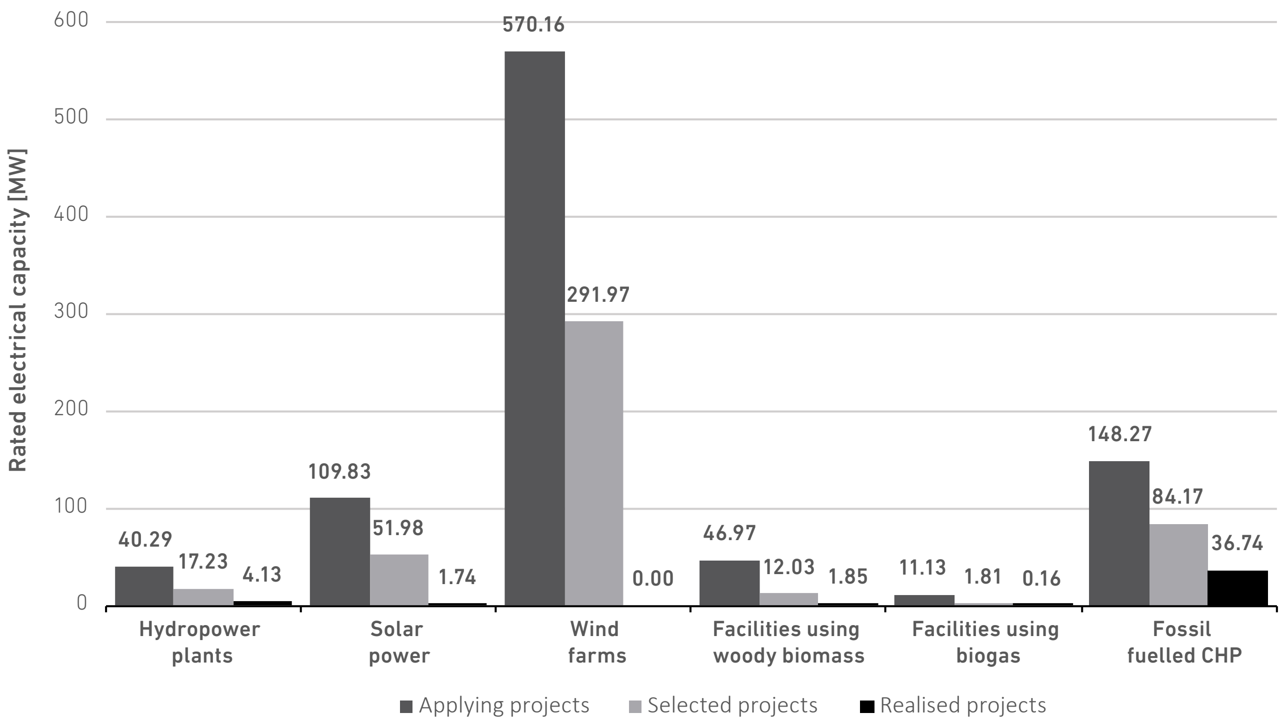
FIGURE 19: THE NUMBER AND RATED ELECTRICAL CAPACITY OF THE PROJECTS FOR RES AND CHP PRODUCTION FACILITIES THAT APPLIED AND WERE SELECTED AND CARRIED OUT OVER ALL THE OPEN CALLS



SOURCE: ENERGY AGENCY

Wind farms are the dominant technology among the applying and selected projects in terms of the rated electrical capacity; the total capacity of the wind farm projects applied thus far is 570.16 MW and 73 of these projects were approved, totalling 291.97 MW. In light of the green transformation, it is worrying that not a single wind farm project has been realised and that for most of them, the deadline for realisation is in 2023. The Energy Act stipulates that, in order for the electricity generated in the production facilities to be eligible for support, the selected projects must be realised within three years (five years for complex projects) of the date on which the applicant was notified that their project had been selected. Solar power plants dominate in terms of the number of projects that applied and were selected. In total, 447 solar power plant projects applied to the open calls that have already closed, and 159 were approved, totalling 51.98 MW. The realisation of the approved projects employing this technology is likewise negligible, as only 17 projects have been carried out, totalling 1.74 MW. Only fossil-fuelled CHP projects have achieved a significant share of the realised projects, where 36.74 MW of the 84.17 MW of approved projects have been realised, representing 43.6% of all the approved CHP projects in terms of total output.

FIGURE 20: RES AND CHP PROJECTS THAT APPLIED TO THE OPEN CALLS AND WERE SELECTED AND CARRIED OUT, GROUPED BY THE TECHNOLOGY EMPLOYED, ALONG WITH THEIR RATED ELECTRICAL CAPACITY



SOURCE: ENERGY AGENCY

Production Facilities Included in the RES and CHP Support Scheme, Their Total Rated Electrical Power and the Quantity of Electricity Generated

At the end of the year, 3839 production facilities were taking part in the support scheme–19 fewer than the year before–with a total rated electrical capacity of 408.9 MW. The reasons for the reduction in the number of production facilities in the support scheme are the expiration of the period of eligibility for support and the cessation of operation, for various reasons, of existing facilities. In 2020, there were 35 production facilities participating in the support scheme, totalling 12.68 MW, the projects that had been approved in a competitive procedure in an open call. Solar power plants represent the largest group of new participants in the support scheme in terms of the number of projects; in terms of the total output, CHP production facilities hold the lead, with 8.49 MW newly included in the support scheme in 2020.

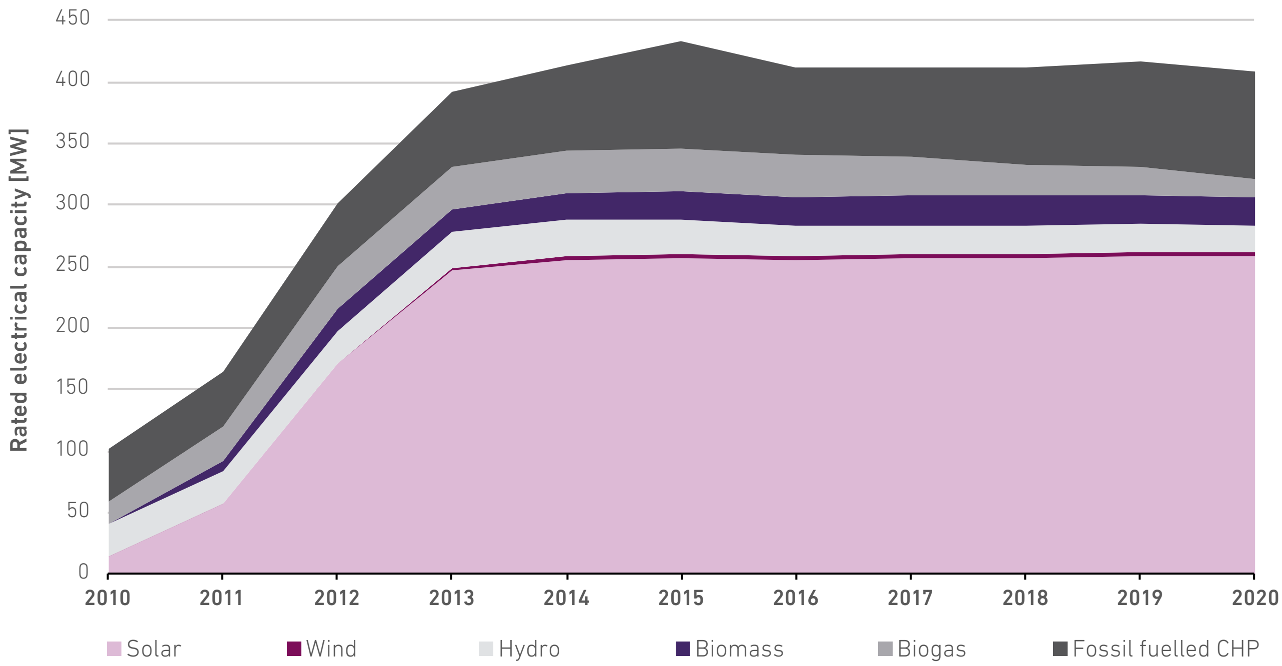
TABLE 11: THE NUMBER OF PRODUCTION FACILITIES IN THE SUPPORT SCHEME AND THE DYNAMICS OF THEIR INCLUSION IN THE 2010–2020 PERIOD

Source	The number of facilities participating in the support scheme										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Solar	381	975	2,406	3,218	3,319	3,339	3,323	3,312	3,301	3,304	3,297
Wind	3	4	3	5	4	9	7	7	6	4	4
Hydro	105	109	108	106	106	106	98	91	93	92	90
Biomass	0	3	5	10	19	43	44	43	44	46	40
Biogas	13	26	31	31	31	33	32	31	27	24	22
Fossil fuelled CHP	26	46	89	184	270	390	384	380	388	388	386
Total	528	1,163	2,642	3,554	3,749	3,920	3,888	3,864	3,859	3,858	3,839

SOURCES: ENERGY AGENCY, BORZEN

The total rated electrical capacity of the production facilities taking part in the support scheme was 408.9 MW at the end of 2020, 320.9 MW of which were RES production facilities. With 258.3 MW, or 63%, solar power plants still account for the largest share of the total rated electrical capacity of all the production facilities in the support scheme; after that are fossil-fuelled CHP facilities with 87.9 MW, or 22% of the total capacity. Despite the inclusion of new production facilities with a total capacity of 12.7 MW in the support scheme, the total rated electrical capacity of the production facilities taking part in the support scheme at the end of the year was actually 8.2 MW lower than in 2019. This indicates that roughly 20 MW of the total rated capacity of the production facilities were removed from the support scheme either due to the expiration of the support eligibility period or the cessation of operation.

FIGURE 21: THE TOTAL RATED ELECTRICAL CAPACITY OF THE PRODUCTION FACILITIES INCLUDED IN THE SUPPORT SCHEME IN THE 2010–2020 PERIOD

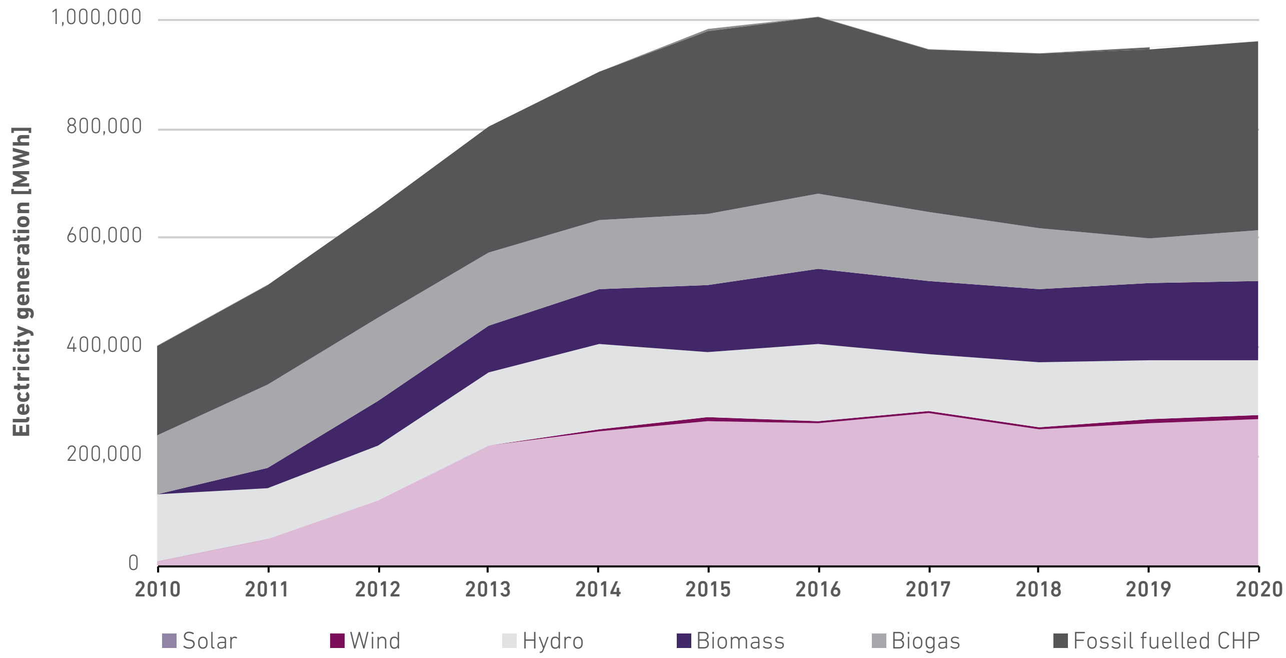


SOURCES: ENERGY AGENCY, BORZEN

Even though the number of production facilities included in the support scheme has declined for the fifth year in a row, electricity production was the highest since 2016, with 962,218 MWh of electricity generated. This means that in 2020, 14,737 MWh, or 1.5%, more electricity was generated under the support scheme than in 2019, and 24,322 MWh, or 2.6%, more than 2018. 614,149 MWh were produced from RES and 348,069 MWh in CHP facilities. In terms of electricity generation in 2020, fossil-fuelled CHP facilities once again stood out; the amount of electricity produced using this technology was comparable to that of 2019. In the second place are solar power plants, accounting for 269,281 MWh, followed by facilities fuelled by woody biomass, which produced 144,838 MWh. Electricity generation in biogas-fuelled power plants totalled 94,285 MWh in 2020, which is an increase of 9,881 MWh, or 11.7%, compared to 2019. Meanwhile, hydropower generation decreased by 9.9% in 2020, for a total of 99,549 GWh.

962.2 GWh were produced in the scope of the support scheme for RES and CHP

FIGURE 22: ELECTRICITY PRODUCTION ELIGIBLE FOR SUPPORT IN THE 2010–2020 PERIOD



SOURCES: ENERGY AGENCY, BORZEN

Power plants included in the support scheme accounted for 7.3% of the total electricity production in Slovenia in the year in question. The fact that this share had not significantly changed since 2016 is borne out by table 12. The share of installed capacity included in the support scheme likewise remained basically the same in the observation period. There is minimal change with respect to 2019, but even extending the observation period to five years, no major changes are evident in the data.

7.3% of electricity was produced in facilities included in the support scheme

TABLE 12: THE SHARE OF INSTALLED CAPACITY AND ELECTRICITY PRODUCTION INCLUDED IN THE SUPPORT SCHEME

Year	Installed capacity, included in the support scheme (MW)	Total installed capacity in Slovenia (MW)	Share of the installed capacity included in the support scheme (MW)	Generated electricity included in the support scheme (MW)	Total Slovenian electricity generation (GWh)	Share of the generated electricity included in the support scheme (MW)
2016	412.0	3,536.6	11.7%	1003.5	13,029.5	7.7%
2017	412.3	3,490.7	11.8%	944.9	12,456.7	7.6%
2018	412.4	3,584.0	11.5%	937.9	12,578.8	7.5%
2019	417.1	3,617.7	11.5%	947.5	12,511.1	7.6%
2020	408.9	3,581.0	11.4%	962.2	13,220.7	7.3%

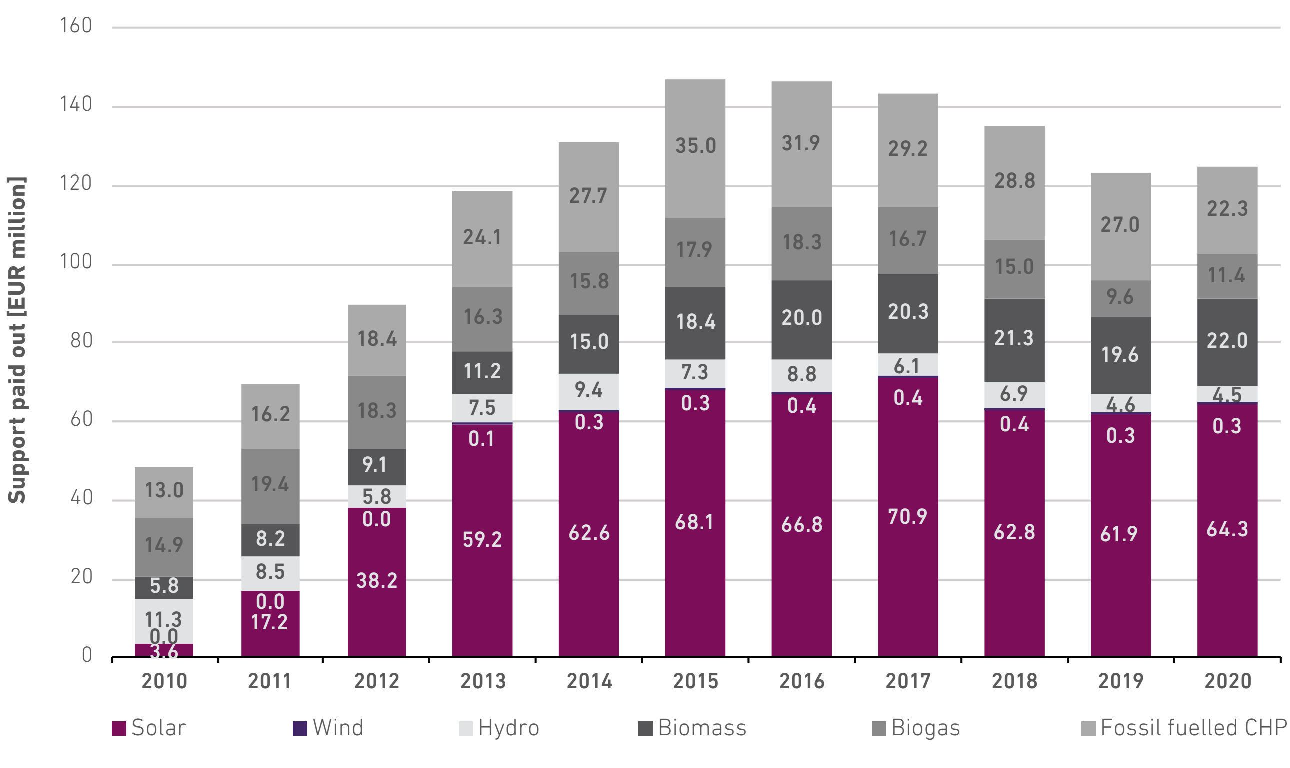
SOURCES: BORZEN, ENERGY AGENCY

Support Paid Out–Support Scheme Cost

In 2020, €124.8 million was paid out as electricity generation support to eligible producers, which is €1.8 million more than in 2019. As much as 17.8% of the total amount paid out, or €22.4 million, was in support of electricity generation in CHP facilities, while €102.4 million, 82.2% of the total amount, was paid out in support of electricity generated in production facilities using RES. Most of the latter, at 51.6%, was support for solar power plants, which thus received €64.3 million; in the second place, with €22 million, is support for electricity generated in woody biomass-fuelled plants, followed by €11.4 million that went to biogas facilities. Of the total amount of support paid out in 2020, €4.6 million was allocated to support electricity generated in production facilities using RES and CHP that were included in the support scheme as projects selected in open calls. From the start of the support scheme in 2010 until 2020, a total of €1.28 billion in support has been paid for a total of 9.1 TWh of electricity generated by electricity producers in the support scheme.

The lower amounts paid out in 2020 and 2019 compared to 2018, despite the higher electricity production, are largely a consequence of the higher reference market price of electricity in 2020 and 2019 compared to 2018. This increase in price reduced the value of support per unit of electricity produced. This is because support in the form of a premium tariff is defined as the difference between the value of the reference costs of electricity production, or the cost value of electricity generation in a particular production facility, and the reference market price of electricity, which was 60.50 EUR/MWh in 2020–43% more than in 2018–and 64.01 EUR/MWh in 2019, which is actually 51% more than the reference market price of electricity in 2018, which was 42.30 EUR/MWh. In addition, in the last two years, some CHP production facilities, for which support had expired due to their age, were replaced by new ones, where, after a change in the support scheme, the cost value of a unit of electricity produced is lower than before.

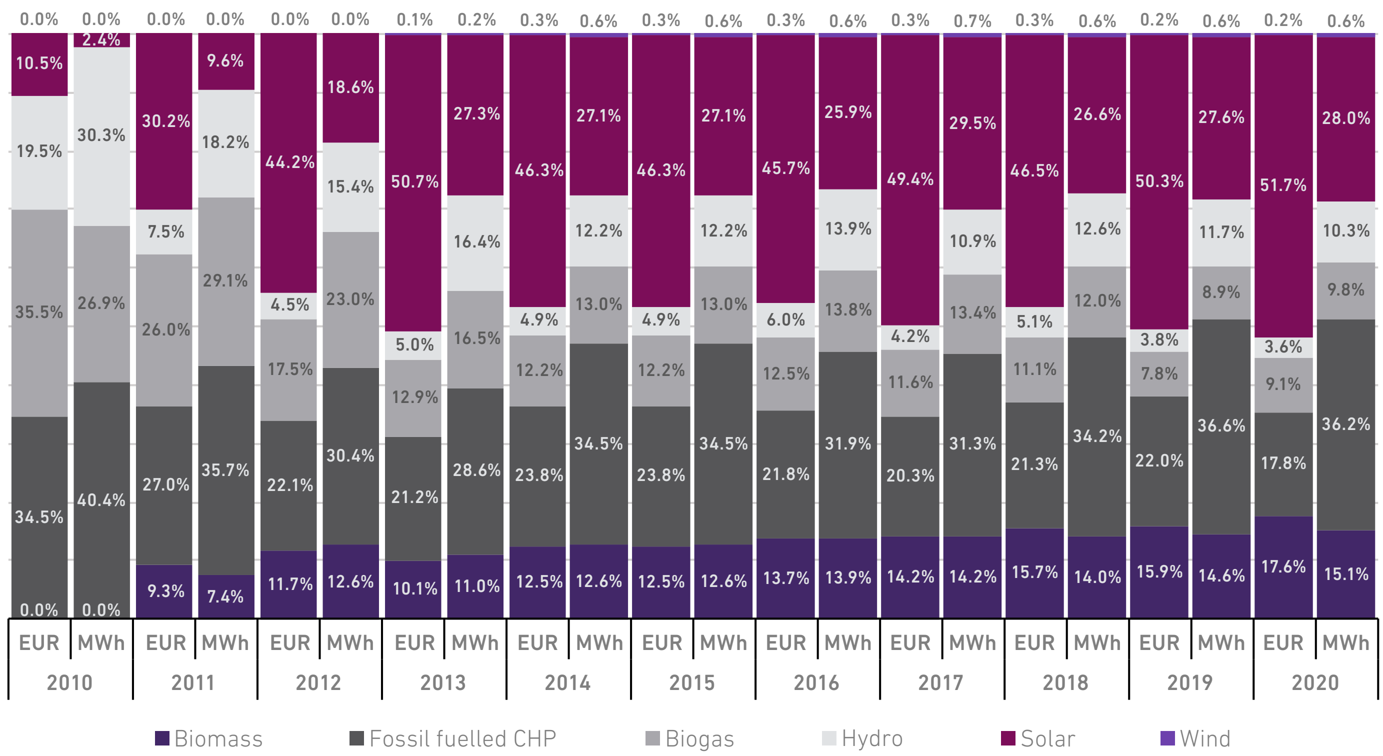
FIGURE 23: THE VALUE OF SUPPORT PAY-OUTS IN THE 2010–2020 PERIOD



SOURCE: BORZEN

The ratio, by individual sources, between the share of support pay-outs and the share of electricity produced, shown in Figure 24, did not change significantly in 2020 compared to previous years. In 2020, as in previous years, the ratio between the support paid out and the electricity produced was once again most favourable for hydropower plants and fossil-fuelled CHP production facilities; accordingly, the support pay-outs for these methods of electricity generation are lower, on average, than for other methods included in the support scheme. The least favourable ratio between the support paid out and the electricity produced is found in the solar power plants that were admitted to the support scheme before the introduction of competitive procedures for selecting production facility projects in open calls, as well as for some smaller woody biomass-fuelled production facilities. An exception to this is the solar power plants included in projects that were pre-selected in open calls; the amount of support per unit of electricity produced in those is considerably lower than for electricity produced in solar power plants built after 2010–2012.

FIGURE 24: THE RATIO BETWEEN THE SHARE OF SUPPORT FUNDS PAID OUT AND THE ELECTRICITY PRODUCED, SHOWN FOR EACH ENERGY SOURCE IN THE 2010–2020 PERIOD



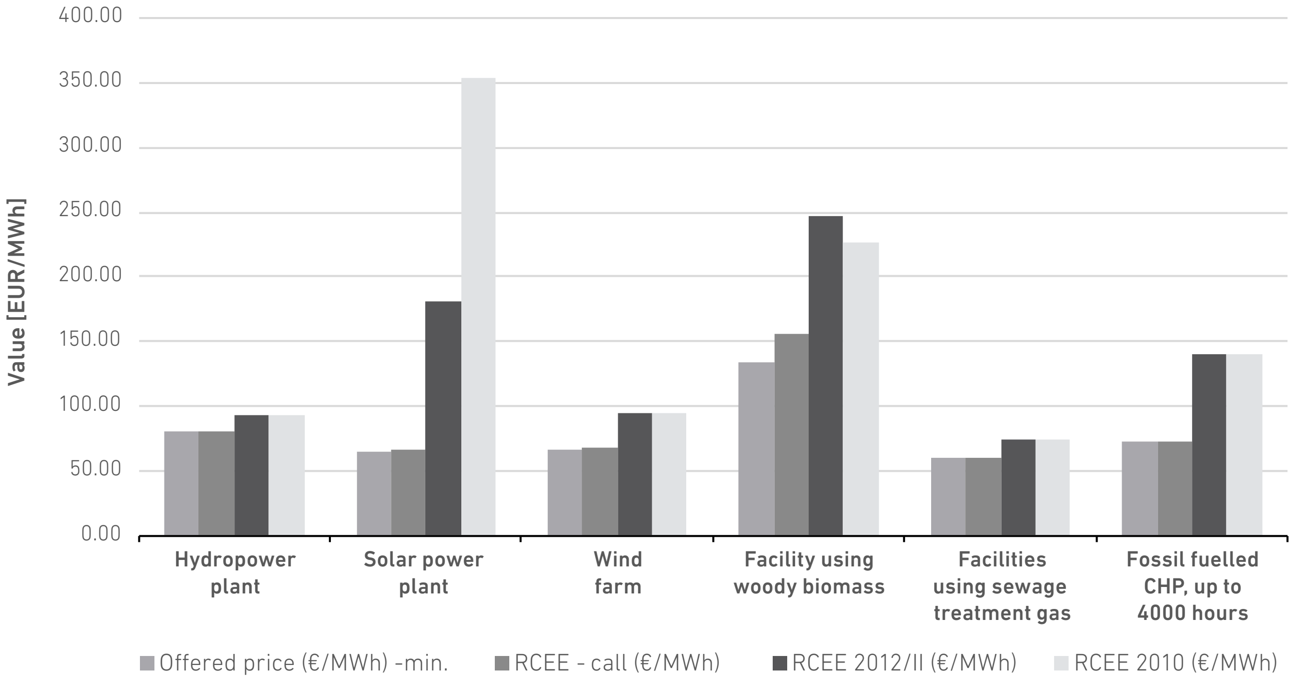
SOURCES: ENERGY AGENCY, BORZEN

The falling market prices of components used for individual technologies and the introduction of competitive procedures have resulted in lower support amounts, most notably for electricity produced in solar power plants, but also in woody biomass power plants and CHP facilities (Figure 25). The values have been adjusted in line with the market conditions, as per EU state aid guidelines. The competitive procedure for project selection provides an additional impetus for the investors to apply with cost-effective and competitive projects.

As a consequence, electricity from production facilities built in projects selected in open calls requires, on average, significantly less support per MWh of production than electricity generated in production facilities that were included in the support scheme before the changes to the support scheme came into effect. The average amount of support paid out[4] per MWh of electricity produced in production facilities selected in open calls in 2020 was thus 31.51 EUR/MWh, whereas the average value of support provided for the electricity produced in production facilities predating the support scheme amendments was 147.23 EUR/MWh.

4 The support corresponds to the difference between the reference costs, or the offered price of electricity in the open call, and the reference market price of electricity.

FIGURE 25: A COMPARISON OF THE LOWEST OFFERED PRICES OF ELECTRICITY AMONG THE SELECTED PROJECTS OF SOME TECHNOLOGIES IN OPEN CALLS AND THE REFERENCE COSTS OF ELECTRICITY PRODUCTION USING THESE SAME TECHNOLOGIES BEFORE AND AFTER THE AMENDMENTS TO THE RES AND CHP SUPPORT SCHEME



SOURCE: ENERGY AGENCY

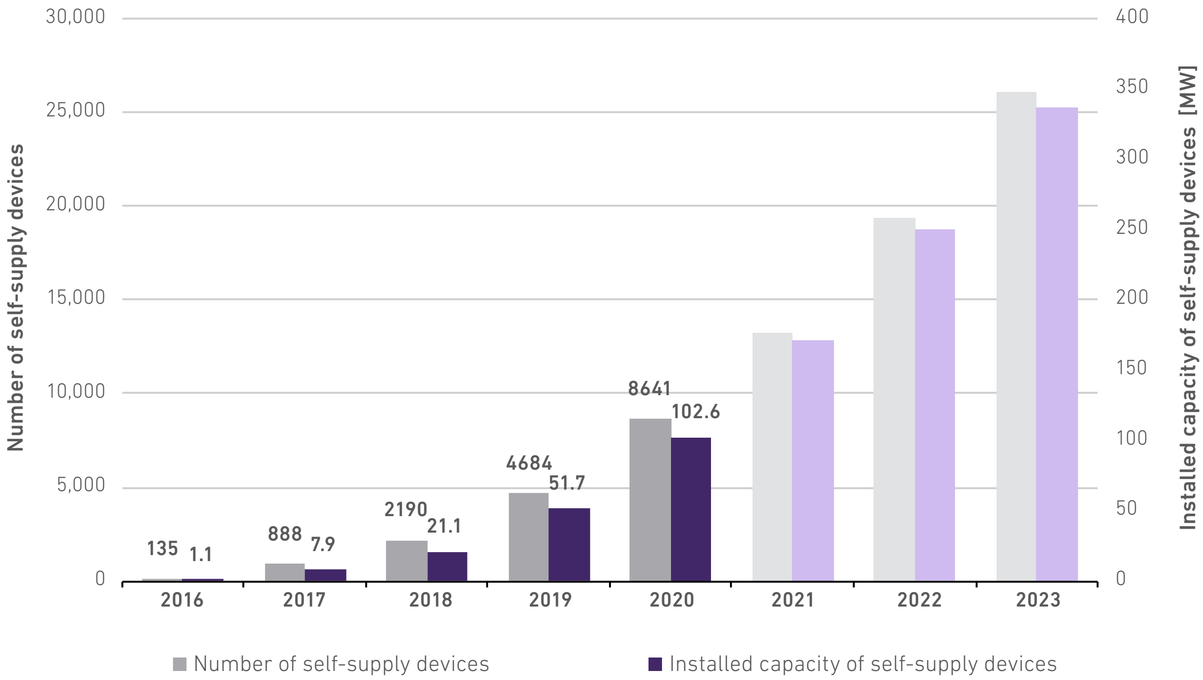
Renewable Electricity Self-Supply

Self-supply is the generation of electricity from RES using a production facility connected to the internal low-voltage installation of a building. Its purpose is for end-consumers, i.e., households or small business consumers, to cover their own electricity consumption. They feed their surplus electricity into the distribution network and draw from the network at times when the output of the self-supply device is insufficient. In this case, the distribution network acts as a virtual storage or battery due to the mismatch between the output of the consumer's self-supply device and the end-consumer's consumption.

While only 135 self-supply devices with a total capacity of 1.1 MW were connected in 2016, which was the first year in which self-supply devices were connected, a total of 3957 installations with a total installed capacity of almost 51 MW were newly connected in 2020. In 2020, a total of 8641 self-supply devices with a total installed capacity of 102.6 MW and an average installed capacity of 11.9 kW were thus in operation. As the number of self-supplying consumers grows, so does the average power of self-supply devices. In 2016, the average power of a newly connected self-supply device was 8.1 kW, while in 2020 it had grown to 12.9 kW. The increase in the power of self-supply devices can be attributed to the increasing use of electricity to heat buildings using heat pumps and the emerging interest in using self-supply measures to charge electric vehicles at home.

Based on data from the last five years, the Energy Agency made an estimate of the increase in the number (using a second-degree polynomial) and total power of self-supply devices until 2023 (based on the average power of the devices connected in 2020). Under such dynamics, almost 26,100 customers are expected to be self-sufficient in electricity, with the total power of self-supply devices amounting to almost 337 MW by the end of 2023.

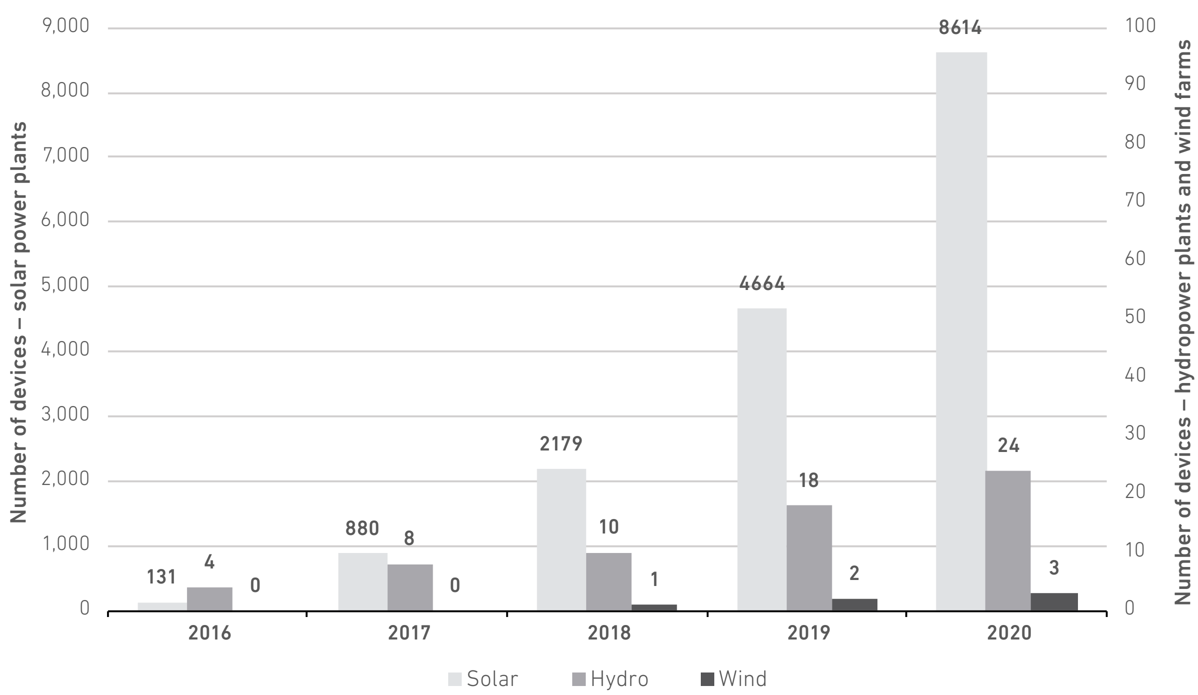
FIGURE 26: NUMBER AND INSTALLED CAPACITY OF SELF-SUPPLY DEVICES IN THE 2016–2020 PERIOD AND THE FORECAST UNTIL 2023



SOURCES: ENERGY AGENCY, SODO, ELECTRICITY DISTRIBUTION COMPANIES, BORZEN

According to the Decree on the Self-supply of Electricity from Renewable Energy Sources, a self-supply device may produce electricity using solar, wind, hydro or geothermal energy, or it may be a CHP unit that uses RES as the primary source. In practice, solar power plants are overwhelmingly predominant (8614 devices), while there are only 24 devices using hydropower and only three installations using wind power. Among the existing self-supply devices, there are no devices using geothermal energy as of yet, nor any CHP units using RES as the primary source. This only applies to individual self-supply, but the number of community self-supply production facilities, which have been almost non-existent thus far, is also expected to increase in the coming years.

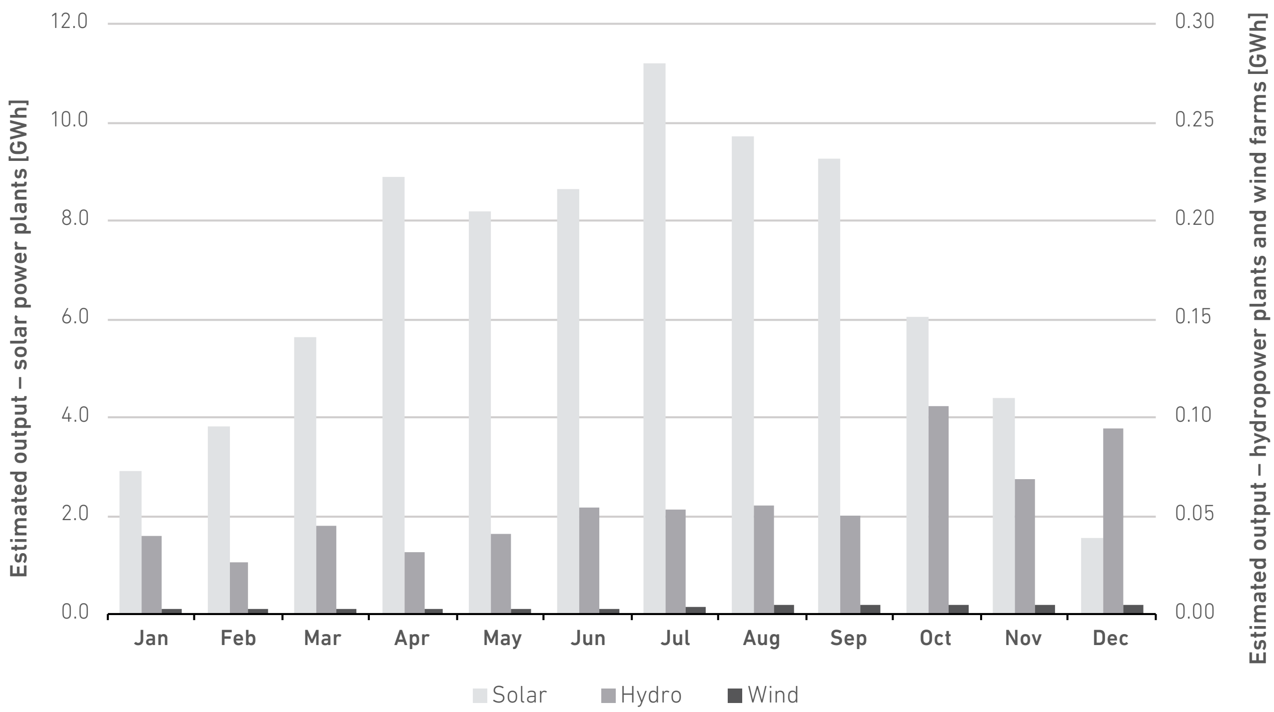
FIGURE 27: NUMBER OF SELF-SUPPLY DEVICES BY PRODUCTION SOURCE



SOURCES: ENERGY AGENCY, SODO, ELECTRICITY DISTRIBUTION COMPANIES, BORZEN

Due to the measuring method and the annual netting of electricity produced and consumed, the annual production of electricity in self-supply devices connected behind the end-consumer delivery point can only be estimated. This estimate depends on the type of production facility, the installed capacity and the reference monthly operating hours. As many as 99.7% of all self-supply devices are solar power plants, which means that the estimated electricity production depends heavily on the time of year and geographical and weather factors. In 2016, the estimated amount of electricity produced by self-supply devices was only 0.6 GWh, while in 2020 it was already at 80.92 GWh.

FIGURE 28: ESTIMATED OUTPUT OF SELF-SUPPLY DEVICES IN 2020 BY MONTH AND TECHNOLOGY



SOURCE: BORZEN

Regulation of Network Activities

Unbundling of Activities

Electricity transmission and distribution companies are required to keep separate accounts for their transmission and distribution activities, as they would be required to do if the distribution and transmission activities were carried out by separate undertakings.

The service of general economic interest provided by the transmission system operator (hereinafter: the TSO) is performed by a legal entity that, in addition to the transmission activity, also performs other non-electricity-related activities. In its annual report, ELES discloses separate financial statements for those activities, as well as the criteria for the allocation of assets and liabilities, costs, expenses and revenues used in the preparation of separate accounting records and financial statements.

The service of general economic interest provided by the distribution system operator (hereinafter: the DSO) is performed as a separate legal entity and is the only activity performed by SODO, which does not prepare separate financial statements for regulatory purposes.

Based on the approval of the Government of the Republic of Slovenia, SODO delegated the services of general economic interest provided by the DSO to distribution companies. Distribution companies engage in other non-electricity-related activities in addition to the activity contractually delegated to them by SODO. Therefore, the distribution companies maintain separate accounting records in their books and draw up separate financial statements for the activity contractually delegated to them by SODO and for their non-electricity-related activities. In their annual reports, distribution companies disclose separate financial statements for those activities, as well as the criteria for the allocation of assets and liabilities, costs, expenses and revenues used in the preparation of separate accounting records and separate financial statements.

Technical Services

Ancillary Services

The purpose of the ancillary services provided by the TSO is to ensure the safe and uninterrupted operation of the entire electricity system. In the Slovenian electricity system, these services comprise:

- frequency ancillary services, comprising:
  - frequency containment process (FCP);
  - automatic frequency restoration process (aFRP);
  - manual frequency restoration process (mFRP);
- non-frequency ancillary services, comprising:
  - o voltage and reactive power control; and
  - o black start services.

The TSO sources all system services from providers in the market; the costs of providing reserve capacity for frequency ancillary services and the costs of non-frequency services are funded from the network charge for the transmission system. Energy activation costs for frequency ancillary services are funded from imbalance settlement, the costs of which are covered by the balance responsible parties. Frequency ancillary services belong to balancing services in the electricity system in addition to purchasing on the balancing market.

The required scope of frequency services can be evaluated using the volume of reserves in MW, while for non-frequency ancillary services, an appropriate geographical distribution of providers throughout the transmission system is required. While the ancillary service itself is defined as a process and denoted as FCP, aFRP and mFRP, respectively, the reserve is denoted as FCR, aFRR and mFRR. For 2020, ELES has planned the following reserve capacities for frequency ancillary services:

- FCR: between ±14 and ±18 MW;
- aFRR: +60 MW, –60 MW;
- mFRR: +250 MW, –71 MW.

The projected total volume of frequency ancillary services was the same in 2020 as in the previous year. This is due to the fact that the TSO complied with the provisions of the reserve sharing agreement in the SCB (Slovenia, Croatia, Bosnia and Herzegovina) control block. At the block level, ELES must provide mFRR at the level of the potential outage of the largest production and consumption unit. In the SCB block, these are outages of the Krško NPP and the Avče PSHPP in the pumping regime. The participating TSOs of the three countries each contribute their share of the reserve, which is calculated in accordance with the provisions of the control block operating agreement.

In the area of frequency ancillary services, the provisions of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing were fully implemented in 2020, as in the previous year (hereinafter: Regulation (EU) 2017/2195). Among the most important are the requirement to eliminate symmetrical products, which required ELES to implement separate procedures for leasing aFRR and mFRR in 2020, similarly to the previous year, and the requirement to shorten the lease of frequency ancillary services, due to which ELES, in addition to continuing the practice, first started in 2018, of leasing part of the mFRR through monthly auctions, also leased part of the aFRR through monthly auctions in 2020 (10 MW in both positive and negative direction out of the total required 60 MW). ELES procured monthly aFRR leases with two types of products–peak and off-peak. In 2020, the provisions of the amendments to the EZ-1, under which the provision of the frequency containment process is no longer free of charge, entered into force. In 2020, ELES used the Slovenian balancing services platform, which was developed in accordance with the provisions of Regulation (EU) 2017/2195. The platform was used for aFRP and mFRP services in 2020 and will also be used for FCP in 2021.

ELES selected non-frequency ancillary service providers for 2020 at the end of 2019. In a negotiation process, ELES selected the providers of frequency containment, voltage and reactive power control and black start ancillary services.

Frequency ancillary service providers were selected in several auctions at the end of 2019 and in 2020. ELES selected the providers of multi-year positive mFRP products as part of an auction for the lease of frequency ancillary services for the five-year period of 2019 to 2023, the providers of annual aFRP and mFRP products for both balancing directions at an auction at the end of 2019, and the providers of monthly aFRP and mFRP products, including for both balancing directions, at auctions held in the month prior to the supply of the reserves. Positive mFRP providers were selected at auctions as detailed in Table 13.

TABLE 13: OVERVIEW OF POSITIVE MANUAL FREQUENCY RESTORATION RESERVE (mFRP) PRODUCTS

	Five-year product	2020 product	Monthly product
Lease period	2019–2023	2020	Month
Quantity (MW)	178	52	20
Reserve source	Slovenia	Slovenia	Slovenia
Activation time	≤12.5 min	≤15 min	≤15 min
Time to announce activation changes	≤12.5 min	≤15 min	≤15 min
Number of activations	Unlimited	Unlimited	Unlimited
Period of unavailability after activation	0 min	0 min	0 min
Duration of one activation	Unlimited	≤4 h	≤4 h

SOURCE: ELES

In 2020, bidders with conventional production sources and bidders with demand response and distributed production also participated in the annual and monthly product auctions for aFRR and mFRR. Two separate annual auctions were held for aFRR alone, one for the positive and one for the negative direction, in which only bidders offering the service with demand-side management, distributed production and new technologies were allowed to participate for a total of 5 MW in each direction.

A 9.5% increase in aFRP and mFRP costs compared to the previous year

Table 14 shows the total costs of individual ancillary services for 2020 funded from the network charge for the transmission system. These are the costs of all non-frequency ancillary services and the costs of leasing reserves for frequency ancillary services. Energy activation costs for frequency ancillary services are funded from the imbalance settlement, the costs of which are covered by the balance responsible parties.

The total costs of ancillary services funded from the network charge in 2020 were almost €2.1 million higher than in the previous year. This is mainly due to the leasing of FCR, which has become a paid ancillary service as of 2020. The costs of aFRP and mFRP increased by almost 9.5% compared to the previous year, while the costs of non-frequency services decreased by just under 6.3%.

.

TABLE 14: COSTS OF PROVIDING ANCILLARY SERVICES FUNDED FROM THE NETWORK CHARGE

Ancillary service	Cost in 2020 excluding VAT (EUR)
FCR	1,199,016
Positive aFRP	5,603,297
Negative aFRP	5,610,790
Positive mFRP	12,455,039
Negative mFRP	3,858,061
Voltage and reactive power control	5,277,244
Black start	1,308,277
Total	35,311,724

SOURCE: ELES

In 2020, ELES activated 41.8 GWh of positive and 60.5 GWh of negative energy in performing aFRP. This is significantly less than in 2019, when it activated 70.3 GWh of positive and 88.3 GWh of negative energy. It should be added that ELES exported 101.9 GWh to eliminate positive imbalances and imported 70.8 GWh to eliminate negative imbalances in 2020 as part of imbalance netting under the IGCC project. In performing mFRP, ELES activated 3,349 MWh of positive energy, which is 955 MWh or 40% more than the year before. Most of the energy, 65%, was activated via foreign providers, while the remaining 35% was contributed by domestic providers. ELES activated 73 MWh of negative mFRR in 2020, marking an increase of 22 MWh or 43% compared to the previous year. Negative mFRR was activated on three occasions in 2020, twice in January and once in April. The number of mFRR activations increased compared to 2019 (from 8 to 18 events).

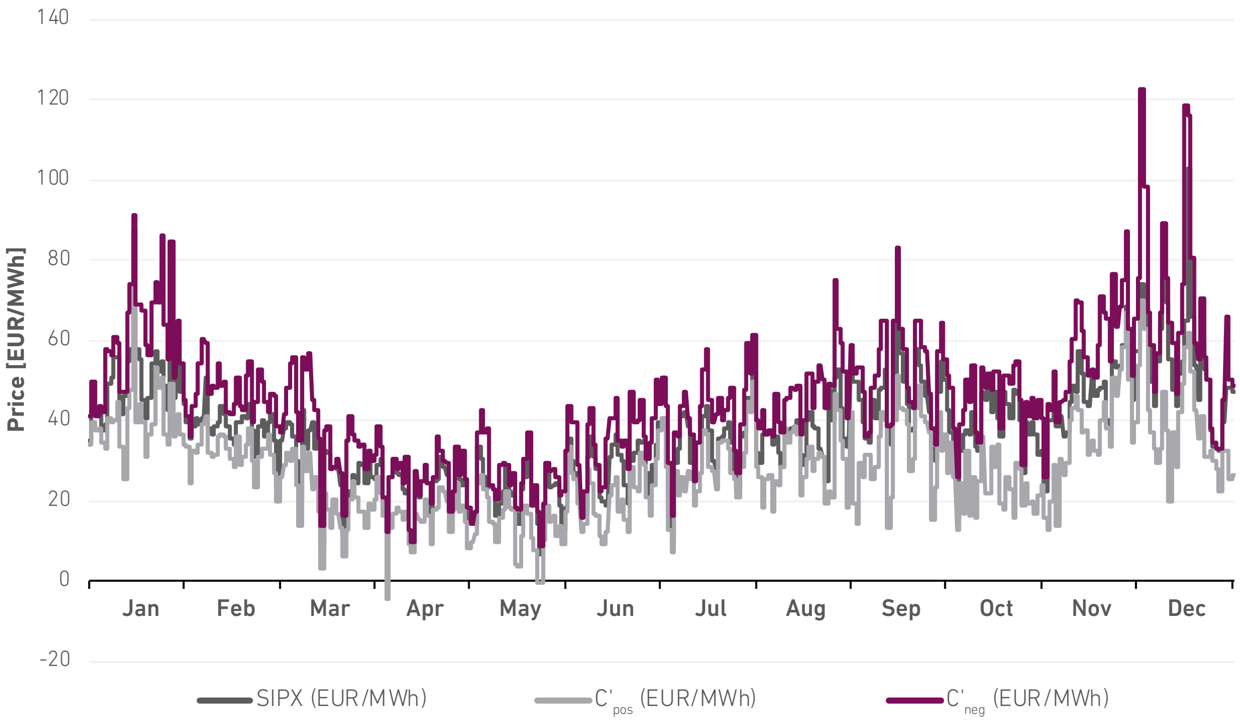
Balancing and Imbalance Settlement

In Slovenia, ELES–the TSO–is responsible for balancing electricity system deviations from the predicted values. ELES uses the aFRP reserve to correct minor system imbalances, while major imbalances are corrected using the mFRP reserve or by buying or selling energy on the balancing market. The costs associated with balancing are covered by the balance responsible parties using imbalance settlement.

The average balancing prices are nearly a quarter lower than in 2019

Figure 29 shows the trends in the derived imbalance prices of C'_{pos} and C'_{neg} and the Slovenian power exchange price index (SIPX) in 2020.

FIGURE 29: AVERAGE DAILY VALUES OF THE BASIC IMBALANCE PRICES C'_{POS} AND C'_{NEG} AND THE SIPX INDEX



SOURCE: BORZEN

The Slovenian power exchange index (SIPX) is used to calculate the basic prices of C'_{pos} and C'_{neg} imbalances, and therefore also to calculate the derived prices of C'_{pos} and C'_{neg} imbalances. In 2020, the average value of SIPX amounted to 37.54 EUR/MWh, which is 11.20 EUR/MWh or 23% less than in the previous year. The SIPX was highest (172.07 EUR/MWh) on 17 December in the 18th hour, and lowest (–23.48 EUR/MWh) on 24 May in the 6th hour.

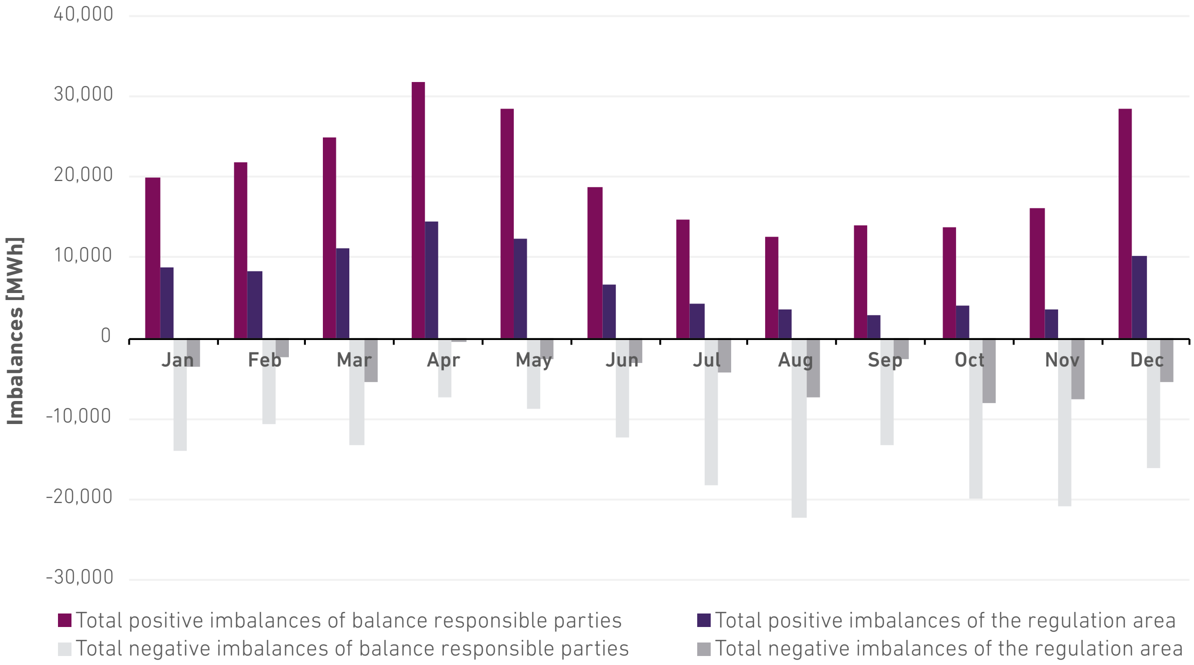
In 2020, the average derived price for negative imbalances (C'_{neg}) was 45.38 EUR/MWh, while the price for positive imbalances (C'_{pos}) was 28.15 EUR/MWh. In this period, the highest price of C'_{neg} was 271.04 EUR/MWh, and the highest price of C'_{pos} was 170.53 EUR/MWh. In the same period, the lowest price of C'_{neg} was –23.48 EUR/MWh, and the lowest price of C'_{pos} was –122.17 EUR/MWh. The price of C'_{neg} was highest on 2 December in the 19th hour, and C'_{pos} on 17 September in the 12th hour.

The price of C'_{neg} was lowest on 24 March in the 6th hour, and C'_{pos} on 5 April in the 17th hour.

The chart of price movements in 2020 in Figure 29, shows the impact of the epidemic on the market situation and electricity prices, which was particularly noticeable in the spring months. The prices also reflect the peaks in the system balancing costs, as the basic imbalance price is calculated as the ratio between the costs and the amount of balancing. Significant price jumps and a higher spread between the prices for positive and negative imbalances resulting from high balancing costs were observed mainly in January and in the last two months of the year.

Figure 30 shows the total positive and negative imbalances of all the balance responsible parties in Slovenia in 2020, as well as the total imbalances of the Slovenian regulation area.

FIGURE 30: TOTAL IMBALANCES IN THE SLOVENIAN ELECTRICITY SYSTEM



SOURCE: BORZEN, ELES

The highest positive imbalances of balance responsible parties were recorded in April and the highest negative in August. The total positive annual imbalances of the regulation area amounted to 90,606 MWh, and negative to 53,215 MWh. At the same time, the total positive annual imbalances of all the balance responsible parties amounted to 245,421 MWh, and negative to 177,414 MWh. Compared to the previous year, the positive imbalances at the level of the regulation area and at the level of all balance responsible parties increased in 2020, as did the negative imbalances at the level of the regulation area, while the negative imbalances decreased at the level of all the balance responsible parties. The trends in imbalances over the last five years are shown in Table 15; it should be noted that all imbalances are treated in accordance with the new Rules on the Operation of the Electricity Market. This means that the imbalances that were positive in the reports up to and including 2018 are shown as negative in Table 15, and vice versa.

TABLE 15: TRENDS IN THE TOTAL IMBALANCES OF BALANCE RESPONSIBLE PARTIES AND THE REGULATION AREA IN SLOVENIA IN THE 2016–2020 PERIOD

	2016	2017	2018	2019	2020
Total positive imbalances of balance responsible parties (MWh)	371,020	326,166	251,711	278,713	245,421
Total positive imbalances of the regulation area (MWh)	378,773	344,064	87,206	98,471	90,606
Total negative imbalances of balance responsible parties (MWh)	239,765	263,038	168,692	152,982	177,414
Total negative imbalances of the regulation area (MWh)	247,527	280,935	83,750	57,541	53,215

SOURCE: BORZEN, ELES

Both the system and the balance responsible parties deviated more in the positive than in the negative direction. The main reason for this is the imbalance settlement methodology used in Slovenia, which is based on two prices, between which there is normally a significant difference. This fact encourages traders to secure energy surpluses rather than deficits, as this reduces their risks in the market. The large share of positive imbalances can also partially be attributed to an increasing share of unpredictable generation from RES. With regard to the data in Table 15, it should be noted that system imbalances are generally smaller than balance responsible parties' imbalances, which is attributed to the fact that the latter partially cancel each other out due to different directions of imbalances.

Quality of Supply

At the system level, the regulation of the quality of supply aims to improve or maintain the existing level with optimised costs. Various activities are carried out to address the quality of supply, such as monitoring, reporting and analysing data on the following dimensions: continuity of supply, commercial quality and voltage quality. In addition, the Energy Agency performs quality of supply regulation by publishing data and analyses in its report on the quality of supply, which is available on its website.

In 2020, the Energy Agency carried out an audit of the data on the continuity of supply reported by two distribution companies for the 2019 financial year and identified inconsistencies with the reporting rules laid down in the Legal Act on the Rules for Monitoring the Quality of the Electricity Supply for one of the companies. The distribution company remedied the inconsistencies with the reporting rules by revising its data on the continuity of supply. As part of the audit, the Energy Agency also assessed the effectiveness of the continuity of the supply monitoring process.

Continuity of Supply

The data on the continuity of supply is collected, reported and analysed using a uniform methodology, which ensures the mutual comparability of data on the quality of supply among the distribution companies and also the international comparability of the achieved parameters of continuity of supply at the EU level.

The average electricity supply interruption lasted for 177 minutes, which is the shortest in the last five years

Interruptions caused by electricity system operators or distribution companies are classified as internal events, while interruptions caused by third parties are classified as external events. Unexpected or unforeseen events that are not attributable to the electricity system operators or distribution companies, or to third parties, can be classified as force majeure.

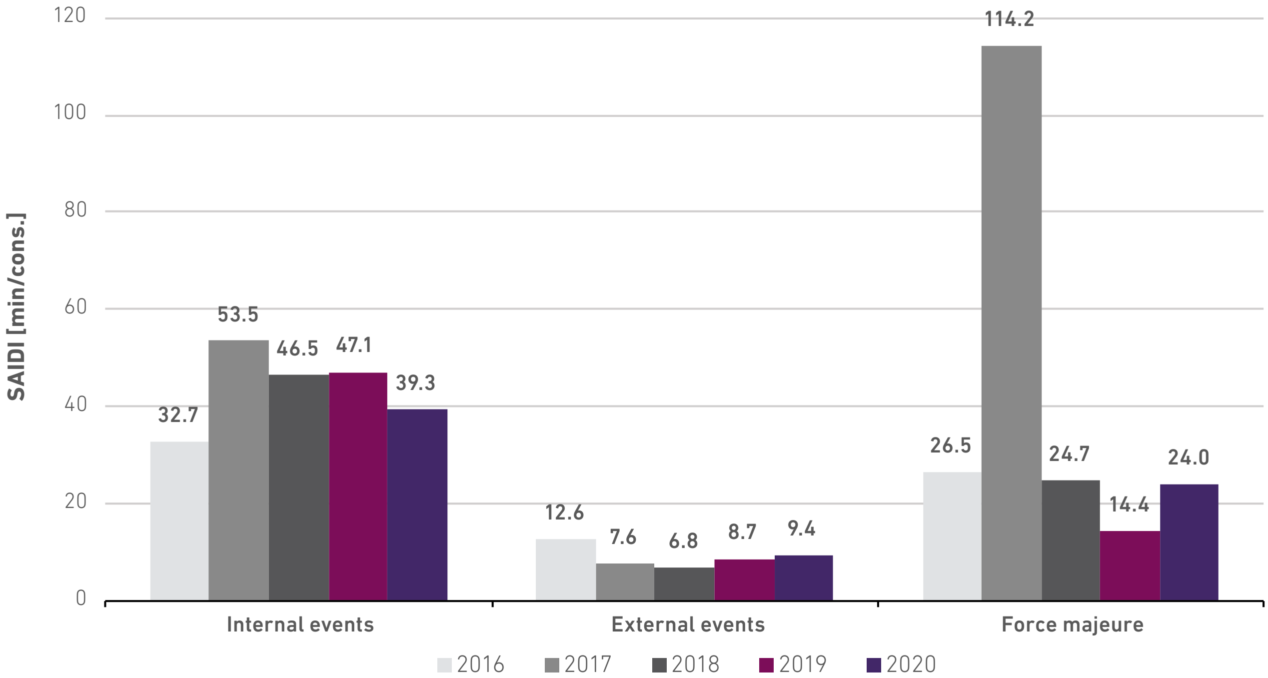
Based on the data on SAIDI and SAIFI indicators, calculated at the level of individual distribution companies, the Energy Agency calculated the aggregate value of these indicators considering the total number of consumers in Slovenia. The monitoring of SAIDI and SAIFI parameters over the observation period has identified a gradual improvement in the level of quality of the supply. In 2020, the electricity supply was interrupted 2.4 times on average with a total duration of 177 minutes.

The Energy Agency also monitors the MAIFI parameter, which is calculated similarly to the SAIFI parameter and indicates short-term interruptions of under three minutes, which are not classified by causes. In 2020, after several years of decline, the MAIFI parameter only slightly deteriorated, reaching an average of 5.8 short-term interruptions per system user.

Electricity supply was interrupted 2.4 times per year on average

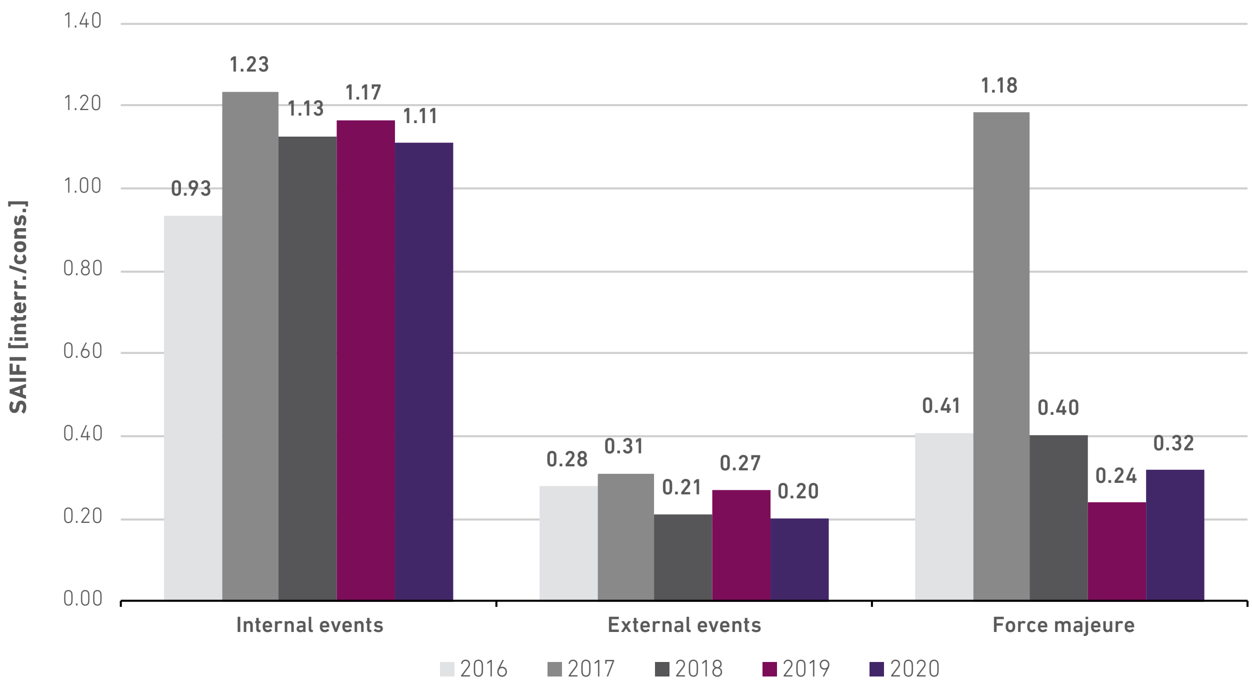
Figures 31 and 32 show the SAIDI in SAIFI indicators for unplanned long-term interruptions, classified by causes of the interruption (internal and external events, and force majeure), for the 2016–2020 period, while Figure 33 shows the MAIFI indicator for the same observed period. All the indicators are calculated at the national level.

FIGURE 31: SAIDI FOR UNPLANNED LONG-TERM INTERRUPTIONS, CLASSIFIED BY CAUSES, IN THE 2016–2020 PERIOD



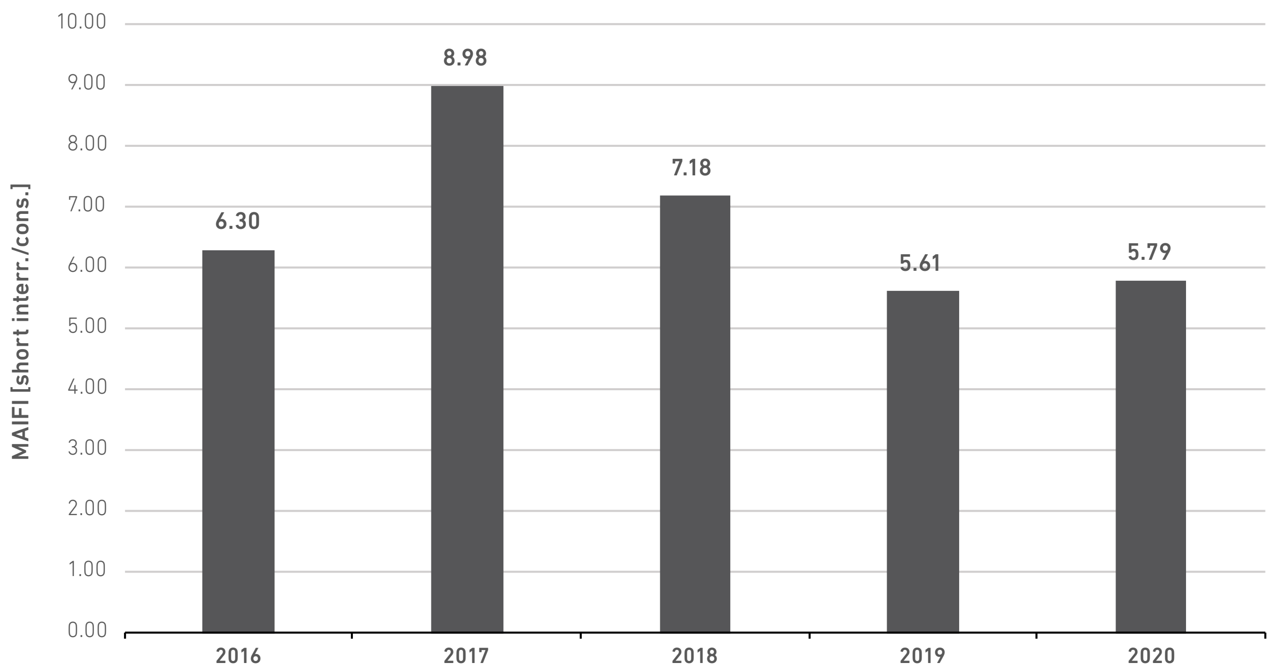
SOURCE: ENERGY AGENCY

FIGURE 32: SAIFI FOR UNPLANNED LONG-TERM INTERRUPTIONS, CLASSIFIED BY CAUSES, IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

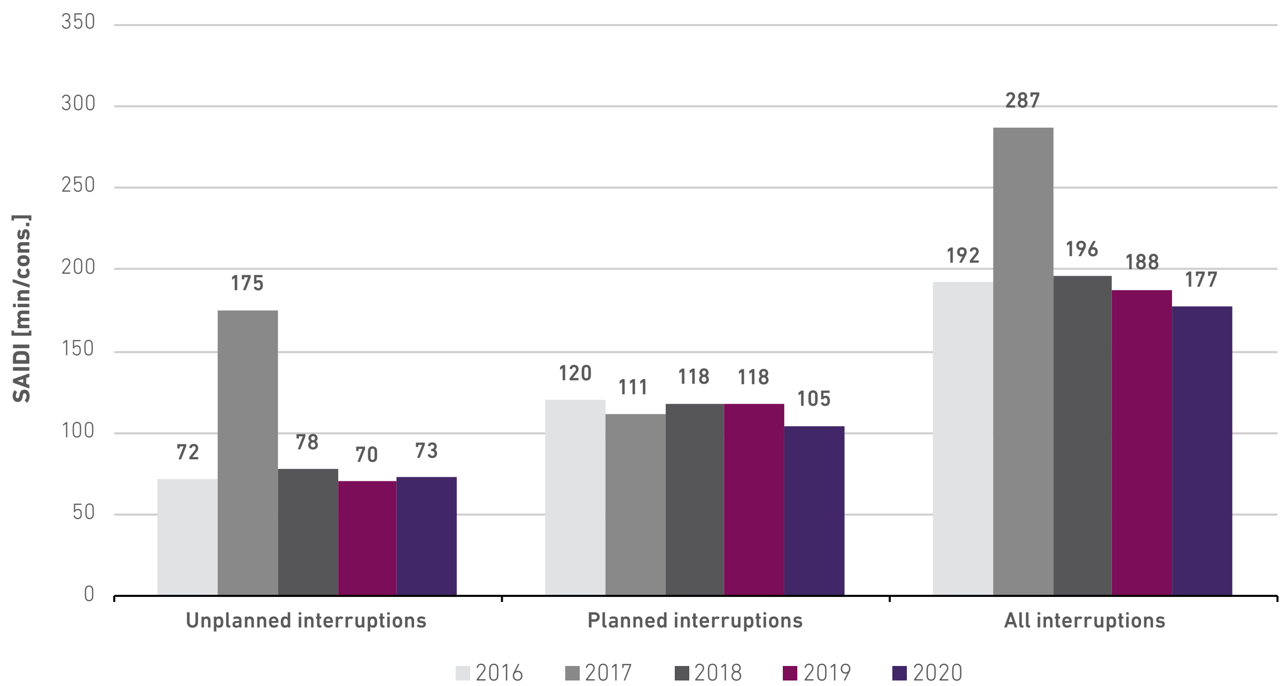
FIGURE 33: MAIFI IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

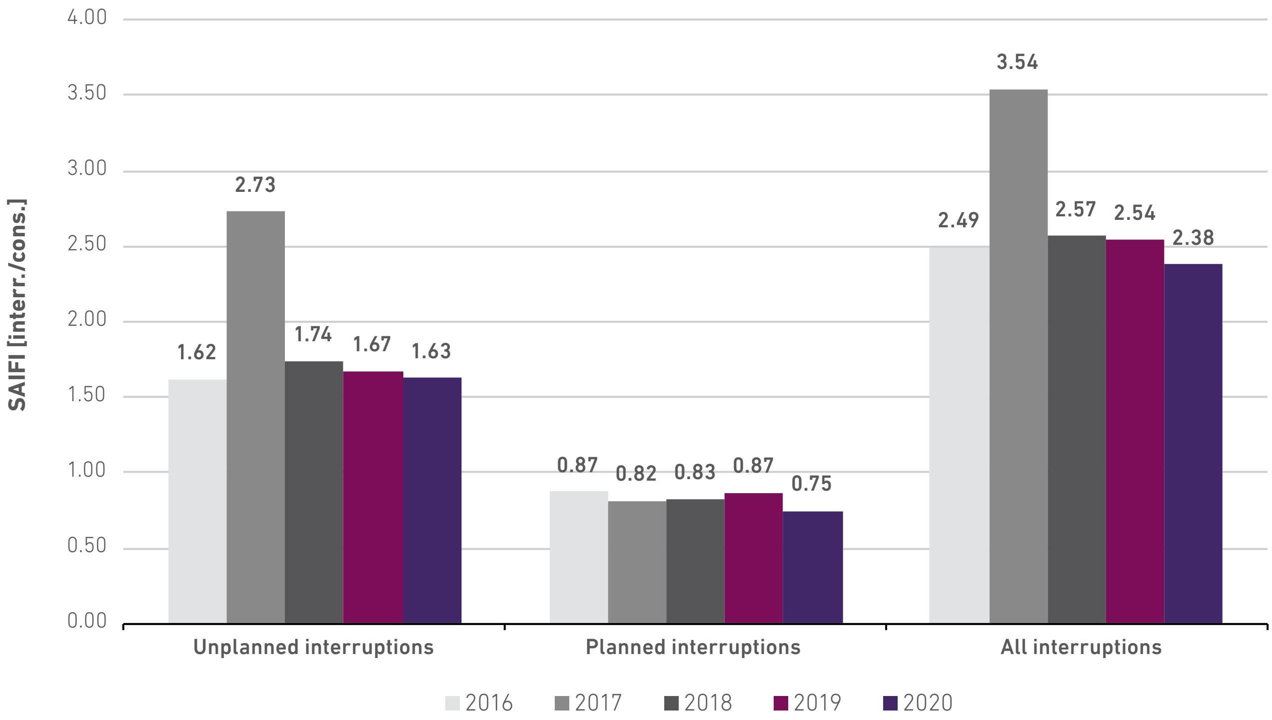
Figures 34 and 35 show the aggregate value for the SAIDI and SAIFI indicators for unplanned, planned and all interruptions in Slovenia in the 2016–2020 period.

FIGURE 34: SAIDI FOR ALL LONG-TERM INTERRUPTIONS, CLASSIFIED BY CAUSES, IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

FIGURE 35: SAIFI FOR ALL LONG-TERM INTERRUPTIONS, CLASSIFIED BY CAUSES, IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

In 2020, the Energy Agency also continued to monitor the data on supply continuity in CDSs. This year, CDSs did not receive any complaints from consumers about continuity of supply; however, they did record electricity supply interruptions, as shown in Table 16.

TABLE 16: OVERVIEW OF THE NUMBER OF INTERRUPTIONS IN CDSS, CLASSIFIED BY CAUSES

Number of electricity supply interruptions in 2020	Petrol Ravne CDS	Petrol Štore CDS	Jesenice CDS	Sij Acroni CDS	Talum CDS
Unplanned interruptions	7	1	0	15	0
• internal events	0	0	0	15	0
• external events	1	1	0	0	0
• force majeure	6	0	0	0	0
Planned interruptions	0	1	0	4	0
Short-term interruptions	9	2	0	7	0

SOURCE: CSDs

Commercial Quality

One compensation payment due to a breach of guaranteed standards

The required level of commercial quality is determined by the system and the guaranteed standards for commercial quality. A breach of the guaranteed commercial quality standards defined by the Energy Agency may bring financial consequences for the service provider, i.e., payment of compensation to the consumer concerned. On the basis of system standards, a consumer can expect a certain quality level, as these standards indicate the average level of service quality or the share of all customers provided with the required service quality.

In 2020, compensation was paid to one consumer for a breach of the guaranteed standards. Based on the three-year trend of commercial quality parameters, we conclude that the level of commercial quality has remained steady. Despite the fact that the new regulatory framework for the 2019–2021 period includes a slightly stricter minimum standard for two of the commercial quality indicators, only minor deviations in the maximum values were identified compared to previous years. Table 17 shows the ranges (minimum and maximum values) of commercial quality indicators in the 2018–2020 period.

TABLE 17: THE RANGE OF THE COMMERCIAL QUALITY INDICATORS IN THE 2018–2020 PERIOD

Commercial quality indicator	2018		2019		2020	
	Min.	Max.	Min.	Max.	Min.	Max.
Connection-related services						
Average time to issue an approval for connection [days]	9.8	23.8	13.5	23.5	8.3	24.6
Average time to issue a cost estimate or proforma invoice for simple works [days]	2.0	6.2	2.6	6.0	3.1	5.2
Average time to issue a contract for connection to the LV system [days]	1.0	11.9	1.0	8.5	2.7	10.8
Average time to activate a connection to the system [days]	2.1	7.6	1.8	8.1	0.6	7.8
Customer service						
Average response time to consumers' written questions, complaints or enquiries [days]	0.5	5.0	1.1	5.7	2.0	4.3
Average hold time in the call centre [s]	15.0	116.7	15.0	109.7	12.0	92.1
Call centre performance indicator [%]	83.3	92.5	84.0	93.7	89.0	93.8
Technical services						
Average time to restore supply following a failure of a current limiting device (06:00–22:00) [h]	1.0	1.9	0.9	2.1	0.9	1.7
Average time to restore supply following a failure of a current limiting device (22:00–06:00) [h]	1.3	3.3	1.0	2.2	0.8	2.4
Average response time to voltage quality complaints [days]	11.2	25.8	12.8	29.6	13.7	18.8
Average time to resolve voltage quality inconsistencies [months]	0.3	54.0	2.9	31.0	1.1	35.6
Metering and billing						
Average time to remedy meter failures [days]	2.9	9.2	2.7	8.0	3.3	9.6
Average time to restore supply following disconnection due to non-payment [h]	0.2	8.5	0.1	8.7	0.1	9.1

SOURCE: ENERGY AGENCY

In relation to commercial quality, data on user complaints is also collected through a standardised procedure. In the observed three-year period, the most frequent complaints from system users to the distribution companies were due to exceeding the maximum time to resolve voltage quality deviations; after a longer period, there were also complaints from system users due to exceeding the time limit to respond to voltage quality complaints. The data on the share of justified complaints also indicate that users are aware of the rights that must be guaranteed by the DSO in the provision of its services, and are therefore presented separately in the analysis. The total number of complaints received and the share of justified complaints from system users were the same in 2020 as in the previous year. The data on commercial quality complaints for the 2018–2020 period is summarised in Table 18.

TABLE 18: NUMBER AND SHARES OF JUSTIFIED COMMERCIAL QUALITY COMPLAINTS IN THE 2018–2020 PERIOD

Reason for complaint	Total number of complaints			Number of justified complaints			Share of justified complaints		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Connection activations									
Exceeding the time limit to activate the connection to the system	1	0	0	0	0	0	0%	-	-
Incorrect disconnection due to maintenance staff error	0	0	1	0	0	1	-	-	100%
Quality of supply									
Exceeding the maximum time to resolve voltage quality deviations	20	6	4	3	6	3	15%	100%	75%
Exceeding the time limit to respond to a voltage quality complaint	0	0	7	0	0	6	-	-	86%
Exceeding the maximum permitted duration and number of unplanned long-term interruptions (applies only to end-consumers on the MV system)	0	0	2	0	0	0	-	-	0%
Metering									
Delay in repair of metering device failure	0	2	1	0	2	0	-	100%	0%
Metering, billing and recovery of costs									
Delay in responses to consumers' written questions, complaints and other claims	2	3	1	2	3	1	100%	100%	100%
Connection-related services									
Delay in issuing connection approval	5	7	0	0	0	0	0%	0%	-
Customer service									
Untimely notification about planned interruptions	0	0	2	0	0	0	-	-	0%
TOTAL	**28**	**18**	**18**	**5**	**11**	**11**	**18%**	**61%**	**61%**

SOURCE: ENERGY AGENCY

In 2020, CDSs continued to monitor commercial quality. Due to the greater system rigidity and a relatively low number of consumers, CDSs did not receive any consumer complaints relating to commercial quality.

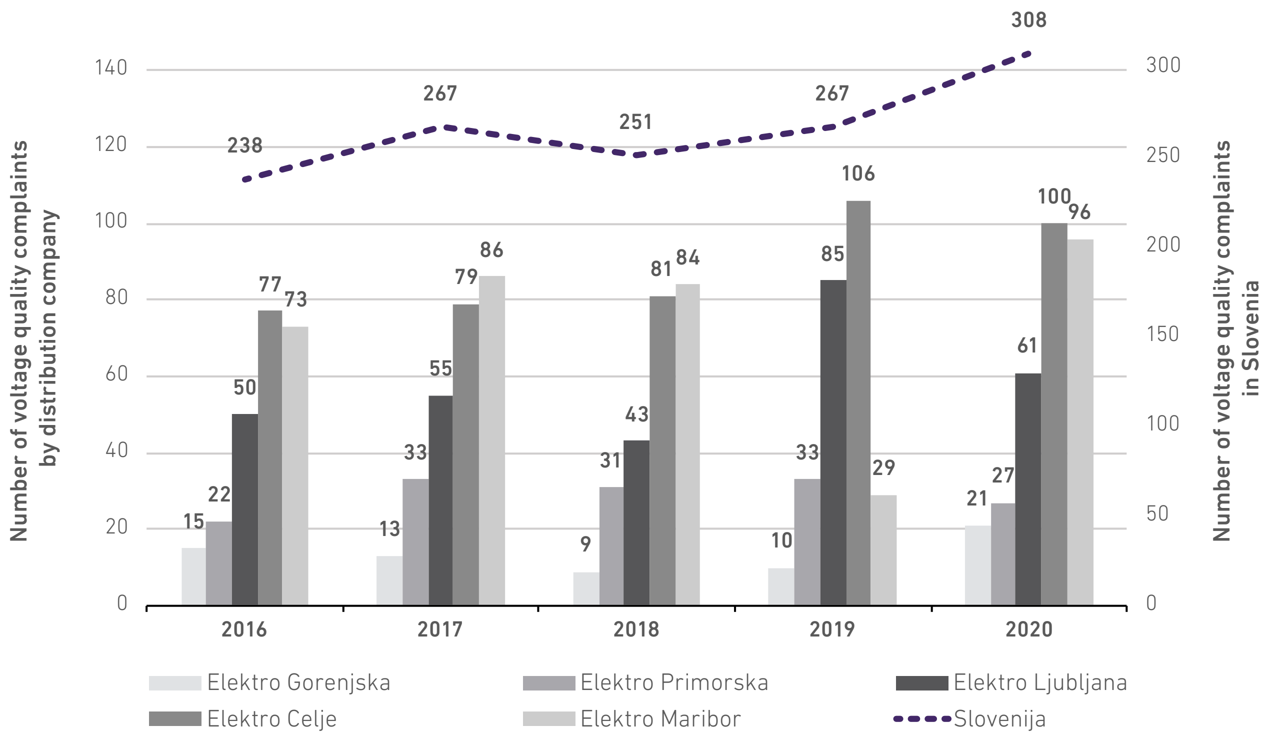
Voltage Quality

The two system operators and the distribution companies are required to perform continuous monitoring at the boundary of the transmission and distribution networks, as well as at the delivery points for larger users. In addition, periodic monitoring is carried out according to a predefined plan. When addressing a consumer's complaint, voltage quality is monitored for at least one week. Voltage quality is also monitored as part of the procedure for issuing connection approvals, before a new consumer is connected.

Figure 36 shows the trend in voltage quality complaints for individual distribution companies and for the entire territory of Slovenia. As seen in Figure 37, the data shows an increase in the total number of consumer complaints in 2020; however, the shares of justified and unjustified complaints were comparable to the previous year.

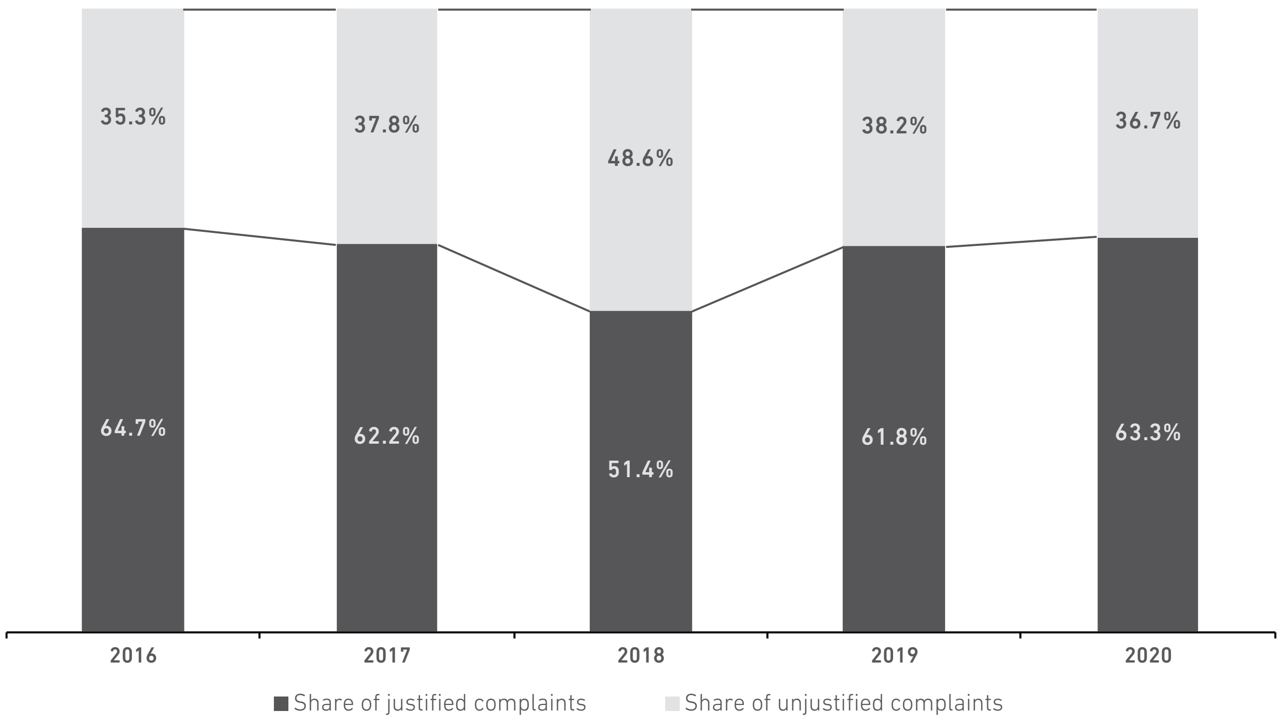
A 15.3% increase in the total number of complaints

FIGURE 36: NUMBER OF VOLTAGE QUALITY COMPLAINTS BY DISTRIBUTION COMPANY AND IN SLOVENIA IN GENERAL IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

FIGURE 37: SHARE OF JUSTIFIED AND UNJUSTIFIED VOLTAGE QUALITY COMPLAINTS IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

ELES carried out the continuous monitoring of voltage quality in the high-voltage network at 195 connection points between the distribution system, producers and direct consumers. Similar to previous years, the most breaches of the standards were due to the occurrence of flicker. Deviations from the standard were recorded at 113 connection points. In addition, breaches of standards relating to supply voltage were recorded at ten connection points, as well as breaches relating to imbalances at three connection points.

In 2020, voltage quality monitoring according to the standard was also conducted by CDSs. At the Talum CDS, a continuous monitoring system was implemented in December 2016 in the main input switchyard, which has since been upgraded in all transformer station feeders. When needed, they have access to the data captured by ELES at these connection points, and a portable network analyser is used in case of consumer requests. In 2020, the Sij Acroni CDS and Jesenice CDS recorded a similar voltage quality as in previous years. The limits of the standard were exceeded due to flicker, which is beyond the control of the CDS operators. The non-compliance of the flicker with the standard was also recorded at the Ravne CDS and the Štore CDS. Other than that, the CDSs did not receive any complaints relating to voltage quality monitoring.

Multi-Year Development of the Electricity Network

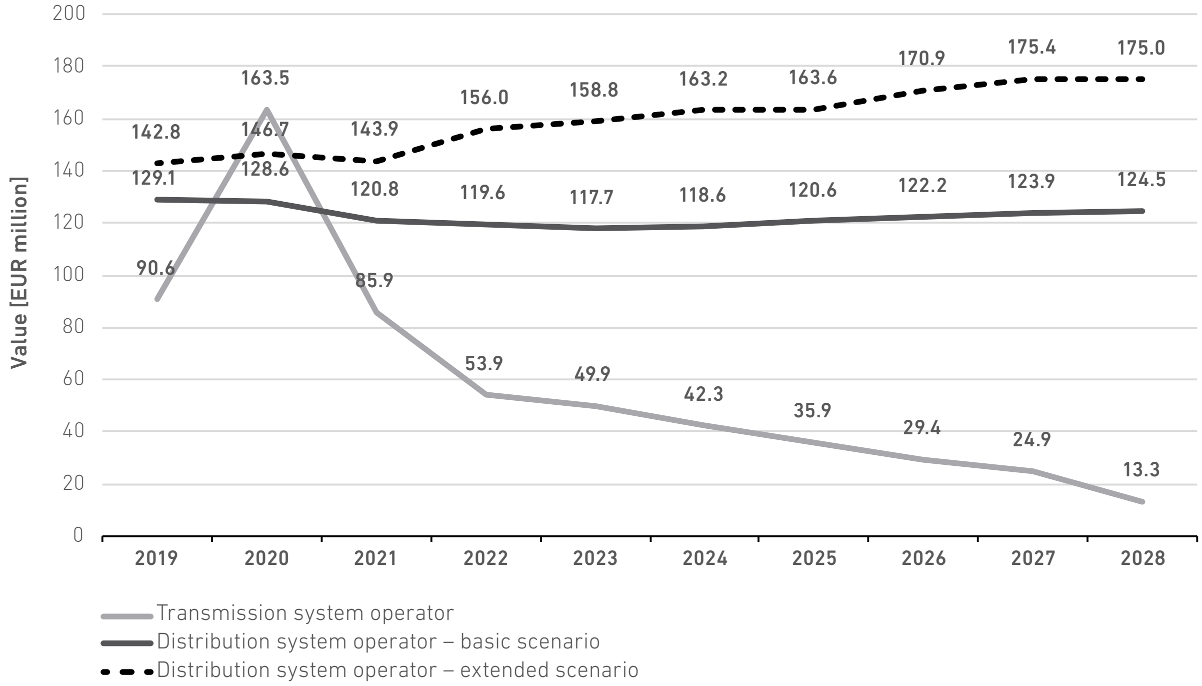
The development of the electricity network is based on ten-year development plans for the electricity transmission and distribution system formulated every other year by the two electricity system operators and approved by the ministry responsible for energy. The two plans must be developmentally coherent and take into account the country's strategic energy goals. In their planning, the two electricity system operators apply the prescribed uniform methodology that takes into account long-term consumption forecasts, analyses of expected operating conditions, the degree of reliability of the supply to customers, economic analyses and the potential locations of new production sources.

The starting point for network planning in the transmission system operator's development plan is an analysis of the transmission system conditions and the development of electricity consumption forecast scenarios using the methodology of the European Association of Transmission System Operators (ENTSO-E). The development plan must include an analysis of consumption coverage with existing production sources and the sufficiency of these sources, as well as an assessment of the necessary transmission capacity to determine the time dynamics of planned investments and evaluate them financially.

The DSO's development plan must include an analysis of the period covered by the previous development plan, an analysis of the electricity and electric power consumption forecast, and a country-wide distribution infrastructure investment plan, which must also be financially evaluated.

The development plans for the 2019–2028 period prepared by the two system operators include investments in electrical infrastructure totalling €590 million for the transmission system, and €1,226 million for the distribution system in the basic scenario and €1,596 million in the extended development scenario.

FIGURE 38: ASSESSMENT OF INVESTMENT RISKS FROM THE DEVELOPMENT PLANS PREPARED BY ELECTRICITY SYSTEM OPERATORS FOR THE 2019–2028 PERIOD



SOURCES: ELES, SODO

A significant decline in transmission system investments is planned until 2028

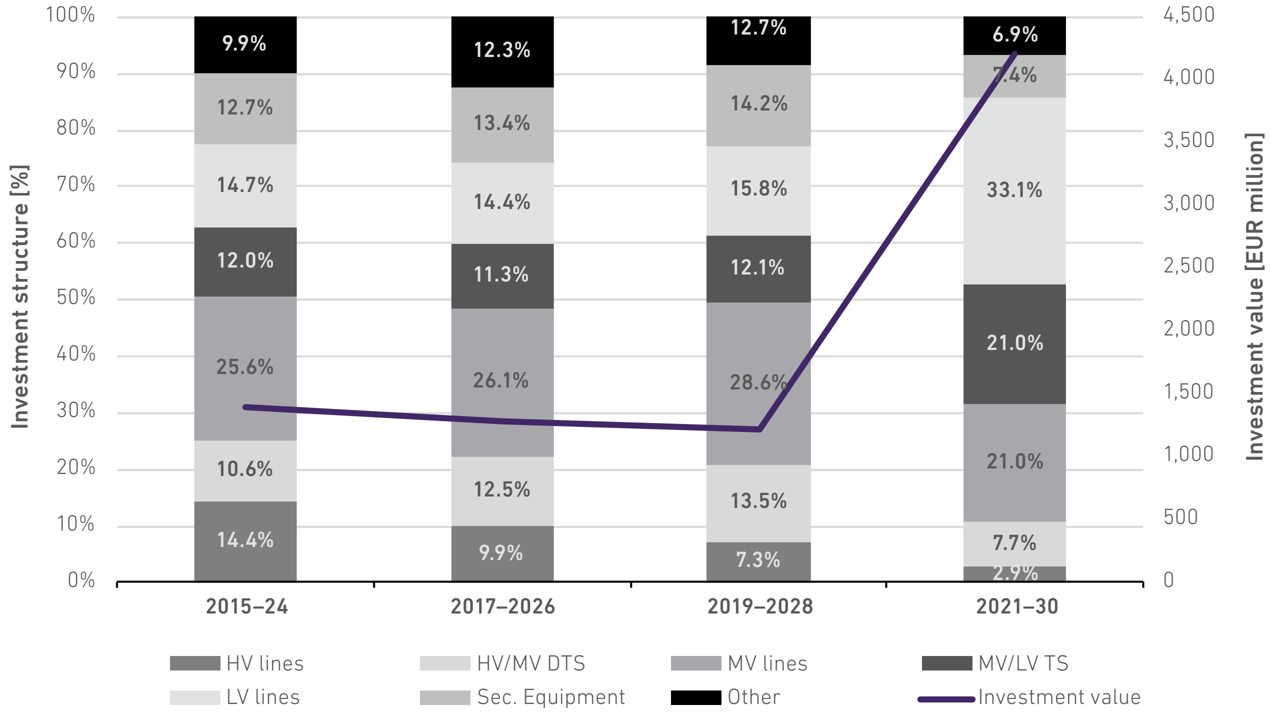
The TSO's development plan up to 2028 is based on studies on the need for new transmission infrastructure. The studies took into account the state of the network, the need for technological upgrades in transmission system facilities, the needs of electricity producers and consumers, criteria for the reliable and secure operation of the transmission system, and international agreements and treaties. The general guidelines followed in the development of the set of new and reconstruction investments cover: interconnection with neighbouring power systems, control of power flows and maintaining adequate voltage conditions in the entire Slovenian power system, ensuring reliable and safe operation in accordance with ENTSO-E recommendations and criteria, and the introduction of smart grids to improve the utilisation of the existing infrastructure and to achieve adequate stability and efficiency in order to meet European energy requirements. In connection with the latter, the implementation of the international smart grid project SINCRO.GRID will be continued, under which the transmission and distribution operators of Slovenia and Croatia have begun to address the challenges of transmission network voltage control and reducing the required reserve capacity for frequency restoration. The most important improvement of the transmission network in the coming years will be the construction of the 400-kV Cirkovce–Pince transmission line, which will significantly increase the import capacity of Slovenia's transmission system and enable the import of cheaper electricity from Eastern Europe, as well as improve the reliability of the power supply in Slovenia. The projects for the transition of the 220-kV transmission network to the 400-kV voltage level and the new direct current link between Slovenia and Italy are still in the study phase and their realisation will depend mainly on future market conditions.

The DSO's distribution network development plan up to 2028 takes into account the objectives relating to the guidelines and targets of the national and European energy and environmental policy. The development plan addresses the issues of how to meet the needs of planned electricity consumption and power, how to ensure a cost-effective, state-of-the-art network, and how to ensure the long-term stability, reliability and availability of the distribution network while improving or maintaining the quality of the electricity supply, deploying smart grid concepts and developing advanced metering. The largest share of investments in terms of value will be in the construction of a new medium-voltage network and the reconstruction of a medium-voltage network, with the new constructions predominantly including underground medium-voltage networks and cable transformer substations. These will be followed by investments in the construction and reconstruction of high-voltage facilities and systems, as well as low-voltage systems and secondary equipment. In addition to the basic scenario, the development plan includes an extended scenario, which takes into account an additional increase in network capacity based on an increase in the consumption and network loads as a result of the planned connection of a large number of distributed sources, charging stations for electric vehicles and heat pumps.

The planned volume of investments in the distribution system is increasing due to the projected growth in consumption and distributed generation sources

At the end of 2020, the two electricity system operators drew up new development plans for 2021 to 2030 and obtained the approval of the energy minister. The development plans take into account, inter alia, scenarios for a transition to a low-carbon society as set out in the NECP and the related investments in the electricity infrastructure of the system operators. The DSO's development plan for the 2021–2030 period constitutes a significant departure from the traditional development plans of previous periods, both in terms of value and in terms of the ratio between individual investment categories. There is a significant shift towards addressing problems in the low-voltage network, resulting from the projected increase in the connection of small-scale distributed generation sources and growth in the connection of loads such as heat pumps and electric vehicle charging stations. These problems were not adequately addressed in past electricity distribution system development plans, even though they are already present in the distribution system to a significant extent and are causing problems with controlling the voltage conditions in the low-voltage network and preventing the connection of new electricity generation installations.

FIGURE 39: AMOUNTS AND STRUCTURE OF INVESTMENTS IN THE DEVELOPMENT PLANS FOR THE ELECTRICITY DISTRIBUTION SYSTEM

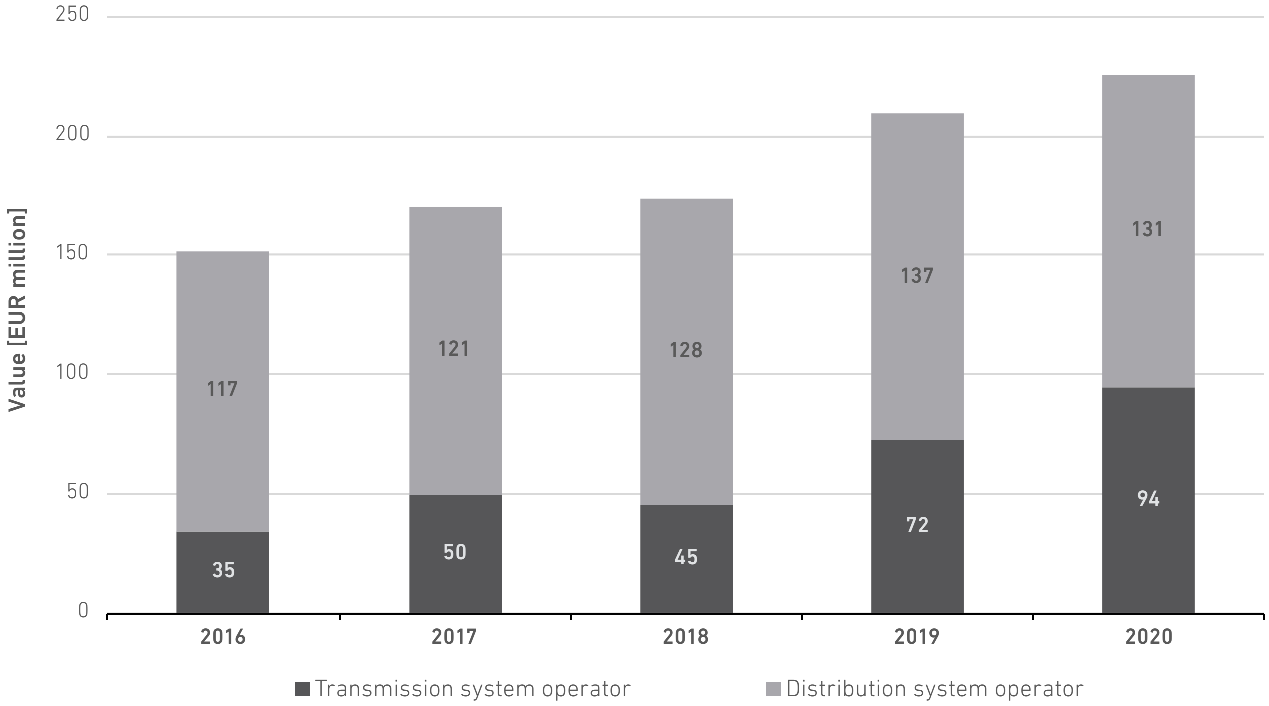


SOURCE: SODO

Supervision over Implementation of Electricity System Operators' Development Plans

In 2020, the TSO allocated €94.4 million to investments, which is only 57.7% of the investment funds provided for in the development plan, but as much as 120.4% of the funds provided for in the regulatory framework. Of that amount, €62.3 million was allocated to new investments, €12.8 million to reconstructions, and €19.3 million to other business investments. The largest share, 55.5%, was allocated to network investments, followed by smart grid investments (18.2%), and other business investments (26.3%). The investment in the completion of the 400/110 kV Cirkovce DTS, which is a prerequisite for the implementation of the long-planned investment in the new cross-border 400 kV Cirkovce–Pince transmission line in 2021, stands out with a value of €24.25 million. This is followed by investments in the technology centre in Beričevo at €14.7 million and the implementation of compensation devices in the Slovenian power system at €9.7 million. The deviations from the planned spending are mainly due to the changed dynamics of project implementation linked to procurement and siting complications.

FIGURE 40: TRANSMISSION SYSTEM OPERATOR AND DISTRIBUTION SYSTEM OPERATOR INVESTMENTS FOR 2016–2020



SOURCES: ELES, SODO

In 2020, the DSO and the owners of the distribution network earmarked €131.4 million for investments in electricity infrastructure, which is 105.5% of the funds planned in the regulatory framework and 100.9% of the funds planned in the development plan. Out of that amount, €66.3 million was allocated to new investments, €48 million to reconstructions, and €17.1 million to other business investments. In terms of voltage level, the majority of the investments, 36.2%, were made in the medium-voltage network, followed by 20.2% in the low-voltage network and 14.5% in the high-voltage network. The remaining amount comprises investments in secondary equipment (16%) and other business investments (13.1%). By type, investments in medium-voltage underground lines dominated, followed by investments in low-voltage underground lines and HV/LV substations in roughly equal proportions, and investments in MV/NV substations and the development of advanced metering. In terms of medium- and low-voltage overhead lines, investments were almost exclusively for the reconstruction of existing lines.

The epidemic did not affect the implementation of the system operators' development plans

TABLE 19: TRANSMISSION AND DISTRIBUTION ELECTRICITY INFRASTRUCTURE IN SLOVENIA AT THE END OF 2020

Transmission system	
400-kV lines	669 km
220-kV lines	328 km
110-kV lines	1,953 km
HV/HV DTS	8
110-kV DS	1
Distribution system	
110-kV lines	917 km
35-kV, 20-kV, 10-kV lines	18,239 km
0.4-kV lines	44,812 km
110-kV/MV DTS	96
MV/MV DTS	7
MV DS	81
MV/LV TS	18,343

SOURCE: ELES, SODO, EDCS

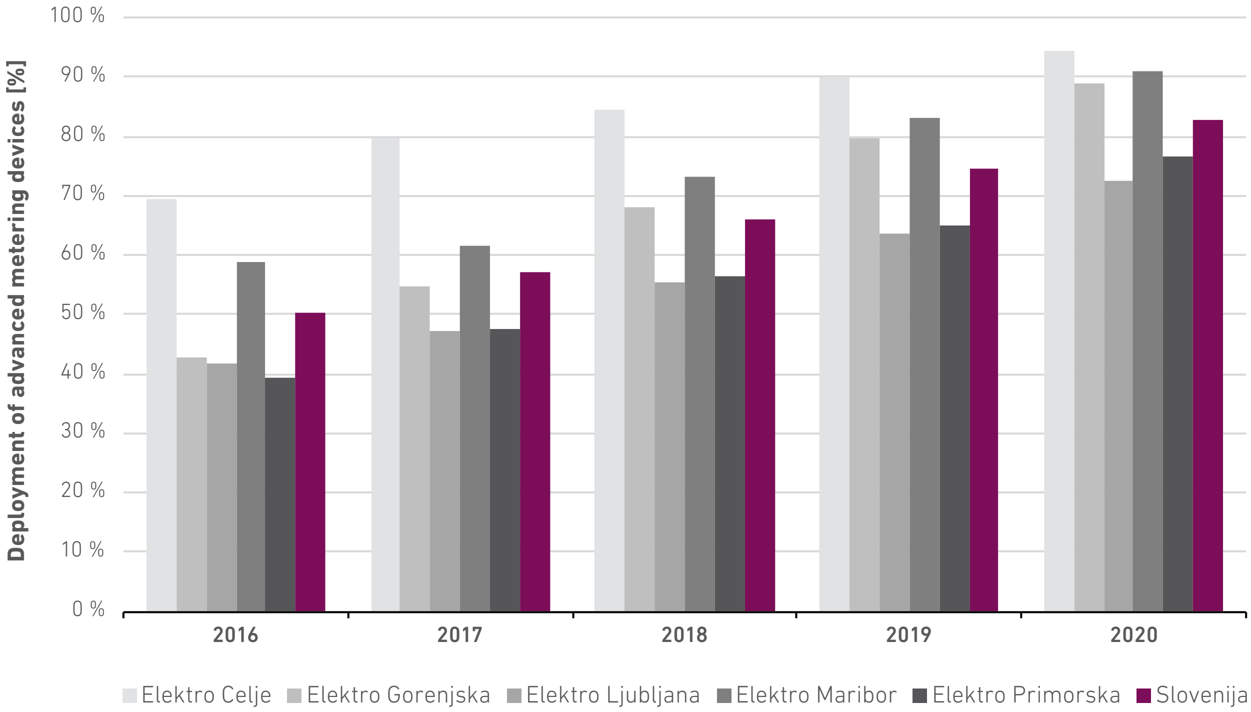
Development of the Advanced Metering System in Slovenia

82.9% of consumers connected to the distribution system were equipped with advanced metering devices – EU directive objective achieved

Slovenia is one of the leading European countries in the installation of advanced metering devices. At the end of 2020, no fewer than 82.9% of consumers connected to the distribution system were equipped with advanced metering devices, and 78.4% were included in remote meter reading. This meets, at least formally, the target set in the European Directive that 80% of customers should be equipped with advanced metering devices by 2020.

Just under a third of the installed advanced metering devices still do not comply with the Commission's recommendations regarding minimum functional requirements for advanced metering devices. In addition, even in 2020, the advanced metering system still did not provide all the necessary data services required for the development of the electricity market.

FIGURE 41: TREND OF DEPLOYMENT OF ADVANCED METERING DEVICES IN THE 2016–2020 PERIOD



SOURCE: EDCs

Development and Regulation of Smart Grids and the Deployment of New Technologies

In 2020, the two system operators and distribution companies (independently or as part of international partnerships) continued the deployment of smart grids, new technologies, and new approaches. In 2018, the Energy Agency adopted a regulatory act governing the network charge that introduced an upgraded incentive scheme for smart grid investments and a new incentive scheme to promote research and innovation for system operators in the 2019–2021 regulatory period. The main differences between the two incentive schemes are summarised in Table 20.

Both schemes have also been expanded in 2019 by amendments to the aforementioned act to enable:

- a higher investment incentive where the whole system approach is used[5];
- qualification for the research and innovation incentive scheme for projects launched during the previous regulatory period.

5 Ang. Whole System Approach

TABLE 20: OVERVIEW OF THE MAIN DIFFERENCES BETWEEN THE INCENTIVE SCHEMES FOR RESEARCH AND INNOVATION AND SMART GRID INVESTMENTS

Incentive scheme	Promotion of research and innovation	Smart grid investments
Technology readiness level (TRL)[6]	Low– TRL 3 to 8–Technology not commercially available	High– TRL 9–Technology commercially available
Project value	Low	High– EUR 100,000 minimum
Incentive amount	Sum of the incentives of all research and innovation projects capped at 0.5% of the recognised resources for covering the eligible costs of the undertaking in the regulatory period.	Sum of incentives capped at 10% of the demonstrated net benefits of the whole project.
Different incentives	• Coverage of system operators' research and innovation costs. • Performance incentives aimed at eliminating regulatory barriers to the implementation of innovative measures that are not possible under the existing regulatory framework and involve the active participation of consumers.	• A time-limited financial incentive of 2% of the carrying amount of the asset at 31 December for a period of three years from the date of activation. • In addition, an incentive of 3% of the carrying amount of the asset as at 31 December is granted to the system operator for a period of three years from the date of activation if it proves that it applied the whole system approach in the design and implementation of the solution. • In addition, a one-off project performance incentive of 5% of the cost of the assets needed exclusively to achieve the key performance indicators (KPIs) is granted to the system operator.

SOURCE: ENERGY AGENCY

Smart Grid Investments

The Energy Agency promotes investments in smart grids and new technologies with the aim of enabling the deployment of established new technologies:

- to make more efficient use of the existing electricity system; and
- to effectively integrate the behaviour and actions of all users connected to the electricity system, in particular the generation of electricity from renewable or distributed energy resources, as well as demand response.

The Energy Agency publishes basic information on the projects it has qualified under its regulatory methodology on its website and supervises all qualified projects.

In 2020, the Energy Agency did not receive any applications for new projects, while the implementation of two major investment projects, NEDO and SINCRO.GRID continued. The two projects are described in more detail in the Report on the Energy Situation in Slovenia in 2018.

Monitoring investments by smart grid function

A new methodology for monitoring investments by smart grid function was also implemented in 2020.

6 For a description of the different technology readiness levels, see the last page of the R&I scheme application form

Projects Included in the Research and Innovations Scheme

The research and innovation (R&I) incentive scheme is aimed at:

- providing funding for system operators' research and demonstration projects that deliver benefits for system operators, consumers and society as a whole;
- researching or demonstrating innovative smart grid approaches to make better use of the existing electricity infrastructure and renewable energy sources, as well as low-carbon and energy-efficient solutions using the open innovation concept;
- sharing the knowledge gained from the implementation of projects to deliver benefits and savings in the use of the network by end-consumers and to ensure more efficient network investments based on the results of the projects.

The Energy Agency publishes applications for qualified projects and project reports on its website and supervises the projects.

In 2020, the Energy Agency received a record number of applications (29) for the qualification of projects for the R&I scheme, which indicates a strong interest on the part of the system operators and distribution companies in implementing such projects.

Strong interest in the research and innovation incentive scheme

The scheme includes performance incentives aimed at eliminating regulatory barriers to the implementation of innovative measures that are not possible under the existing regulatory framework and involve the active participation of consumers. Incentives can be freely combined within a project and include:

- a dynamic critical peak tariff for network charges as part of a demand response pilot programme for active consumers;
- compensation for the participation of active consumers in the provision of system services;
- compensation for self-supply within a community based on the concept of locational netting of production and consumption in the community.

One such project requiring increased direct interaction with end-consumers was halted in 2020 due to the COVID-19 epidemic.

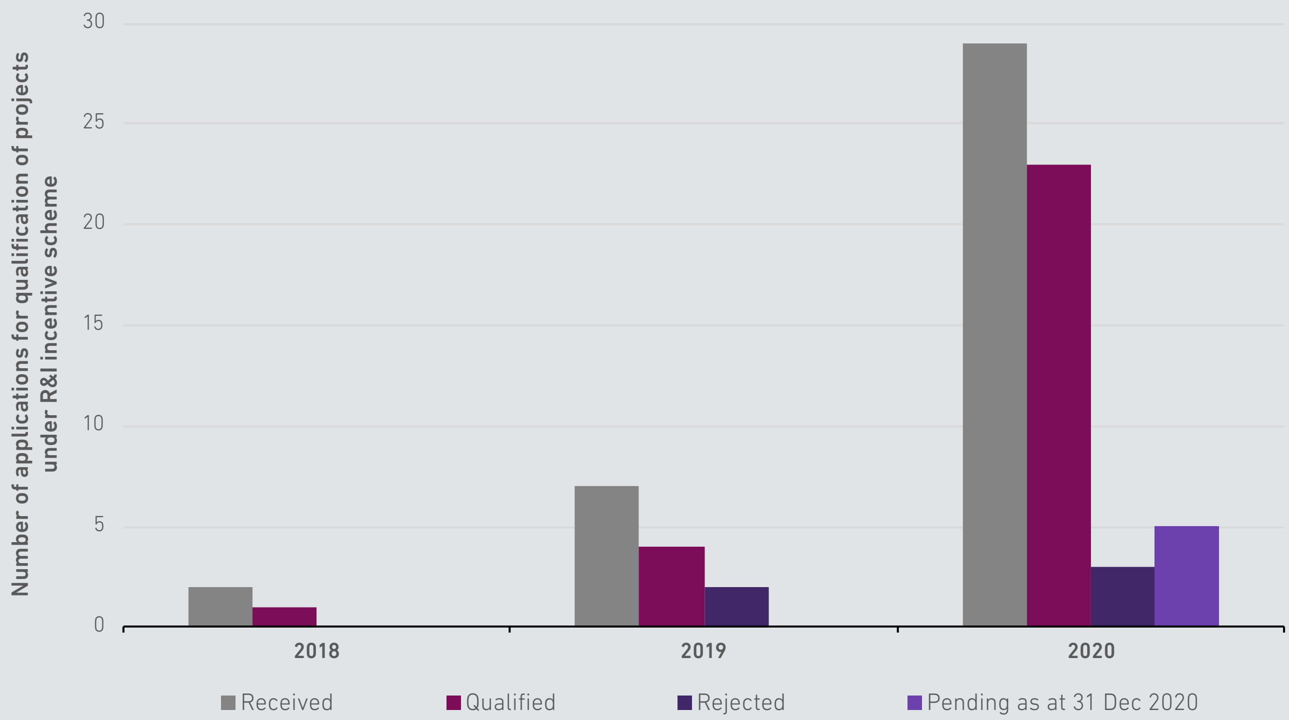
CASE STUDY: Analysis of the Impact of Promoting Research and Innovation and the Deployment of New Technologies in the Context of Sector Transformation

Research and innovation (R&I) incentive scheme projects are qualified for implementation on the basis of a standardised project application that can be submitted at any time. A specific timetable applies to projects that include performance incentives.

12 qualified flexibility-related projects (52%)

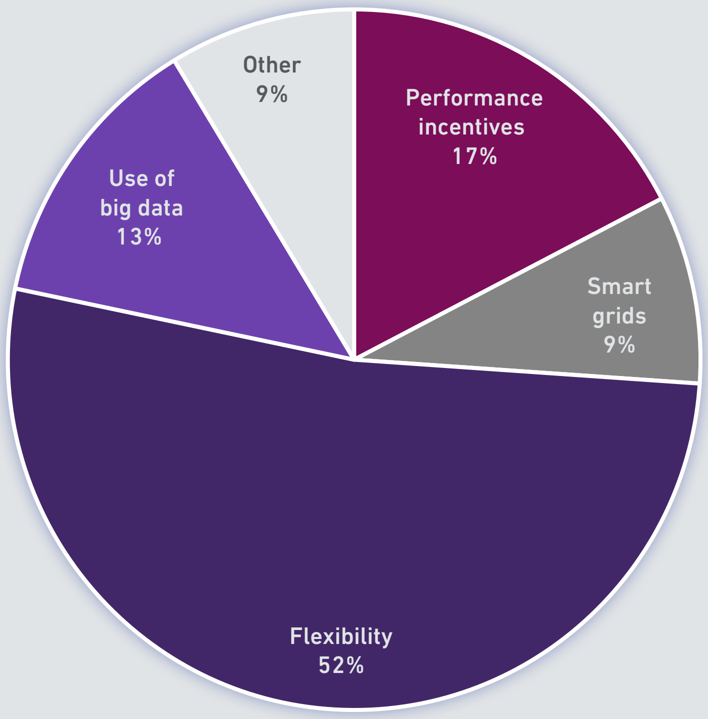
Figure 42 shows the number of applications for the qualification of projects under the R&I scheme. In 2019, the Energy Agency amended the act governing the network charge to allow for the qualification of projects that had been launched in the previous regulatory period, which further contributed to an increase in applications for the qualification of projects under the R&I scheme in 2020. In terms of subject matter, the projects address a variety of topics (Figure 43), with the exploitation of flexibility for the benefit of the electricity system standing out in terms of frequency. There is also an interest in implementing projects that include performance incentives for active customer participation. In addition to projects dealing directly with the grid, the Energy Agency has also noticed more projects involving the use of big data for the benefit of the electricity system.

FIGURE 42: OVERVIEW OF THE NUMBER OF APPLICATIONS FOR THE QUALIFICATION OF PROJECTS UNDER THE RESEARCH AND INNOVATION INCENTIVE SCHEME IN THE 2018–2020 PERIOD



SOURCE: ENERGY AGENCY

FIGURE 43: STRUCTURE OF THE MAIN TOPICS OF QUALIFIED PROJECTS UNDER THE RESEARCH AND INNOVATION INCENTIVE SCHEME



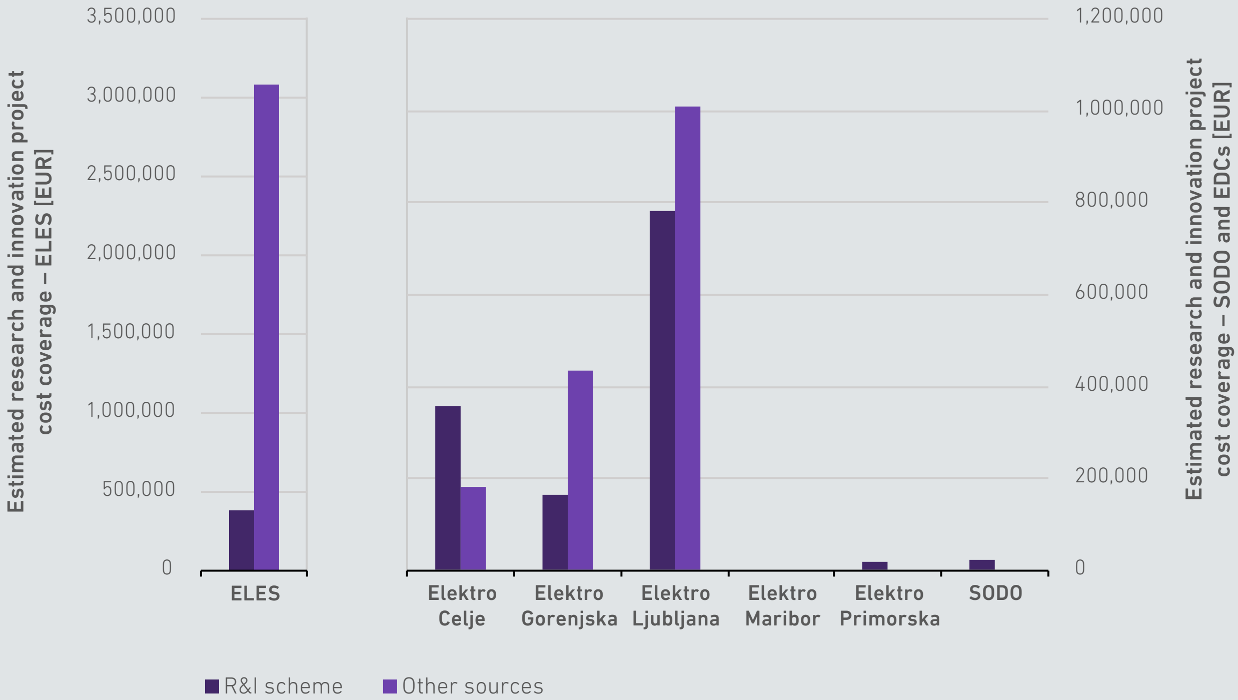
SOURCE: ENERGY AGENCY

In implementing R&I projects, the system operators and electricity distribution companies (EDCs) combined project cost coverage under the R&I scheme and under other programmes, most notably Horizon 2020, the European Union's framework programme for research and innovation. In total, the R&I scheme covered €1.7 million of the cost of the projects prepared by the companies, while around €4.7 million was covered by other sources. Figure 44 shows the estimated[7] costs of the projects covered by the R&I scheme and other sources by company for the 2019–2021 period. The figure clearly shows the high coverage of ELES' research and innovation costs under other programmes (Horizon 2020), which is a result of the company's proactive approach and the implementation of projects even at lower technology readiness levels (e.g., the FutureFlow project). The ratio is quite different for SODO and EDCs, which implement projects at higher technology readiness levels and rely more heavily on cost coverage under the R&I scheme. Elektro Maribor applied for one project under the RI scheme, but its implementation was suspended early due to the epidemic (no costs were incurred).

FIGURE 44: COST COVERAGE FOR QUALIFIED PROJECTS UNDER THE RESEARCH AND INNOVATION INCENTIVE SCHEME BY COMPANY

7 If the duration of a project exceeds the current regulatory period, the costs of the project were distributed between the current regulatory period and the remaining duration of the project assuming an even distribution of costs over time throughout the duration of the project.

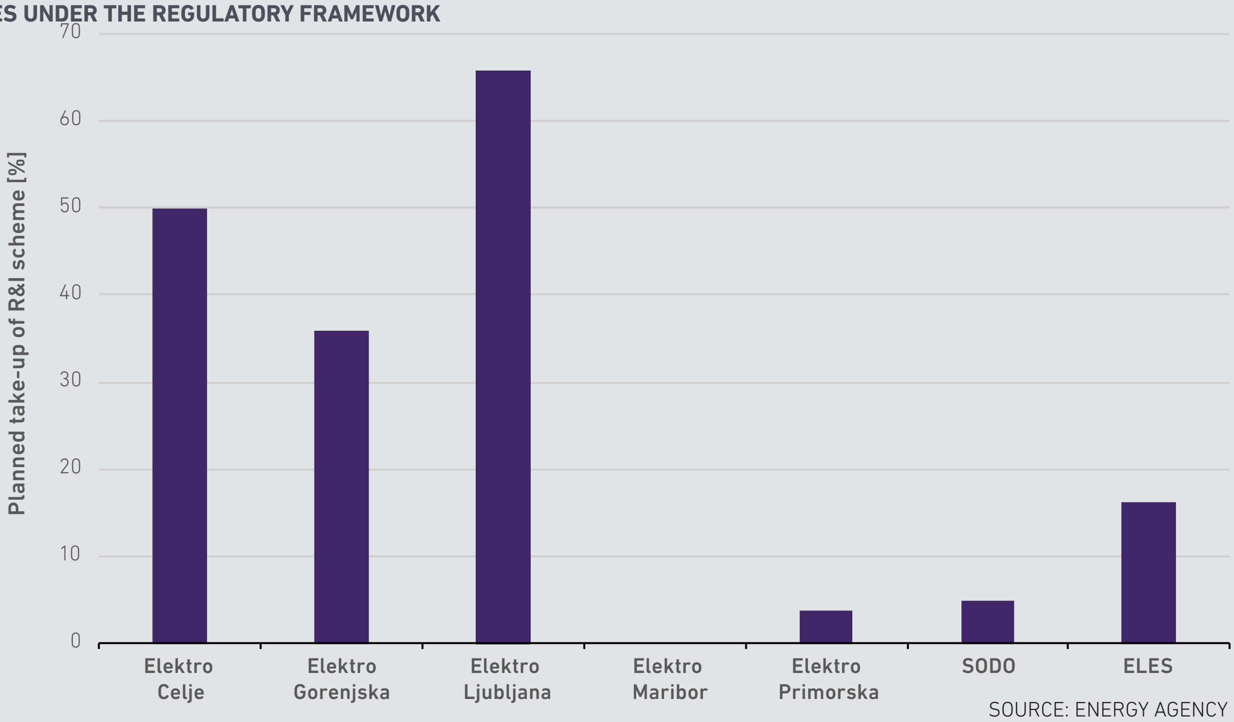
(ESTIMATE FOR THE 2019–2021 PERIOD)



SOURCE: ENERGY AGENCY

The costs earmarked for research and innovation for a given company are capped at 0.5% of the recognised sources for covering the company's eligible costs. This also makes it possible to assess the uptake[8] of the R&I scheme with qualified projects on a company-by-company basis against the planned values under the regulatory framework, as shown in Figure 45.

FIGURE 45: TAKE-UP OF THE RESEARCH AND INNOVATION INCENTIVE SCHEME BY COMPANY AS A PERCENTAGE OF THE PLANNED VALUES UNDER THE REGULATORY FRAMEWORK



SOURCE: ENERGY AGENCY

Smart grid investment incentive scheme projects are also qualified for implementation on the basis

8 The mechanism for accounting for deviations from the regulatory framework prevents an assessment of the actual realisation.

of a project application that can be submitted to the Energy Agency at any time. Incentives are granted on the basis of the qualification of the project and an assessment of the associated activated assets, which must meet the definition of smart grids and of smart energy infrastructure as set out in the regulatory act governing the network charge.

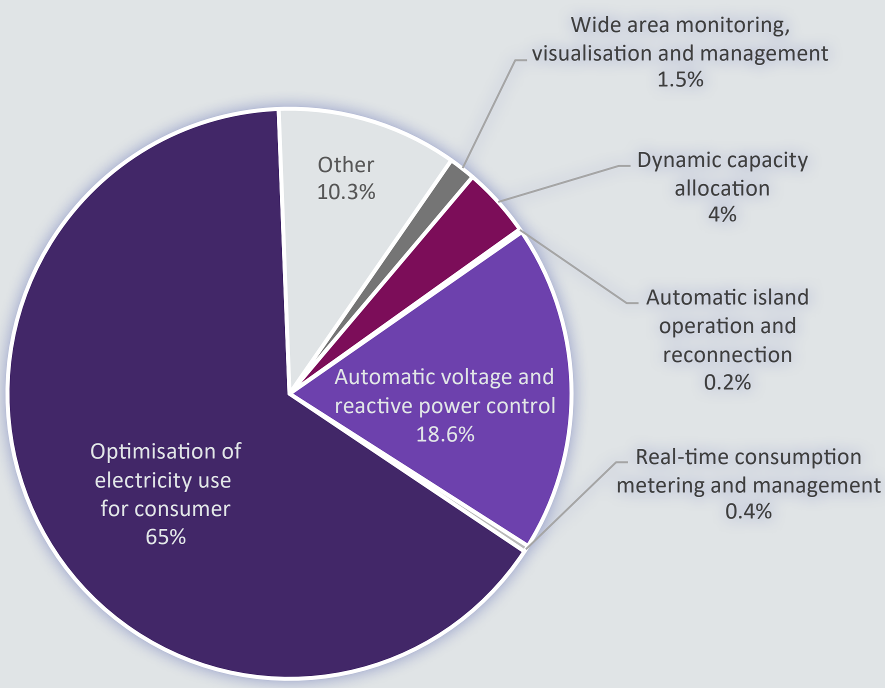
In 2020, a new methodology for monitoring smart grid investments was introduced, focusing on monitoring the realisation of investments by smart grid function. Figures 46 and 47 shows the structure of investment realisation by the system operators and EDCs by smart grid function for 2019[9].

The total value of ELES' investments in smart grids amounted to approximately EUR 23.1 million, making up 32.0% of the company's total investments in 2019. A large share of the total value of smart grid investments is attributable to the implementation of the SINCRO.GRID (compensation devices and energy storage devices) and NEDO (receipt of Japanese equipment and energy storage devices), with a large part of the funds expected to be transferred from ELES to EDCs at the end of the NEDO project.

The combined value of SODO and Elektro Ljubljana's investments in smart grids was approximately EUR 0.7 million. SODO's investments in smart grids are directly linked to the implementation of the SINCRO.GRID project and made up 3.1% of the company's total planned investments in 2019. Elektro Ljubljana's investments in smart grids largely focused on the automatic switching of feeders and lines in the MV network and accounted for 1.3% of the company's total planned investments in 2019. Other EDCs did not make any investments in smart grids. Smart grid investments by SODO and EDCs thus made up 0.5% of the total investments by EDCs in 2019.

EUR 23.8 million
in smart grid investments in 2019

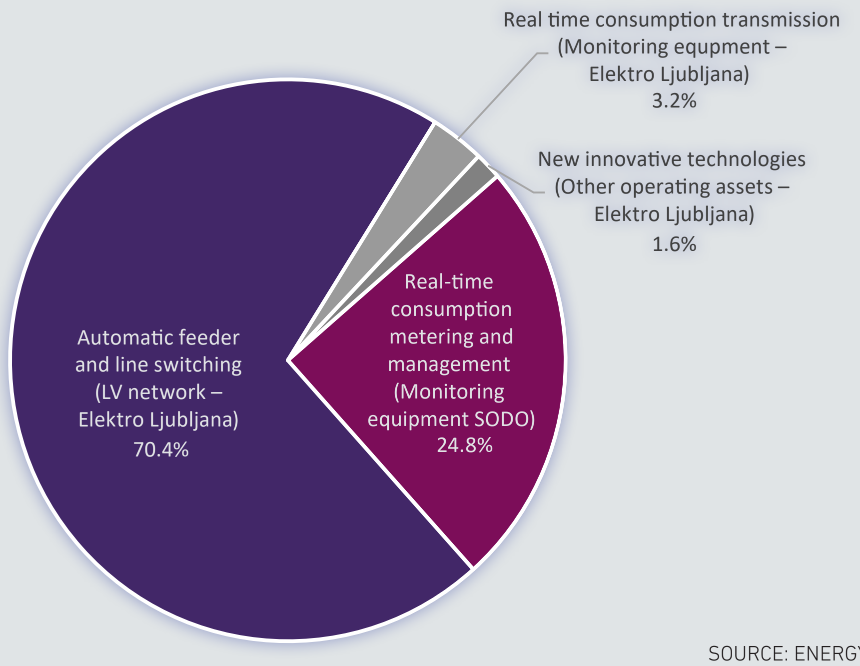
FIGURE 46: STRUCTURE OF ELES' INVESTMENTS IN 2019 BY SMART GRID FUNCTION



SOURCE: ENERGY AGENCY

9 Data for 2020 is not available due to the mechanism for accounting for deviations from the regulatory framework.

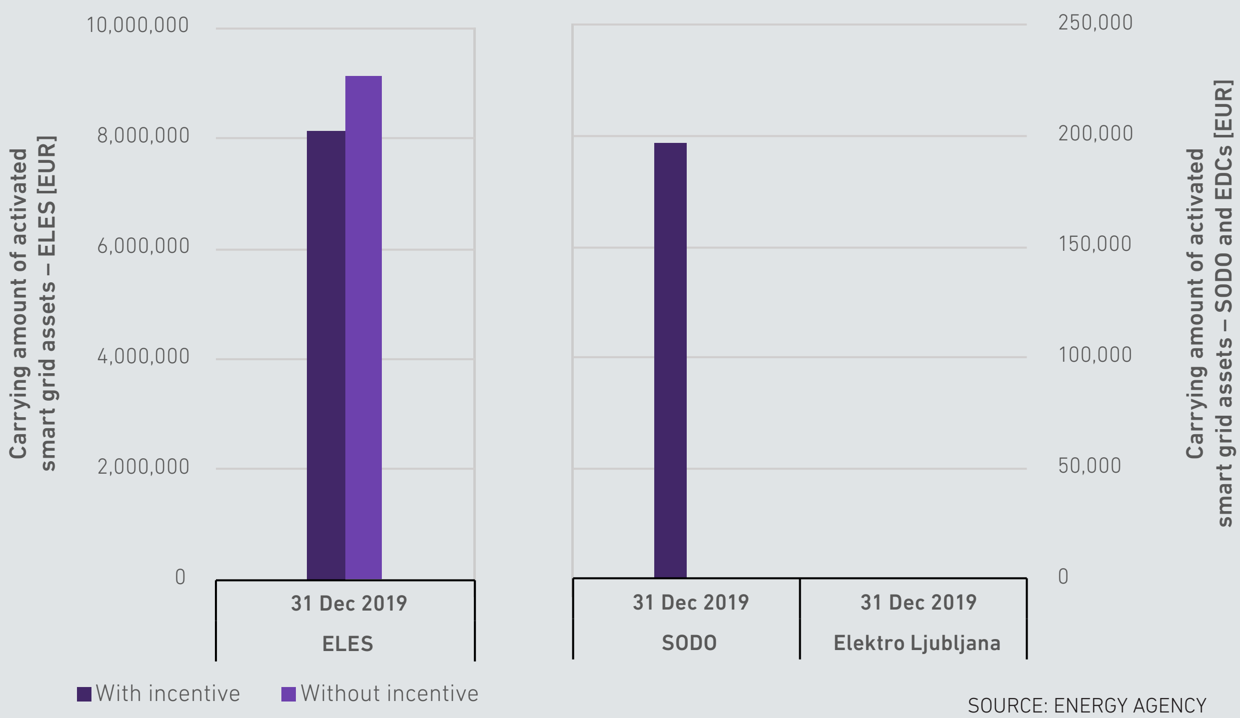
FIGURE 47: STRUCTURE OF SODO AND EDCs' INVESTMENTS IN 2019 BY SMART GRID FUNCTION



SOURCE: ENERGY AGENCY

The Energy Agency grants incentives on the basis of an assessment of the assets actually activated under the qualified smart grid project as reported by the companies in the annual process of accounting for deviations from the regulatory framework[10]. Figure 48 shows a comparison of the carrying amounts of assets activated under smart grid projects that were granted an incentive and the carrying amounts of smart grid assets for which companies do not receive incentives.

FIGURE 48: OVERVIEW OF THE CARRYING AMOUNT OF ACTIVATED SMART GRID ASSETS BY COMPANY



SOURCE: ENERGY AGENCY

10 Data as at 31 December 2020 is not available due to the mechanism for accounting for deviations from the regulatory framework.

In terms of smart grid investments, the analysis shows that ELES has also been proactive in implementing smart grid investment projects. On the other hand, companies at the distribution level have been passive, as only SODO and Elektro Ljubljana reported investments in smart grids. This is partly attributable to the anticipated transfer of part of the NEDO project assets from ELES to EDCs at the end of the project, as part of the assets currently held by ELES are essentially intended for use in distribution and four EDCs (Elektro Celje, Elektro Ljubljana, Elektro Maribor and Elektro Primorska) are participating in activities under the NEDO project as infrastructure owners.

Overall, the case study shows the effectiveness of regulation through the introduction of the R&I scheme. Four regulated companies (ELES, Elektro Celje, Elektro Gorenjska, Elektro Ljubljana) are heavily involved in the R&I scheme, while the remaining regulated companies are much less active. SODO and Elektro Maribor submitted one project application each under the R&I scheme, though Elektro Maribor suspended its project. Elektro Primorska has not yet submitted an independent application, but is participating in a project submitted by SODO. The Energy Agency will most likely continue the implementation of the R&I scheme in a revamped form and will optimise the project application and reporting process based on the experience gained to reduce the administrative burden for companies.

On the other hand, the case study also highlights the fact that a major share of investments in smart grids have been made without incentives, largely due to the Japanese equipment expected to be received free of charge under the NEDO project.

Cybersecurity of the Power System

Part of the Energy Agency's responsibilities is to monitor investments in cybersecurity, including activities performed by public service companies in the area of cybersecurity and data protection, as well as associated development activities. The Energy Agency continued to raise awareness among stakeholders and monitor their activities in the area of cybersecurity. In addition, the Energy Agency provided stakeholders with information via the Slovenian Energy Security Forum (SEVF).

EU Legislation

At the EU level, activities were carried out to develop new network rules for cybersecurity, which will expand on the existing network rules for the energy sector. Activities were also carried out to update Directive (EU) 2016/1148 concerning measures for a high common level of security of network and information systems across the Union (hereinafter: Directive 2016/1148).

Recast of Directive 2016/1148

The first cybersecurity directive, i.e., the Network and Information Systems (NIS) Directive, came into force in 2016 and addressed a higher and more uniform level of security for networks and information systems across the EU. Recent years have witnessed a remarkable rate of digitisation, which has resulted in circumstances requiring an update of the directive. The COVID-19 epidemic has taken digitisation to the next level, transferring many activities from the physical to the cyber environment.

The most important proposals for the recast of the directive are, inter alia, an exemption from the scope of public security, defence and national security, the expansion of the scope of important entities/services to include important entities/services maintained by ENISA (European Union Agency for Cybersecurity), the regulation of the legal bases by means of explicit implementing and delegated acts, the management of security services in supply chains, and the exclusion of micro and small entities with certain exemptions (depending on the service, etc.).

Network Rules for Cybersecurity–Recommendations to the European Commission

An informal group on baselines for network rules produced two reports for the European Commission's Directorate-General for Energy (DG ENER) in 2020. The first report contained initial ideas and proposals for network rules on cybersecurity, based mainly on the work and recommendations of the Smart Grid Task Force–Expert Group 2 (SGTF-EG2).

The first report presented a concept of six pillars that, based on the opinion of the preparatory group, could form the basis for the network rules on cybersecurity. In the third quarter of 2020, this first report was submitted to ENTSO-E, which represents the TSO community, and to the four associations representing the DSO community (GEODE, EURELECTRIC, CEDEC, E.DSO) for their opinion. The aim was to gather feedback from the public consultation on the contents of the first report and to assess whether there was sufficient consensus among these associations to further develop the ideas and proposals. Based on the feedback, there was a general consensus that the recommendations were broadly acceptable and were a step in the right direction, and most were in favour of taking these ideas forward and developing them further.

The second report takes into account the feedback from the public consultation on the first report and reflects the many comments and suggestions made during this first initial consultation process with the five associations. Major topics covered included stakeholders' responses to certification to standards, most notably ISO/IEC 27001, and product certification schemes.

Following the final reports of the group on baselines, ACER was given the mandate to develop a framework for the network rules for cybersecurity, starting with the conceptual design in 2021. In this regard, we would highlight the essential cooperation with national energy regulators and cybersecurity authorities. The network rules for cybersecurity are planned to be adopted in 2022.

Regulatory Aspects

As part of the CEER CS WS, the Energy Agency participated in the preparation of an internal report on guidelines for regulators on the certification of stakeholders in the energy sector–"Cybersecurity certification: Guidelines for Energy Regulators". This CEER internal document provides guidance for European regulators to better understand the complex and multi-faceted environment of cybersecurity certification. The report also addresses the appropriate long-term objectives so that TSOs regulated by national regulatory authorities can take stock of the scope of the cyber landscape and the challenges ahead. An important message is that public utility service providers need to identify and target or adjust the necessary investments on a continuous cyclical basis. As the roles of national regulators in the field of cybersecurity vary widely across member states, the report addresses the topic more broadly, including in the context of regulators' cooperation with competent national authorities. The report highlights cybersecurity certification, the link to the Cybersecurity Act, the framework of the ENISA[11] European Cybersecurity Certification Scheme, the role of regulators in terms of competencies with recommendations, an example of security profiles (ESMIG[12]), and professional certification (SANS[13] and GIAC[14]).

Cybersecurity

The National Level

The Energy Agency, in cooperation with the Slovenian Government Information Security Office (GISO)–Resilience Division, conducted a questionnaire at the request of the European Commission to gain insight into the implementation of activities by energy network operators with regard to the implementation of Commission Recommendation (EU) 2019/553 of 3 April 2019 on cybersecurity in the energy sector. The questionnaire addressed certain key areas related to cybersecurity in the energy sector–real-time requirements, cascading effects, and the co-existence of legacy and emerging technologies–in terms of implementing appropriate cybersecurity preparedness measures.

Public Service Companies

The SEVF continued its expert dialogue in the area of information/cyber security and data protection with public service companies in the energy sector, state authorities, and European and other institutions (SI-CERT, URSIV, ACER, CEER and the Institute for Corporate Security Studies). The Energy Agency informed SEVF participants about the current activities of the European Commission in the field of cybersecurity in the EU energy sector, the work of the SGTF EG2 on cybersecurity, and the activities of the CEER Cybersecurity Work Stream (CEER CS WS). Relevant security threat alerts published by the national and European cyber security response centres SI-CERT, US-CERT and CERT-EU, as well as by the other sectoral response centres for information technology, ICS-CERT and MS-ISAC, are promptly forwarded by the Energy Agency to the stakeholders. The Energy Agency also informs the stakeholders about notifications from the cybersecurity group of the Hungarian regulator, E-ISAC.

Public service companies primarily implemented actions in the areas of information (IT) and operational (OT) technology. A summary of the most important measures/activities by stakeholder, broken down by ISO/IEC 27002/27019 domains and areas, is provided in Table 21.

11 European candidate cybersecurity certification (EUCC) scheme
12 Association of European Smart Energy Solution Providers
13 SysAdmin, Audit, Network, and Security (Escal Institute of Advanced Technologies)
14 Global Information Assurance Certification

TABLE 21: ACTIVITIES OF PUBLIC SERVICE COMPANIES IN THE FIELD OF INFORMATION/CYBER SECURITY AND PERSONAL DATA PROTECTION

Domain	Area	ELES	SODO	EL-MB	EL-CE	EL-LJ	EL-GO	EL-PR
IT	Information security policies	✓	✓	–	–	–	–	✓
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	✓	–	–	–
Other		–	–	–	–	✓	✓	–
IT	Organisation of information security	✓	–	–	✓	✓	✓	✓
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	–	–	–	–
Other		–	–	✓	–	✓	✓	–
IT	Human resources	✓	–	–	–	✓	✓	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	✓	–	–	–
Other		–	–	✓	–	–	✓	–
IT	Asset management	✓	–	–	–	–	–	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	–	–	–	–
Other		–	–	–	–	–	–	–
IT	Access control	✓	✓	✓	–	✓	✓	✓
OT		✓	–	✓	–	✓	✓	–
Measurements		–	–	–	–	–	–	–
Other		–	–	–	–	–	–	–
IT	Cryptography	✓	–	–	–	–	–	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	✓	–	–	–	–
Other		–	–	–	–	✓	–	–
IT	Physical security	✓	–	–	–	✓	✓	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	–	–	–	–
Other		–	–	–	–	–	–	–
IT	Operations security	✓	✓	✓	✓	✓	✓	✓
OT		✓	–	✓	✓	✓	✓	✓
Measurements		–	–	✓	✓	–	–	–
Other		–	–	–	–	–	✓	–
IT	Communications security	✓	✓	✓	✓	✓	–	–
OT		✓	–	–	✓	✓	✓	✓
Measurements		–	–	✓	✓	–	✓	–
Other		–	–	–	–	–	–	–
IT	System acquisition, development and maintenance	✓	✓	✓	–	✓	✓	–
OT		✓	–	–	–	✓	✓	✓
Measurements		–	–	–	✓	✓	–	–
Other		–	–	–	–	–	–	–
IT	Supplier relationships	–	–	–	–	✓	–	–
OT		–	–	–	–	–	–	–
Measurements		–	–	–	✓	–	–	–
Other		–	–	–	–	–	✓	–
IT	Security incident management	✓	✓	✓	–	✓	✓	✓
OT		✓	–	–	–	✓	–	–
Measurements		–	–	–	✓	✓	–	–
Other		–	–	✓	–	–	✓	✓
IT	Business continuity management	✓	–	–	–	✓	✓	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	✓	–	–	–
Other		–	–	–	–	–	–	✓
IT	Compliance	✓	–	–	–	✓	–	–
OT		✓	–	–	✓	–	–	✓
Measurements		–	–	–	–	–	–	–
Other		–	–	✓	–	✓	✓	✓
IT	Risk management	✓	✓	✓	–	✓	–	–
OT		✓	–	–	–	–	–	–
Measurements		–	–	–	✓	–	–	–
Other		–	–	–	–	✓	✓	✓

SOURCES: SYSTEM OPERATORS, DISTRIBUTION COMPANIES, ENERGY AGENCY

ELES

The TSO carried out activities in the areas of information and operational technology. In the area of operational technology, an Umbrella Security Policy was adopted, which lays down its management and commitment to information security and information security support. Independent audits of the information security management system (ISMS) and its individual components were carried out.

In 2020, in order to ensure compliance with the requirements of the Information Security Act and the associated regulatory acts, ELES will:

- upgrade its information security management system with a response plan for information incidents affecting the provision of essential services, with a CSIRT notification protocol;
- establish a business continuity management system for the provision of the essential service of electricity transmission;
- appoint a Chief Information Security Officer (CISO), a Chief Information Security Officer for Information Technology (CISO-IT) and a Chief Information Security Officer for Operational Technology (CISO-OT).

As a critical infrastructure operator for the energy sector and the ICT sector, ELES has developed critical infrastructure protection documents, which comprise a separate risk assessment and measures to protect critical infrastructure for each critical infrastructure sector.

In the area of operational technology, the incident response procedures, including business continuity incident response and assurance, have been comprehensively updated in the last period as a result of an analysis for the preparation of plans in line with the requirements of the Information Security Act and the Rules on Security Documentation and Security Measures of Operators of Essential Services.

SODO

The DSO carried out activities in the area of information technology. Certain security policies were updated in the areas of human resource protection, system development and maintenance to define procedures for testing newly developed applications and patches, as well as change management. Access management tools were upgraded with user rights notifications and audit trails for rights management. In addition, enhanced mechanisms were activated to secure remote access and remote work with the enhanced authentication and encryption of remote access in the wake of the COVID-19 epidemic. SODO added mechanisms to manage audit trails for key equipment configurations and the additional monitoring of key performance indicators.

As a result of the epidemic, a crisis group was formed and its activities were laid down. A contingency plan was adopted due to the circumstances highlighted above, with different scenarios necessary to ensure the continuity of the business and risk analyses.

Distribution Companies

Distribution companies carried out activities in the areas of information and operational technology and measurements and in the domain comprising all other activities (e.g., personal data protection).

In the area of information technology, activities focused on the establishment of a security operations centre and ICT status and security incident monitoring through analyses, malware detection at endpoints, physical access control and logical access control through active monitoring and the use of stronger authentication, ICT infrastructure continuity, centralised and homogeneous ICT management, upgrades to email security, participation in joint cyber exercises and raising staff awareness.

In the area of operational technology, activities focused on the management of control devices, the detection of anomalies in the operational part of the networks, the regular updating of devices and operational systems, network segmentation with firewalls, the provision of backups for critical operational devices, the management of external contractor monitoring, security audits, the establishment of new control centres, the deployment of common information model (CIM) platforms, the construction of new energy facility networks, and the adaptation of networks to new control devices.

In the area of measurements, activities focused on security checks, the preparation and testing of big data processing, the optimisation of data for more efficient transmission over the mobile network, securing links to endpoints, and the use of cryptography and pilot projects using next-generation mobile transmission technologies to connect narrowband internet of things (NBIoT) devices.

Data Protection

The system operators and distribution companies improved the readiness of the implementation of personal data processing controls.

The TSO reviewed and updated the internal documents and rules on the classification of information, including personal data. In order to meet all the requirements set out in existing and planned legislation on the protection of personal data, they started to update their system for the provision, monitoring and control of all accesses, rights and changes to data. Personal data is also managed in the advanced threat detection system, which is an overarching information security management solution also designed to meet the legal requirements for the protection of personal data.

The distribution companies and SODO worked with the competent authorities (Information Commissioner) and other specific interest groups. They monitored and improved the readiness of the implementation of the controls by updating the personal data protection policies and methodologies for conducting data protection impact assessments, and by educating and raising the awareness of their staff in this area. In some cases, external audits were carried out (audits of documents, audits of processing records, monitoring or analysis of processing).

Network Charges for the Electricity Transmission and Distribution System

Setting the Network Charge

The Energy Agency regulates electricity system operators' activities based on the regulated network charge method. With this method and by considering the surplus of the network charge from previous years, the Energy Agency determines the network charge and other revenues to ensure the system operators' coverage of all eligible costs in the regulatory period and the deficit of the network charge from previous years.

This way, the Energy Agency encourages the cost-effectiveness of service providers and guarantees the permanent and stable business operation of electricity system operators, as well as a stable and predictable environment for investors, owners and system users.

Before the regulatory period commences, the Agency, observing relevant criteria, defines planned eligible costs and resources to cover them, within which it sets the network charge and, consequently, the network charge tariffs, taking into account the regulated network charge method.

Eligible costs are those necessary to carry out the activity and are determined on the basis of the determination criteria set out in the general act laying down the methodology for establishing the regulatory framework. Eligible costs include operation and maintenance costs (O&M), electricity costs for network losses in the grid (ECNL), system services costs (SS), depreciation (D), research and innovation (RI) and regulated return on assets (RROA) and incentives (I).

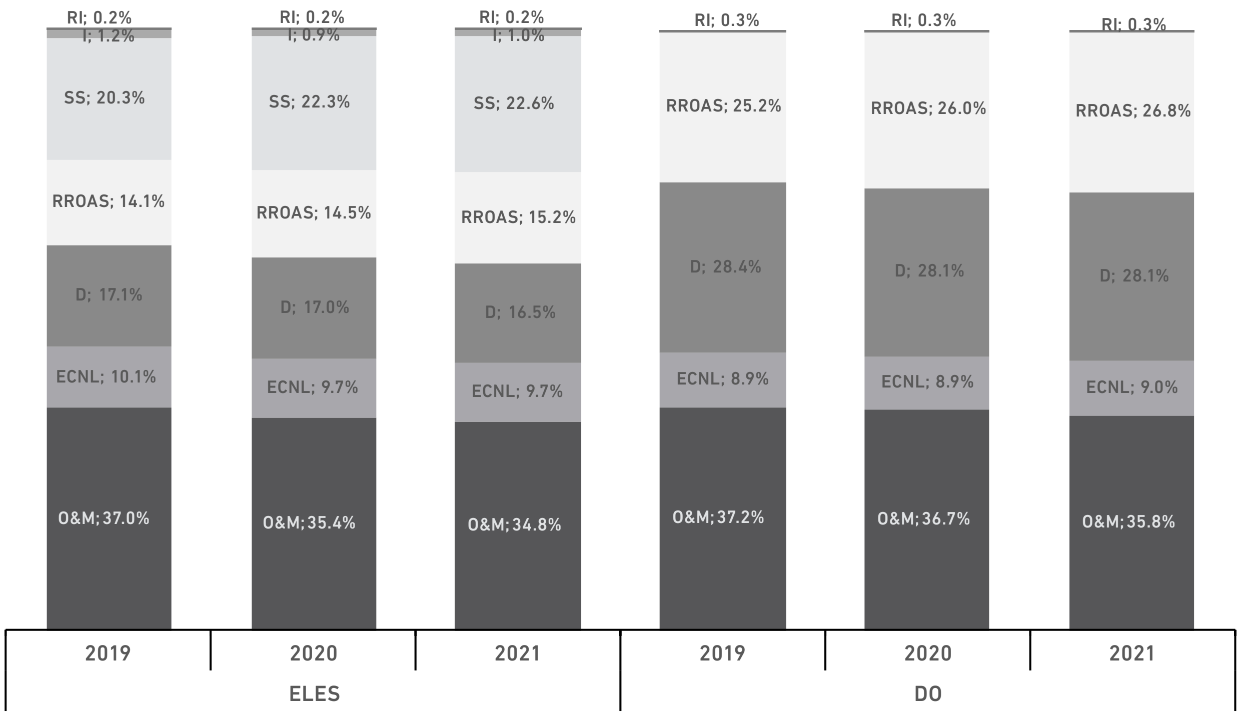
At the end of the regulatory period year, deviations from the regulatory framework are identified as the difference between recognised eligible costs incurred by the system operator and recognised eligible resources to cover the eligible costs. Deviations from the regulatory framework are reflected in the network charge surplus or deficit, which is taken into account when establishing the next regulatory framework.

On 1 January 2019, a three-year regulatory period commenced, which will end on 31 December 2021. In 2018, the Energy Agency issued the Legal Act on the methodology for determining the regulatory framework and calculating the network charge for system operators. On the basis of this Act, the Agency defined a regulatory framework for the 2019–2021 period for two transmission and distribution system operators in 2018 with two decisions, which also set the network charge tariffs.

For the specified three-year period, the Agency has set the planned eligible costs for the transmission system operator (ELES) activity at €518.9 million, an increase of 5.7% compared to the previous regulatory period, and for the distribution system operator (DSO) activity at €846.1 million, an increase of 0.72% compared to the previous regulatory period.

The comparison of eligible cost structures for each year of the regulatory period in Figure 49 shows that the structure of the planned eligible costs for each year of the 2019–2021 regulatory period does not change significantly within the individual activities. In both activities, the largest share is accounted for by operation and maintenance costs.

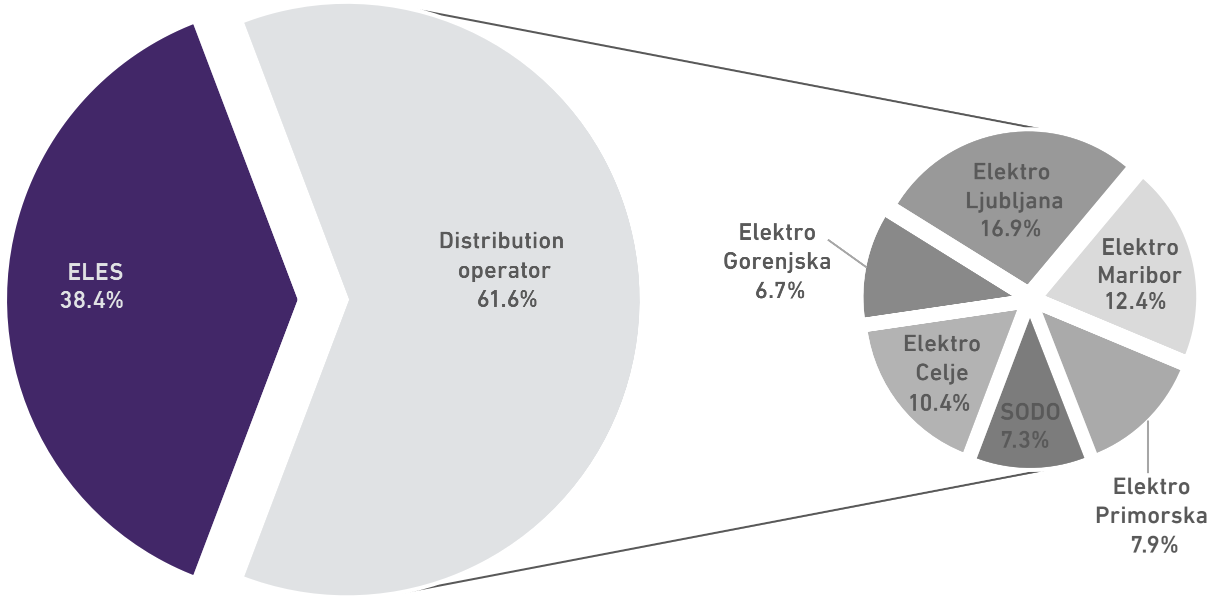
FIGURE 49: THE STRUCTURE OF PLANNED ELIGIBLE COSTS OF THE TRANSMISSION AND DISTRIBUTION SYSTEM OPERATOR ACTIVITY FOR THE 2019–2021 REGULATORY PERIOD



SOURCE: ENERGY AGENCY

For 2020, the Agency has set the planned eligible costs for the transmission system operator (ELES) activity at €175.2 million, and for the distribution system operator (DSO) activity at €281.5 million. Figure 50 shows the structure of the planned eligible costs in 2020 by individual companies.

FIGURE 50: THE STRUCTURE OF THE PLANNED ELIGIBLE COSTS OF THE TRANSMISSION AND DISTRIBUTION SYSTEM OPERATOR ACTIVITY FOR 2020



SOURCE: ENERGY AGENCY

With regard to setting recognised eligible costs in 2020, the provision of the Act on Intervention Measures to Curb the Epidemic and Mitigate its Consequences for the Citizens and the Economy (hereinafter: ZIUZEOP) should be noted, which stipulates that for the year 2020, in the process of identifying deviations from the regulatory framework, a maximum recognised rate of return of 4.13% shall be taken into account. Thus, in the calculation of the deviation from the regulatory framework for 2020, the regulated return on assets is not determined by taking into account the weighted average cost of capital of 5.26%, but by the maximum rate of return allowed under the ZIUZEOP of 4.13%.

This provision of the ZIUZEOP pursued the objective of this law, since any reduction in the operators' eligible costs (in this case, a reduction in profitability) contributes to lower network charges paid by both industrial and household consumers. As a result, such measures help mitigate the impact of the epidemic and revive economic activities in the future.

The eligible costs of the transmission and distribution operator activities are covered by network charges, other revenues and the surplus of network charges from previous years.

In the process of deviating from the 2020 regulatory framework, the lower rate of return due to the epidemic is taken into account

For 2020, it was planned that the transmission system operator would cover eligible costs with network charges in the amount of €96.6 million, other revenues in the amount of €40.5 million and the surplus of network charges from previous years in the amount of €36.5 million. €1.6 million of the planned eligible costs in 2020 will be covered in 2021 due to the set-off of tariffs, which prevents tariffs from changing dramatically during the regulatory period.

It was planned that the transmission system operator would cover eligible costs with network charges in the amount of €266.2 million, other revenues in the amount of €13.9 million and the surplus of network charges from previous years in the amount of €1.5 million. To set-off tariffs, a surplus of €0.1 million in network charges has been planned for 2020, which will be used to cover the planned eligible costs in 2021.

In 2020, €252.7 million of network charges were levied to cover the eligible costs of the distribution system operator and €84.3 million to cover the eligible costs of the transmission system operator.

The difference between the levied and planned network charge is due to lower electricity consumption as a result of the declared epidemic and the extraordinary measures taken by the Agency, which, in order to mitigate the social and economic impact of the epidemic, implemented a change in the tariffs for calculating the network charge by means of an extraordinary measure, i.e. the capacity charge tariff was not charged to household and small business consumers from 1 March to 31 May 2020.

7.1% less
network charges levied than planned

Calculating the Network Charge

To calculate the network charge, the Energy Agency uses a non-transaction postage-stamp method, which means that the tariffs for calculating the network charge are unified for the entire territory of Slovenia within each consumer group. The electricity system operator classifies the end-consumer into a consumer group according to voltage level (HV, MV, LV), type of connection (busbar, feeder), operating mode (operating hours) and type of consumption. The calculating method has not changed in the regulatory periods so far, as this maintains predictability for consumers.

To cover the eligible costs of the system operator that are funded from the network charge, the Energy Agency determines the network charge tariffs for individual consumer groups. The tariffs are divided into:

- the network charge for the transmission system,
- the network charge for the distribution system,
- the network charge for excessive reactive power, and
- the network charge for the connected load.

Depending on the time of day, the network charge tariffs for the transmission and distribution systems are divided into:

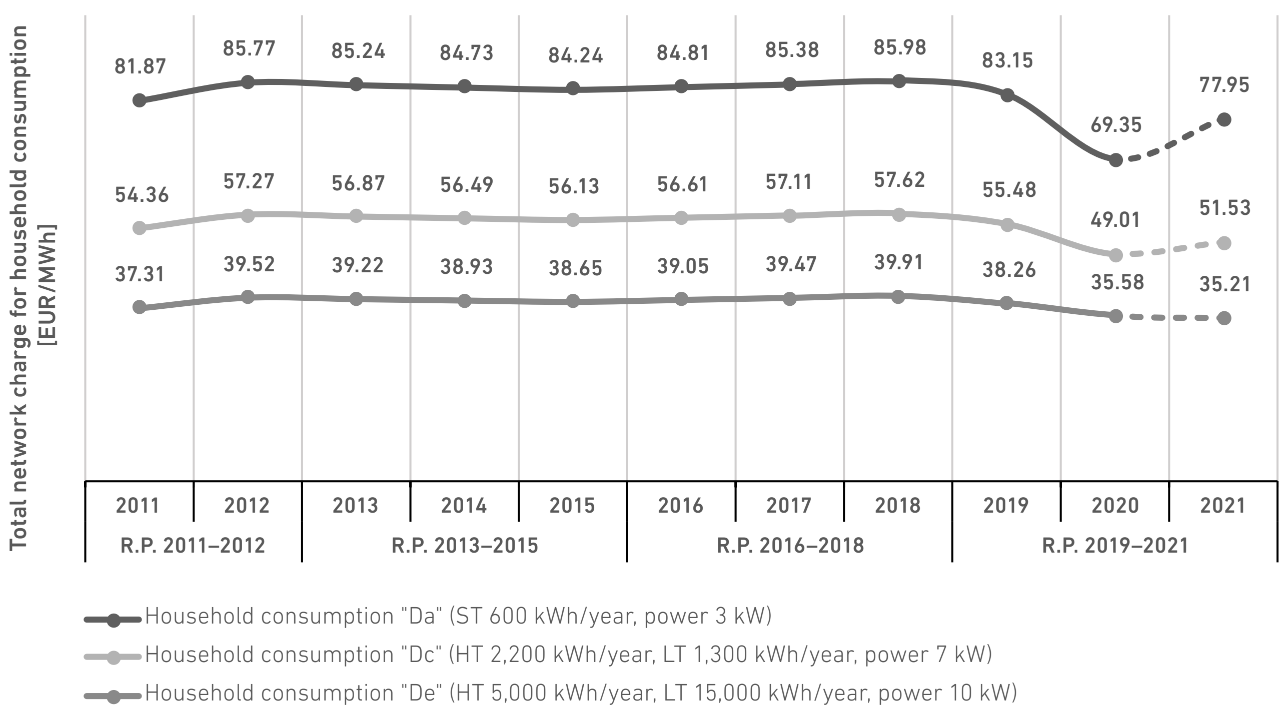
- High daily tariffs during high tariff time, charged from Monday through Friday from 6 a.m. to 10 p.m., and
- Low daily tariffs during off-peak time, charged in the remaining week hours and on Saturdays, Sundays and public holidays (all day), or
- Single daily tariffs, charged every day all day.

Both in end-consumers on the LV level without power metering and in household consumers, the chargeable demand is determined based on the nominal capacity of a device preventing the agreed load being exceeded (charge fuse) and the connection type (single-phase or three-phase connection).

Figures 51 and 52 show the fluctuation of the total network charge for the transmission and distribution systems per year of the regulatory periods for some typical household and business consumers, defined by standard consumer groups.

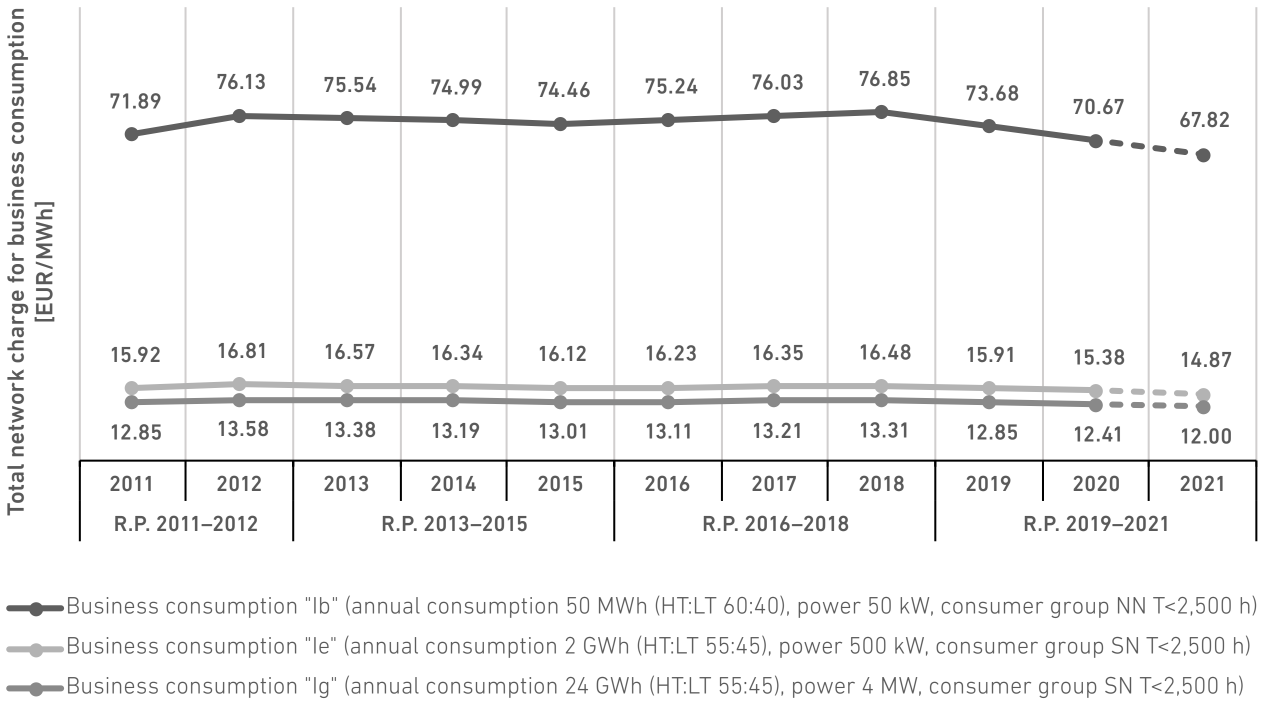
In the period from 1 March to 31 May 2020, household and small business consumers were not charged a capacity charge tariff due to the emergency measure taken by the Agency to mitigate the social and economic impact of the epidemic, and therefore the total network charge for household consumers was reduced with regard to the chargeable demand in the total network charge, as shown in Figure 51.

FIGURE 51: FLUCTUATION OF THE TOTAL NETWORK CHARGE FOR THE TRANSMISSION AND DISTRIBUTION SYSTEMS FOR SOME TYPICAL HOUSEHOLD CONSUMERS PER REGULATORY PERIOD



SOURCE: ENERGY AGENCY

FIGURE 52: FLUCTUATION OF THE TOTAL NETWORK CHARGE FOR THE TRANSMISSION AND DISTRIBUTION SYSTEM FOR SOME TYPICAL BUSINESS CONSUMERS PER REGULATORY PERIOD



SOURCE: ENERGY AGENCY

Allocation and Use of Cross-Zonal Transmission Capacities

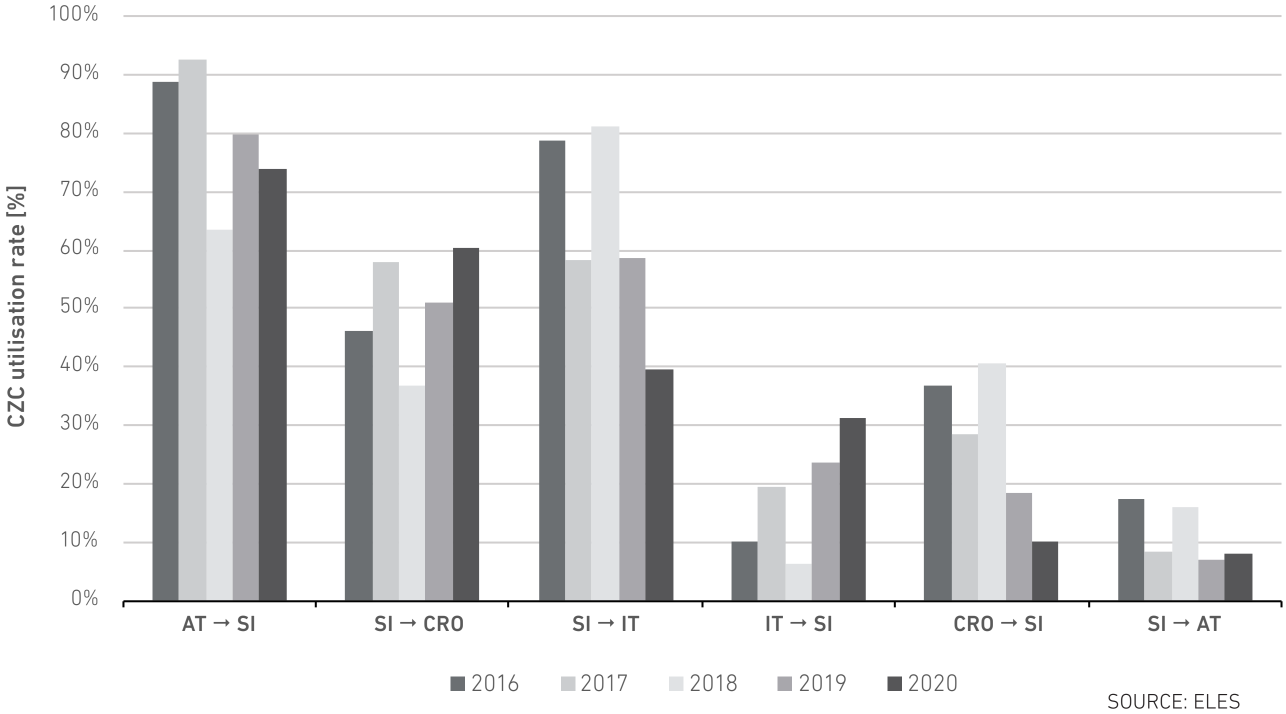
In 2020, the intraday allocation of CZCs at the Slovenian-Austrian and Slovenian-Croatian borders was carried out within the framework of the pan-European intraday market coupling, while the intraday allocation of CZCs at the Slovenian-Italian border was carried out within the framework of the bilateral intraday market coupling of the two countries, using bilateral implicit auctions. Under this market coupling, two implicit auctions are conducted for each day, with the first auction allocating CZCs for all the hours of the day and the second auction only allocating CZCs for the last eight hours of the day. The first auction takes place in the afternoon of the day before delivery and the second in the morning of the day of delivery. This solution also complies with Regulation (EU) 2015/1222, which foresees the possibility of using so-called regional complementary auctions. However, in the future, the solution will have to be complemented with continuous trading between the two auctions.

Under the forward allocation of CZCs covered by Regulation (EU) 2016/1719, capacity was allocated on an annual and monthly basis at all Slovenian borders. This allocation was conducted in explicit auctions, which allocated capacity in the form of physical rights of use employing the “use it or sell it” principle. The Joint Allocation Office (JAO), an auction house based in Luxembourg, acted as a common platform for auctions at all Slovenian borders. All annual and monthly auctions at the Slovenian borders were conducted using the so-called harmonised auction rules, which are also applied at all other borders in the common European electricity market.

On the Slovenian side, in addition to the system operator ELES d.o.o., the BSP exchange, which is the nominated electricity market operator (NEMO) for the Slovenian bidding zone for the period until the end of 2023, also participated in the allocation of capacity within the market coupling.

Due to the changes in the demand for electricity in 2020 as a consequence of the measures, electricity prices on the daily markets went down, which has also led to a lower demand for CZC in certain directions. There is a clear decline in the main directions of use of the Slovenian transmission network to Italy, as the price for daily products on the Slovenian BSP exchange was on average at the same level as on the Italian GME exchange from April until the end of the year, and the difference between the prices on the Austrian (German) and the Italian markets has also decreased significantly. Since March, price convergence between all neighbouring markets has been such that for more than 35% of all the hours on these markets, the price of the daily trading has been the same.

FIGURE 53: AVERAGE ANNUAL UTILISATION RATE OF CZC IN THE LAST FIVE YEARS



SOURCE: ELES

In 2020, the largest CZC utilisation rate remained at the borders from Austria to Slovenia, while it has increased towards Croatia due to the transfer of half of the production of the Krško NPP. The share of CZCs towards Italy has been declining for the third year (50% in the last three years) due to the reduced electricity price difference on the two markets, while the use of CZCs towards Croatia has been increasing over the same period, as electricity prices on the two markets converge for most hours of the year.

Promoting Competition

As part of its continuous monitoring process, the Energy Agency monitors developments in pricing (weighting factors, price trends, the impact of liquidity on prices, etc.), market transparency and integrity (access to information about prices, implementation of the Regulation on wholesale energy market integrity and transparency–REMIT), and market efficiency (openness and competitiveness). Highlighted below are the key indicators that we use to evaluate the competitiveness, transparency and integrity of the relevant markets.

Wholesale Market

Producers, traders and suppliers of electricity exchange electricity in the wholesale market. This exchange can take place in organised trading venues (exchanges) or bilaterally (OTC–Over The Counter). The connections of the Slovenian energy network with foreign networks enable the participants of the Slovenian bidding zone to exchange energy with foreign bidding zones. If the participants transmit energy from the Slovenian bidding zone, we talk about export; if they feed it, about import. The free movement of energy within the available capacities means that the market conditions of one bidding zone also transfer to other bidding zones. So, it does not make sense to only monitor the national wholesale market. Monitoring should be conceived in a broader sense and follow price trends not only in the Slovenian bidding zone but also in the region.

Electricity Prices

The Energy Agency monitors the level of wholesale prices in Slovenia and on related and reference markets that directly or indirectly affect the prices in Slovenia. It has gathered information on prices from the BSP website, as well as from commercial providers of analytical services and market information.

Day-Ahead Electricity Prices at Power Exchanges in Slovenia and on Foreign Markets

The Slovenian electricity market is situated at the juncture of four large European markets: the German, the Austrian, the Italian and that of South-Eastern Europe. In 2020, the Slovenian market joined the interregional day-ahead market coupling at the borders with Austria, Italy and Croatia. As part of the intraday market coupling, the Slovenian electricity exchange joined the European single intraday market in 2020, namely with its borders with Croatia and Austria. For the time being, the border with Italy only includes complementary regional intraday auctions.

Significant price declines in the day-ahead markets, especially in the second quarter

Figure 54 shows the trends in the average base prices on the power exchanges in Slovenia and its neighbouring countries in the last five years. The average base and peak prices in the day-ahead market at the Croatian CROPEX exchange are shown as of 2017 because trading in these products was only established in October 2016. Although the Slovenian and Hungarian markets are not coupled interregionally, the price on the Slovenian exchange is still very similar to the price in Hungary.

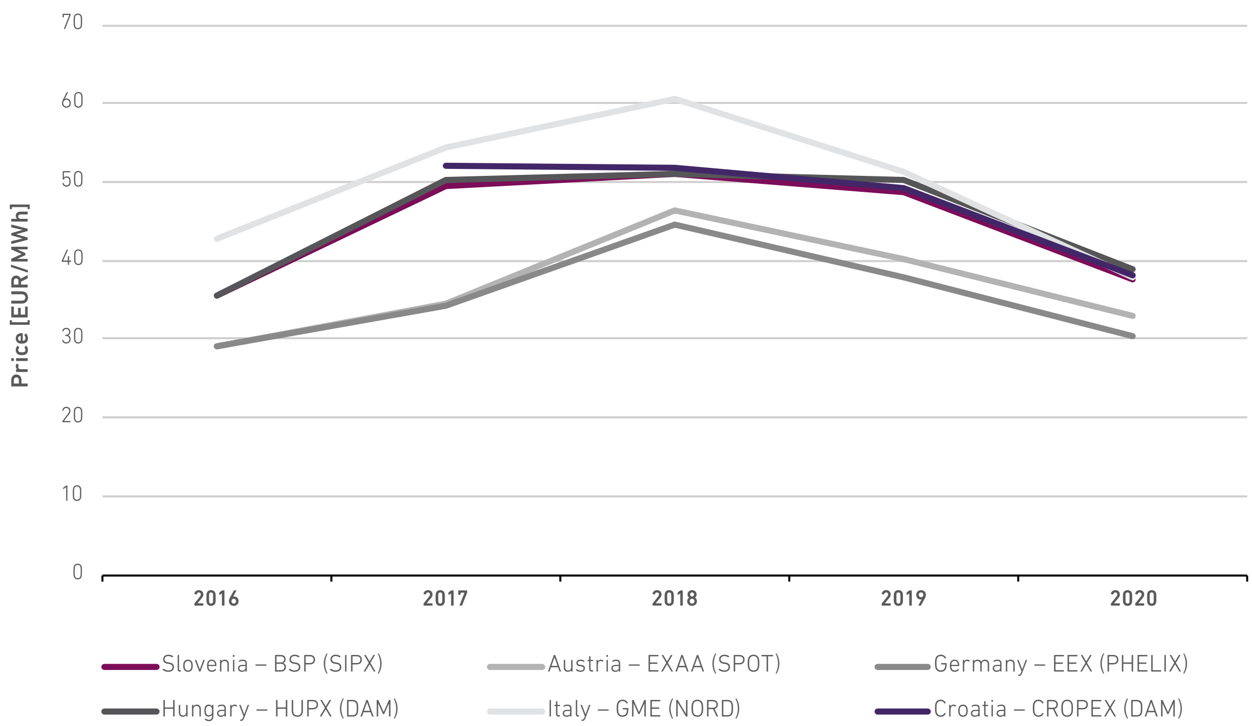
In 2020, the average base price on the Slovenian power exchange decreased by as much as 23% compared to 2016, to 37.55 EUR/MWh, the lowest since 2016. As shown in Figure 54, electricity prices decreased in all the markets under review. The largest decrease in prices was recorded in the Italian GME (NORD) market, where prices fell by 26%. The highest average price (39.00 EUR/MWh) in the day-ahead market in 2020 was reached in the Hungarian power exchange.

The lowest base price (30.47 EUR/MWh) was again recorded in the German power exchange, where the average prices dropped by 19.6% compared to 2019. The prices are slightly higher in Austria. The prices in the German power exchanges affect other EU markets. The lower prices on the German power exchange are, among other things, a result of the record share of generation from RES, which accounted for 55.8% of the total generation in the first six months of the year. On an annual basis, the share of generation from renewable sources was 246 TWh, representing 51% of Germany's total generation. Generation from gas-fired power plants has also increased. The share of electricity generation from coal-fired power plants has consequently decreased, further reducing the cost of electricity generation. Price falls in markets under review began as early as February, partly as a result of an exceptionally warm February. The continuation of record low prices and the further fall in prices coincided with the beginning of the rapid spread of the COVID-19 epidemic across much of Europe. The measures to contain the epidemic have had a major impact on the level of industrial production and the consequent reduction in electricity consumption. In Slovenia, the total electricity consumption by end-consumers in 2020 has decreased by 6%, due to lower consumption by business consumers. The lowest prices in 2020 were in the second quarter, when the average base price in Slovenia was 24.30 EUR/MWh, while in Germany it was only 20.29 EUR/MWh. With the economic outlook improving, the economy partially recovering and the price of emission allowances rising, by the end of the year, prices had returned to their pre-epidemic levels of late 2019.

The lowest base price since 2016

There is also greater price convergence in the markets under review. The price trend for both peak and base power in 2020 shows a narrowing of the gap between the markets.

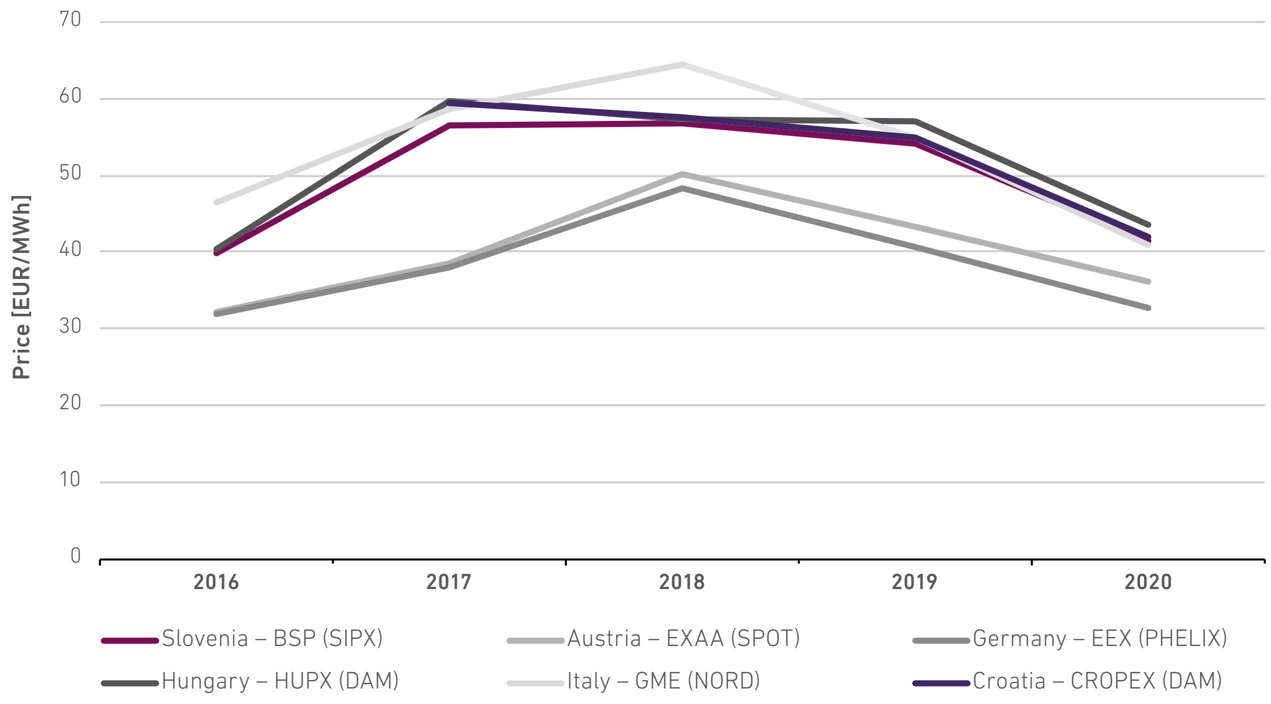
FIGURE 54: TRENDS IN THE AVERAGE BASE PRICE IN THE DAY-AHEAD MARKET IN SLOVENIA AND IN FOREIGN EXCHANGES IN THE 2016–2020 PERIOD



SOURCE: MONTEL

The trends in the average peak price in day-ahead markets in individual markets are shown in Figure 55. In 2020, the average peak price in the power exchange in Slovenia decreased by 23.5% compared to the average price in 2019, thus amounting to 41.45 EUR/MWh. Similar to the base prices, peak prices have decreased compared to 2019 in all the markets under review, with the largest decrease observed in the Italian market. The smallest price decreases are recorded in the Austrian (-17%) and German (-19.6%) power exchanges. Among all the markets under review, the average peak price in 2020 was the highest in the Hungarian market, at 43.54 EUR/MWh.

FIGURE 55: TRENDS IN THE AVERAGE PEAK PRICE IN THE DAY-AHEAD MARKET IN SLOVENIA AND IN FOREIGN EXCHANGES IN THE 2016–2020 PERIOD

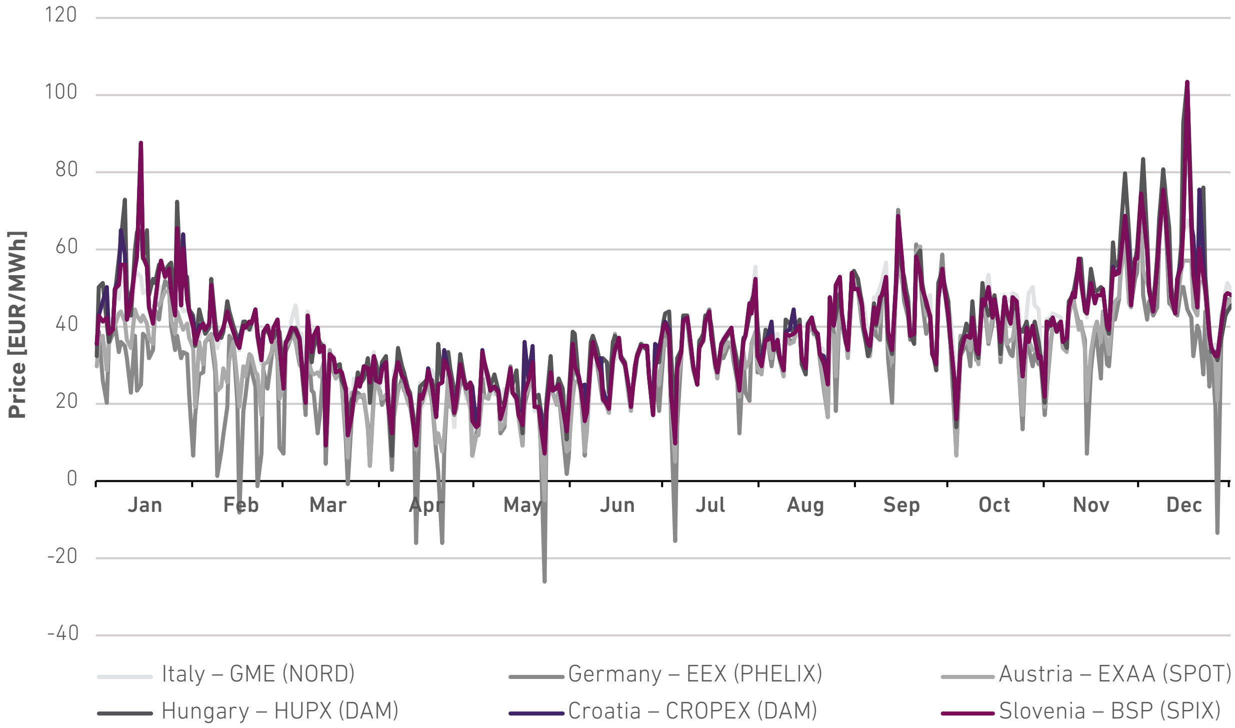


SOURCE: MONTEL

The highest day-ahead base prices in the power exchanges in 2020 were reached in January and December. The highest base price in the Slovenian power exchange was reached on 17 December 2020 at 103.23 EUR/MWh. On the same day, we also recorded record hourly prices of up to 172.07 EUR/MWh. If we arbitrarily define price peaks as exceeding 3 times the average hourly prices in a year, price peaks were exceeded in 21 cases in Slovenia. Almost all the price peaks occurred in January and December, with the exception of 15 and 21 September, when the evening price also exceeded 3 times the average price.

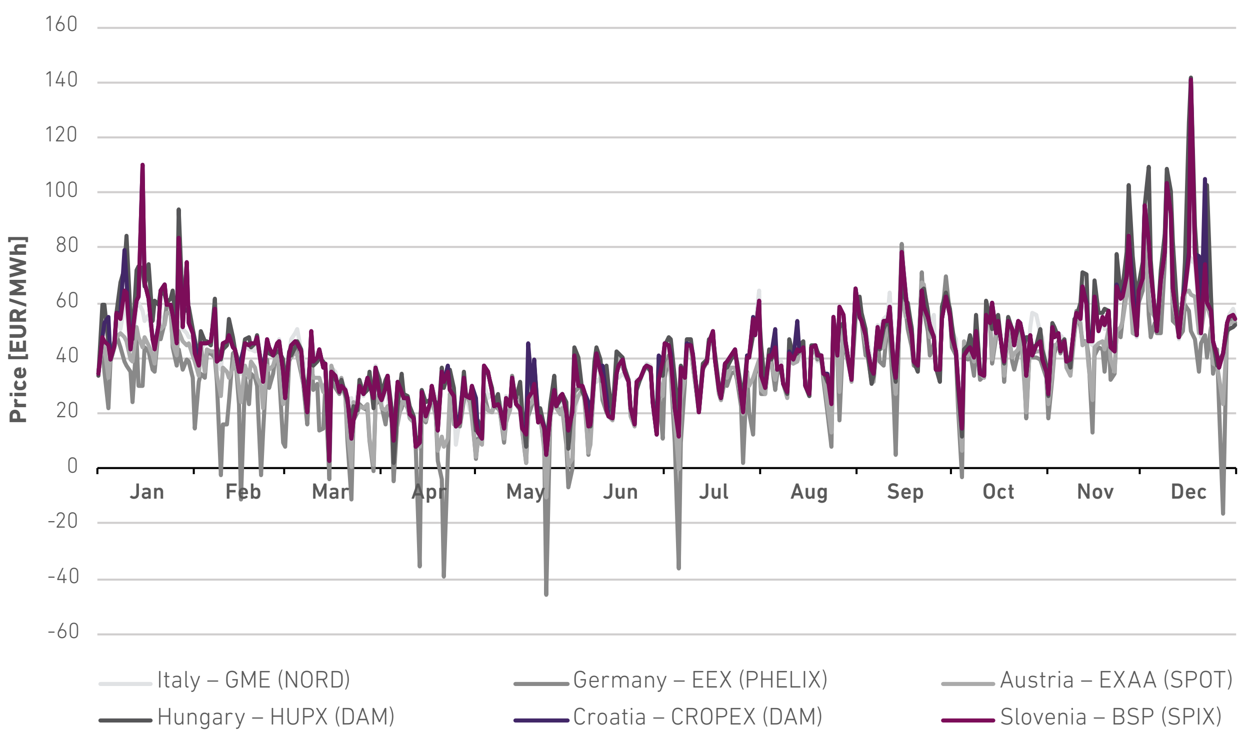
Negative hourly prices were recorded in 23 cases in the Slovenian power exchange, which is similar to the 21 cases in 2019. The incidence of negative prices jumped sharply in the German market, where prices were negative for 298 hours. This is due to lower demand and an increasing percentage of generation from solar and wind power.

FIGURE 56: TRENDS IN THE BASE PRICE IN THE DAY-AHEAD MARKET IN SLOVENIA AND IN FOREIGN EXCHANGES



SOURCE: MONTEL

FIGURE 57: TRENDS IN THE PEAK PRICE IN THE DAY-AHEAD MARKET IN SLOVENIA AND IN FOREIGN EXCHANGES



SOURCE: MONTEL

Table 22 shows the results of a comparative analysis of the prices that were reached in the day-ahead market in the BSP (Slovenia), GME (Italy), EXAA (Austria) and CROPEX (Croatia) exchanges in 2019 and 2020. The difference between electricity prices is gradually narrowing due to market coupling, and there is increasing price comparability between the BSP and GME markets. The share of hours when the prices in GME were the same as in BSP increased, amounting to over 64%. The difference between electricity prices in BSP and EXAA has also been decreasing. The share of hours with lower prices in the EXAA market decreased slightly in 2020. Between the BSP and CROPEX markets, the shares of comparable prices remain at similar levels to 2019.

TABLE 22: COMPARISON OF PRICES (ACCORDING TO THE SHARE OF HOURS) BETWEEN POWER EXCHANGES IN THE DAY-AHEAD MARKET

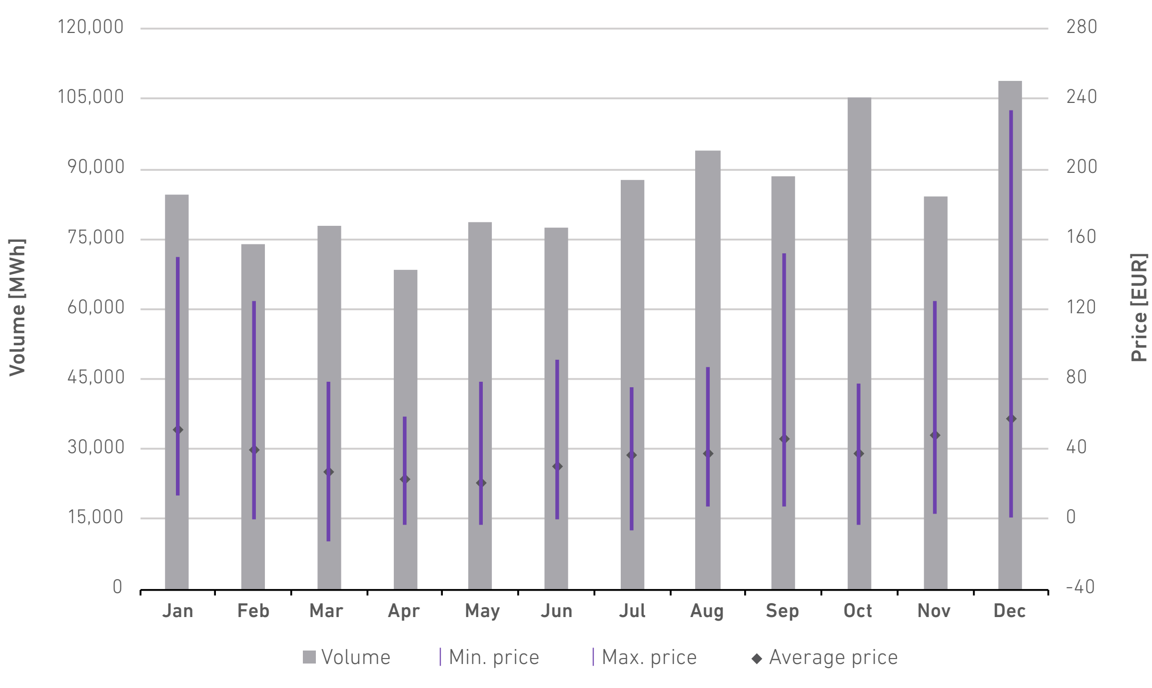
	Share of hours in 2019	Share of hours in 2020
Lower price in BSP than GME	40.51%	21.69%
Lower price in GME than BSP	11.54%	13.43%
Same price in BSP and GME	47.95%	64.88%
Lower price in BSP than EXAA	23.45%	27.39%
Lower price in EXAA than BSP	76.45%	72.50%
Same price in BSP and EXAA	0.10%	0.11%
Lower price in BSP than CROPEX	2.31%	3.81%
Lower price in CROPEX than BSP	40.67%	41.50%
Same price in BSP and CROPEX	57.02%	54.69%

SOURCE: MONTEL

Intraday Continuous Market Prices

Figure 58 shows the trends in trading quantities and price ranges of hourly products in the intraday continuous market. The highest prices were reached in January and December, coinciding with the peak periods in the day-ahead market.

FIGURE 58: VOLUME OF TRADING AND PRICE RANGES IN THE INTRADAY MARKET



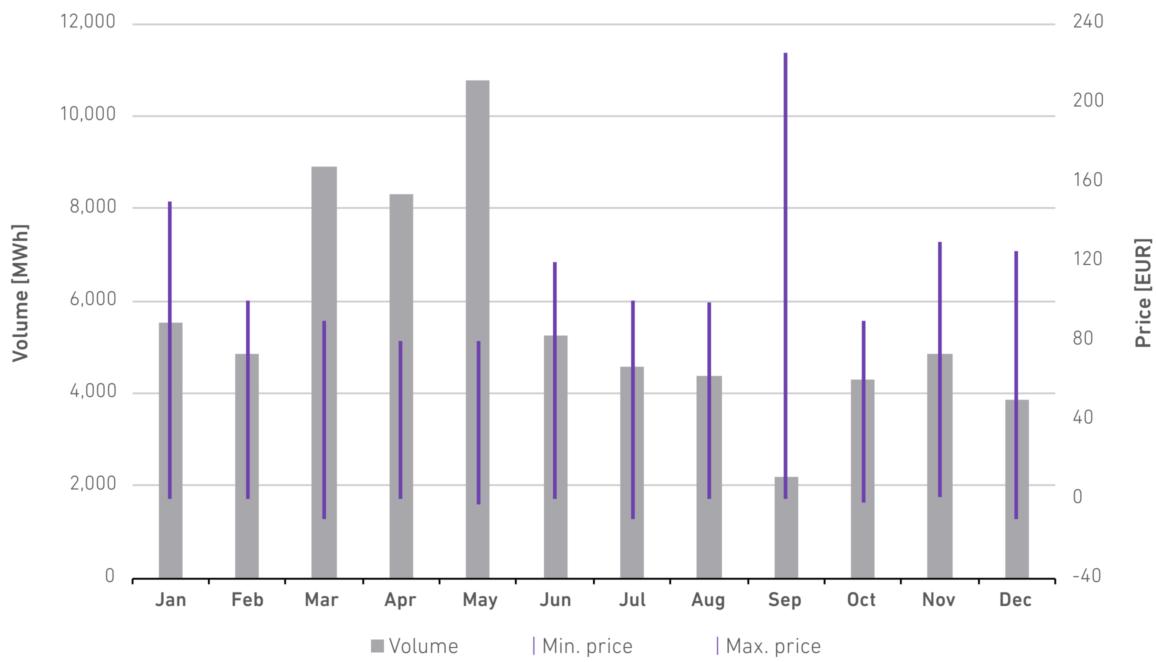
SOURCE: BSP

The average price of hourly products in the intraday market in 2020 was 38.05 EUR/MWh, 18% lower than in 2019, when the average price was 46.20 EUR/MWh.

Energy Prices in the System Balancing Markets

The highest price of electricity in the market operator's balancing market was 225 EUR/MWh in 2019, and the lowest was -10 EUR/MWh. The highest prices occur for balancing energy purchases, while the lowest prices reflect sales of surplus energy by the TSO. The peak price was reached in the evening of 15 September 2020, when the continuous market also experienced an intraday price spike. The TSO mainly acted as a seller of electricity in the balancing market.

FIGURE 59: VOLUME OF TRADING AND PRICE RANGES IN THE MARKET OPERATOR'S BALANCING MARKET



SOURCE: BORZEN

In the frequency system services market, the balancing energy prices for the frequency restoration reserve (FRR) are set according to the bids collected from qualified balancing service providers, separately for positive (FRR+) and negative (FRR-) balancing, and separately for the automatic (aFRR) and manual frequency restoration reserve (mFRR). In 2020, the TSO used a new trading platform to collect bids and activate aFRR and mFRR energy. It collects energy bids for each hour and the system selects the best bid according to an ordered list, which is the basis for activating the balancing energy and irrevocably concluding a business transaction under the pay-as-bid principle.

FIGURE 60: PRICE TRENDS OF BIDS AND ACTIVATED aFRR ENERGY

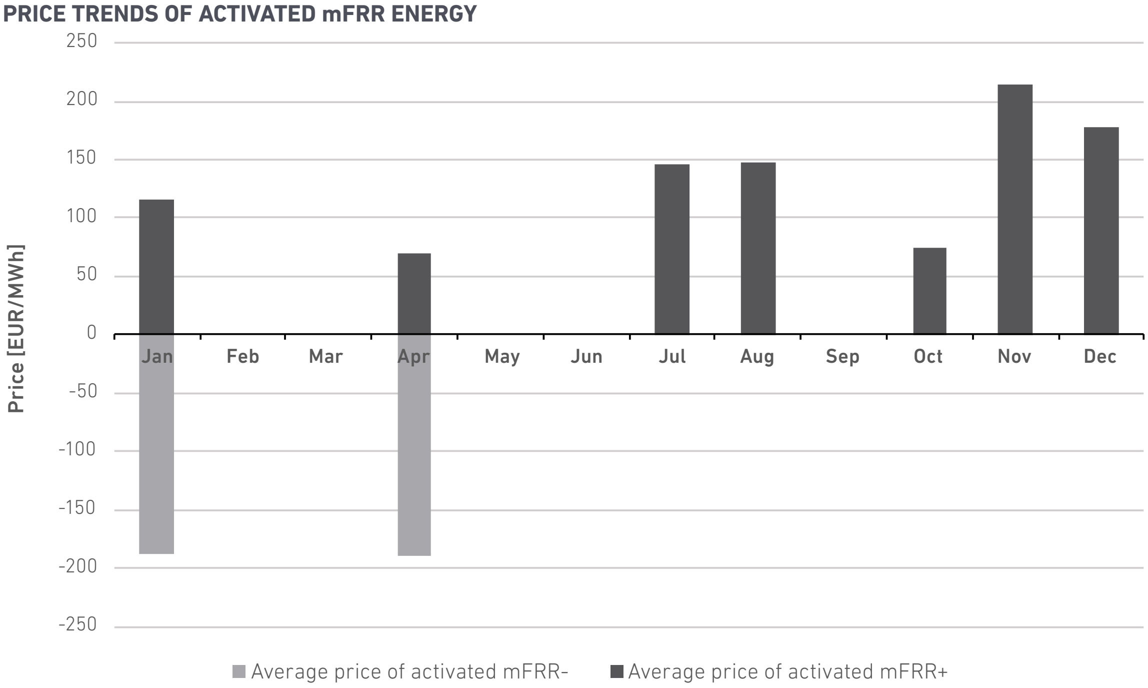
SOURCE: ELES

Figure 60 shows the price trends of bids and the activated energy of the aFRR- and aFRR+ frequency restoration reserve. Due to the activations according to the ordered list of bids, the prices realised are lower than the range of bid prices shown. The highest prices for the positive balancing of aFRR+ were reached in December, when the average price of activated energy was 100.31 EUR/MWh. The lowest, and thus least favourable prices for the activated negative balancing of aFRR- were achieved in October, when the average price of activated energy was -5.17 EUR/MWh.

The largest difference between the positive and negative balancing prices was recorded in December, when it averaged 92.02 EUR/MWh.

In 2020, under the positive balancing of mFRR+, the average activated energy prices amounted to 152.21 EUR/MWh, while under the negative balancing of mFRR-, the average activated energy prices amounted to -188.86 EUR/MWh. Figure 61 shows the average prices of activated mFRR- and mFRR+ energy for the months when the energy was activated.

FIGURE 61: PRICE TRENDS OF ACTIVATED mFRR ENERGY



SOURCE: ELES

Estimated Market Price of Electricity for Which Producers Are Eligible for Support

The Agency determines the estimated market price of electricity generated in power plants included in the support scheme. It does this in the context of monitoring the effect that the price of that electricity has on the development of the prices of the remaining electricity in the market that does not benefit from financial support for generation. That monitoring aspect is particularly important if the share of electricity for which producers are eligible for support is large. This is because it can begin to distort the market prices while placing producers without support in a non-competitive position. The share of generated electricity for which producers can receive support remained below 10% of all the electricity generated in Slovenia. In 2020, it was 7.3%. Although no influence of the support on pricing was detected, the Energy Agency keeps monitoring the market and determining the estimated market price of electricity for which producers are eligible for support.

The model for calculating the market price of electricity for which producers are eligible for support has not changed since its introduction. More detailed descriptions can be found in previous reports on the energy situation in Slovenia. It is based on the weighted price of electricity generated and sold in the market by producers that are eligible for operational support and the weighted price of electricity acquired by Borzen in the so-called Eco Group. This price is formed at an annual auction carried out by Borzen, while the energy is acquired from the producers that receive support in the form of a guaranteed purchase.

A 41.4% higher estimated market price of electricity for which producers are eligible for support

As has been the case for several consecutive years now, in 2020 most of the electricity included in the support scheme was sold freely on the market, so within the operational support. The estimated market price was thus mainly influenced by the weighted price of electricity achieved by the producers by selling the generated electricity to the suppliers on the market. Table 23 shows the estimated market price of electricity together with the average base price in BSP for the 2016–2020 period. In 2020, this price was higher than the average base price by as much as 41.4%. This large difference is due to the COVID-19 epidemic. At the end of 2019, when the purchase price of electricity was being set for 2020 (Borzen held its annual auction on 14 November 2019), no one could have accurately predicted the scale of the epidemic. As a result, the prices for 2020 were set higher than the prices that were then formed in BSP when the epidemic swept the whole world.

TABLE 23: COMPARISON OF THE ESTIMATED MARKET PRICE OF ELECTRICITY FOR WHICH PRODUCERS ARE ELIGIBLE FOR SUPPORT AND THE AVERAGE ANNUAL BASE PRICE IN BSP IN THE 2016–2020 PERIOD

Year	Estimated market price (EUR/MWh)	Average base price in BSP (EUR/MWh)
2016	39.04	35.62
2017	36.69	49.52
2018	44.54	51.16
2019	55.86	48.74
2020	53.10	37.55

SOURCES: ENERGY AGENCY, BORZEN, BSP

Emission Allowance Trading

Emission allowance is a general term for a certificate or authorisation to emit one tonne of carbon dioxide equivalent when greenhouse gases are emitted into the atmosphere.

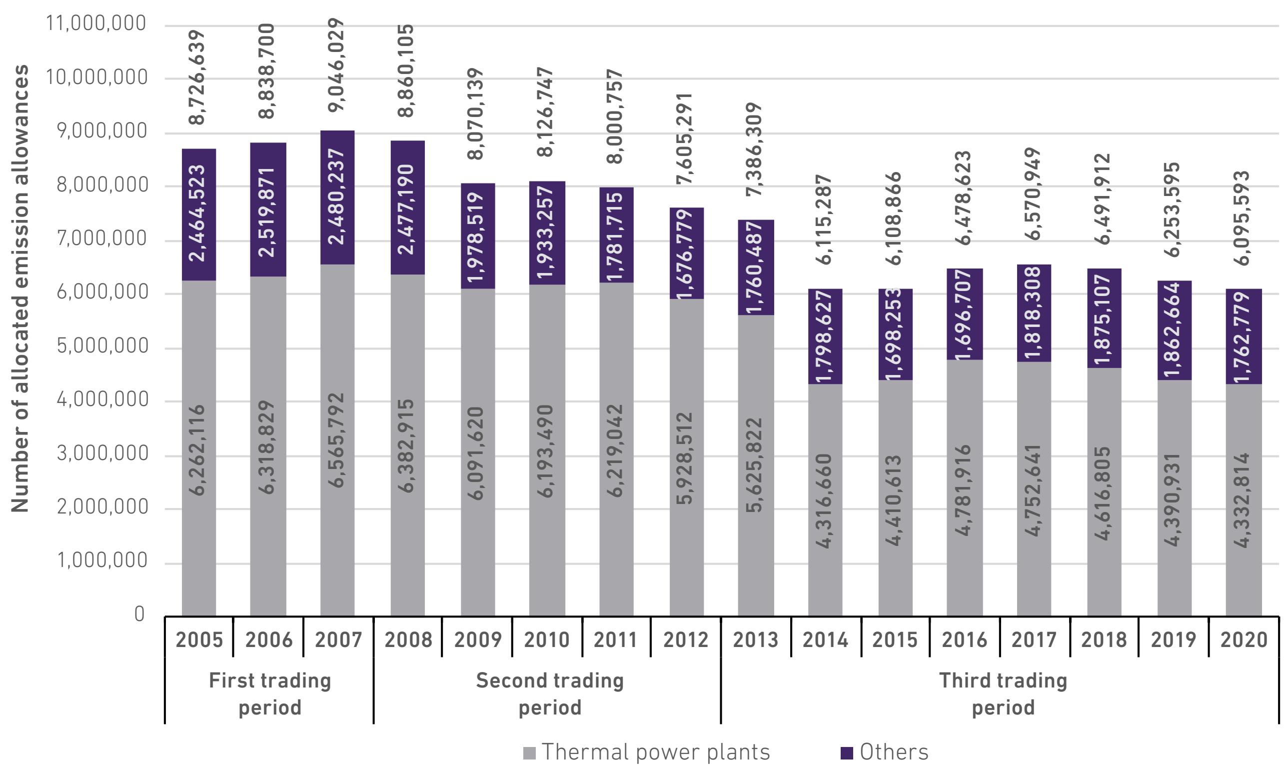
2.5% less emission allowances allocated

In 2020, 6,095,593 emission allowances were allocated in Slovenia. The number decreased for the third consecutive year; compared to 2019 by 2.5%.

Thermal power companies received a total of 4,332,814 emission allowances, which is 1.3% less than in 2019. Šoštanj Thermal Power Plant is the largest user of emission allowances in Slovenia, having received 3,760,438 allowances. The rest of the industry received a total of 1,762,779 emission allowances, which is 5.4% less than in 2019.

The third trading period, which started in 2013, ended in 2020.

FIGURE 62: NUMBER OF ALLOCATED EMISSION ALLOWANCES FOR ALL THREE TRADING PERIODS IN THE 2005–2020 PERIOD



SOURCE: ARSO

Figure 63 shows the price trends of emission allowances (product of EUA in EEX). The average price in the period under review was around EUR 25 per tonne of CO_2, at the same level as in 2019. That was the price of emission allowances in early 2020, and it reached its lowest level in mid-March with the first wave of the epidemic (EUR 15.3 per tonne of CO_2). This is mainly due to lower industrial production and thus lower demand in EU countries during the period. After that period, prices began to rise with some intermediate fluctuations, reaching their highest level at the end of the year (EUR 33.4 per tonne of CO_2). This period was characterised by lower temperatures and poor hydrological conditions, as well as a partial economic recovery, which increased electricity generation in thermal power plants and, consequently, affected the price of emission allowances.

FIGURE 63: PRICE TRENDS OF EMISSION ALLOWANCES (EUA) IN THE EEX EXCHANGE (PURCHASED IN 2020 FOR 2021)

SOURCE: MONTEL

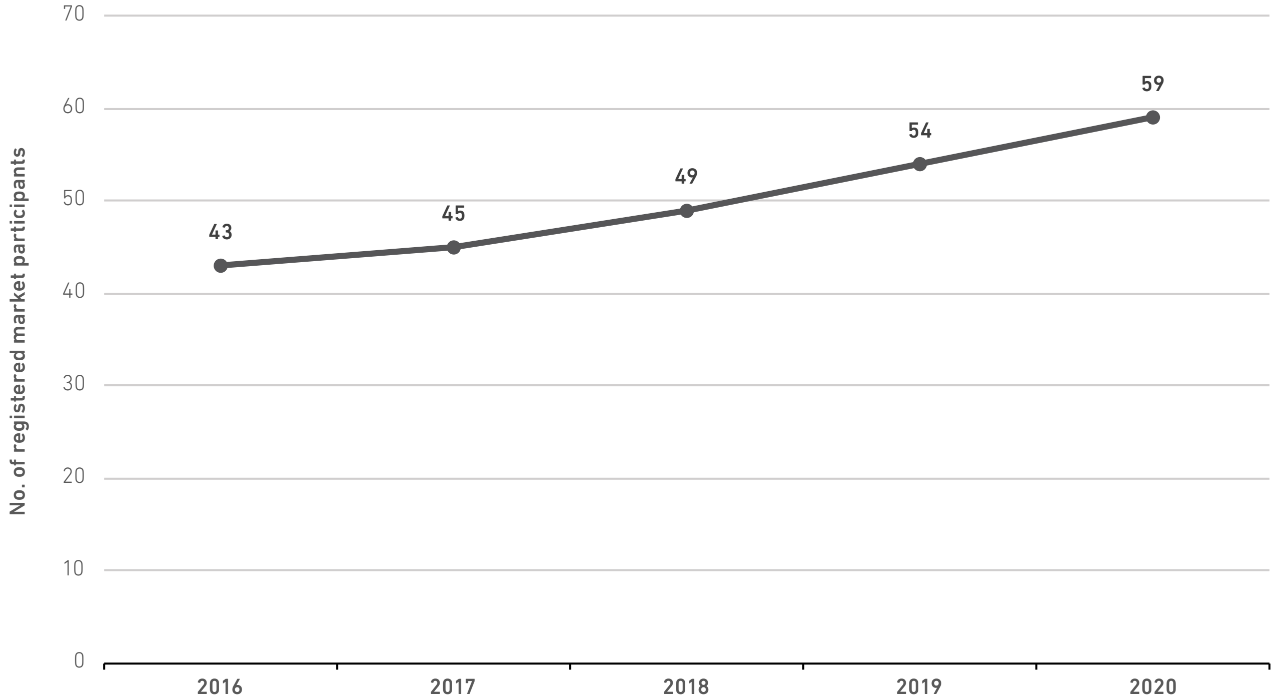
Market Transparency

REMIT (Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency) is the key foundation for ensuring the integrity and transparency of the energy market. It is a comprehensive regulatory framework for monitoring and supervising the European electricity and natural gas wholesale markets. The Regulation consists of three major parts: prohibition of market manipulation and insider trading, a requirement for the effective and timely publication of inside information, and the appropriate legislative framework for comprehensive market monitoring.

Market monitoring under REMIT includes the monitoring of all wholesale energy products, including orders to trade, irrespective of the trading venue. It also includes basic information on the availability of the energy infrastructure. The type and method of reporting information are specified in Implementing Regulation (EU) No 1348/2014. All the data is gathered by the Agency for the Cooperation of Energy Regulators (ACER). Pursuant to an agreement, ACER provides the Energy Agency with data, which it needs to monitor the national energy market. It provides daily data relating to the Slovenian bidding zone and data relating to the activity of participants registered with the agency.

In accordance with REMIT, market participants have to register with the national regulatory authority in the Member State in which they are established or resident or, if they are not established or resident in the EU, in a Member State in which they are active. 59 participants had registered with the Energy Agency by the end of 2020 (Figure 64).

FIGURE 64: REGISTRATION OF MARKET PARTICIPANTS IN SLOVENIA IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Within the monitoring process of wholesale energy markets under REMIT, the Energy Agency examined six cases of potential breaches of the Regulation in 2020. They were all submitted to the Energy Agency in accordance with the cooperation agreement concluded with ACER. Procedures were initiated on the basis of reported suspicious transactions or alarms triggered by the control system for detecting manipulation and abuse within the continuous market monitoring system at ACER. Five cases are related to prohibited conduct in the electricity market and one in the natural gas market. Three of the six cases are under investigation, which implies gathering additional evidence related to the alleged breaches of the market participants, while three are in the examination phase of the alleged breaches. In one case, the Energy Agency has already notified the market participant of the breaches found, and in another, such a notification is being drafted. The Energy Agency has been dealing with all the cases in close cooperation with the foreign regulatory authorities in the region and with ACER, which ensures a coordinated approach to solving the cases.

6 open cases under REMIT

Market Effectiveness

The Energy Agency monitors the effectiveness of the wholesale market in Slovenia in terms of their levels of competitiveness and liquidity. Monitoring the registration of closed contracts and operational forecasts, which is essential for ensuring an effective market, provides a bigger picture of trading because it includes bilateral trading.

Registration of Closed Contracts and Operational Forecasts

The registration of closed contracts and operational forecasts is carried out by the market operator Borzen. These contracts are the basis for drawing up the trading plans of the members of the balance scheme and for calculating the imbalances of balance group leaders after the supply has taken place.

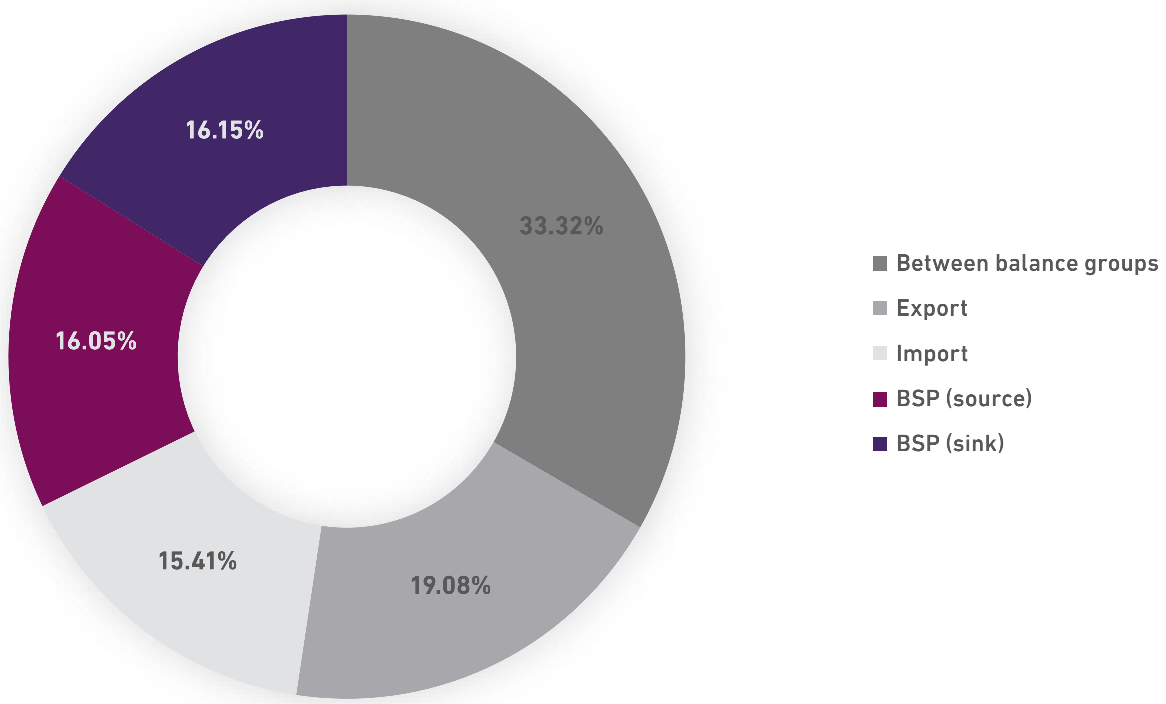
Borzen registers all the closed contracts that affect the energy balance of a member of the Slovenian balance scheme. It registers all the contracts concluded between members of the balance scheme, contracts concluded on the energy exchange and import-export closed contracts. Contracts concluded on bilateral markets are part of registered import-export closed contracts and closed contracts concluded between members of the balance scheme. Bilateral trading is carried out between two contracting parties outside an organised power exchange.

In addition to closed contracts, Borzen also registers operational forecasts, which represent forecasts of the delivery and consumption of electricity by the members of the balance scheme for those delivery points for which open contracts are concluded. In 2020, the market operator registered a total of 100,761 closed contracts and operational forecasts for a total amount of 82,220,859 MWh. Compared to the previous year, the total number of registered closed contracts and operational forecasts fell by 6.7% in 2020, while the trading volume rose by 2.5%.

The amount of electricity that was sold or purchased through closed contracts in 2020 was 53,839,876 MWh. Compared to 2019, when the total amount of closed contracts was 56,239,158 MWh, that amount had decreased by 4.3%.

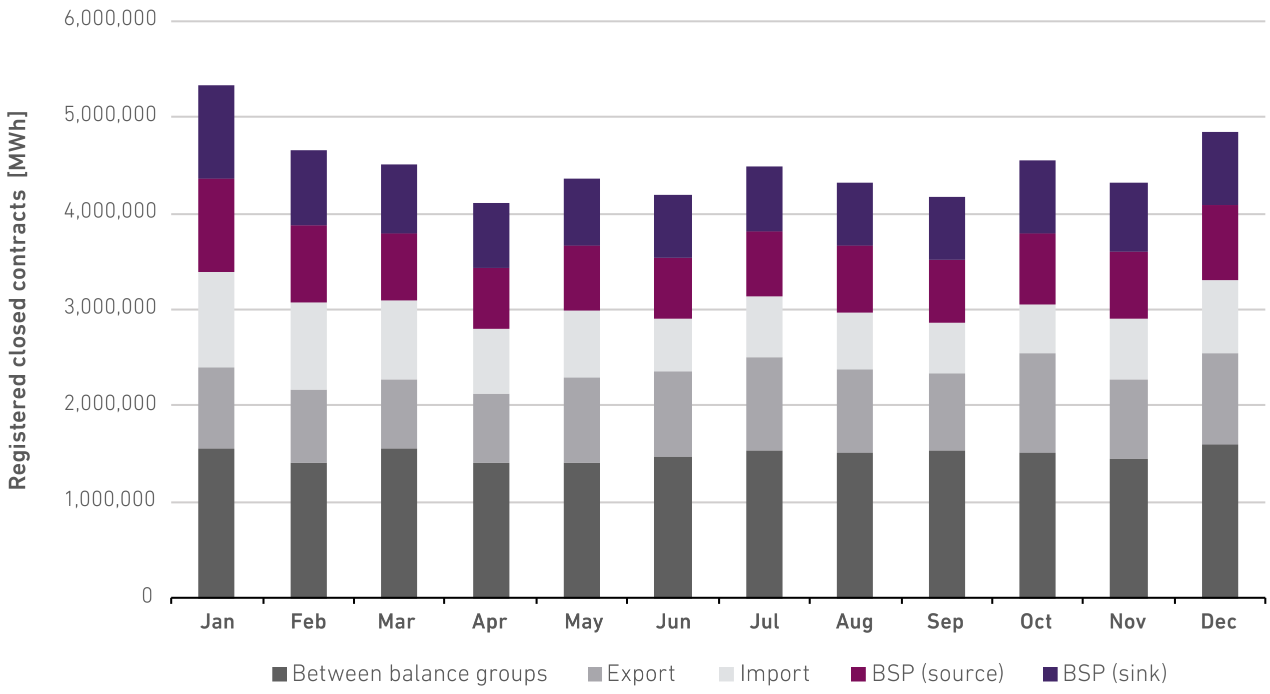
The structure of the volume of registered closed contracts and their corresponding quantities are shown in Figures 65 and 66.

FIGURE 65: STRUCTURE OF THE VOLUME OF REGISTERED CLOSED CONTRACTS



SOURCE: BORZEN

FIGURE 66: AMOUNT OF ELECTRICITY SOLD OR PURCHASED THROUGH CLOSED CONTRACTS



SOURCE: BORZEN

Day-Ahead Market

Day-ahead trading takes place on BSP in the form of auction trading. During the trading stage, market participants enter standardised hourly products into a trading application. The marginal price is calculated based on an algorithm of the trading application. Such trading is included in interregional market coupling, where any available CZCs are allocated. In 2020, market coupling included the borders of the Slovenian bidding zone with the bidding zones of Italy, Austria and Croatia. The volume of trading is influenced by numerous factors, most importantly by the quantities of available CZCs.

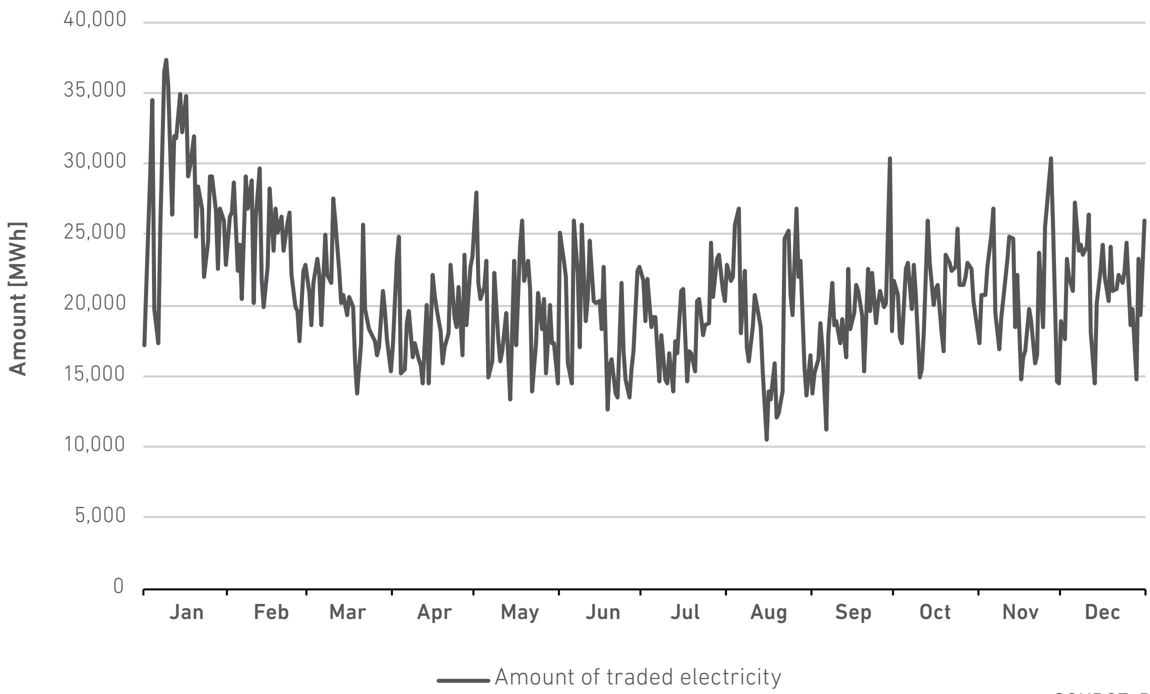
21 market participants were involved in day-ahead trading in 2020, which is the same as in 2019. The majority of the participants were from abroad.

8.1% lower trading volume in the Slovenian day-ahead market

The total volume of trading in the Slovenian day-head market in 2020 amounted to 7,614,322 MWh or 8.1% less than in 2019. Bids in the total amount of 7034 GWh were recorded, of which 4369 GWh were purchase bids and 2665 GWh were sales bids. The volume of bids recorded in this exchange segment has been declining over the last three years. The average daily trading volume was 20,804 MWh and the highest daily trading volume, which was reached on 9 January 2020, was 37,371 MWh.

The highest monthly trading volume was achieved in January 2020 and amounted to 867,011 MWh, which accounts for 11.4% of the total trading volume in that year. The highest monthly trading volume in 2020 was 14.7% higher than the highest monthly trading volume in 2019. The lowest monthly trading volume, amounting to 580,500 MWh, was reached in July. Only in January, February and December did the monthly trading volumes exceed those of the same periods in 2019. An important reason for the lower trading volume in the Slovenian day-ahead market is without doubt the increase in trading volume and liquidity in the intraday market, alongside the decrease in economic activity due to the epidemic.

FIGURE 67: AMOUNT OF ELECTRICITY TRADED IN 2020



SOURCE: BSP

Intraday Market

Intraday trading in the Slovenian organised market is also conducted on BSP. Continuous trading was no longer limited to the Slovenian market, as in November 2019 the Slovenian intraday market on the borders with Austria and Croatia joined the single European intraday market as part of the SIDC project. In the intraday continuous market, trading takes place 24 hours a day in hourly, 15-minute and block products.

Intraday trading allows market participants and balance groups to post additional bids or purchases after the close of day-ahead trading and thus adjust their trading plans accordingly and harmonise them with the operational forecasts. Trading in the intraday market concludes one hour before physical delivery and converts into trading in the balancing market, where market participants are left to trade only with the TSO. Prices in the intraday market always provide a clearer reflection of the real-time value of the energy that can be put to use by market participants. As providers of flexibility, they can adjust their generation and/or consumption within a short period of time.

Seven Slovenian and five foreign market participants participated in the intraday market on BSP at the end of 2020. Beside continuous trading, market participants can perform intraday auction trading through complementary regional auctions with Italy.

In 2020, trading volumes increased in both the intraday continuous and the intraday auction trading segments.

Market coupling has significantly increased the volume of intraday trading. In 2020, the total volume of intraday continuous trading was 1,040 GWh, which is four times the volume traded in 2019. In total, the intraday trading volume in the balancing market amounted to 68 GWh. An explanation of why certain quantities in intraday trading are treated as quantities in the balancing market is given in the following chapter.

301% **increase in the volume of intraday continuous trading**

The volume of auction intraday trading amounted to 440 GWh in 2020 (implicit auctions MI2 and MI6 at the Slovenian-Italian border), which is a 10% upswing compared to the previous year. Bids in the total amount of 4662 GWh were recorded, of which 2586 GWh were purchase bids and 2076 GWh were sales bids. The volume of bids recorded in this market segment is increasing and in 2020 was the highest in the reference period of the last three years. The volume of bids recorded in this market segment after 2018 is also increasing again and in 2020 was the highest in the reference period of the last three years.

The volume of trading on the intraday power exchange accounted for 11.4% of all trading on the Slovenian electricity exchange. Compared to 2019, when it amounted to 7.3%, this share saw a significant increase in 2020. This is due to the aforementioned increase in intraday continuous trading as a result of the Single IntraDay Coupling (SIDC).

Trading in the Market Operator's Balancing Market

The balancing market in Slovenia is run by the market operator Borzen. In the balancing market, the TSO can buy or sell balancing energy from providers to balance the power system. In doing so, the TSO releases the volumes of frequency restoration reserves. The rules for implementing the balancing market state that bids entered by members of the balancing market within intraday trading may be accepted by the TSO as bids placed in the balancing market, and that all transactions concluded with the TSO's bids for the purpose of balancing the power system are regarded as transactions in the balancing market. Transactions in the balancing market can be divided into transactions carried out in the intraday trading stage and transactions carried out in the balancing market stage. The share of the latter is increasing and amounted to 98% in 2020.

52% lower trading volume in the balancing market

For practical reasons, trading in the Slovenian balancing market is carried out together with intraday trading. Under the authority of the market operator, both markets are carried out by BSP. The same rules apply to both markets, subject to the principle that intraday trading ends one hour before the time of delivery and converts into trading in the balancing market.

In 2020, 3155 transactions were concluded in the market operator's balancing market, representing a total volume of 67.8 GWh. Of this volume, 21.2 GWh represented the purchase of balancing energy and 46.6 GWh the sale of balancing energy by the TSO. Compared to the previous year, the volume decreased by 52%. The decrease in the volume was expected, as the trading volumes in the single coupled continuous intraday market have increased significantly, which has also expanded the range of balancing options available to the TSO. Most of the trading was performed for hourly products in a total volume of 60.7 GWh of electricity. With 2531 transactions, hourly products were also the most traded product in the balancing market.

The market operator's balancing market accounted for 15.4% of all system balancing in 2020, which is half of the share in 2019, when the balancing market accounted for 30.8% of all system balancing.

The number of transactions concluded in the balancing market stage has been increasing since 2016. In 2020, it represented 98% of all transactions concluded in the balancing market.

Besides the TSO, only three out of a total of 31 members of the balancing market participated in trading, which is three fewer than in 2019.

Balancing Energy Trading on the ELES System Services Market

The ELES system services market is run by the TSO. In 2020, ELES used the Slovenian platform for balancing services, which is controlled and managed by the TSO, to activate the aFRR and mFRR balancing energy. Among other things, the platform enables the collection and activation of aFRR and mFRR energy bids. Thereby, the activation of aFRR energy bids is carried out automatically via the management system, while for mFRR bids, it is done on-demand via the mFRR auction and activation application.

Providers of balancing services must comply with the market conditions and a number of technical and communication requirements in accordance with the Rules and conditions for providers of balancing services on the ELES balancing market. Bids for balancing energy can only be submitted by providers qualified for this service. The provider of balancing services submits separate bids for balancing power and balancing energy, which are also separated by balancing direction. The successful bidder in the balancing power auction shall be required to submit mandatory balancing power bids in an hourly resolution in accordance with the quantity and period of the selected balancing power bids. Other providers have the option of submitting voluntary bids for balancing energy.

The bids for balancing energy are activated in order, so that the cheapest bids in the ordered list of bids, where the bids are ranked by price, are activated first. On the basis of the selected bids, the activated aFRR and mFRR balancing energy is charged on a pay-as-bid basis.

In 2020, only two providers entered energy bids for aFRR balancing energy and five qualified providers of balancing services entered energy bids for mFRR balancing energy. As a result, concentration in the market for system services is high and market competition and liquidity are low.

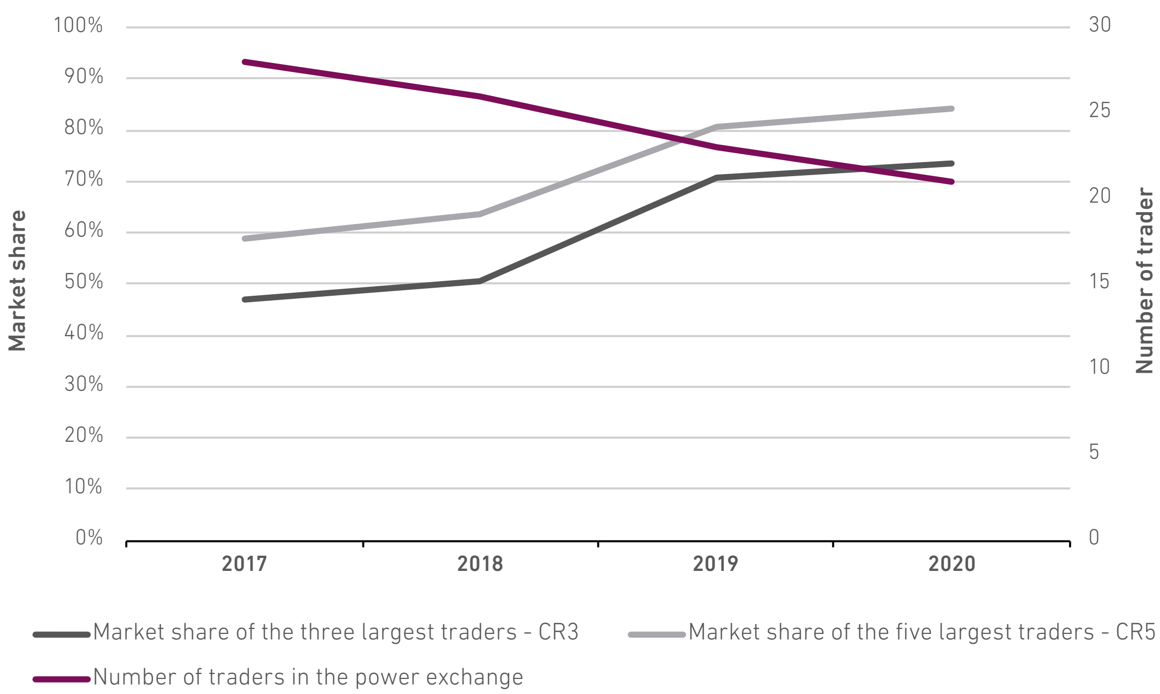
In the aFRR balancing energy trading platform, the volume of bids recorded for each balancing direction amounted to 525 GWh in 2020. Bids of 2196 GWh were recorded for mFRR+ balancing energy and 624 GWh for mFRR- balancing energy. These volumes with an hourly resolution coincide with the required volumes of system services, confirming the poor competitiveness of providers of balancing services and the low liquidity in this market segment.

Concentration in the Power Exchange

In 2020, 21 Slovenian and foreign companies traded on the BSP in the day-ahead market, which is two fewer than at the end of 2019. The number of traders operating on BSP has been steadily falling in recent years. As an indicator of the level of concentration, the total market share of the three largest traders was 73.3% (CR3) in 2020, which is a slight increase compared to 2019, when it was 70.8%. The total market share of the five largest traders was 84%, which is also an increase compared to 2019, when it was 80.8%.

The HHI was 2947, which indicates a high concentration in the wholesale market.

FIGURE 68: MARKET SHARE AND NUMBER OF TRADERS IN THE SLOVENIAN POWER EXCHANGE ACCORDING TO TRADED VOLUME



SOURCE: BSP

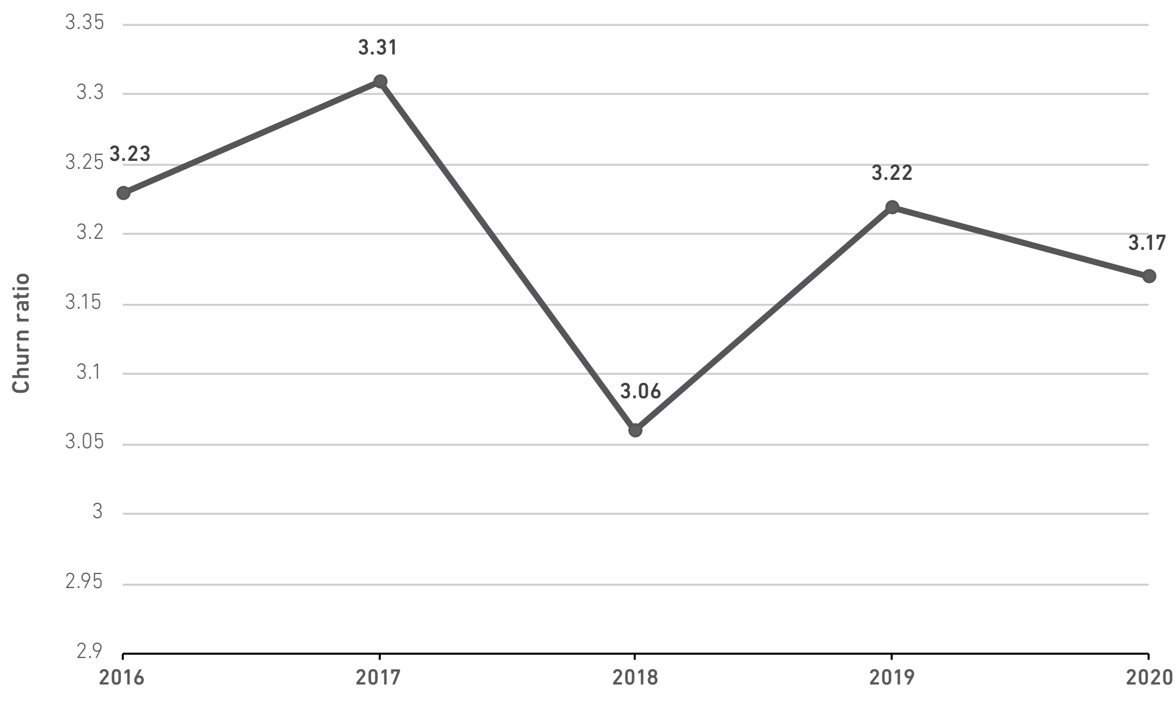
Wholesale Market Liquidity

The Energy Agency monitors the liquidity of the Slovenian wholesale electricity market using an established index called the churn ratio. This index provides us with information on how many times a unit of electricity had been traded before it was delivered to the end-consumer[15]. Figure 69 shows the trends of the index during the five-year period under review. In 2020, the value of the index decreased slightly compared to the previous year, but remains above 3. The value of the index indicates that the Slovenian wholesale electricity market is well-developed and has a high level of liquidity.

The wholesale electricity market continues to be well-developed, with a churn ratio above 3

Even though our wholesale market is smaller in comparison with other European markets, a relatively large number of active participants are present. They are Slovenian and foreign, large and small, which shows that the Slovenian market is open to the entry of new participants. The number of transactions concluded by the market participants is comparable to that of participants in foreign markets. This is why the prices of products are stable and do not undergo drastic changes in case of low liquidity

FIGURE 69: TRENDS OF THE CHURN RATIO PER YEAR IN THE 2016–2020 PERIOD



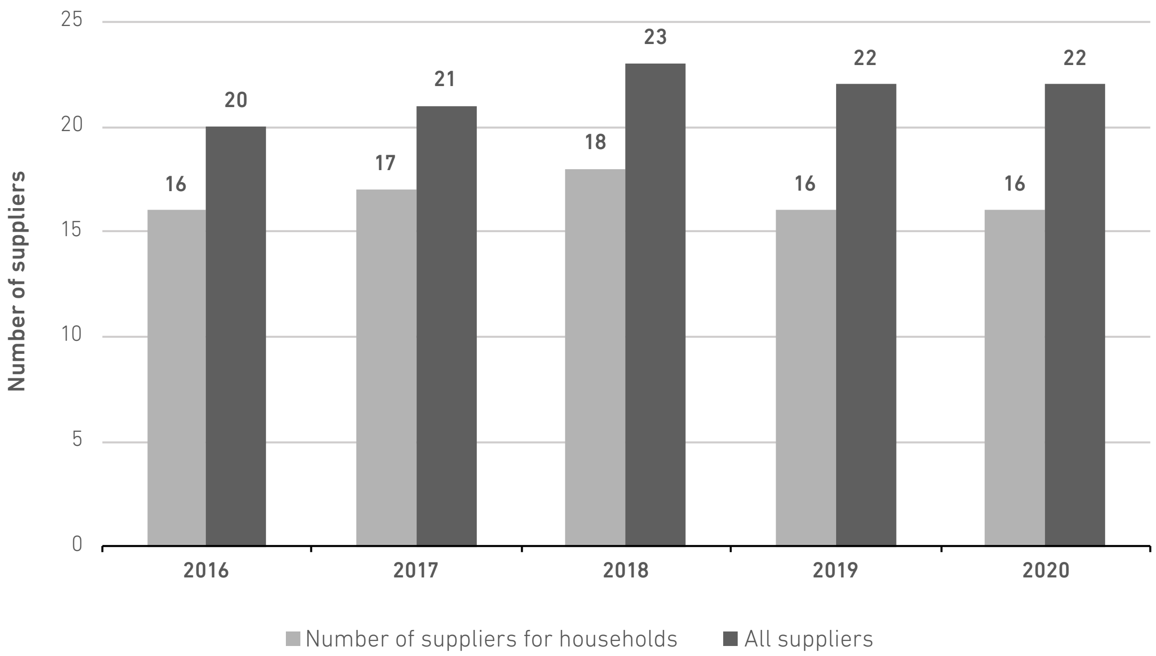
SOURCES: BORZEN, ENERGY AGENCY

15 The calculation is based on a methodology that takes into account the quotient between the sum of the recorded volume from closed contracts minus the exported volume, and the consumption in Slovenia. The volume from closed contracts includes the volume traded on BSP, as well as that traded on the bilateral market.

Retail Market

Suppliers and end-consumers in the Slovenian retail market sign open contracts, in which the quantities of supplied electricity and the time-profile of supply are not set in advance. As in 2019, 22 electricity suppliers were active in this market in 2020, of which 16 supplied electricity to household consumers.

FIGURE 70: TRENDS IN THE NUMBER OF SUPPLIERS IN THE SLOVENIAN RETAIL MARKET IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Prices

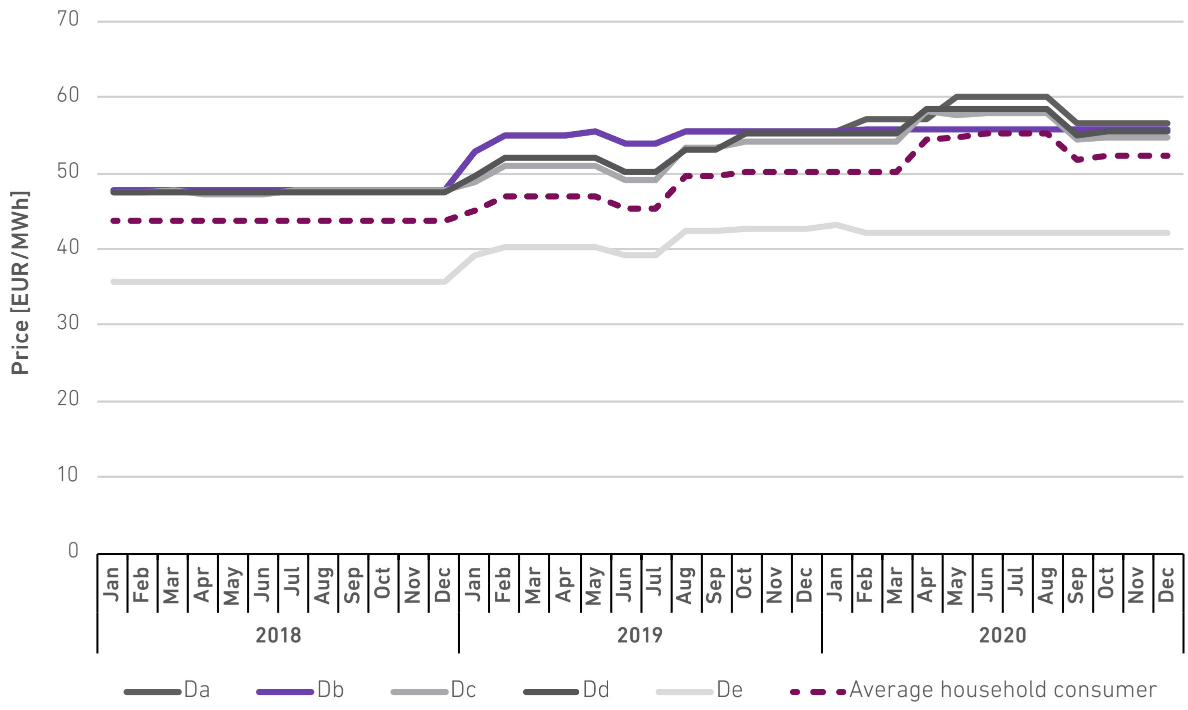
Retail electricity prices are set freely on the market. The Energy Agency regularly monitors the prices set for household and small business consumers based on the data on prices and offers in the retail market for households and small business consumers, which is submitted to the Agency by the suppliers on a monthly basis.

Retail Price Index for Typical Household Consumers

On the basis of monitoring the retail market for household consumers, the Energy Agency determines the retail price indices (RPI). The RPI is based on the lowest offer in the retail market that is accessible to all household consumers and enables them to switch suppliers at any time without a contractual penalty. So, the RPI reflects the price potential of the relevant market. An RPI increase usually represents the moment when a special offer from a particular supplier, offering the best price at that time, expires on the retail market and consequently reduces the value of the RPI . Figure 71 shows the trends of the RPI for the standard consumer groups Da, Db, Dc, Dd and De, as well as an average Slovenian household consumer[16] in the 2018–2020 period. Most of the consumers in the retail market (except those who have contracts that include contractual penalties) have the option of switching their supplier or a product provided by their current supplier free of charge. That way, they are sure to be supplied electricity at a price reflected by the RPI.

16 Consumption type: chargeable demand 8 kW, 1996 kWh (HT) and 2100 kWh (LT) per year

FIGURE 71: RPI IN THE 2018–2020 PERIOD



SOURCE: ENERGY AGENCY

Figure 71 shows that the RPI increased by around 7% between April and September 2020 in all consumer groups except Db and De, before falling back to the level before the increase. At the end of March 2020, the offer with the then lowest price from GEN-I expired, and from April 2020 onwards, the lowest RPI value belonged to the supplier Elektro Prodaja E.U.

Analysis of Green Electricity Prices

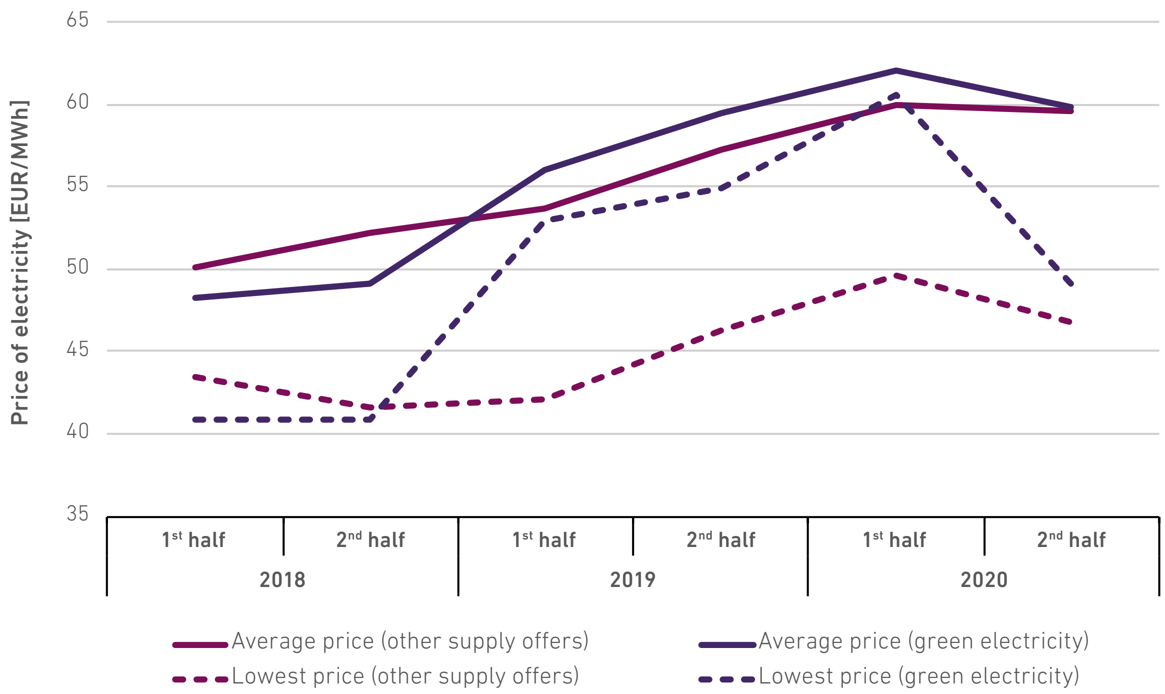
As part of their electricity supply services, electricity suppliers offer consumers specific products that, among other things, differ in the structure of their primary production sources. Consumers can choose between the supply of electricity generated exclusively from renewable energy sources (green electricity) and other products that include other primary energy sources in their production sources (other supply offers).

The unification of prices for green electricity and other supply offers by the end of 2020

Figure 72 shows the trends in the average price of green electricity and other supply offers and the trends in the lowest price of green electricity and other supply offers available on the market for an average household consumer[17] in the 2018–2020 period.

17 Consumption type: chargeable demand 7 kW, 2200 kWh (HT) and 1300 kWh (LT) per year

FIGURE 72: PRICE TRENDS OF GREEN ELECTRICITY AND OTHER OFFERS IN SLOVENIA FOR A TYPICAL HOUSEHOLD CONSUMER IN THE 2018–2020 PERIOD



ENERGY AGENCY

The increase in the average electricity prices for green electricity and other supply offers, which started in 2019, continued in the first half of 2020. In the second half of 2020, the situation stabilised somewhat with the emergence of cheaper offers of electricity supply in the household retail market. At the end of the year, we therefore recorded minimal price differences, both in the average and lowest prices, between green electricity and other supply offers. This price convergence is particularly noticeable at the lowest end of the price spectrum, due to the wide divergence we have seen in 2019.

Final Electricity Prices for Household Consumption

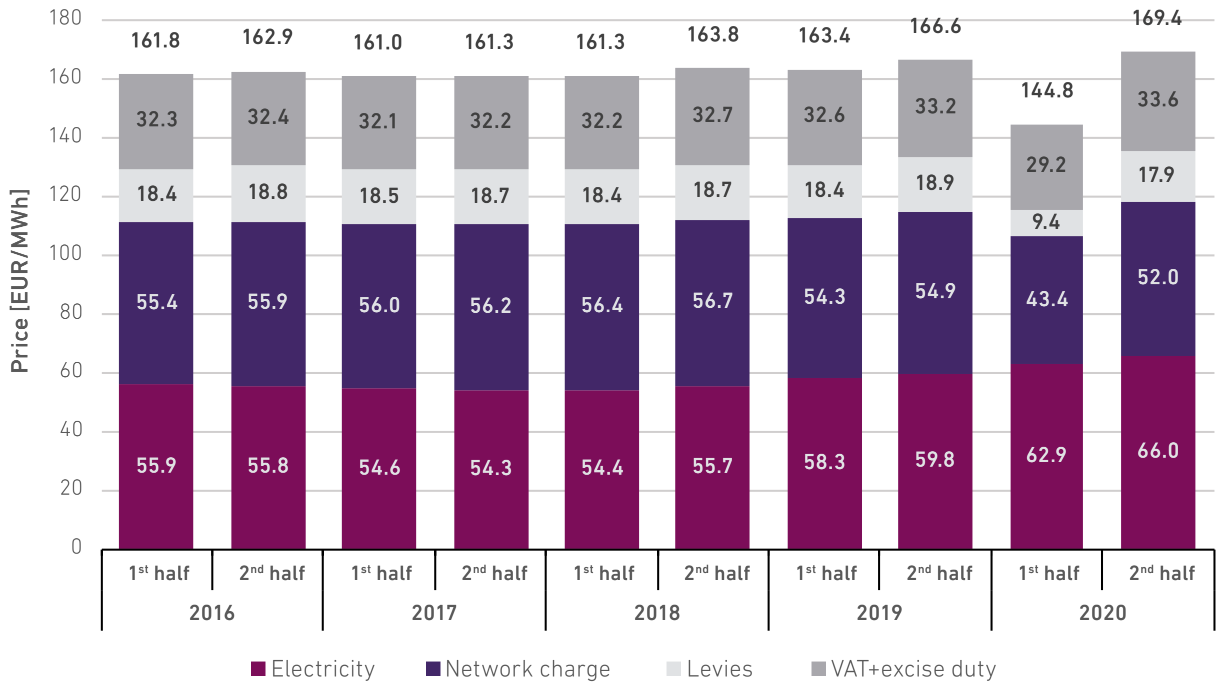
Figure 73 shows an analysis of the structure of the final prices of electricity delivered to typical household consumers[18] in the 2016–2020 period. The final electricity price for a consumer consists of:

- the electricity price set freely on the market;
- the network charge:
  - the network charge for transmission and
  - the network charge for distribution;
- levies:
  - levies for supporting electricity generation using high-efficiency cogeneration and renewable energy sources (RES),
  - the energy efficiency levy and
  - the levy for the operation of the market operator;
- excise duties and
- value-added tax (VAT).

A 4.8% lower final price of electricity delivered to a typical household consumer

18 Consumption type: consumer group Dc, annual consumption between 2500 kWh and 5000 kWh (SURS methodology)

FIGURE 73: TRENDS OF THE FINAL ELECTRICITY PRICE IN SLOVENIA FOR A TYPICAL HOUSEHOLD CONSUMER IN THE 2016–2020 PERIOD



SOURCES: ENERGY AGENCY, SURS

The final price of electricity delivered to a typical household consumer decreased by 4.8% in 2020 compared to 2019, mainly as a result of the emergency measures taken by the Agency and the Government of the Republic of Slovenia due to the COVID-19 epidemic in the period from 1 March to 31 May 2020. The price of electricity increased by 9.3% in 2020 compared to the previous year.

In the period from 1 March to 31 May 2020, household and small business consumers were not charged a capacity charge tariff due to the emergency measure taken by the Agency in the form of a change in the tariffs for calculating the network charge. In addition, the network charge tariffs for the distribution system have also been reduced in 2020, while the network charges for the transmission system increased only marginally. The total network charge for a typical household consumer was therefore 12.6% lower in 2020 compared to 2019.

A 12.6% lower network charge for a typical household consumer

Similarly to the Agency, the Government of the Republic of Slovenia also adopted an emergency measure due to the epidemic, so that from 1 March to 31 May 2020, household and small business consumers were not charged the RES levy, which depends on the chargeable demand of the consumer. Both of the above-mentioned measures are reflected in Figure 73 as reductions in the network charge and levies in the first half of 2020. Otherwise, the levies have not changed since 2016.

In 2020, the share of the network charge in the final electricity price for a typical household consumer was 30.4%, the share of energy was 41.1%, the share of levies was 8.7%, and the share of VAT and excise duty was 20%.

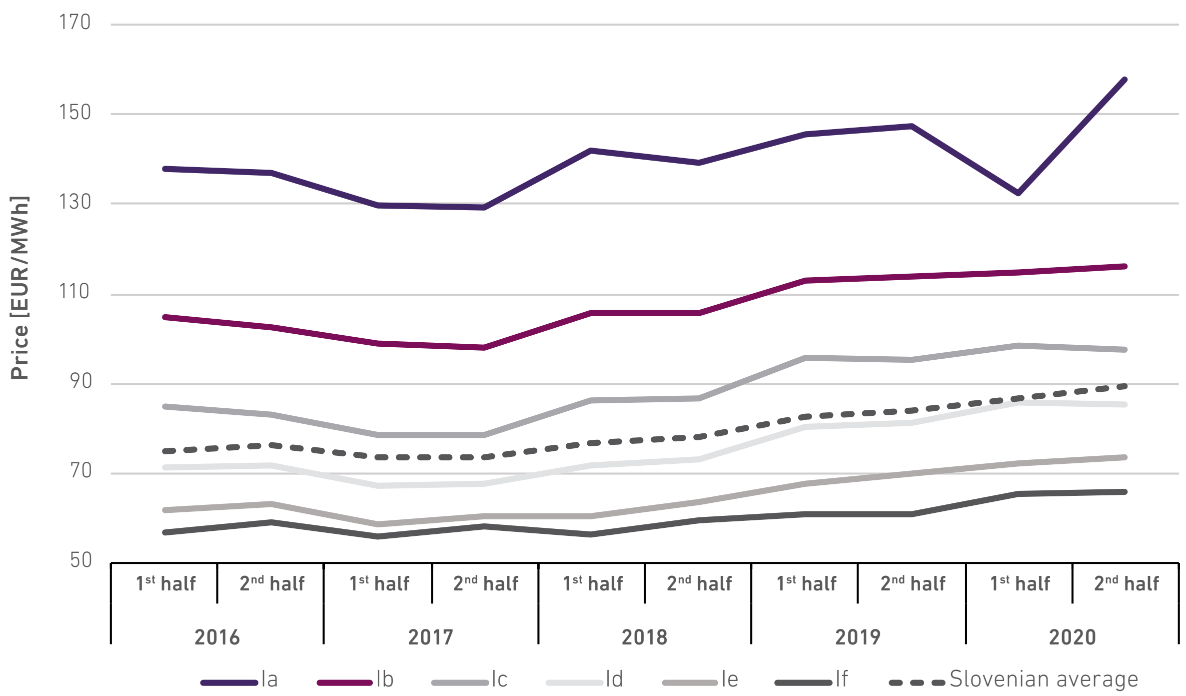
.

Final Electricity Prices for Business Consumption

The average final electricity price for business consumption, without taking into account VAT[19], was 87.9 EUR/MWh in 2020, which is an increase of 5.3% compared to 2019. The final prices have increased for all consumer groups, including the smallest consumer group Ia. As shown in Figure 74, the final price for this consumer group, which mostly reflects the consumption by small business consumers, decreased in the first half of 2020 as a result of the measures taken by the Agency and the Government of the Republic of Slovenia in the wake of the epidemic (see chapter 1.2.2.1.1.3). These measures did not apply to other business consumption. The highest price increase was recorded in the If consumer group, where the price was 7.7% higher in 2020 compared to 2019. The lowest price increase was recorded in the Ibconsumer group, where the price was 1.9% higher in 2020 compared to 2019.

A 5.3% higher final price of electricity for a typical business consumer

FIGURE 74: TRENDS OF THE FINAL ELECTRICITY PRICE IN SLOVENIA FOR TYPICAL BUSINESS CONSUMERS IN THE 2016–2020 PERIOD



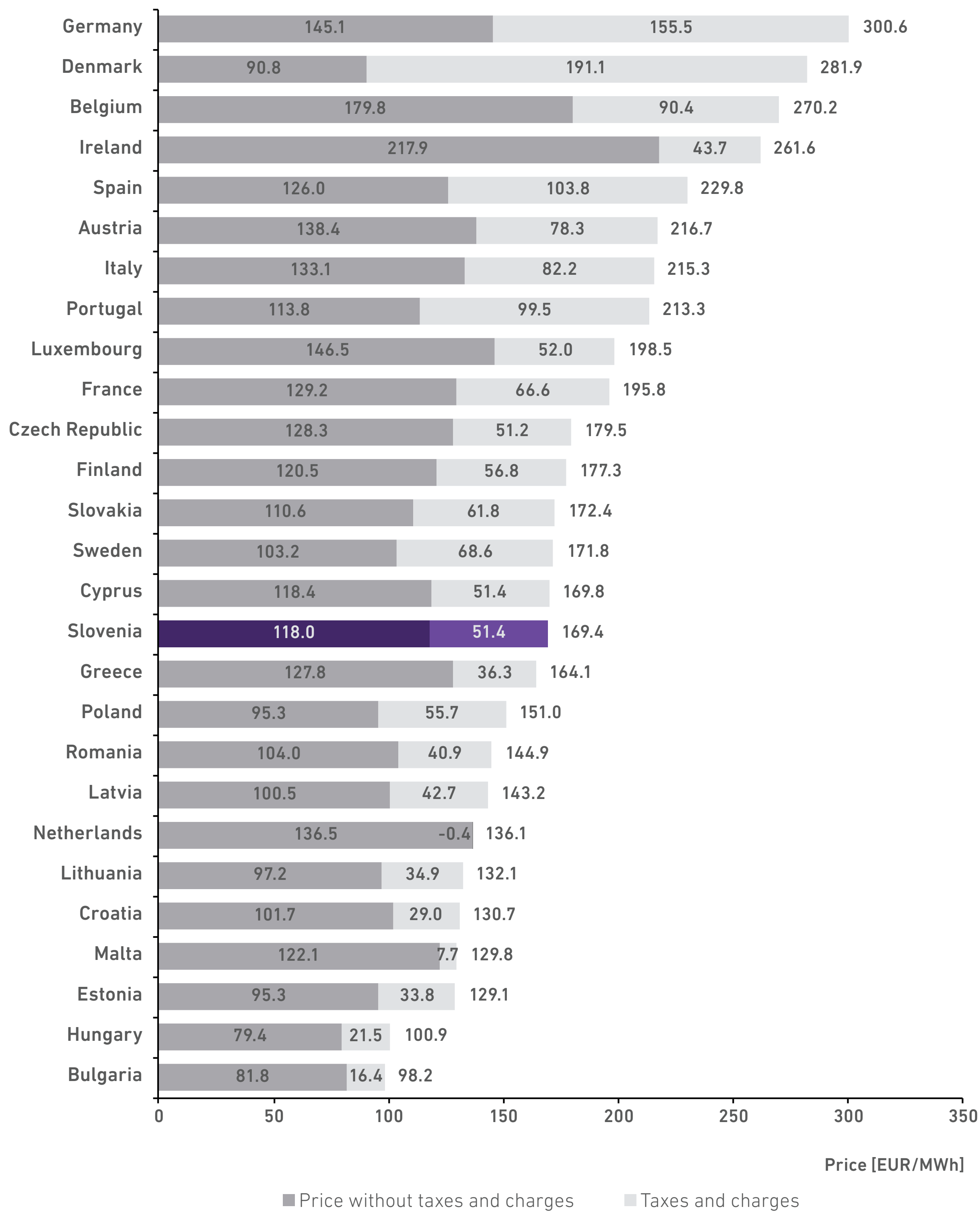
SOURCE: SURS

19 Tax is not taken into account to ensure comparability with the Eurostat methodology

Comparison of the Final Electricity Prices in EU Countries

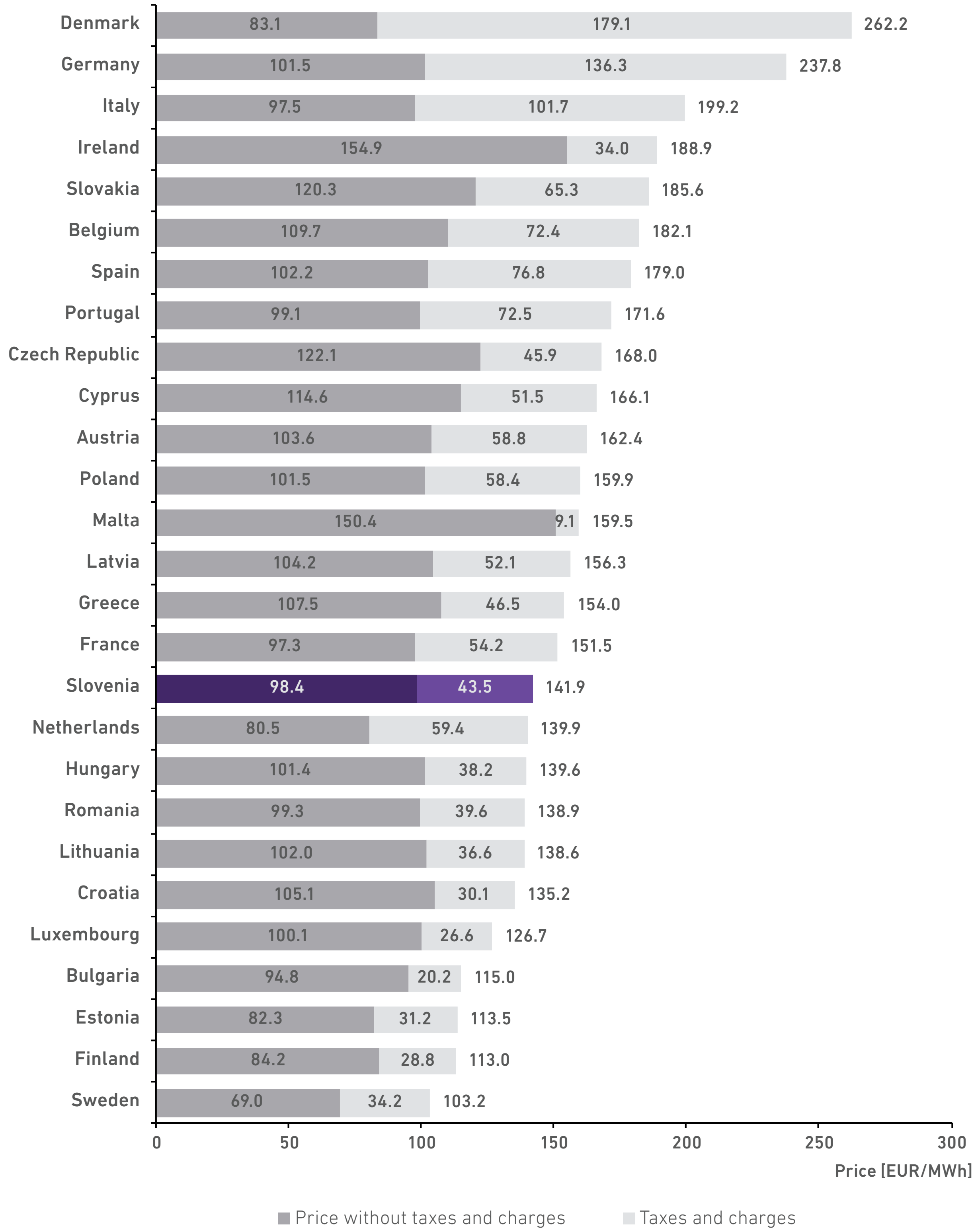
Figures 75 and 76 show a comparison of the final electricity prices in EU countries in the second half of 2020 for typical household and business consumers selected in accordance with the Eurostat methodology. Taxes and charges include levies, excise duty and VAT, while the price without charges and taxes includes the price of energy and the network charge. Final electricity prices in Slovenia in both market segments increased compared to 2019, whereby the highest prices in the EU for household consumers were recorded in Germany and for business consumers in Denmark.

FIGURE 75: COMPARISON OF THE FINAL ELECTRICITY PRICES FOR A TYPICAL HOUSEHOLD CONSUMER WITH AN ANNUAL CONSUMPTION OF BETWEEN 2500 kWh AND 5000 kWh (DC) IN EU COUNTRIES FOR THE SECOND HALF OF 2020 IN EUR/MWh



SOURCE: EUROSTAT

FIGURE 76: COMPARISON OF THE FINAL ELECTRICITY PRICES FOR A TYPICAL BUSINESS CONSUMER WITH AN ANNUAL CONSUMPTION OF BETWEEN 20 MWh AND 500 MWh (IB) IN EU COUNTRIES FOR THE SECOND HALF OF 2020 IN EUR/MWh

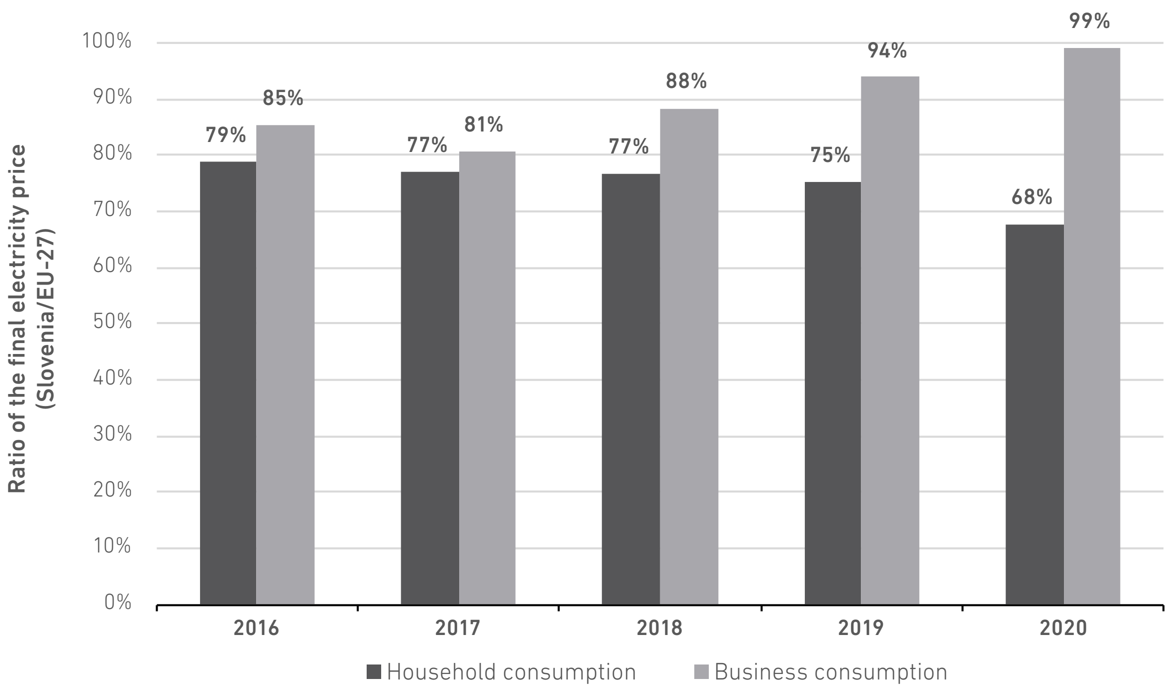


SOURCE: EUROSTAT

In the internal electricity market, the retail price of electricity is set on the market in all EU countries. The retail price of electricity depends on the structure of generation sources, accessibility to neighbouring markets and market activities. Despite a well-functioning market where electricity prices converge over the years, differences in the final price of supply are also reflected in the network charge, the levies for various support policies for generation from RES and taxation. For a typical household consumer in Slovenia, the total price was nominally below the EU average, but also lower than in Austria and Italy and higher than in Croatia and Hungary.

Figure 77 shows the ratio of the final electricity prices in Slovenia for a typical household and business consumer[20] to the average of 27 EU countries for the five-year period under review. The analysis shows that the final price for household consumption in Slovenia has been declining continuously in recent years relative to the EU-27 average and has decreased by more than 10 percentage points over the last five years. On the other hand, we can observe an increase in the final price for business consumption in Slovenia relative to the EU-27. In 2020, the total price for a typical business consumer in Slovenia was practically on par with the EU-27.

FIGURE 77: RATIO OF THE FINAL ELECTRICITY PRICE FOR A TYPICAL HOUSEHOLD AND BUSINESS CONSUMER IN SLOVENIA TO THE EU-27 AVERAGE IN THE 2016–2020 PERIOD

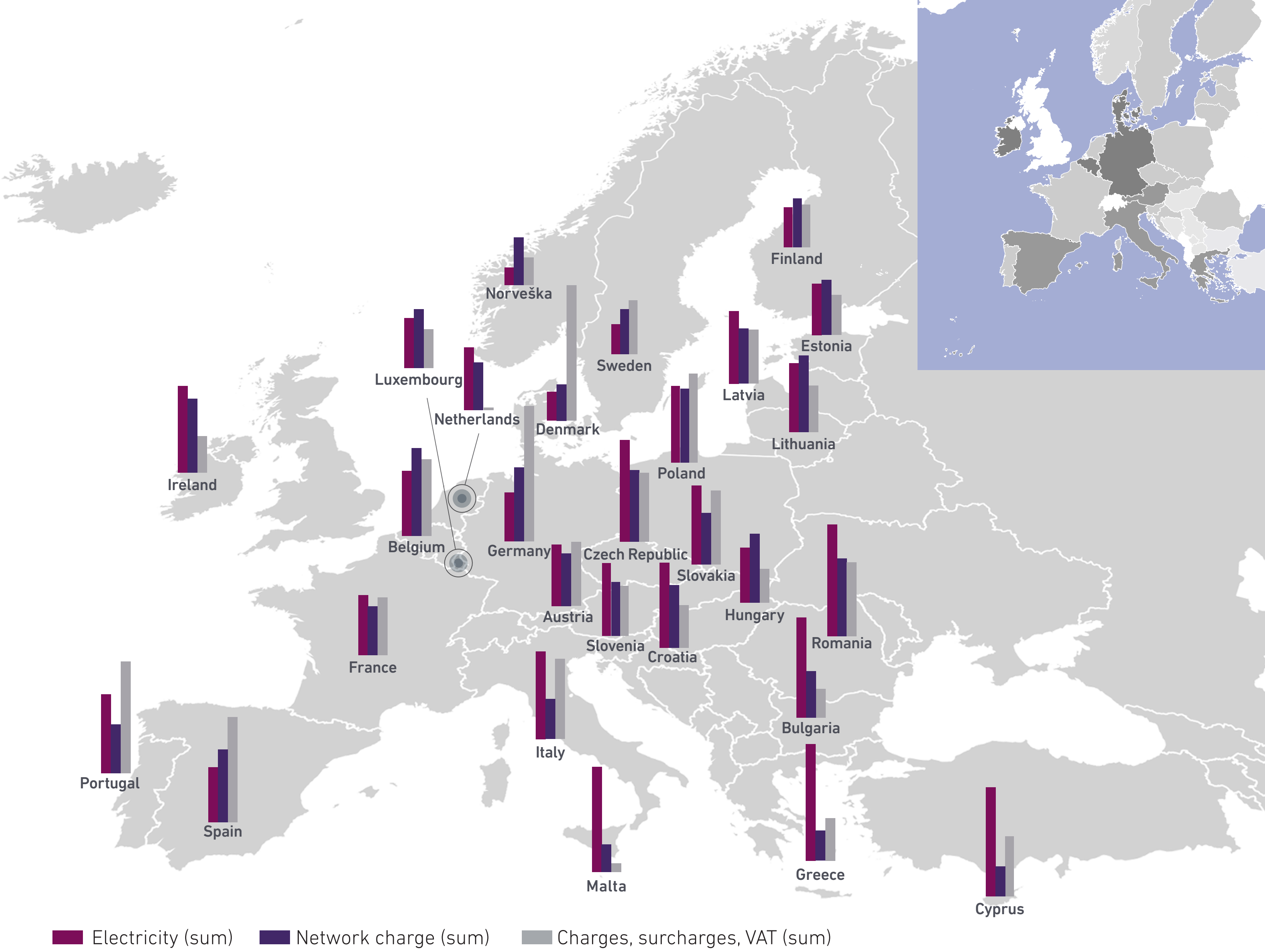


SOURCE: EUROSTAT

The structure of the final supply price for a typical household consumer in EU countries is shown in Figure 78. The least diversity in the share of the total price in the EU is found in the network charge. At the same time, regulated network charges continue to represent the smallest share of the total price. The network charge in Slovenia is below the EU average, even falling to 30% of the final price in 2020, in line with the higher energy prices.

20 Consumption type: consumer group DC, annual consumption from 2500 kWh to 5000 kWh (household consumption) and consumer group IC, annual consumption from 500 MWh to 2000 MWh (business consumption), Eurostat methodology

FIGURE 78: ELECTRICITY PRICE AND ITS STRUCTURE FOR TYPICAL HOUSEHOLD CONSUMERS PER COUNTRY (IN THE INSET, THE DARKER SHADING OF THE COUNTRIES REPRESENTS THE LEVEL OF THE FINAL PRICE)

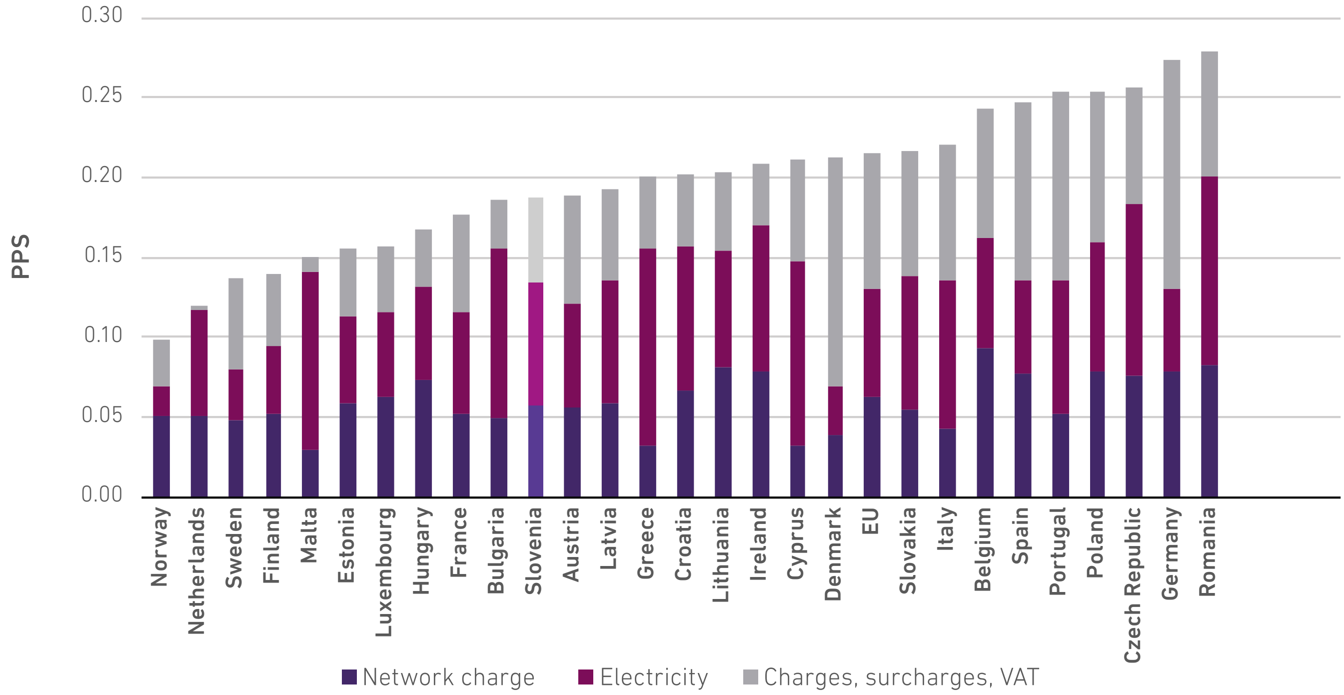


SOURCE: EUROSTAT

Figures 79 and 80 compare the shares of the total price of the electricity supply for a typical household consumer in EU countries according to their Purchasing Power Standardi[21]. In this case, supply prices for a typical household consumer in Slovenia are more comparable to neighbouring countries, but lower than the EU average. The same applies to the network charge, which is higher in Slovenia compared to Austria and Italy and lower than in Croatia and Hungary.

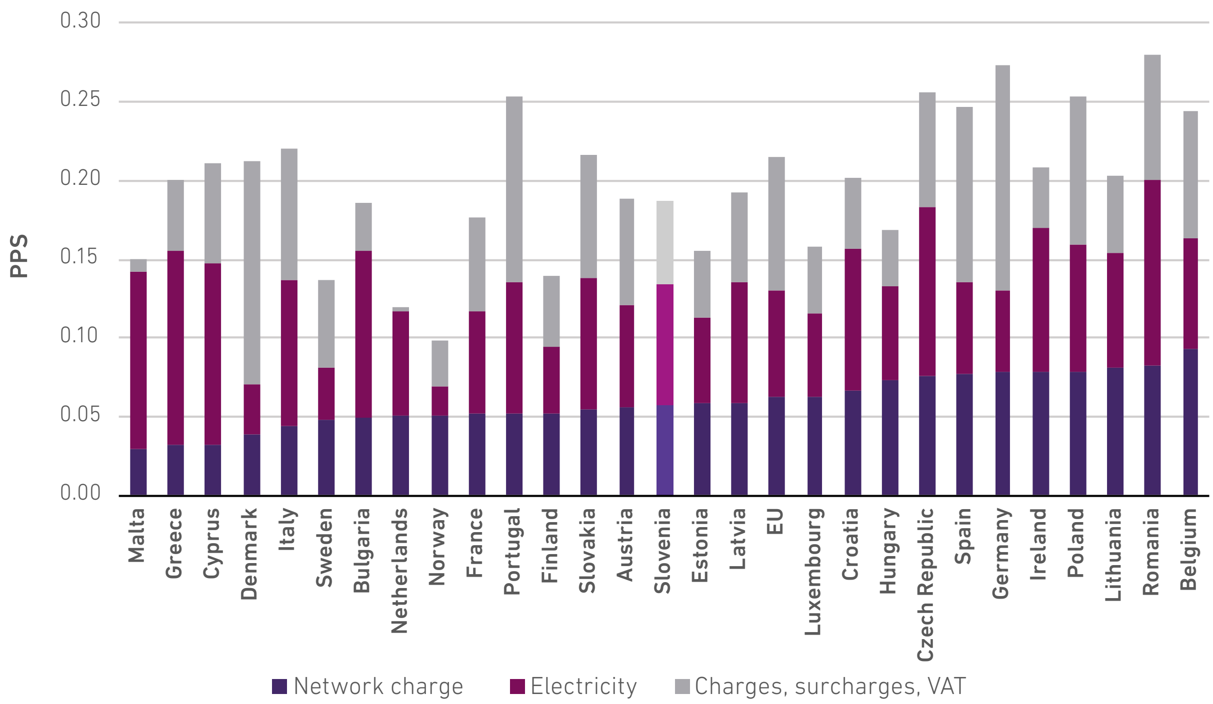
21 The Purchasing Power Standard (PPS) is an artificial currency. It equals one euro at the average level of the EU Member States. In theory, one PPS can buy the same amount of goods and services in any Member State. Cross-border price level differences mean that different amounts of units in the national currency are necessary for the same goods and services. The PPS is calculated by dividing any economic aggregate of a country in its national currency into its purchasing power parities. Purchasing power parities are exchange rates that equalise the purchasing power of different currencies by eliminating price level differences between countries.

FIGURE 79: COMPARISON OF THE TOTAL PRICE OF THE ELECTRICITY SUPPLY FOR A TYPICAL HOUSEHOLD CONSUMER IN EU COUNTRIES ACCORDING TO THEIR PURCHASING POWER STANDARD



SOURCE: EUROSTAT

FIGURE 80: COMPARISON OF SHARES OF THE NETWORK CHARGE IN THE TOTAL PRICE OF THE ELECTRICITY SUPPLY FOR A TYPICAL HOUSEHOLD CONSUMER IN EU COUNTRIES ACCORDING TO THEIR PURCHASING POWER STANDARD



SOURCE: EUROSTAT

Mark-Up and Responsiveness of Retail Prices

An analysis of the correlation between the wholesale prices and the energy component of retail prices for household consumers represents the suppliers' estimated gross mark-up but it also indicates the level of responsiveness of the retail prices to changes in the wholesale prices. The analysis illustrates the total indicators for Slovenia and does not compare the mark-ups of individual suppliers.

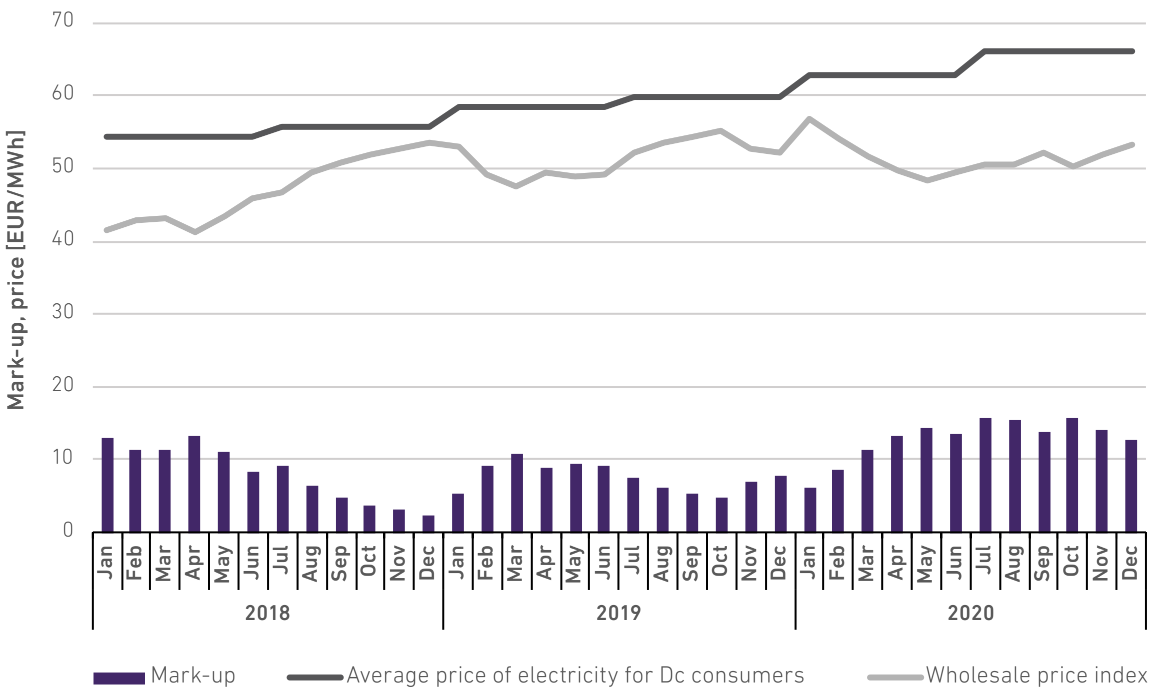
Here, the mark-up is only a theoretical indicator and does not imply the suppliers' profit since they have other expenses related to their comprehensive offer besides electricity supply.

In that context, the mark-up is the difference between the price on the energy bills of a typical household consumer with an annual consumption of between 2,500 kWh and 5,000 kWh (consumer group Dc) and the estimated costs of supplying that energy. To estimate the costs of energy supply, we use the wholesale price index, which is weighted to represent an approximation of the optimum strategy for energy supply in the forward and daily wholesale markets[22].

The level of convergence between the energy component of the retail prices and wholesale prices over a longer period of time can be used as an additional indicator of the efficiency and competitiveness of the retail market.

The average mark-up of retail prices in 2020 was 12.9 EUR/MWh, which is more than in 2019, when the mark-up was 7.6 EUR/MWh.

FIGURE 81: MARK-UP AND RESPONSIVENESS OF THE ENERGY COMPONENT OF RETAIL PRICES



SOURCES: SURS, ENERGY AGENCY

Figure 81 shows the relative convergence of the wholesale prices and the energy component of the retail prices. Compared to the previous year, the energy components of the retail prices increased by 9% in 2020, while the wholesale price index average remained the same. The correlation coefficient of the monthly levels of these two price elements is 0.54 over the three-year period, indicating a moderate correlation, although the correlation coefficient is slightly negative in 2020 due to the increase in the price of the energy component of retail prices in the second half of the year. In principle, positive correlations are good since they imply appropriate responsiveness and a higher level of competitiveness in the retail market. While the reaction of suppliers to an increase in the wholesale price is to be expected, when wholesale prices fall, the reaction is weak when it leads to an increase in mark-ups. Although the unresponsiveness of retail prices in 2020 may also be a consequence of the increased risks for suppliers due to the epidemic, mark-up increases can be an indicator of both the market power of the suppliers and the inactivity of consumers. The latter is reflected in a renewed reduction in the number of supplier switches, as detailed below.

22 The methodology is explained in more detail in Annex 6 of the ACER/CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2014.

Transparency

Financial Transparency of Suppliers, Invoice Transparency and the Obligation to Make Offers Public

The suppliers' annual reports are drawn up in accordance with the Companies Act (ZGD-1). Even though the transparency of electricity invoices is not systemically regulated in an explicit way, based on an analysis of the situation in 2020, the Energy Agency estimates that overarching legislation ensures an appropriate level of transparency in this field. The suppliers' invoices display a breakdown of the costs of electricity, the network charge, levies, the excise duty and value-added tax. In addition, the invoices include information on the structure of the primary electricity sources, carbon dioxide emissions and the resulting radioactive waste.

Suppliers have to provide household consumers and small business consumers with transparent information on their offer of electricity supply and the related price lists, as well as the general terms and conditions for their supply services, at least by publishing this information on their website.

Publication of the Structure of Energy Sources

In accordance with the Legal Act on the method for determining and presenting the breakdown of electricity generation by energy source, suppliers are required to present the shares of individual electricity generation sources in the total structure of the electricity supplied in the preceding calendar year on invoices, online and on promotional materials. Suppliers are obliged to publish the information for the preceding calendar year during the period from 1 July of the current calendar year to 30 June of the following year.

If suppliers offer different electricity supply products depending on the origin of the electricity, they must first indicate the shares for the specific product, and only then in relation to the total amount supplied by the supplier. This way, all end-consumers get a breakdown of the electricity supplied on the back of their invoice in the form of a prescribed table and pie chart. The pie chart must show the shares of coal and lignite, natural gas, petroleum products, nuclear fuel and RES used. Suppliers (except suppliers that do not supply electricity from RES) are required to detail the individual RES sources (hydro, wind, solar, geothermal and biomass) in the table. They can only show the share of electricity from RES on the basis of cancelled guarantees of origin. Other resources are determined on the basis of the total remaining structure of the energy sources, which is determined by the Agency and published on its website, taking into account the remaining national and European generation.

Guarantees of Origin for Electricity

A guarantee of origin is a document issued by the Agency at the request of an electricity producer, containing information on the origin of the electricity. In addition to the date of issue of the guarantee and the amount of electricity produced, the guarantee of origin contains information on the producer, the production installation (nominal power, source, technology, start of operation), information on the support for the electricity produced and the production period. Guarantees of origin are issued electronically in the Guarantee of Origin Register. This register allows for the electronic transfer of guarantees of origin between users of the register, their import and export, and their cancellation. With the cancellation, the guarantee of origin is used and serves suppliers to prove the origin of the electricity supplied to end-consumers. In 2020, 5255 GWh of guarantees of origin were issued (5078 GWh for RES electricity and 177 GWh for CHP electricity). On the domestic market, 1512 GWh of guarantees of origin were cancelled (1339 GWh for electricity produced from RES and 173 GWh for electricity produced from CHP).

At the end of 2020, a new Regulation on the Issue of Plant Declarations and Guarantees of Origin for Electricity was published, which regulates in more detail the conditions for obtaining plant declarations and guarantees of origin. A major innovation is the possibility of obtaining a declaration for nuclear power plants and fossil fuel production installations. Following the publication of the new Regulation, the Agency issued the Act on Keeping the Register of Guarantees of Origin of Electricity, which lays down the manner and rules for keeping a register of the guarantees of origin, the conditions for opening, managing and closing an account in the register, as well as the manner and form of notifying the beneficiaries of the guarantees of production of electricity. The enactment of these two Acts means that, in addition to the already established proof of origin for electricity from renewable sources, suppliers also have guarantees of origin for electricity from other sources, and end-consumers have the option of choosing a specific generation source.

Ensuring Retail Market Transparency

Transparency in the retail market, where numerous participants offer a very large and diverse range of services, is ensured in particular by making all the necessary information publicly available. Suppliers publish information about their offers and products, as well as the terms and conditions related to their services, on their websites. Information is therefore primarily dispersed and transparency is ensured by the Agency and Borzen on the basis of the applicable law.

The Agency monitors the retail market based on public and other data that the Energy Agency obtains from persons with a reporting obligation. Based on the results of the monitoring, reports on violations or restrictive practices, etc., the Energy Agency carries out surveillance activities and implements measures with the aim of ensuring transparency. These include bilateral cooperation, drawing up legislative amendments, influencing the regulatory provisions of secondary legislation to which the Energy Agency provides its opinion or consent, carrying out public consultations, undertaking corrective action aimed at the operation of market participants by implementing supervisory procedures, and guiding stakeholders through their participation in professional associations (e.g. the Energy Market Data Exchange Section (IPET Section) of the Energy Industry Chamber of Slovenia). The Agency also ensures transparency by making information and services publicly available within its single point of contact[23], which comprise:

- comparison and validation e-services, including a list of suppliers and system operators that includes the identity cards of individual companies;
- key indicators in energy markets (eMonitor portal) and
- other useful data and relevant and up-to-date information contributing to the transparency of the retail market and services (structured list of legislation, explanation of the invoice, etc.).

The set of comparison e-services enables users to calculate and compare the costs of electricity supply according to individual consumption types. Comparative calculations can be carried out for the supply to household and small business consumers. Suppliers submit information about their offers to the Energy Agency in a standard format on a monthly basis in accordance with the Act Concerning the Method of Electronic Data Reporting for the Valid Regular Tariff Comparison of Electricity and Natural Gas Suppliers for Household and Small Business Consumers.

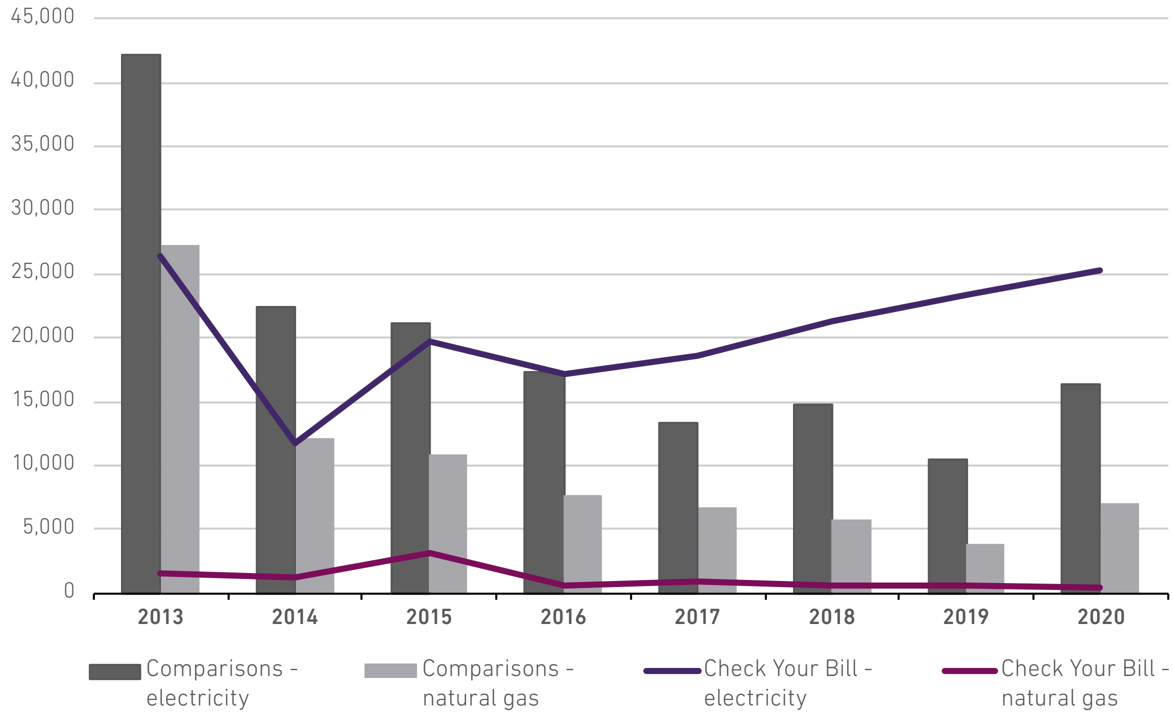
The web application Check Your Monthly Bill enables users to verify the accuracy of the issued monthly electricity bill according to the selected supplier, supply offer and type of consumption. This calculation is performed separately according to the bill's legally required items and is possible for all products on the market, but does not support checking balance payments.

As part of its comparison services, the Energy Agency enables users to perform a comparative calculation of the costs for the use of the network for all consumer groups according to the user's consumption type (the app Calculate the Costs for the Use of the Network).

As part of its comparison services, in 2020, on the basis of the Act Amending the EZ-1[24], the Agency provided comparisons of all the offers on the retail market, with individual exceptions: only individual offers from suppliers whose design or characteristics did not ensure a minimum level of comparability or would distort the comparison were excluded. An independent comparison of all the offers on the market definitely fundamentally contributes to the better transparency of offers on the retail market. An analysis of the number of comparisons and invoice verifications performed confirms the increased interest of consumers: the number of comparisons carried out has increased by 57% (electricity supply) and 85% (natural gas supply) compared to 2019.

23 https://www.agen-rs.si/skt/ee
24 In 2019, an amendment to the law abolished the definition of a regular price list.

FIGURE 82: ANALYSIS OF THE NUMBER OF COMPARATIVE CALCULATIONS USING THE AGENCY'S SERVICES



SOURCE: ENERGY AGENCY

In 2020, the Agency has already undertaken a project to renovate the comparison services to ensure compliance with the Clean Energy for All Europeans package and the CEER recommendations, as the service life of the existing solution is coming to an end. A key innovation and challenge pertaining to the comparison of services will be to support the comparison of offers on the basis of dynamic tariffs and, later, flexibility products. The renovation will address the shortcomings and limitations of the current solution and provide the consumers with a better user experience.

Borzen established the Sustainable Energy web portal[25] with the aim of creating an information hub, a contact point for access to information on the efficient use of energy and RES in Slovenia. It brings together in one place, in a simple and transparent way, high-quality and expert information that helps consumers use energy more efficiently, while also serving an educational purpose, with the aim of raising awareness of the benefits of RES and their use. While not directly related to the retail market, the information published helps, among other things, to raise awareness among consumers on the importance of more environmentally friendly energy supply products, the potential for conservation and thus energy supply cost savings, and provides an overview of the opportunities and benefits of self-supply from RES, which has an impact on the choice of electricity supply products.

Market Effectiveness

The Energy Agency monitors the effectiveness and competitiveness of the retail market by continuously gathering data from market participants and public data aggregators (Ministry of Infrastructure). Based on data on electricity volumes charged by suppliers to end-consumers, the market shares of suppliers in individual market segments and their changes compared to 2019, as well as more detailed indicators in the field of switching suppliers analytics, are shown below.

25 http://www.trajnostnaenergija.si/

Market Shares and Concentration in Retail Markets

Electricity Supply to All Consumers

Table 24 shows the market shares of suppliers according to their electricity supply, taking into account the supply in the entire retail market, which also includes large end-consumers connected to the transmission system and closed distribution systems. An HHI of between 1,000 and 1,800 indicates a moderately concentrated retail market. Compared to 2019, when it was 1169, the HHI has risen slightly.

Medium market concentration in the retail electricity markets

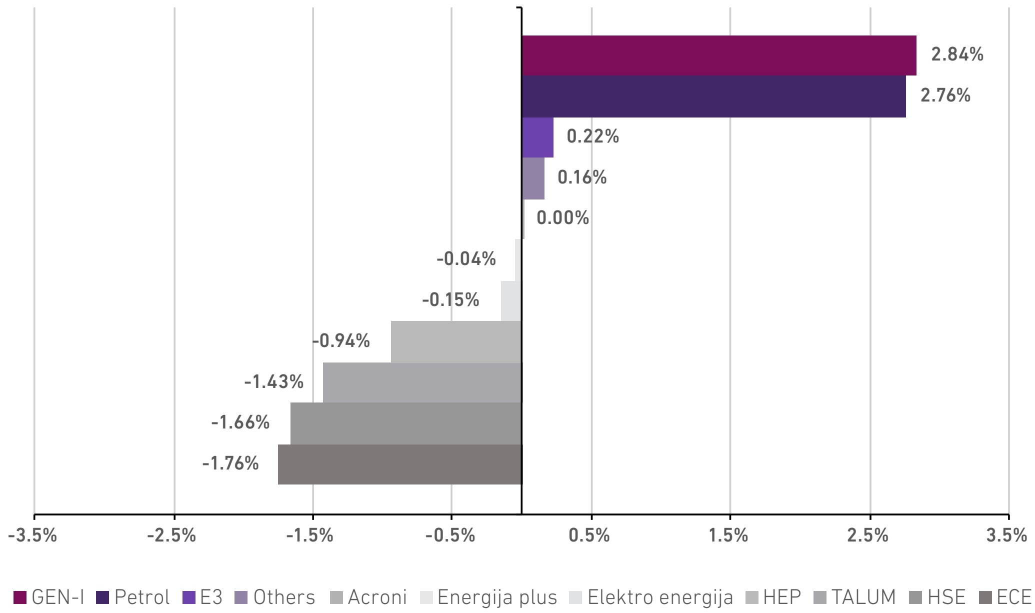
TABLE 24: MARKET SHARES AND HHI OF SUPPLIERS TO ALL END-CONSUMERS

SUPPLIER	Supplied electricity (GWh)	Market share
GEN-I	2,681.4	20.9%
ECE	1,991.0	15.5%
Energija plus	1,647.9	12.8%
Petrol	1,484.8	11.6%
E3	1,408.9	11.0%
TALUM	764.4	6.0%
Elektro energija	692.5	5.4%
HEP	615.0	4.8%
HSE	548.4	4.3%
Acroni	330.1	2.6%
Others	672.9	5.1%
Total	**12,837.3**	**100.0%**
HHI of suppliers to all end-consumers	**1,236**	

SOURCE: EPOS PORTAL

In 2020, GEN-I and Petrol saw the largest increases in market share compared to the previous year. On the other hand, ECE, HSE and TALUM lost the largest market shares. Last year, the last of these supplied less electricity to its largest consumer in the second half of 2020, as the consumer in question reduced its electricity consumption due to technological changes for aluminium production. In terms of the magnitude of the changes in market shares, we have not deviated significantly in 2020 from the previous years, so the market positions of suppliers have not changed significantly, as shown in Figure 83.

FIGURE 83: CHANGES IN THE MARKET SHARES OF SUPPLIERS TO ALL END-CONSUMERS IN 2020 COMPARED TO 2019



SOURCE: EPOS PORTALS

Electricity Supply to Business Consumers

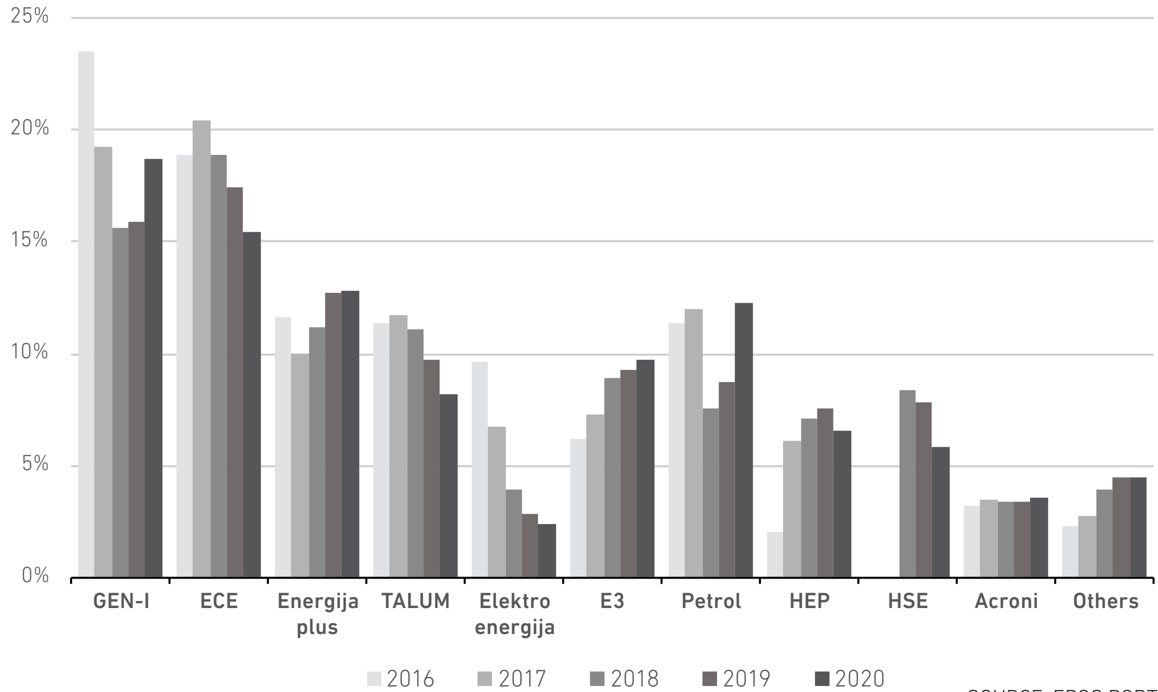
Table 25 shows the market shares of electricity suppliers in the retail market to business consumers in 2020. The retail market for business consumers continued registering medium market concentration in 2020. The HHI was 1180, which also presents a slight increase compared to 2019, when it was 1136. The largest market share gains compared to 2019 were made by Petrol (3.46%) and GEN-I (2.77%). The greatest loss of market share compared to 2019 was recorded by HSE and ECE (just under 2%). The CR3 concentration ratio in the business consumption segment was 47% in 2020.

TABLE 25: MARKET SHARES AND HHI OF SUPPLIERS TO ALL BUSINESS CONSUMERS

SUPPLIER	Supplied electricity (GWh)	Market share
GEN-I	1,747.5	18.7%
ECE	1,444.3	15.5%
Energija plus	1,194.1	12.8%
Petrol	1,142.6	12.2%
E3	905.4	9.7%
TALUM	764.4	8.2%
HEP	615.0	6.6%
HSE	548.4	5.9%
Acroni	330.1	3.5%
Elektro energija	225.8	2.4%
Others	421.0	4.5%
Total	**9,338.6**	**100.0 %**
HHI of suppliers to business consumers	**1,180**	

SOURCE: EPOS PORTAL

FIGURE 84: COMPARISON OF THE MARKET SHARES OF SUPPLIERS TO BUSINESS CONSUMERS IN THE 2016–2020 PERIOD



SOURCE: EPOS PORTAL

Figure 84 shows the five-year evolution of the market shares of suppliers to business consumers. Some suppliers have been losing their market shares in this segment in recent years (ECE, Talum, Elektro energija, HSE), while E3 and, to a lesser extent, Acroni and other smaller suppliers have been steadily increasing their market shares, which has a positive impact on the competitiveness of the retail market. The market shares of GEN-I, Energija plus and Petrol are rising again after declining in previous years.

Electricity Supply to Household Consumers

The retail market for household consumers continued registering medium market concentration in 2020. The HHI was 1636, which is an increase of 2.1% compared to 2019, when it was 1602.

TABLE 26: MARKET SHARES AND HHI OF SUPPLIERS TO ALL HOUSEHOLD CONSUMERS

SUPPLIER	Supplied electricity (GWh)	Market share
GEN-I	933.8	26.7%
ECE	546.7	15.6%
E3	503.5	14.4%
Elektro energija	466.7	13.3%
Energija plus	453.8	13.0%
Petrol	342.2	9.8%
Telekom Slovenije	71.6	2.0%
Others	180.3	5.2%
Total	**3,498.6**	**100.0%**
HHI of suppliers to household consumers	**1,636**	

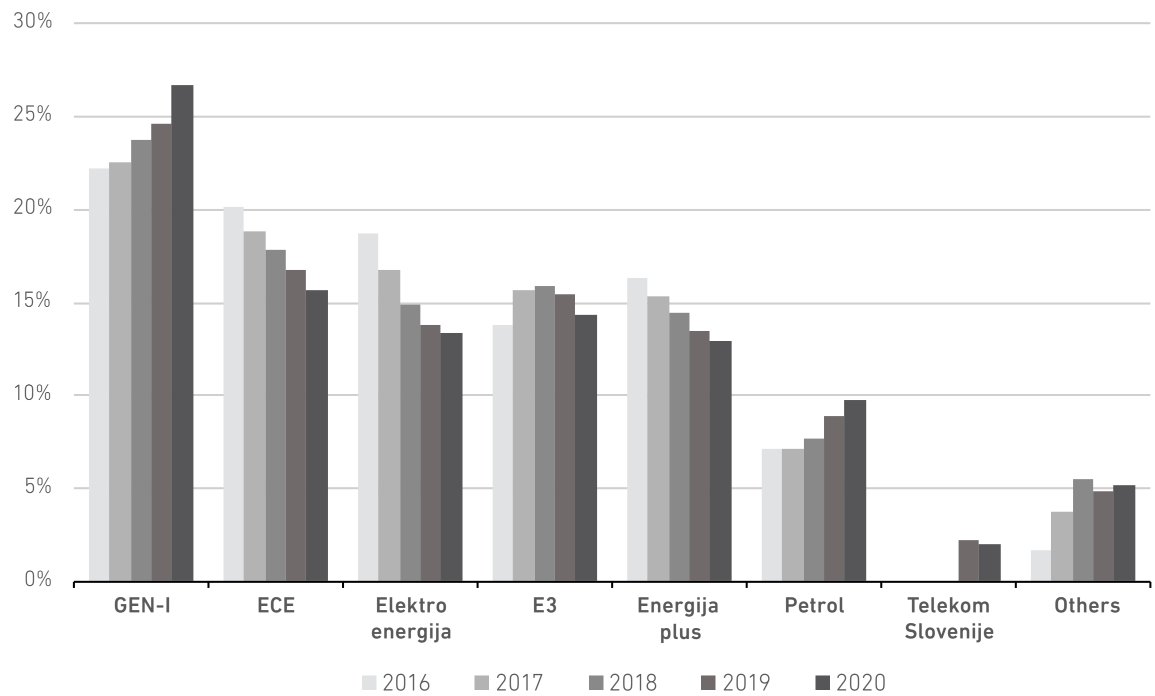
SOURCE: EPOS PORTAL

The market share of the three largest suppliers was 56.7% and has not changed compared to 2019. Compared to 2019, the largest increase in market share in the household consumption segment was recorded by GEN-I (more than 2%). ECE and E3 lost the most market share, both around one percentage point.

Figure 85 shows the market shares of suppliers to household consumers in the 2016–2020 period. In this five-year period under review, ECE and Elektro energija lost market shares in this market, both by five percentage points, and Energija plus by three percentage points. On the other hand, GEN-I and Petrol increased their market shares by four and three percentage points respectively over the same period, and to a lesser extent also other smaller suppliers. E3's market share has been around 15% over the last five years.

Continuous market share growth of GEN-I and Petrol over the last five years

FIGURE 85: COMPARISON OF THE MARKET SHARES OF SUPPLIERS TO HOUSEHOLD CONSUMERS IN THE 2016–2020 PERIOD



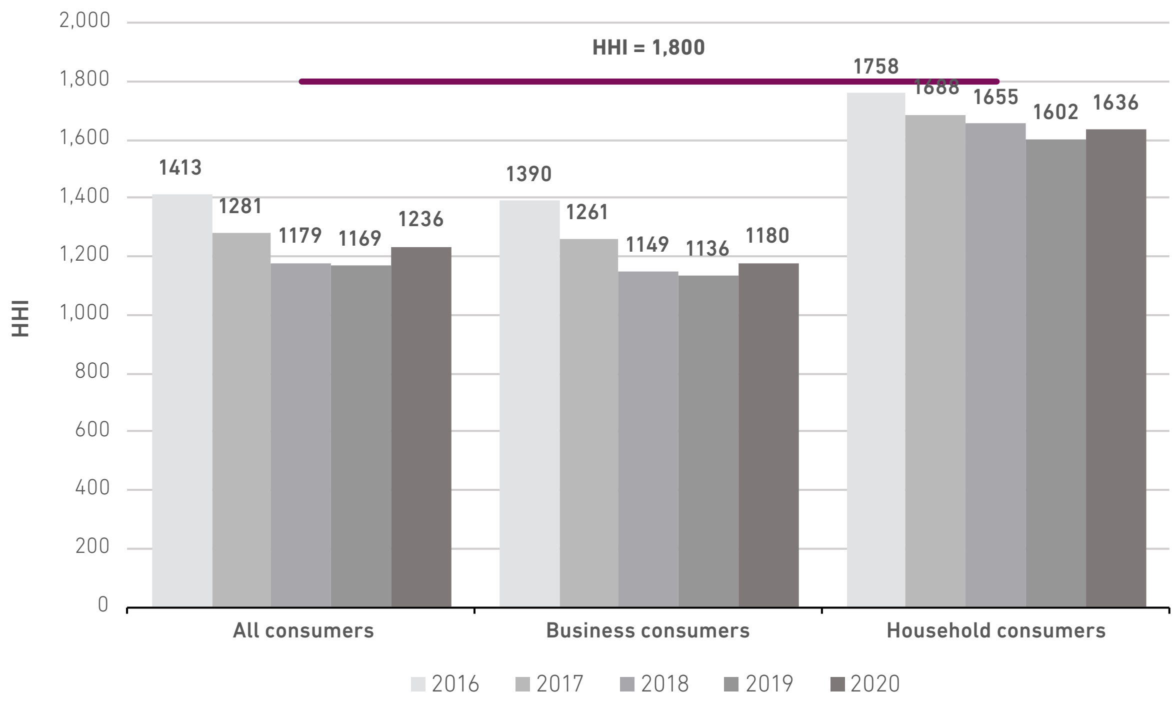
SOURCE: EPOS PORTAL

Comparison of concentrations in the relevant markets

As shown in Figure 86, the HHI rose slightly in all the retail markets under review in 2020, which indicates an insignificant reduction of competition in the relevant market, mostly in the retail market of all end-consumers.

The HHI rebounds in all retail markets under review after four years of continuous decline

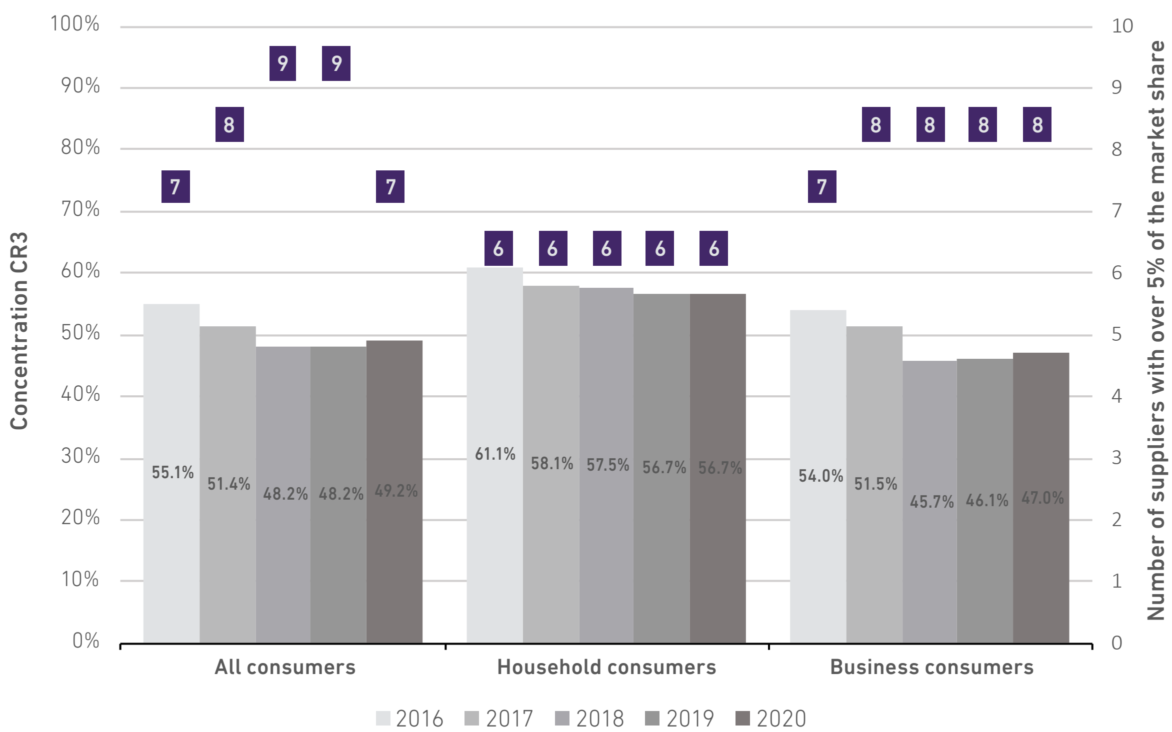
FIGURE 86: THE HHI IN RETAIL MARKETS IN THE 2016–2020 PERIOD



SOURCE: EPOS PORTAL

A concentration ratio (CR) is a standard indicator of market concentration according to market shares. For the purposes of this report, CR3 is shown, which measures the total market share of the three largest suppliers in the market. The CR3 in all the markets under review indicates medium market concentration, as shown in Figure 87, where the number of suppliers with over 5% of the market share is also shown.

FIGURE 87: CONCENTRATION (CR3) IN RETAIL MARKETS AND THE NUMBER OF SUPPLIERS WITH OVER 5% OF THE MARKET SHARE IN THE 2016–2020 PERIOD



SOURCE: EPOS PORTAL

EC report: EUROPEAN BARRIERS IN THE RETAIL ENERGY MARKETS

European Barriers in the Retail Energy Markets (Electricity, Natural Gas)

In 2020, the European Commission produced a report outlining the barriers to entry for suppliers in the electricity and gas markets in 30 European countries (EU-27, UK, Norway and Switzerland), the first report of its kind.

The review was formed on the basis that the EU internal energy market is well-developed and allows competition between suppliers and service providers who compete freely on a level playing field, and the study aimed to check if this is the case in practice. The consortium of authors of the report obtained data from available energy and statistical sources and through questionnaires sent to national market participants (suppliers, operators, energy companies and regulators) in each country. They identified 16 key barriers and developed a Barriers Index for comparison, consisting of composite indicators from the following main categories: regulatory disincentivisation, market inequality, operational and procedural hindrances, and customer inertia. At the same time, the report provides best practice examples in each category on a market-by-market basis, giving countries an indication of the way forward.

The results are compiled in a Final report, Index Report and in more detailed Country Handbook reports for individual countries.

The study gives high scores to the electricity and natural gas markets in Slovenia in terms of barriers to retail markets. According to the overall assessment of the study, or the Barriers Index of the participating countries, the Slovenian electricity market is even ranked second, while the natural gas market is ranked 11th.

Among 30 European countries, Slovenia ranks second with the fewest barriers for suppliers to enter the electricity market

Gas markets	
Rank	Country
1	The Netherlands
2	Belgium
3	United Kingdom
4	Austria
5	Germany
6	Czech Republic
7	Denmark
8	Ireland
9	Estonia
10	Luxembourg
11	Slovenia
12	Italy
13	Portugal
14	Lithuania
15	France
16	Spain
17	Slovakia
18	Hungary
19	Greece
20	Latvia
21	Croatia
22	Bulgaria
23	Romania
24	Poland

Electricity markets	
Rank	Country
1	Norway
2	Slovenia
3	Sweden
4	The Netherlands
5	Finland
6	Czech Republic
7	Portugal
8	Austria
9	United Kingdom
10	Germany
11	Italy
12	Belgium
13	Estonia
14	Luxembourg
15	Ireland
16	Croatia
17	Denmark
18	Spain
19	France
20	Latvia
21	Greece
22	Slovakia
23	Hungary
24	Romania
25	Lithuania
26	Poland
27	Bulgaria
28	Cyprus

SOURCE: EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS, INDEX REPORT

The following key barriers, specific to Slovenia, were identified in the analysis (European barriers in retail energy markets project: Slovenia Country Handbook, page 12):

- uncertainty caused by some market players who can influence legislation;
- low level of digitalisation, complex and heterogeneous processes;
- price and volume risks in electricity procurement;
- switching suppliers is difficult or has a low pay-off for the consumer

These barriers include issues that are still present in the country or that suppliers are experiencing, even though the regulator has adopted regulations to address them, but the effects are not yet sufficiently visible.

Switching Suppliers

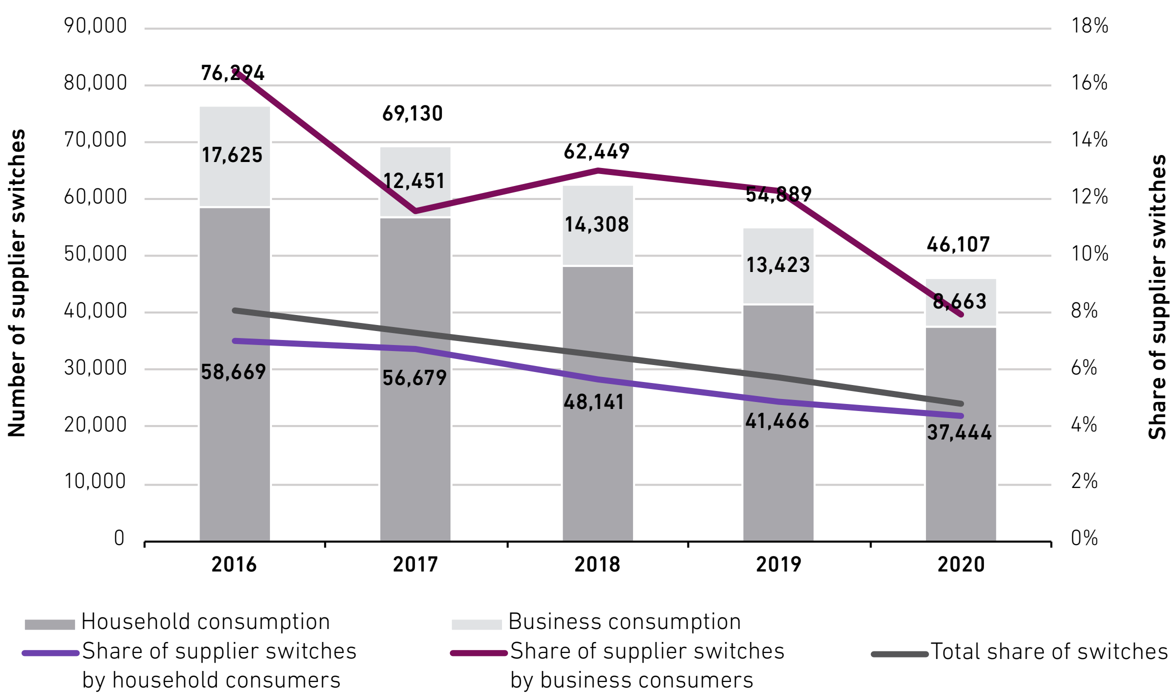
Suppliers have different business models: some only supply electricity to household consumers, others to businesses alone, but most supply both and their product range is very diverse. Products and supply terms are individually tailored for larger business consumers. Suppliers keep using new communication channels, e.g. by advertising new services and offers on social media, they are able to reach a wide range of people. Choosing a supplier not only depends on the price of a specific service but also on other factors, such as extra services and benefits, the consumers' trust in the brand, the option to purchase new, contemporary heating and energy supply solutions, and various payment options.

9.7% fewer supplier switches by household consumers
35.5% fewer supplier switches by business consumers
in 2020 compared to 2019

The number of supplier switches has decreased for the fifth consecutive year

In 2020, 46,107 consumers switched their electricity supplier, of which 37,444 were household consumers and 8663 were business consumers, which is 16% less than the year before. On average, 3120 household consumers and 722 business consumers switched their electricity supplier every month. The number of supplier switches has decreased for the fifth consecutive year. Figure 88 shows the trends in the total number of switches according to consumption type and the share of switches made by household and business consumers in the 2016–2020 period.

FIGURE 88: TRENDS IN THE NUMBER OF SUPPLIER SWITCHES IN THE 2016–2020 PERIOD

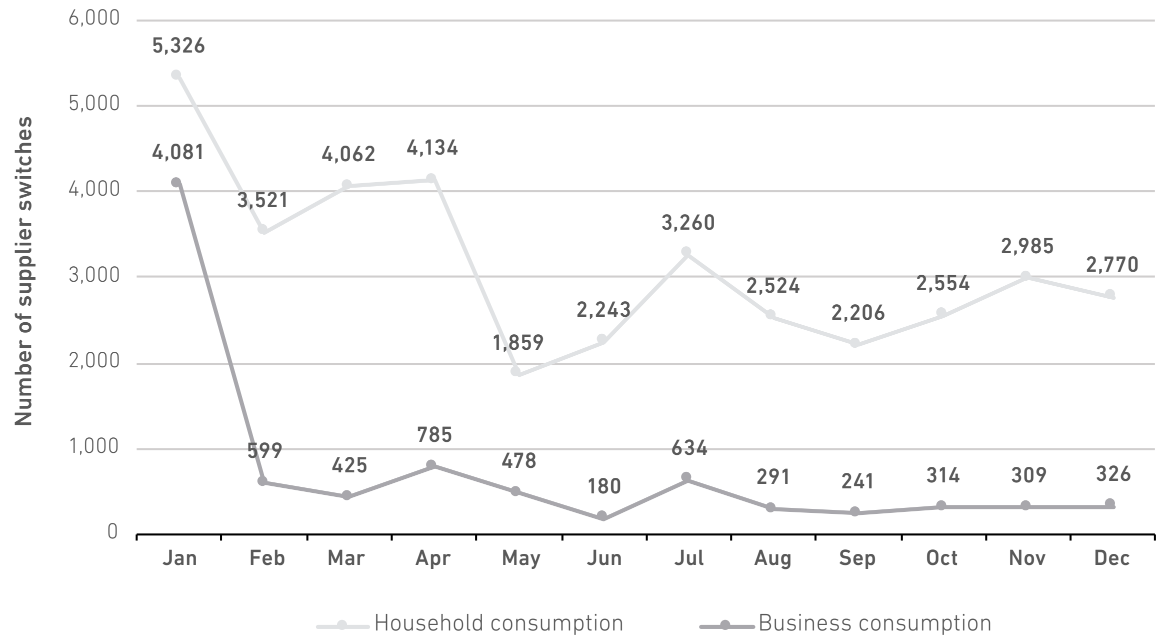


SOURCES: SODO, ENERGY AGENCY

The share of supplier switches made by household consumers was 4.4% in 2020, half a percentage point less than the previous year. A decreasing share of supplier switches has a negative impact on the level of market competitiveness since consumers' inactivity does not force the suppliers to create more enticing offers. In comparison[26]: four EU countries had a share of supplier switches made by household consumers (according to metering points) of over 20% in 2019, whereby Belgium recorded a share of 23%. Six more countries had a share of switches over 10%, which is considerably more than in Slovenia, where the share amounted to 4.9%.

Figure 89 shows the number of supplier switches in 2020 by month, with two periods standing out in terms of increased switching: the spring period in March and April and the summer period in July. The slight increase in the number of supplier switches during these two periods is correlated with the trends in offer prices (end and start of promotional offers, see the RPI trends in chapter 2.4.2.1.1). In 2020, there were 9.7% fewer supplier switches by household consumers and 35.5% fewer supplier switches by business consumers than in 2019. A higher number of supplier switches by business consumers is recorded at the beginning of the year, when one-year supply contracts mostly expire, while the dynamics in the remaining months is significantly lower.

FIGURE 89: TRENDS IN THE NUMBER OF SUPPLIER SWITCHES BY CONSUMPTION TYPE



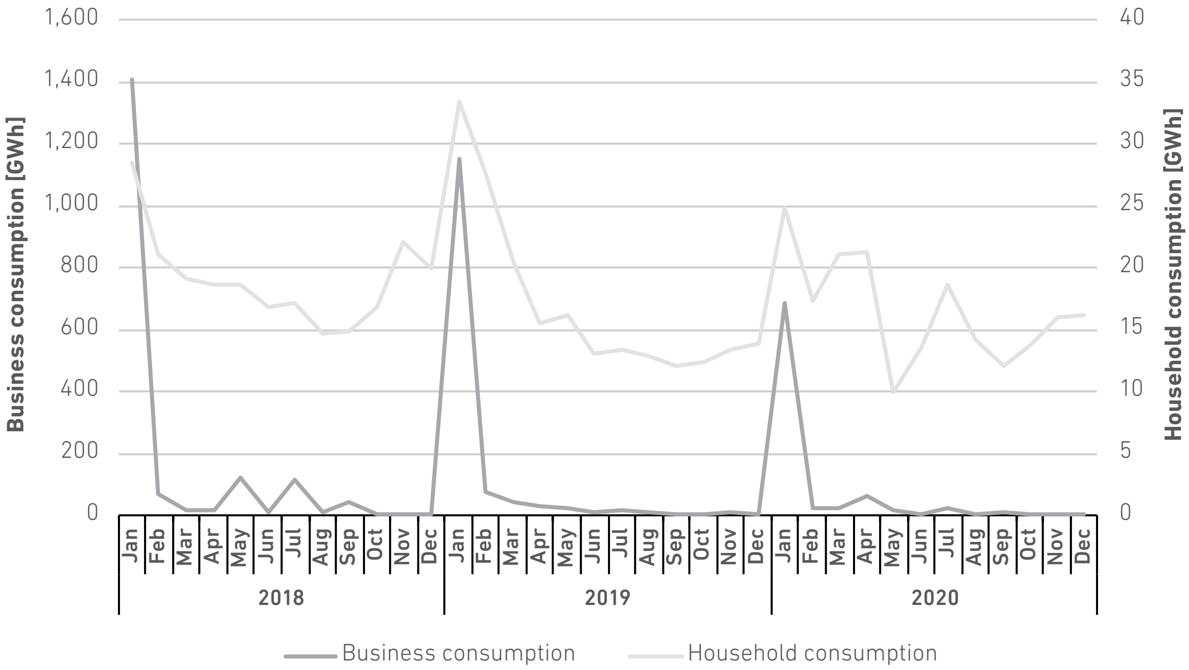
SOURCES: SODO, ENERGY AGENCY

Figure 90 shows the trends in the switched volume of electricity in the 2018–2020 period. The volume of switched electricity is closely related to the number of supplier switches. Switched electricity is the volume consumed by a consumer in a specific period of time that will cause an increase in electricity consumption with another (new) supplier due to the switch. This is why a higher number of supplier switches made by household and business consumers implies a higher volume of switched electricity, and the correlation is strong.

The largest share of supplier switches made by business consumers (according to the volume of switched electricity) in the EU in 2019[27] was recorded in Poland, which had a 63% share, while the share of another four countries was over 25%, which is considerably more than in Slovenia, where we recorded 17.2% of switched electricity in 2019 and only 11.6% in 2020.

26 ACER/CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019, October 2020, Figure 39
27 ACER/CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019, October 2020, Figure 41

FIGURE 90: VOLUME OF SWITCHED ELECTRICITY BY CONSUMPTION TYPE

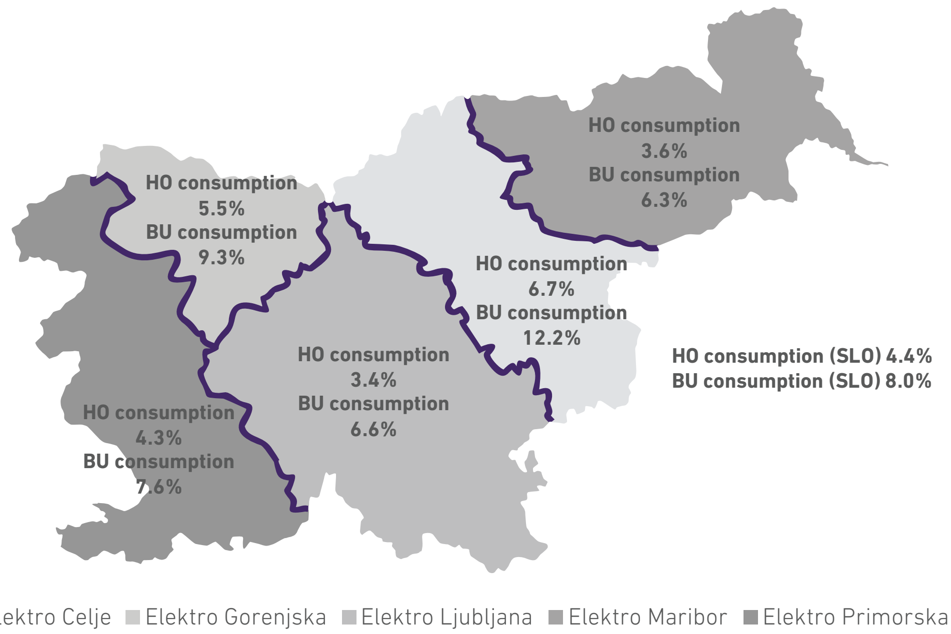


SOURCES: SODO, ENERGY AGENCY

Despite the potential savings (see chapter Assessment of the potential benefits of switching suppliers), the number and share of supplier switches made by household consumers in Slovenia has been steadily decreasing in recent years and shows a cooling retail electricity market. To discover any deviations from the Slovenian average, the Energy Agency has performed an in-depth analysis of supplier switches made by household and business consumers in individual geographic areas. The results have enabled an analysis according to individual distribution areas. The consumer's choice (supplier, product) does not depend on their location but the economic and demographic development of the areas is diverse. There are still suppliers on the market that historically originate from electricity distribution companies, i.e. the owners and contractual managers of networks in individual distribution areas. Some suppliers still have ownership affiliation with those companies, which, in the case of an ineffective division of activities, could be a potential obstacle to choosing suppliers freely.

Electricity suppliers supply electricity on the entire Slovenian territory, so all consumers are guaranteed the same freedom of choice. If the consumers' level of engagement were the same on the entire Slovenian territory, so just in theory, the number of supplier switches would be proportional to the total number of connected household consumers in the individual areas of the distribution system. Consequently, the shares of switches would be the same. However, the actual data shows different shares of supplier switches, as can be seen in Figure 91.

FIGURE 91: SHARE OF SUPPLIER SWITCHES MADE BY HOUSEHOLD AND BUSINESS CONSUMERS IN THE AREAS OF INDIVIDUAL DISTRIBUTION COMPANIES AND IN SLOVENIA



SOURCES: SODO, ENERGY AGENCY

The analysis showed, as demonstrated in Figure 91, that the largest share of supplier switches by household consumers was recorded in the distribution area of Elektro Celje, while the smallest share was seen in the distribution area of Elektro Ljubljana. Compared to the overall share of switches made by household consumers in the Slovenian retail market, which was 4.4% in 2020, the share of switches was only higher in the distribution area of Elektro Gorenjska, and lower in the other two areas (Elektro Maribor and Elektro Primorska).

The higher or lower shares of switches in the areas of individual distribution companies may be due to different price elasticities of demand in individual areas. The number of switches actually also depends on the consumers' increased activity in previous periods, targeted advertising by suppliers, the loyalty to suppliers that are or used to be integrated with a distribution company, consumer trust in a brand, etc.

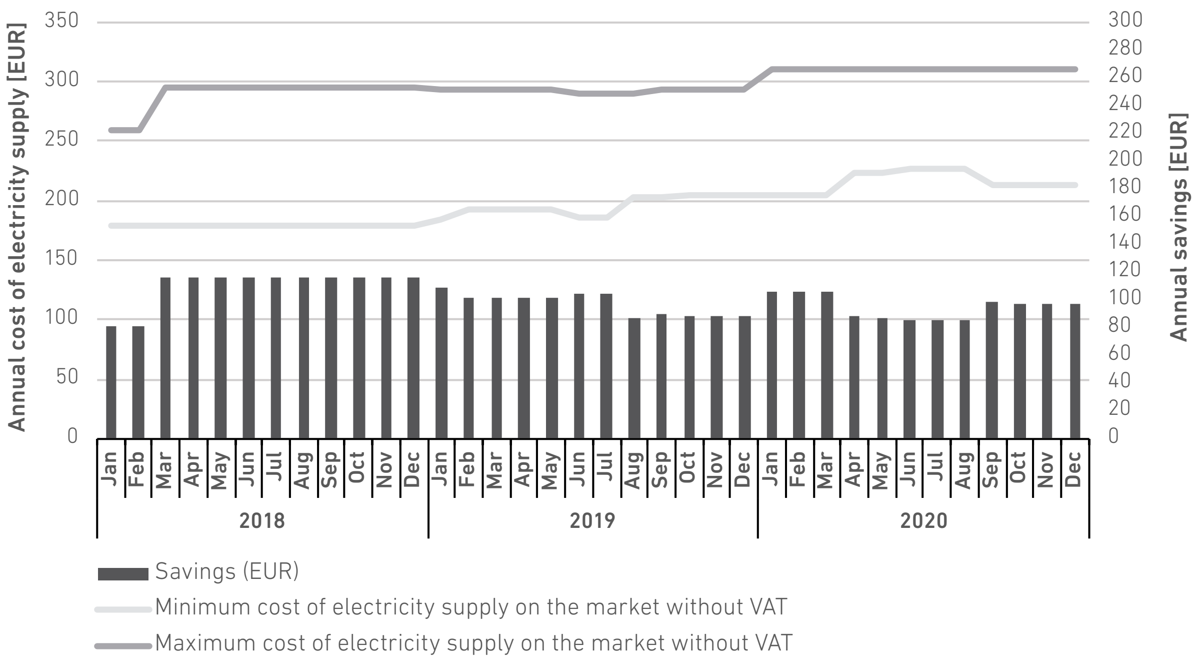
The largest share of supplier switches by household and business consumers was recorded in the distribution area of Elektro Celje

Assessment of the Potential Benefits of Switching Suppliers

By switching their supplier, every consumer can reduce their annual electricity costs, coordinate and improve the contractual relations with its supplier and therefore gain additional benefits.

Figure 92 shows the trends in the minimum and maximum monthly costs of an average Slovenian household consumer[28] for electricity supply in the retail market without the network charge, levies, exercise duty or VAT.

FIGURE 92: POTENTIAL ANNUAL SAVINGS BY SWITCHING SUPPLIERS BASED ON THE DIFFERENCE BETWEEN THE MOST EXPENSIVE AND THE CHEAPEST SUPPLY OFFER ON THE MARKET



SOURCE: ENERGY AGENCY

If a consumer whose 2020 supply was provided based on the most expensive offer opted for the cheapest offer in the market, their potential savings in that period could be between EUR 85 and EUR 106. Compared to 2019, the potential savings have decreased slightly due to the price increase of the cheapest offer in the market between April and August 2020, although the most expensive offer in the market has also become more expensive at the beginning of 2020 and remained unchanged until the end of the year. As shown in Figure 92, potential savings have been declining on average over the 2018–2020 period under review, although they recovered slightly at the beginning and end of 2020.

28 Consumption type: chargeable demand 8 kW, 1996 kWh (HT) and 2100 kWh (LT) per year

Case study: Analysis of Supplier Switches According to Individual Metering Points

Almost all active consumers switch supplier at most once a year

This case study is based on detailed data on supplier switches available for each metering point on the SODO distribution system for the four-year period between 2017 and 2020, separately for household and business consumption.

In the first part of the case study, we present data on the total annual number of supplier switches during the period under review, further broken down to show how often and how many times consumers switched supplier in a year.

This analysis shows the frequency of supplier switches by individual household or business consumers in a year. The results show that in any given year, of all the consumers who switched supplier in that year, the largest share of them only switched supplier once in a year. A similar result is obtained if we analyse the household or business consumption separately. However, there are also consumers who have switched supplier more than once in a year. Among both household and business consumers, there are consumers who have switched supplier up to four times in one year. In addition to the usual indicator (share of the number of supplier switches), this case study looks at the share of consumers who have switched supplier. This share is slightly lower than the share of supplier switches, as the analysis takes into account the number of consumers, some of whom switched supplier more than once in a year. Detailed data on the number and share of supplier switches in the 2017–2020 period under review is available in Table 27.

TABLE 27: NUMBER AND SHARES OF SUPPLIER SWITCHES IN THE 2017–2020 PERIOD PER YEAR

Business consumers	2017	2018	2019	2020
Number of consumers in the system	107,463	109,117	108,943	108,505
Number of supplier switches	12,430	14,308	13,423	8,663
• once a year	12,089	14,110	12,919	8,509
• twice a year	160	94	243	71
• three times a year	7	2	6	4
• four times a year	0	1	0	0
Number of consumers who switched suppliers	12,256	14,207	13,168	8,584
Share of the number of supplier switches	11.6%	13.1%	12.3%	8.0%
Share of consumers who switched suppliers	11.4%	13.0%	12.1%	7.9%
Household consumers	**2017**	**2018**	**2019**	**2020**
Number of consumers in the system	842,484	846,575	850,874	855,039
Number of supplier switches	56,700	48,141	41,466	37,444
• once a year	54,503	46,192	40,074	36,263
• twice a year	1,037	934	658	550
• three times a year	33	23	20	27
• four times a year	6	3	4	0
Number of consumers who switched suppliers	55,579	47,152	40,756	36,840
Share of the number of supplier switches	6.7%	5.7%	4.9%	4.4%
Share of consumers who switched suppliers	6.6%	5.6%	4.8%	4.3%

SOURCES: SODO, ENERGY AGENCY

In the second part of the analysis, we similarly calculate the number and share of supplier switches per metering point, but for the whole 2017–2020 period under review. Again, as expected, the analysis shows that the largest share of all consumers who switched supplier during the four-year period under review is accounted for by those consumers who switched supplier only once during the entire period. There were 82.3% such consumers, with a higher share of household consumers than business consumers, which means that business consumers are more likely to have switched supplier more than once in the last four years. Detailed data on the number and share of supplier switches for the 2017–2020 period is available in Table 28.

81.7% of household consumers have switched electricity supplier in the last four years

TABLE 28: NUMBER AND SHARES OF SUPPLIER SWITCHES IN THE 2017–2020 PERIOD UNDER REVIEW

2017–2020 period	All consumers		Business consumers		Household consumers	
Average number of consumers on the system	957,250		108,507		848,743	
Number of supplier switches	232,575		48,824		183,751	
• once	158,687	82.3%	28,526	75.9%	130,217	83.8%
• twice	29,311	15.2%	7,115	18.9%	22,176	14.3%
• three times	4,365	2.5%	1,705	5.2%	2,656	1.9%
• four times	439		169		269	
• five times	77		53		24	
• six times	5		2		3	
Number of consumers who switched suppliers at least once	192,884		37,570		155,345	
Share of consumers who switched suppliers at least once	20.1%		34.6%		18.3%	
Share of consumers who did not switch suppliers	79.9%		65.4%		81.7%	

SOURCES: SODO, ENERGY AGENCY

In the period under review, five consumers made the most supplier switches, including three household consumers who switched supplier six times. A key result of the analysis is the share of consumers who switched supplier at least once in the period under review. On the other hand, this data gives us the share of consumers who did not switch supplier in the 2017–2020 period. Such consumers accounted for 79.9% of all consumers in the distribution system, with a higher share of household consumers, 81.7% of whom have not switched supplier in the last four years.

More than 80% of all household and more than 65% of all business consumers are passive. There is therefore still a lot of untapped potential in the medium-concentration retail markets, which is clearly an opportunity for new participants to enter and strengthen competition in these markets. At the same time, the market in question has been maintaining its structure and price levels without significant changes for a longer period, which is reflected in a cooling of the supplier switching dynamics. The gradual increase in electricity supply prices over the last four years under review has led to fewer and fewer appropriate price incentives for switching suppliers. Switching suppliers several times within a calendar year is becoming increasingly rare. The share of supplier switches is approaching the lower limit of a so-called active market (4%), especially for household consumption, after being closer to its upper limit (8.4%) as recently as 2017[29]. We can expect changes in the coming years due to new business models and the expected positioning of suppliers in the "digital value-added suppliers" segment, which will strongly promote active consumption in light of some systemic changes due to the implementation of the Clean Energy for All Europeans package.

Measures for Promoting Competition

The Energy Agency monitors the retail electricity market and, in doing so, cooperates with regulatory and supervisory authorities at the national level, e.g. the Market Inspectorate of the Republic of Slovenia, the Slovenian Competition Protection Agency and, when appropriate, independent and non-profit consumer organisations. The Energy Agency's measures are varied and derive from its internal analyses, bilateral operations and the results of public consultations.

The retail electricity prices are not regulated so the Energy Agency does not issue any recommendations on retail pricing. The only exception is the price of electricity for last resort supply, which is regulated and provided by the DSO. The price of that supply is set and made public by the DSO. It must be higher than the market price of the supply to a comparable consumer but it must not exceed it by more than 25%. If the DSO does not set the price or sets it contrary to the regulations, it is set by the Energy Agency.

29 VaasaETT: World Energy Retail Market Rankings Report 2012

Based on the indicators observed, competition in the Slovenian retail market has been gradually strengthening over the last five years. Advances in digitisation are making information more accessible, many new services are on the market and new business models are emerging from suppliers. Theoretically, this should have a positive effect on consumer activity, but other factors also matter, not least the responsiveness of retail prices to changes in the wholesale market. While the analysis of the responsiveness of retail prices (see chapter 2.4.2.1.6) shows a longer-term correlation between the wholesale and retail prices (over a 3-year period), it also shows the within-year rigidity of the retail prices. An analysis of the offer price trends further confirms this (see chapter 2.4.2.1.1). The reasons include low mark-ups in the provision of supply services and established longer-term electricity purchasing strategies for most supply products on the retail market–with the implementation of the Clean Energy for All Europeans package, certain suppliers will also have to offer products linked to short-term wholesale price indices (dynamic pricing), which could be interesting for active consumers. New products could therefore increase the market dynamics, even within the year, which is not really visible at the moment (see the case study Analysis of supplier switches according to individual metering points). We can also expect a digital transformation of current suppliers or the market entry of new so-called "digital suppliers"[30], which, in addition to the supply service, will offer value-added services linked to the use of flexible consumption, providing additional motivation to switch suppliers. Such services will also be a major added value due to the announced changes regarding charges for network use, which will force consumers to adjust their consumption and thus reduce their electricity bills.

Overhauling the Regulatory Framework and Creating New Roles and Concepts in the Market

In 2020, the EU's Clean Energy for All Europeans package of directives was being implemented, introducing new roles and concepts, as well as changes to some key processes such as active consumption, independent aggregation, energy communities, split supply, dynamic pricing, the creation of a flexibility market and a faster supplier switching process. This, assuming that the innovations are effectively supported by the regulatory framework and that consumers are adequately informed about the new developments and opportunities, will have a significant impact on the competition and dynamics in the retail market in the years to come. New services and business models can be expected to emerge, based on investments in new technologies in the electricity system and by active users of the system, as suppliers complete the transition.

We expect the regulatory changes at the primary level to enter into force in 2021, followed by the update of secondary legislation, where the key will be to overhaul the rules for market operation, update the system operators' operational instructions, and to overhaul the regulatory framework, including overhauling the methodology for calculating the network charge and the tariff system. In 2020, both the market operator Borzen and the Agency, in co-operation with the system operators, carried out consultation activities regarding the above-mentioned issues. The result is some initial proposals for the implementation of the split supply concept and the independent aggregator model, including aspects of efficient data exchange and coordination between the two system operators related to the above-mentioned concepts.

30 Business models based on the cooperation of suppliers and independent aggregators are successfully gaining ground in the EU (e.g. the supplier ekWateur (FR): https://ekwateur.fr/offre-narco-effacement/)

Effective Data Exchange in Key Market Processes

The Act on the Identification of Entities in the Data Exchange Among Participants in the Electricity and Natural Gas Markets requires market participants to use standardised identifiers of key data entities in the electronic exchange of data in the market.

In accordance with the Energy Agency's general act, all the key data entities in an electronic data exchange have to be defined with standardised identifiers. The new energy package and the vision for the evolution of energy networks by 2050 envisage the full integration of energy networks (electricity, gas and heat) and the consumers' complete engagement (development of a flexibility market). The harmonisation of data exchange processes using open standards in energy markets is thus becoming even more important and a crucial action to eliminate certain barriers to entry for new market participants and to reduce entry costs.

As part of the measures implemented on the basis of the third energy package aimed at unifying the most important data exchange processes at the national and regional levels, the Energy Agency has been establishing an efficient data exchange between market participants, steering the participants towards the use of open standards and the reuse of generic models of the European forum for energy Business Information eXchange (ebIX®) and ENTSO-E models to the greatest extent possible.

The Energy Agency has been implementing its strategy through public consultations, bilateral cooperation and participation in professional platforms, such as the IPET Section and ebIX®.

Providing Consumers with Standardised Data Services

The Government Decree on measures and procedures for the introduction and interoperability of advanced electric power metering systems (hereinafter: Decree) and the Plan for the Introduction of an Advanced Metering System in the Slovenian Electricity Distribution System (hereinafter: Plan) define, among other things, the architecture of the advanced metering system, the roles and responsibilities, its minimum functionalities, and some aspects of the implementation of data exchange based on the relevant standards (CIM, etc.). The Decree requires the DSO to establish a single access point for accessing data in the advanced metering system. Based on the Plan mentioned above, the system is implemented as a central system for accessing metering data (national data repository), which is managed by the DSO and used to provide data exchange services among business entities and network users within B2B and B2C.

Consolidation of data services at the level of the national data hub (in development) is underway

Developments regarding this matter focused on upgrading the Moj elektro portal, one of the building blocks of the system for single access to metering data (SEDMP)[31], with B2B data services for suppliers and other eligible parties. The development has been carried out as part of the initiative of distribution companies, united under the Electricity Distribution Economic Interest Grouping, in collaboration with the distribution operator. Access to detailed 15-minute metering data[32] is provided to registered users and eligible parties, while additional data services to the existing set of services provided through the EVT/PERUN and Moj elektro/CEEPS portals (both platforms are discussed in more detail in the case study below) have been provided to other eligible parties. Unfortunately, the definition of the range of standardised data services provided by the DSO to system users free of charge or for a fee remains undetermined. The issue of providing effective local access to metering data in real-time (at the I1 interface of a smart meter) for all consumers with smart meters remains unresolved as well, especially due to the technical restrictions of built-in smart meters and the inadequate standardisation of the interface.

31 https://mojelektro.si

32 The Act Amending the EZ-1, which was adopted in 2019, has provided the legal basis for processing certain personal data of system users and accessing that data via the single point of contact of the national data hub.

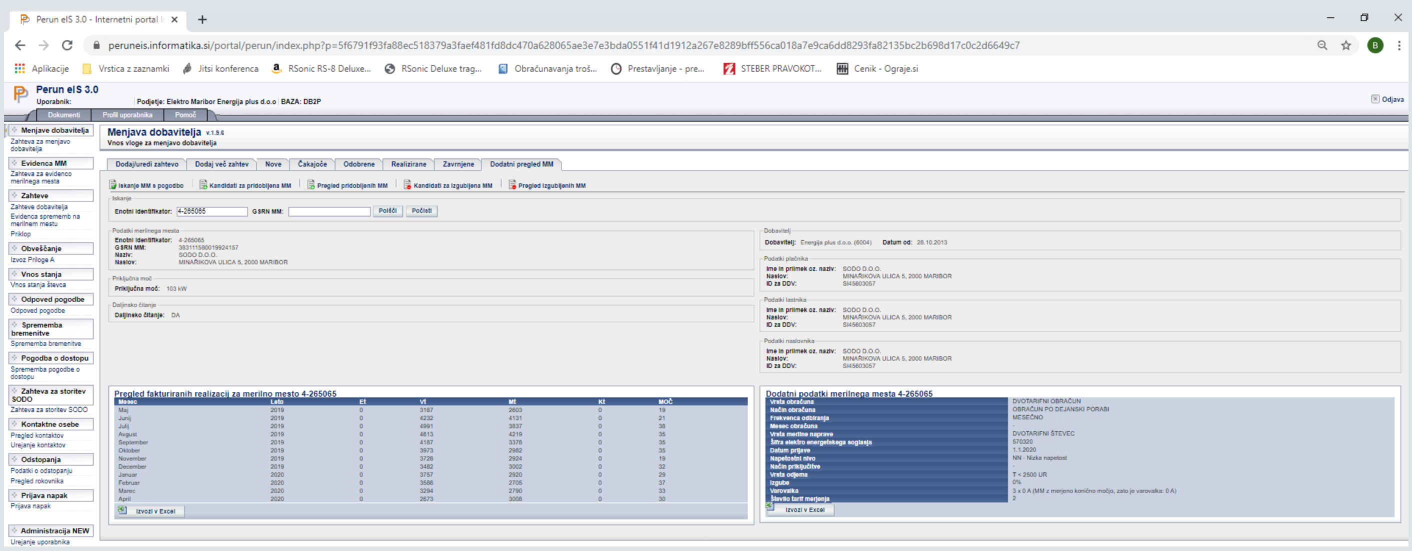
Case study: Data Services at the GJS SODO Level – From Managing the Process of Switching Suppliers to the Implementation of a National Data Hub

Over the last 15 years, significant progress has been made in the development and standardisation of electronic data exchange in the Slovenian electricity market. The full opening up of the market in 2007 and then the third package of EU directives were the key triggers for the necessary changes. The main focus of development has been on ensuring standardised and harmonised processes in the energy markets, taking into account the open standards (e.g. ebIX® and ENTSO-E models and the Harmonised Market Role Model) based on the EU rules and relevant national adjustments. This process is still ongoing and is based on a supplier-centric market model and on the distribution operator as the manager of metering data. The IPET Section, established in December 2010 at the Energy Industry Chamber of Slovenia, has played an important role in the implementation of efficient data exchange in the electricity market. Today, the Section has 12 active members and seven observers in the roles of the distribution operator and distribution companies, the transmission operator and suppliers. In 2015, the Energy Agency implemented the Act on the Identification of Entities in Electronic Data Exchange Among Participants in the Electricity and Natural Gas Markets on the basis of the EZ-1, which established a regulatory framework for the application of standards for the identification of key entities in data exchange in the energy market. As part of the development process, the market operator and the two system operators have put in place data exchange rules to support key processes in the electricity markets at different regulatory levels. A new milestone in the development of data services is the implementation of the latest set of EU directives, the Clean Energy for All Europeans package.

Based on the EZ-1, the Government Decree and the Plan, the DSO is responsible for the development of the advanced metering system, including the national data hub. The regulatory framework defines, among other things, the architecture of the advanced metering system, roles and responsibilities, its minimum functionalities, and some aspects of the implementation of data exchange based on the relevant standards (CIM, etc.) The purpose of the national data hub is to provide a single access point to data and standardised procedures for market participants in a non-discriminatory, objective and transparent manner in order to create relatively low barriers to market entry. The development of a national data hub is a new task for the DSO from the regulator's point of view, which is also subject to reporting to the competent ministry and the Agency. The Agency monitors development activities on the basis of performance indicators such as technical compliance (architecture, technologies used, etc.), the integrity and efficiency of data services, and economic efficiency. Metering data is collected at five distribution metering centres operated by the distribution companies. Integrating these systems into a common access hub is the key to providing a national data hub, whereby several different technical solutions are possible. The most appropriate design is summarised in the Plan for the Introduction of an Advanced Metering System, based on the expert study carried out. At the end of 2020, more than 80% of metering points were equipped with smart meters (different versions with different functionalities) and almost as many were integrated with metering centres, allowing remote data collection and other functionalities. All consumers should have smart meters compliant with the functional requirements set out in the above-mentioned Decree by 2025 at the latest.

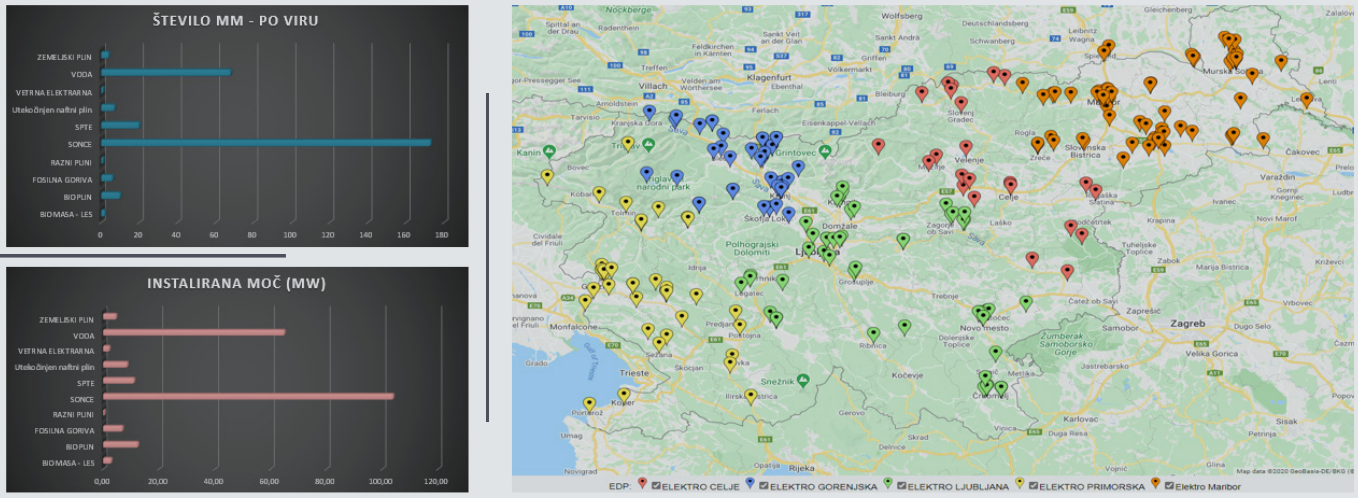
The single point of contact (EVT) platform with the PERUN web portal was launched in 2006 and has been upgraded continuously. When the market was fully opened up, it supported the management of major processes such as supplier switching, billing processes and the provision of the first B2B data service to eligible users. A major upgrade in 2014 provided the functionality of EVT as we know it today: the implementation is based on direct or indirect integration with back-end IT systems, eIS (managed by Informatika d.d.) and the five metering centres of the distribution companies. It provides eligible users, in particular suppliers, with B2B access to validated metering data and all other information for the purposes of data exchange processes with EVT users (e.g. supplier switching) and the billing of energy, network charges and levies, as well as supplier services. Until the beginning of 2021, the process of switching suppliers was fully managed via EVT using online services or via the PERUN web portal for those suppliers that were technically unable to provide B2B integration. This also ensured that barriers to market entry are kept to a minimum. Today, EVT is focused on B2B data exchange (web services, message queues) with suppliers and other eligible third parties. The data formats are defined in the SONDSEE Annex, published on the SODO website. The EVT/PERUN 3.0 solution provides 36 web services and one data service based on a message queue. Services in the following data exchange process domains are supported: system user data management, changes at the metering point (change of supplier, change of user), termination of supplier contract, self-reading of the metering device and reporting of the meter status for billing purposes, change of tariff (metering method), change of billing of network charges and levies through the supplier or with a separate bill for network charges and levies, the provision of data for the billing of energy and network charges, search and reports, aggregated monthly data for the billing of network charges and levies for all stakeholders, and the contact details of portal users.

FIGURE 93: PERUN EIS 3.0 WEB PORTAL USER INTERFACE



EVT/PERUN has been meeting users' expectations for more than a decade with the continuous development of its functionality. At the end of 2018, the system for a single access point to metering data (SEDMP) project was presented to market participants, which foresaw an evolutionary upgrade of the EVT. In October 2019, five distribution companies united under the Electricity Distribution Economic Interest Grouping launched the Moj Elektro web portal as part of this project, with the aim of providing a single access point to metering data for end-consumers of the electricity system as a functional complement to the EVT/Perun system in the B2C domain. The continuous development of the SEDMP system has provided additional functionality in the B2B data services domain with the aim of positioning the solution in the medium term as a single access point for metering data in both the B2C and B2B domains. In addition to access to billing data and various historical aggregates of consumption or generation on a daily, weekly and monthly basis, it also provides access to 15-minute metering data. The SEDMP allows end-consumers to monitor their energy consumption or generation at the level of their own metering points using the mojelektro.si web portal or mobile app, regardless of their geographical location. The authorisation management function also allows third parties (suppliers, aggregators, etc.) to access end-consumer data via the same B2C web access. Since the spring of 2020, additional B2B data services for suppliers, aggregators, energy service providers, distribution companies and regulators are being developed. In May 2020, an online portal for B2B data exchange called the Central Electricity Exchange Portal of Slovenia (CEEPS) was launched, which provides data services in the domain of imbalance settlement (at intervals of one hour and 15 minutes) for suppliers and the electricity market operator, and SODO has also formally joined the project. By the end of 2020, the CEEPS portal had developed many new features based on consumer needs, including the exchange of RES metering data with the TSO in near real-time (15-minute or 1-minute intervals). Therefore, technical changes or upgrades were made at all five distribution companies, including the implementation of more advanced metering data collection and the new set-up or replacement of metering equipment at metering points for the real-time exchange of metering data from production facilities using RES. Currently, more than 350 metering points (95% of RES above 250 kW) are included in the exchange system with the TSO, based on the integration with the ECCO-sp exchange platform, and by the end of 2022, all the metering points of production facilities using RES above 100 kW will be included.

FIGURE 94: TOPOLOGY OF THE RES GENERATION SOURCES (ABOVE 250 kW) INVOLVED, WHOSE METERING DATA IS INCLUDED IN THE NEAR REAL-TIME DATA EXCHANGE WITH ELES

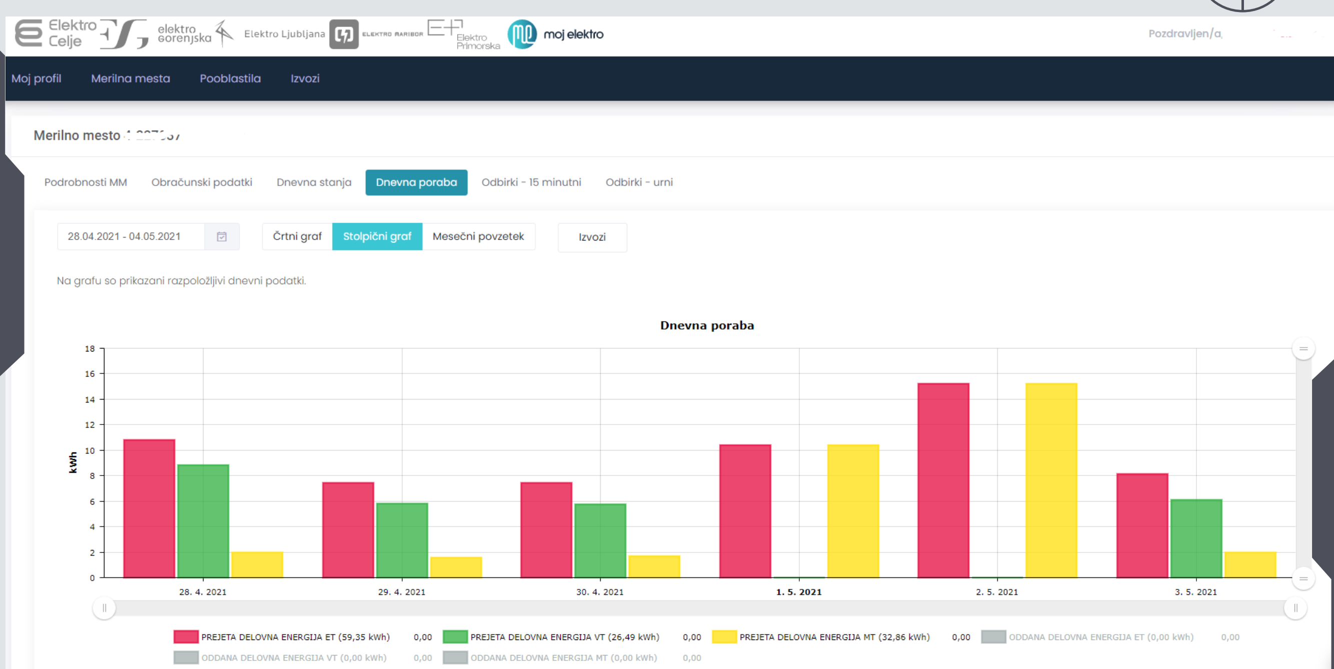


Legislative changes at the end of 2020 have also required adjustments to the process of switching suppliers, which is adequately supported under CEEPS from 1 March 2021, so that the CEEPS portal is now used by all suppliers.

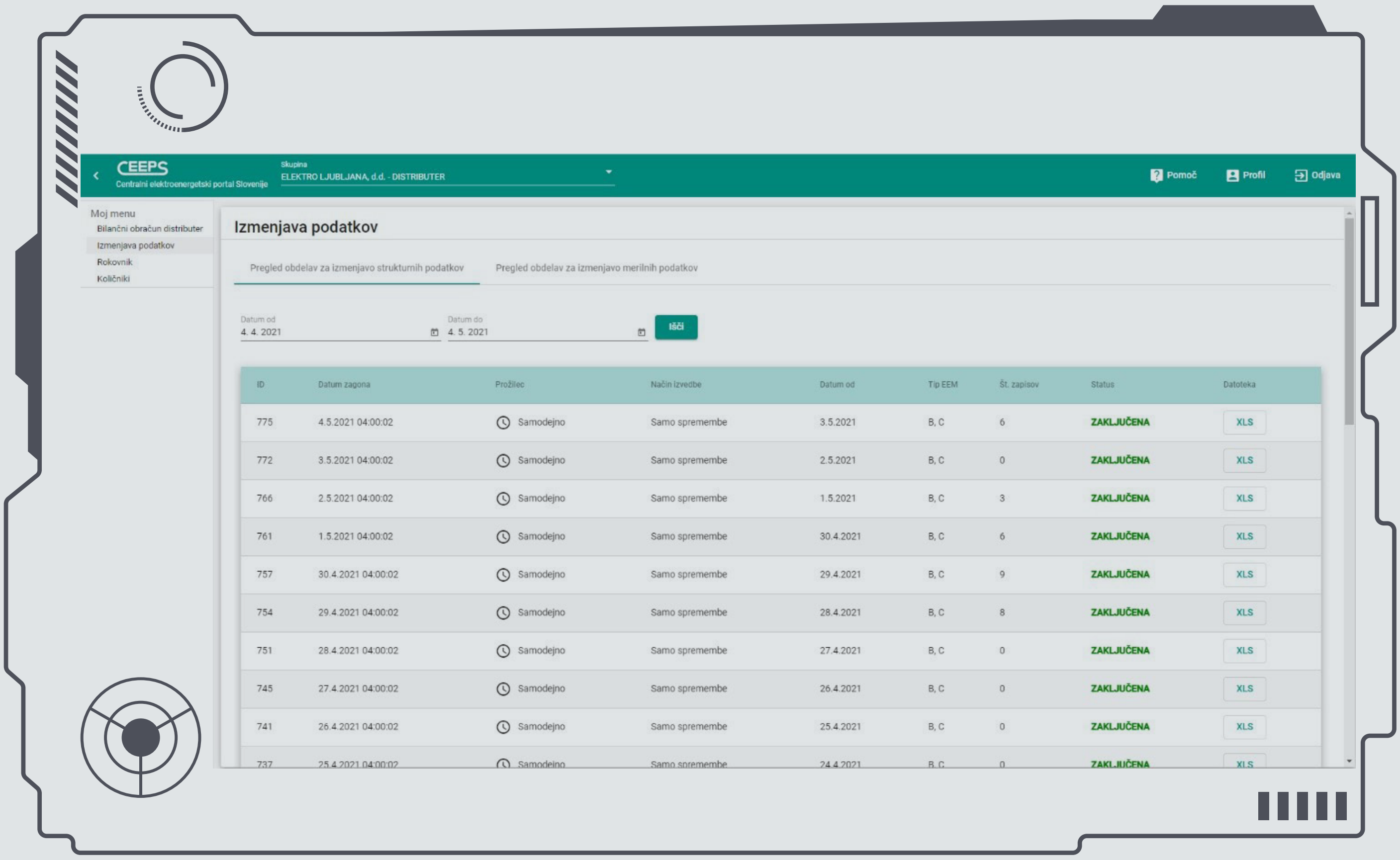
Using B2B CEEPS services, metering data from more than 210,000 metering points is exchanged on a daily basis, i.e. more than a quarter of all end-consumer metering points in Slovenia, covering approximately more than 85% of the energy portfolio in terms of consumption on a daily basis. The set of supported or planned (highlighted) data services is defined below.

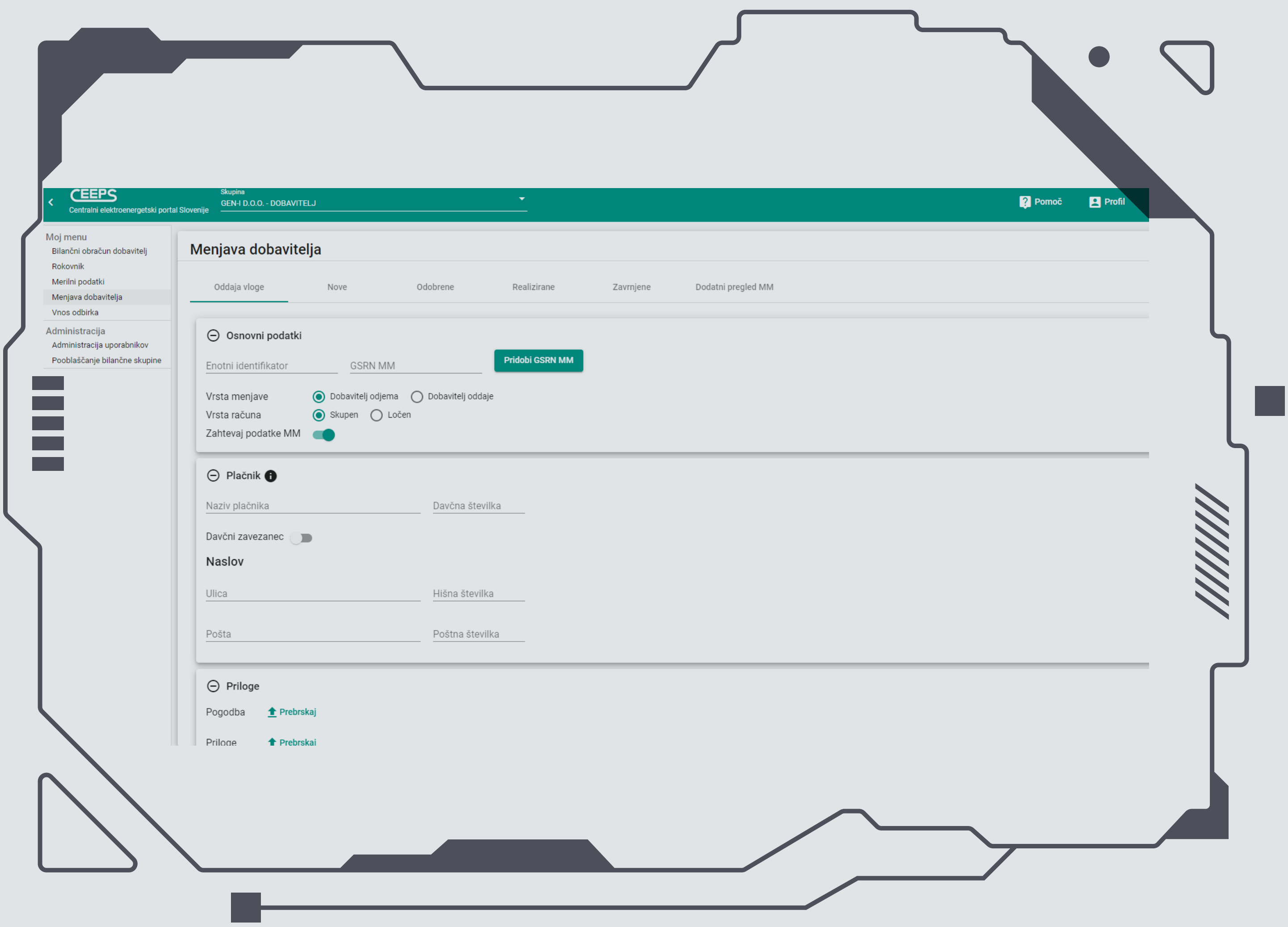
Domain	Service type
Daily and monthly aggregates of metering data	B2C mojelektro.si/mobile app “Moj Elektro”
15-min metering data (for metering points with smart meters)	B2C mojelektro.si/mobile app “Moj Elektro”
Monthly billing information (as on the bill)	B2C mojelektro.si/mobile app “Moj Elektro”
Managing data access authorisation for authorised third parties	B2C mojelektro.si/mobile app “Moj Elektro”
Access to all data related to the metering point	B2C mojelektro.si/mobile app “Moj Elektro”
Data exports in standardised formats	B2C mojelektro.si/mobile app “Moj Elektro”
Statistical data for the last 12 months	B2C mojelektro.si/mobile app “Moj Elektro”
Entry of the meter reading for billing purposes (self-reading)	B2C mojelektro.si/mobile app “Moj Elektro”
Information on voltage quality and power continuity for end-consumers (planned)	B2C mojelektro.si/mobile app “Moj Elektro”
Interactive calculator for analysing the effects of a change in tariffs (metering method)	B2C mojelektro.si/mobile app “Moj Elektro”
Data for imbalance settlement	B2B web portal CEEPS
Analytical preparation of billing data for metered and unmetered consumption or production	B2B web portal CEEPS
Switching suppliers	B2B web portal CEEPS
Near real-time (15-min)* data exchange with ELES from the metering points of RES production facilities (above 250 kW)	B2B web portal CEEPS, CEEPS technical services
Exchange of historical metering data from RES metering points with ELES (D-1)*	B2B web portal CEEPS, CEEPS technical services
1–5-min metering data at the DTS level (HV level) (planned)	B2B web portal CEEPS
Aggregated 15-min metering data for each distribution network area as an MQ service (planned)*	B2B web portal CEEPS, CEEPS technical services
15-min metering data for metering points above 43 kW at the supplier level (daily scheduled)*	CEEPS technical services
15-min metering data for metering points below 43 kW for a collection of commissioned metering points (daily scheduled)*	CEEPS technical services
15-min metering data for metering points for a collection of commissioned metering points (on-demand task during the day)*	B2B web portal CEEPS, CEEPS technical services
Functionalities of e-forms and portal applications (planned)	Other

FIGURES 95 AND 96: THE PORTAL MOJELEKTRO.SI–15-MINUTE READINGS AND GRAPHICAL DISPLAY OF DAILY CONSUMPTION



FIGURES 97 AND 98: THE CEEPS PORTAL–OVERVIEW OF B2B DATA EXCHANGE PROCESSING AND SUPPORTING THE PROCESS OF SWITCHING SUPPLIERS



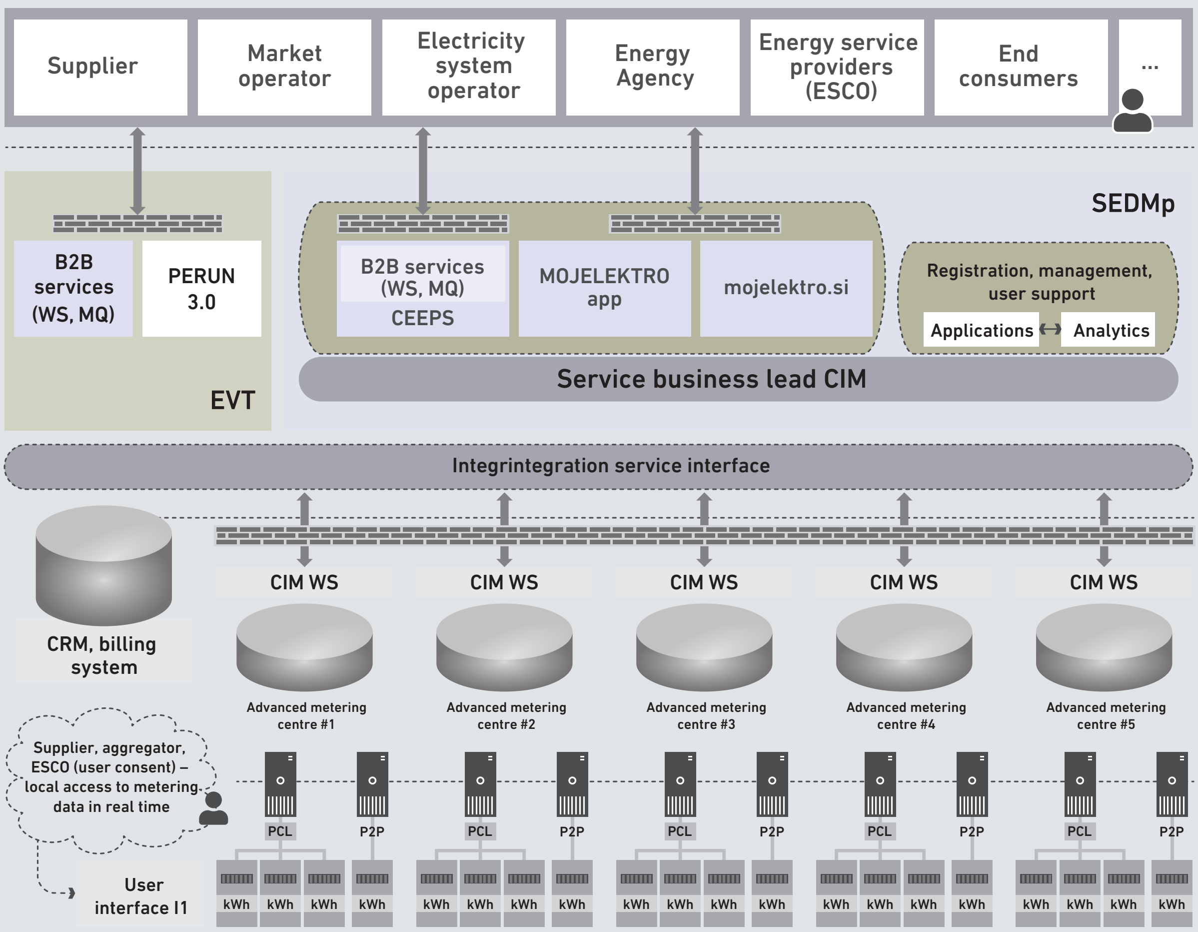


At the end of April 2021, there were 783 registered users in PERUN 3.0 and 343 users and 21 suppliers in CEEPS.

Both platforms, in terms of centrally accessible data services, ensure solid compliance with the provisions of the Clean Energy for All Europeans package and the functionality of a national data hub as foreseen by the legislation. Access to services is therefore currently separated into two access points: it is planned that the existing functionalities of Perun eIS 3.0 will be fully implemented on the CEEPS portal, with the aim of providing all the necessary services in the B2C and B2B domain in a single system for access to the SEDMP. The main feature of the SEDMP solution is its scalable architecture, which covers all the necessary functions within a standard (CIM) data exchange without additional data storage systems. By consolidating the PERUN and CEEPS functionalities on one platform, all B2B users will also have access to all the services at a single access point.

The multi-level architecture of the current solution is shown in the following figure.

FIGURE 99: THE EVT/CEEPS MULTI-LEVEL ARCHITECTURE FUNCTIONING AS A NATIONAL DATA HUB



The national data hub was therefore already defined as an integral part of the advanced metering system in 2015 in accordance with the Decree on measures and procedures for the introduction and interoperability of advanced electric power metering systems and the related Plan for the Introduction of an Advanced Metering System in the Slovenian Electricity Distribution System[33], which defines the target design of the national data hub. According to this plan, the national data hub should be fully operational by the end of 2018, providing a full range of data services to consumers.

Despite deviations from the timeline and the target design of the national data hub for various reasons, most of the data services planned for the national data hub will be available to eligible users on the aforementioned platforms by the end of 2021. Given the market developments (e.g. flexibility market) and the expected increase in the number of active consumers, an extended range of data services under the existing national data hub should be available to eligible users soon after the implementation of the Clean Energy for All Europeans package. The development of the national data hub and the introduction of smart meters is therefore not yet complete and the necessary changes in data management and processing will need to be ensured in close cooperation between the distribution operator and the distribution companies in order to develop the current systems into a centralised hub, in line with the legislative provisions, which will provide electricity system consumers, suppliers, aggregators and other eligible third parties with efficient access to metering data. First, the final consolidation of the EVT/PERUN and SED-MP platforms into a homogeneous single IT solution for data exchange with a standardised range of data services will need to be ensured, with the aim of ensuring cost-effectiveness and designing a state-of-the-art Slovenian national data hub. However, access to real-time metering data must also be provided locally on the smart meter via the I1 user interface to the system user and other eligible parties upon consent. As older generations of smart meters do not provide consumers with such access, to address these constraints, the Agency has introduced a regulatory framework to ensure that active consumers participating in system services can obtain a state-of-the-art smart meter free of charge.

As the current solutions will reach the end of their techno-economic lifetime between 2025 and 2030, they will need to be replaced with the latest data hub solution based on the state of the art and an optimised range of data services and data exchange modes. The technical architecture of the national data hub defined under the 2015 Decree will need to be revised and updated in light of the latest advances in technology. Further developments will also need to take into account the need to establish new types of national data hubs (e.g. a register of flexibility sources) and the related aspects of the integration and optimisation of data services. This dictates the need to develop a plan for a next-generation national data hub, based on the functionalities of the new generation of advanced metering systems, communication technologies and integrated with potential new data hubs supporting the emerging flexibility markets. The requirements, rights and obligations of the relevant market participants with regard to the data hub and thus the functionality of the data hub will need to be appropriately incorporated and updated in the regulations under Slovenian energy legislation and by-laws (e.g. network codes, market rules, etc.).

33 Plan for the Introduction of an Advanced Metering System in the Slovenian Electricity Distribution System

Other Measures

The same rules on the prevention and restriction of competition and the abuse of a dominant position apply to the electricity market as to other types of goods. As publicly available information indicates, the Slovenian Competition Protection Agency did not identify any restrictive practices or possible dominant positions on the market in companies operating on the electricity market in 2020. As part of the concentration assessment, the Slovenian Competition Protection Agency issued three concentration assessment decisions: 1. concentration assessment of the companies Petrol, Slovenska energetska družba d.d. and E3, energetika, ekologija, ekonomija, whereby it did not oppose the concentration and declared it to be compatible with the competition rules; 2. concentration assessment for the acquisition of control of the company Status Power Invest Kft., H-1062 Budapest, Hungary by MVM Magyar Villamos Müvek Zrt, H-1031 Budapest, Hungary, without objecting to the concentration; and 3. that the notified concentration of the companies JP Elektroprivreda Srbije Beograd, Serbia, Elektroprivreda Republike Srpske, Matično preduzeće a.d. Trebinje, Republic of Serbia, Bosnia and Herzegovina and Hidroelektroenergetski sistem Gornja Drina d.o.o., Republic of Serbia, Bosnia and Herzegovina, is not subject to the provisions of the ZPOmK-1.

Active Consumption, Flexibility Market and Other Development-Related Aspects

The flexibility of active consumption is one of the key factors of the development of the energy sector that would significantly reduce greenhouse gas emissions and increase the share of RES in the end-use of energy, while still ensuring an appropriate level of supply quality. Under the Clean Energy for All Europeans legislative package, active consumers can offer their flexibility on the market on their own or through aggregators. An aggregator is a role in the electricity market that can be performed by a so-called independent aggregator that is not affiliated with the consumer's electricity supplier, or by the electricity supplier itself (e.g. an independent aggregator can provide services to the supplier or to the balance groups in the field of frequency system services for the system operator, which organises the market for the system balancing providers (see the section Provision of system services)). As a rule, the distribution operator or electricity distribution companies do not yet demand flexibility, nor have they yet defined the products of the system services–the exception being projects under the research and innovation scheme. Considerable progress at the distribution level for the commercial leasing of flexibility is expected from a joint project launched in 2020 in collaboration between the Slovenian consortium for the acceleration of green transformation and the company Piclo, which has successfully launched the Piclo Flex flexibility trading platform in the UK.

The introduction of flexibility markets is based on the efficient provision of data services to market participants (including end-consumers, who mainly participate indirectly through aggregators), coordination between the two system operators to manage limitations in the electricity system, and efficient data exchange, including the exchange of real-time metering data. Due to the limitations of the telecommunication technologies used, metering equipment and other limitations, the current solutions present a certain real barrier to the development of flexibility markets, especially for trading intraday flexibility products (see the case study Data services at the GJS SODO level: from managing the process of switching suppliers to the implementation of a national data hub).

Promoting Active Consumption and Introduction of the Flexibility Market

In 2020, the Agency, in cooperation with Borzen, ELES, SODO and EDP (hereinafter: partners), continued the public consultation on establishing a market with active consumption flexibility in Slovenia by addressing a thematically narrowed consultation document, which addressed the issue of the introduction of the (independent) aggregator

The continuation of the public consultation focusing on the role of the independent aggregator

model into the organised market. The Ministry of Infrastructure also participated in drafting the consultation document, thus establishing a link with the implementation of the Clean Energy for All Europeans package in national legislation and incorporating some of the findings into the draft of the Electricity Supply Act (hereinafter: ESPA). The consultation was also supported by an online workshop allowing partners to improve the quality of the responses from participants, ensuring a common level of understanding of the issues at stake and the professional contribution of stakeholders to the implementation of the Clean Energy for All Europeans package, or to better prepare for changes to primary and secondary legislation.

Activations of flexibility sources at an active consumer by an independent aggregator cause deviations in the balance of the consumer's supplier. It is therefore necessary to define an aggregation model that adequately addresses the relations between the supplier and the independent aggregator. The consultation did not lead to a single final proposal, merely identified possible directions for development. The majority of the consultation participants were in favour of the use of a split supply model, which needs to be introduced as required by the Clean Energy for All Europeans package[34], and allows the split of consumption into a managed and an unmanaged part by means of sub-metering. The split supply model can be upgraded with an independent aggregation model for the managed part of the consumption to ensure compliance with the legislation. This approach makes sense during the transitional period, when the flexibility market is not yet fully developed, as it does not require major interventions in the existing regulatory framework.

The problem of determining the amount of realisation in flexibility activation was also addressed, which requires an efficient methodology to determine the baseline to prevent manipulation and depends on the type of the flexibility product, the flexibility source and the independent aggregation model used. A not necessarily identical methodology for determining the baseline is used to determine the impact of the independent aggregator on the supplier's deviations when the independent aggregator activates the flexibility of the active consumption and to determine the realised (energy) flexibility for the individual flexibility source at the active consumer or for the portfolio used at the aggregator versus the flexibility beneficiary.

The consultation concluded that the current way of exchanging data between stakeholders (active consumers, aggregators, suppliers and electricity operators) still meets the current needs of the stakeholders in the limited trading of flexibility in the frequency system services market (the qualification and activation of sources or portfolios, permanent and temporary limitations and network status, settlement)[35], but that an efficient B2B data exchange that will support the efficient functioning of the developing flexibility market will need to be developed in the future. The flexibility register is a novelty in the electricity market and aims at the efficient and comprehensive exchange of information on flexibility sources (technical data on the flexibility source, including the baseline) between all the stakeholders involved. The idea of introducing a flexibility register, as proposed in the consultation, is seen as a long-term aspiration, in particular for the purposes of providing system services to both system operators, as the flexibility register, by its very nature, involves the coordination functions of SODO-ELES in order to avoid potential problems in the network due to the activation of flexibility.

INTERRFACE

As part of the consultation and with the aim of removing regulative barriers to the smooth development of the flexibility market and combining the objectives of the package with the application of some of the solutions of the current regime in the implementation of the ESPA and taking into account the recommendations of the European Commission and CEER, the Agency has presented its views in the form of a Concept paper on the implementation of active consumption under the new market model. The document highlights key aspects of establishing a regulative framework for the effective development of a flexibility market and active consumption, ensuring that even the smallest consumers (small business consumers and households) are able to participate. As part of the consultation, the Agency also disseminated certain results of the INTERRFACE[36] project or validated their applicability at the national level.

34 Enabling the consumer to choose between several electricity suppliers at the consumer's point of connection to the public grid.
35 SONDSEE provides a basis for the exchange of data for the purpose of SODO-ELES coordination.
36 ang. TSO-DSO-Consumer INTERRFACE architecture to provide innovative grid services for an efficient power system.

The INTERRFACE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824330.

The project focuses on the effective coordination of SOPO-SODO with the active involvement of consumers in the flexibility market, and the feedback from the consultation process will therefore also be useful in the context of future project activities of the INTERRFACE consortium.

In line with the Agency's proposal, Borzen has provided a concise analysis of the discussions for the current stage of development of the flexibility market and proposed a way of introducing the independent aggregator concept in the Initial Proposal for an Independent Aggregation Model in the Slovenian Electricity Market in terms of the different treatment of active consumers according to the connected load. The natural limit here is 43 kW, which separates the metered diagram from the unmetered diagram in the imbalance settlement. Thus, for larger consumers, the introduction of a regulated model with a correction is proposed, while for small consumers, an uncorrected model for independent aggregation is used in the initial phase.

In 2020, important technical foundations were laid for the development of a regulative framework to encourage active consumption through the new role of the independent aggregator. Other mechanisms, such as the revised methodology for calculating the network charge and the tariff system, will also encourage active consumption. The Agency has launched the renovation project with a successful public procurement in 2020, followed by the implementation phase of the project and the phasing in of the changes in the 2023–2030 timeframe.

Electromobility

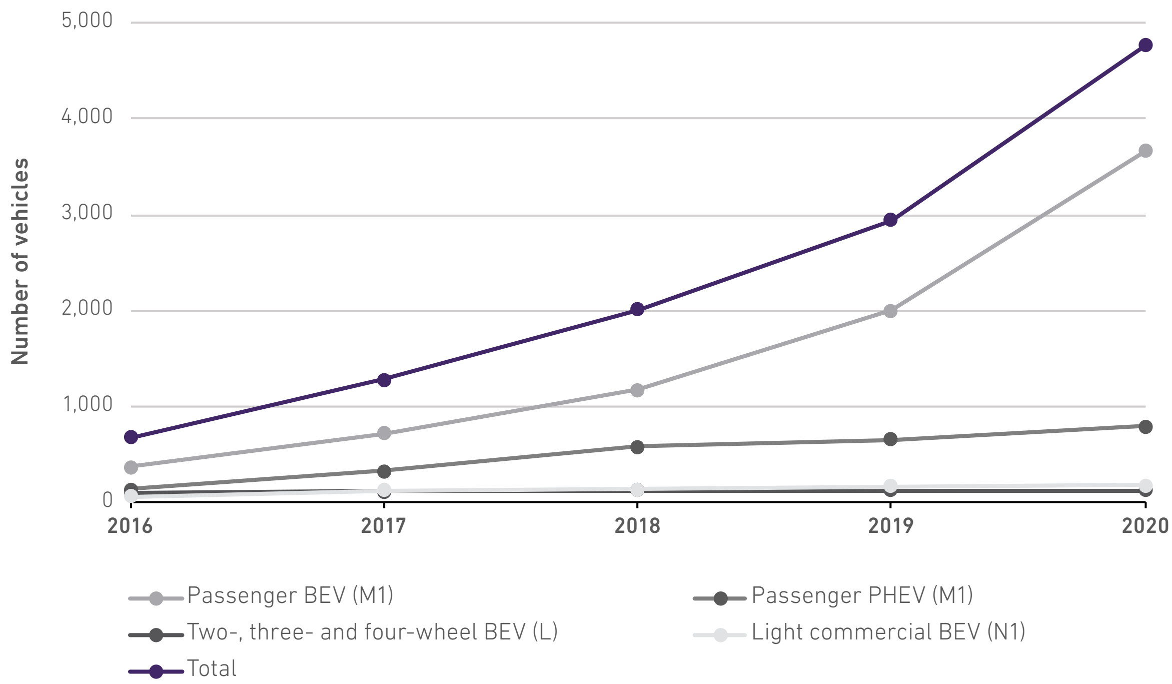
The more widespread use of electric vehicles in the future will affect the profile of electricity consumed in Slovenia. As e-mobility booms, electric vehicles can be expected to join the evolving flexibility market with so-called smart recharging, where the recharging parameters can be adjusted according to the needs of the vehicle's user, as well as those of the power system. In 2020, the Energy Agency promoted the development of the recharging infrastructure with network charge tariffs earmarked for connecting recharging stations and using the network.

A 62% annual growth in the total number of electric vehicles

In Slovenia, the total number of electric vehicles in 2020 was 4,769[37], an increase of around 62% compared to the previous year. The biggest contributor was battery electric vehicles (BEV) in the passenger vehicles category (M1). The annual increment of these vehicles is around 188%. The number of plug-in hybrids (PHEV) in the same category increased by around 48% a year. Together, BEVs and PHEVs account for 0.39% of all passenger vehicles in Slovenia. At the EU level, the comparable figure is 0.88%. The number of light BEVs, which include two-, three- and four-wheel vehicles (category L), has risen by around a mere 3% in the last year. In contrast, the number of light commercial BEVs (category N1) grew by around 11%. Figure 100 shows the trend in the number of electric vehicles in Slovenia by the above-mentioned categories over the years, showing a significant increase in the total number of electric vehicles compared to the previous year.

37 Data as at 6 April 2021 (source: EAFO).

FIGURE 100: INCREASE IN THE NUMBER OF ELECTRIC VEHICLES IN SLOVENIA IN THE 2016–2020 PERIOD



SOURCE: EUROPEAN ALTERNATIVE FUELS OBSERVATORY

Compared to the previous year, the number of new registrations[38] in the passenger vehicles and light BEVs categories in Slovenia also shows a significant increase in the introduction of electric vehicles in the vehicle fleet over the last year. The only decrease in the number of new registrations compared to the previous year is in the light commercial vehicles category. The number of newly registered electric vehicles in Slovenia has increased by 157% compared to the previous year[39]. While the EU average is quite similar, the structure of new registrations by category is different than in Slovenia, as can be seen from the detailed comparison in Table 29.

TABLE 29: NUMBER OF NEWLY REGISTERED ELECTRIC VEHICLES IN SLOVENIA AND THE EU IN 2019 AND 2020

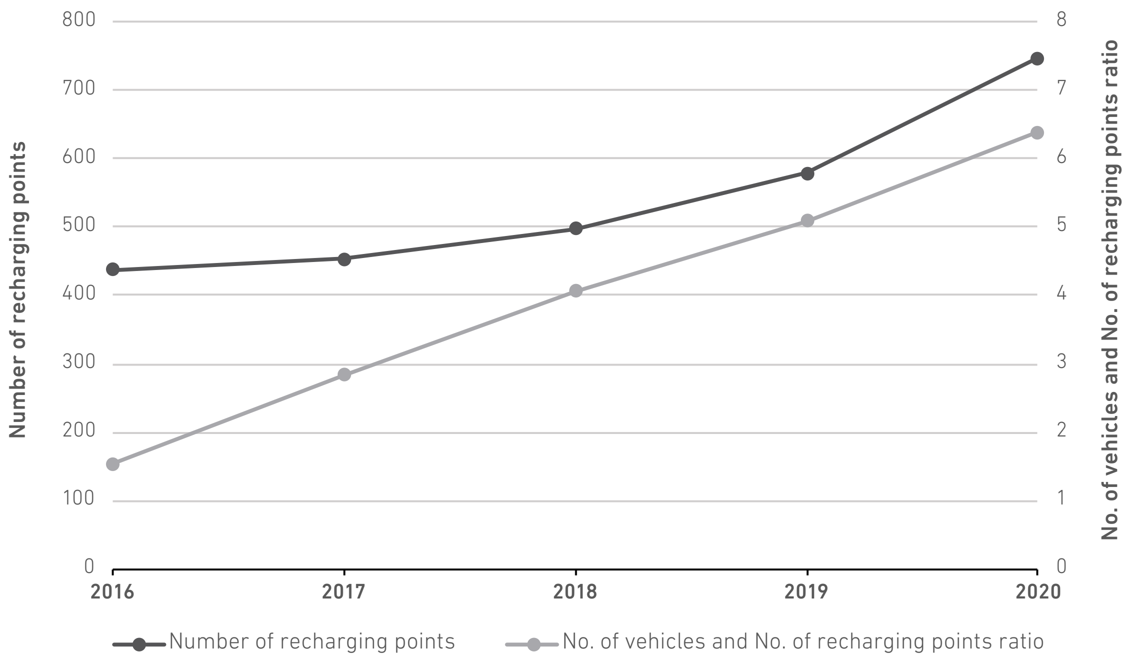
		Slovenia			European Union		
		2019	2020	Ratio	2019	2020	Ratio
Passenger vehicles (M1)	**BEV**	578	1,667	288.4%	246,788	527,112	213.6%
	PHEV	81	120	148.1%	140,422	514,228	366.2%
Light vehicles (L)	**BEV**	3	4	133.3%	43,390	45,457	104.8%
	PHEV	0	0	/	0	0	/
Commercial vehicles (N1)	**BEV**	41	18	43.9%	20,728	28,655	138.2%
	PHEV	0	0	/	42	552	1314.3%
	Total	**703**	**1,809**	**257.3%**	**451,370**	**1,116,004**	**247.2%**

SOURCE: EUROPEAN ALTERNATIVE FUELS OBSERVATORY

38 Data as at 6 April 2021 (source: EAFO).
39 The volatile updating of the data source prevents the Agency's reported data from being fully consistent year by year.

The number of recharging points[40] for electric vehicles in Slovenia has increased by 29% compared to the previous year, which also reflects the development of recharging points. The entire EU recorded a rise of around 37% in the number of recharging points. Figure 101 shows the evolution of the number of recharging points in Slovenia and the corresponding ratio of the number of electric vehicles according to the number of recharging points over the years. The total number of electric vehicles includes vehicles of all the categories mentioned above (M1, L and N1).

FIGURE 101: EVOLUTION OF RECHARGING POINTS FOR ELECTRIC VEHICLES IN THE 2016–2020 PERIOD



SOURCE: EUROPEAN ALTERNATIVE FUELS OBSERVATORY

According to publicly available sources[41], the Agency notes that the increase in the use of electric vehicles continues at an accelerated pace, which can also be attributed to a broader range of electric vehicles on the market. The number of recharging points for 2020 is significantly lower than the projections[42] for the recharging infrastructure in Slovenia in the optimum scenario used in the Action Programme on Alternative Fuels in Transport. However, due to the significantly lower total number of electric vehicles as set out in the optimum scenario, the ratio of the number of vehicles to the number of recharging points is still in line with the envisaged framework as proposed by Directive 2014/94/EU on the deployment of an alternative fuels infrastructure. The growth trend suggests that the upper limit[43] could be reached before the end of 2023, so efforts will need to be made to accelerate the provision of public recharging infrastructure in the coming years. The NECP envisages activities under the so-called financial incentive for the alternative fuels infrastructure and e-mobility aimed at solving the problem of establishing a recharging infrastructure for residents of multi-apartment buildings or placing recharging infrastructure in residential agglomerations and directing fast recharging infrastructure investors to locations where major investments in networks are not needed (the identification of potential locations for fast recharging stations), but these are falling behind the given timeline (2020–2021). If the above issue remains unresolved, this

The number of recharging points per number of electric vehicles in Slovenia still complies with the requirements of the EU legislation

40 Podatki na dan 6. 4. 2021 (vir: EAFO).
41 European Alternative Fuels Observatory
42 Market Development Strategy for the Establishment of Adequate Alternative Fuel Infrastructure in the Transport Sector in the Republic of Slovenia
43 An adequate average number of recharging points should roughly correspond to at least one recharging point per 10 vehicles, taking into account the type of vehicle, the recharging technology and the private recharging points available.

could be a key barrier to consumers deciding to buy electric vehicles, as other technological barriers are more or less overcome already (e.g. vehicle autonomy, roaming, standardisation, etc.).

The participation of the Ministry of Infrastructure in the project "IDACS - ID and Data Collection for Sustainable Fuels in Europe" will also ensure significant progress in the quality of data on the recharging infrastructure[44] in Slovenia. The project aims to identify recharging infrastructure stakeholders, recharging service providers and the public network of recharging points, as well as to provide a national access point and give consumers free access to quality data on public recharging points, thus enabling them to improve their mobility over longer distances across the EU.

In 2020, the Slovenian Environmental Public Fund (Eco Fund) also offered incentives for the purchase of electric vehicles and incentives for setting up recharging infrastructure for battery electric vehicles in the business and public sectors. Recharging electric vehicles during the day is very important for the sake of effectively exploiting the maximum generation from RES, i.e. at a time when people are at their workplaces. The private recharging of electric vehicles at home during the night is of the utmost importance for a general boom of e-mobility.

Reliability of the Electricity Supply

The reliability of the electricity supply determines the likelihood that the system will be able to deliver energy of the required quality to all points of consumption and in the required quantities. The reliability of supply is defined using two basic parameters–sufficiency and security. Sufficiency is an indicator of the system's ability to meet the consumers' demand for electricity and power in all the anticipated operational conditions, i.e. taking into account planned and unplanned outages of the system's elements. Operational security is the system's ability to maintain a normal operational condition or return to a normal operational condition as soon as possible, meaning that the system can withstand a set of disturbances in a specific operational condition (e.g. short circuits in the network, outages of the system's elements and unexpected changes in consumption in relation to generation limitations) so that consumers do not feel the consequences of disturbances, which are eliminated without jeopardising the system's integrity.

In 2020, the COVID-19 epidemic led to a number of restrictive measures, manifested in the shutdown of public life and certain activities, the introduction of protective preventive measures and restrictions on the provision of services. Despite the above, the transmission and distribution system operators, electricity distribution companies, electricity generation companies and other relevant stakeholders have constantly ensured the uninterrupted generation, transmission and distribution of electricity and all the necessary maintenance work, taking into account the preventive protective measures.

The entry into force of the network codes on system operation and electricity emergencies and restoration laid down detailed rules on how TSOs and other relevant participants must operate and cooperate to ensure the system's security. The adopted Clean Energy for All Europeans legislative package has set out a common framework of rules on how to prevent and manage electricity crises.

Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation defines the minimum standards for system operational security, system operational planning and frequency management to ensure the secure and coordinated operation of the electricity system across Europe, taking into account the growing share of renewable energy sources, and creates a standardised framework within which regional cooperation, including balancing markets, can take place. The Regulation foresees the adoption of several proposals or methodologies, all of which are already in force. In relation to operational security, the KORRR methodology defines the key organisational requirements, roles and responsibilities relating to data exchange. In the context of operational planning, the key methodologies are the development of common network models for year-ahead, day-ahead and intraday timeframes, the methodology for the assessment of the importance of outage coordination resources, the methodology for the coordination of the operational security analysis and the common provisions for the regional coordination of operational security. In the context of load-frequency control, a SAFA agreement has been adopted at the level of the continental Europe synchronous area, which lays down rules on the sizing of reserves for frequency control. From the point of view of sizing the volume of reserves in Slovenia, the SCB block operational agreement for load-frequency control between Slovenia, Croatia and Bosnia and Herzegovina is also crucial, as it allows for the more efficient operation of power systems and mutual assistance in terms of the control reserve between the three countries.

44 First on the recharging infrastructure for electric vehicles, and later on compressed and liquefied natural gas and liquefied petroleum gas.

Commission Regulation (EU) 2017/2196 establishing a network code on electricity emergencies and restoration is essential to ensure the reliable operation of the transmission system and the uninterrupted supply of electricity both in Slovenia and across Europe, as it lays down the requirements for managing the network and implementing measures in a crisis situation, in the event of a system failure and system restoration after an outage. All the requirements set out in the Regulation have already been adopted in Slovenia. Under this Regulation, a system defence plan and a restoration plan are in place. The key objectives of the above-mentioned plans are to defend the Slovenian power system against a blackout state and/or to restore normal operation in the event of a crisis or blackout state. The Regulation also includes a test plan, which sets out how testing is to be carried out, the criteria for the success of the test, and the frequency of tests of equipment and installations relevant to the implementation of the procedures in the system defence plan and restoration plan.

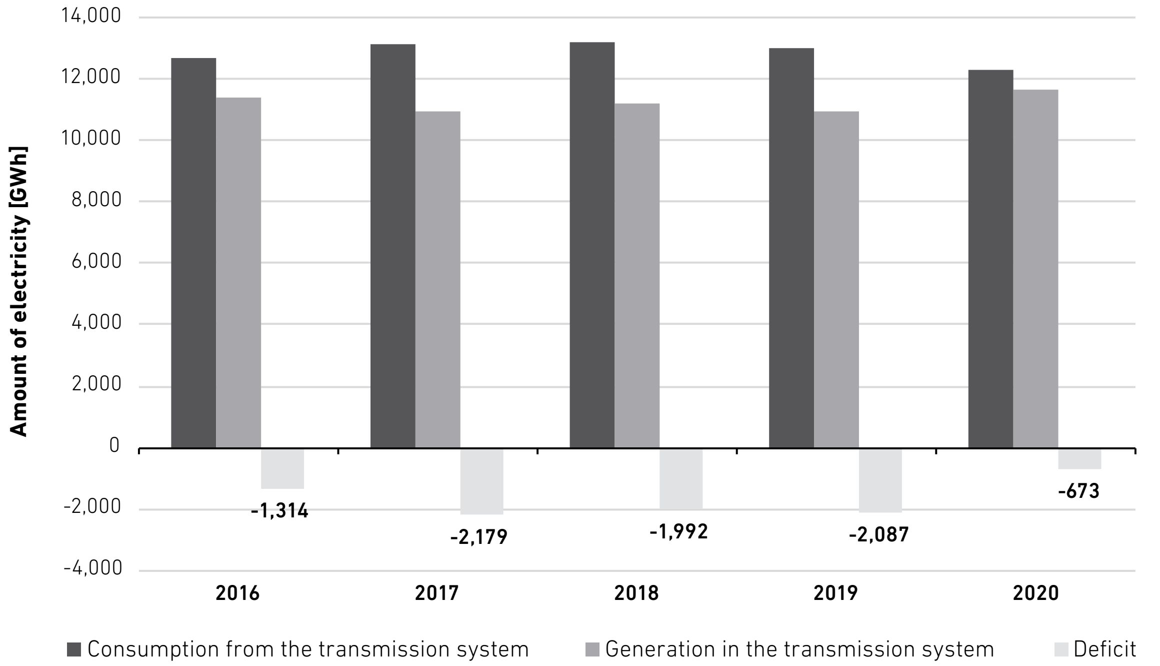
Commission Regulation (EU) 2019/941 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC lays down rules for cooperation between Member States to prevent, manage and prepare for electricity crises in a spirit of solidarity and transparency, taking full account of the requirements of a competitive internal electricity market. The Regulation foresees the adoption of several methodologies, most of which have already been adopted. The methodology for short-term and seasonal adequacy assessments establishes a process for seasonal and short-term adequacy assessments, namely month-ahead, week-ahead or at least week-ahead assessments, taking into account several types of uncertainty. The methodology for identifying regional electricity crisis scenarios establishes a process for identifying the most relevant regional electricity crisis scenarios. These scenarios are the basis for identifying the most relevant regional and national electricity crisis scenarios, which have already been identified at the European level and in Slovenia. Based on the regional and national electricity crisis scenarios, the competent authority of each Member State shall prepare a risk-preparedness plan, which is currently being coordinated among the relevant stakeholders and should be finalised by the beginning of January 2022. The plan consists of national, regional and bilateral measures to prevent, prepare for and mitigate electricity crises.

Monitoring the Balance Between Generation and Consumption

In 2020, the consumption of electricity from the transmission system decreased significantly, by 5.4% compared to the year before, which is the lowest in the last five years. This is certainly due in part to the consequences of the COVID-19 epidemic. Taking into account half of the capacity of the Krško NPP, electricity generation in the transmission system in 2020 was 6.4% higher than the year before, mainly due to significantly higher generation in hydropower plants, but also due to the nuclear power plant delivering a remarkable amount of electricity to the transmission system for the second time in its operating lifetime–more than 3,000 GWh of electricity. Due to the large amount of electricity fed into the transmission grid and the reduction in electricity consumption, the shortage was significantly lower than in previous years, at one-third of the 2019 shortage, or 673 GWh.

Increased coverage of the consumption of electricity from the transmission system by national sources is also linked to lower consumption during the epidemic

FIGURE 102: ELECTRICITY CONSUMPTION AND GENERATION IN THE SLOVENIAN TRANSMISSION SYSTEM WITHOUT TAKING INTO ACCOUNT LOSSES IN THE 2016–2020 PERIOD



SOURCE: ELES

Monitoring Investment in Production Capacities to Ensure a Reliable Supply

Besides taking into account the anticipated economic developments to estimate future electricity consumption in Slovenia, the requirements of the European Network of Transmission System Operators (ENTSO-E) from the ten-year EU development plan and the scenario in the NECP have been considered to the greatest possible extent. Electricity demand at the transmission level is mainly covered by sources connected to the transmission system. So, in order to provide a forecast of the situation in the Slovenian power system that is as accurate as possible, those planned production sources whose construction is considered less likely should be excluded.

Table 30 shows the changes to Slovenian electricity producers envisaged in the Slovenian Network Development Plan for 2021–2030. A positive value of capacity in the second column means that it is a new production facility or the renovation of an existing one, where an increased capacity is envisaged. A negative value means a shutdown or a reduction of the unit's installed capacity. The code in the last column represents the development vision or scenario in which the investment is expected to be implemented. Scenario 1 is the most pessimistic and only takes into account the generation sources that are already under construction or have obtained construction and environmental permits, Scenario 2 considers realistically expected investments, taking into account delays

Due to siting difficulties and inadequate market signals, the construction of new production sources in the transmission system is very time-consuming

in the construction of new hydropower plants, and Scenario 3 envisages a similar realisation of the construction of power plants as Scenario 2, except that no additional hydropower plants are foreseen to be built outside the 10-year development period. In terms of the integration of new production units, the most ambitious scenario is Scenario 4, which foresees the construction of all the investments identified in the NECP and those announced by investors. Scenario 4 also foresees the construction of the second unit of the Krško NPP in 2030.

None of the scenarios foresee the construction of a hydropower plant on the Mura River by 2030. Due to the suspension of the liquidation process, it is foreseen that both gas units at Trbovlje TPP will be in operation until at least 2030 to ensure the provision of system services. Unit 4 of the Šoštanj

TPP also has an operating permit until the end of 2022 but it has not been running since 2018, when the more efficient Unit 5 was reintegrated into the power grid after environmental rehabilitation had been completed, and is scheduled to be shut down in 2028. An upgrade of the Krško NPP's high-pressure turbine is planned in 2021, which will increase its installed capacity by an estimated 1%.

The results of the TSO's analyses for the 2021–2030 period show a similar deficit of national production in all four scenarios, which can mostly be attributed to the operation of the available national production being uneconomical. The exception is in Scenario 4 in 2030, when a new Krško NPP Unit 2 will be connected to the transmission grid.

TABLE 30: CHANGES TO THE GENERATION FACILITIES IN THE TRANSMISSION SYSTEM BY 2030

	Installed capacity (MW)	Anticipated year of change	Scenario
Hydropower plants			
HPPs on the Drava River			
ČE Kozjak	420	2028	4
HPPs on the Sava River			
Mokrice	28	2025	2, 3, 4
Suhadol	44	2026	4
Trbovlje	36	2029	4
HPPs on the Soča River			
Učja	34	2027	4
Thermal power plants			
Šoštanj TPP			
Šoštanj TPP Unit V	305	2028	
Šoštanj TPP PT 51	–42	2028	
Šoštanj TPP PT 52	–42	2028	
Brestanica TPP			
PB 1	–23	2025	
PB 2	–23	2025	
PB 3	–23	2030	
PB 7	50	2021	1, 2, 3, 4
TOL TPP			
Unit I, coal	–39	2022	
Unit II, coal	–39	2022	
CCPPP TOL 1	57	2022	1, 2, 3, 4
CCPPP TOL 1	57	2022	1, 2, 3, 4
JEK2	1100	2030	4

SOURCE: ELES

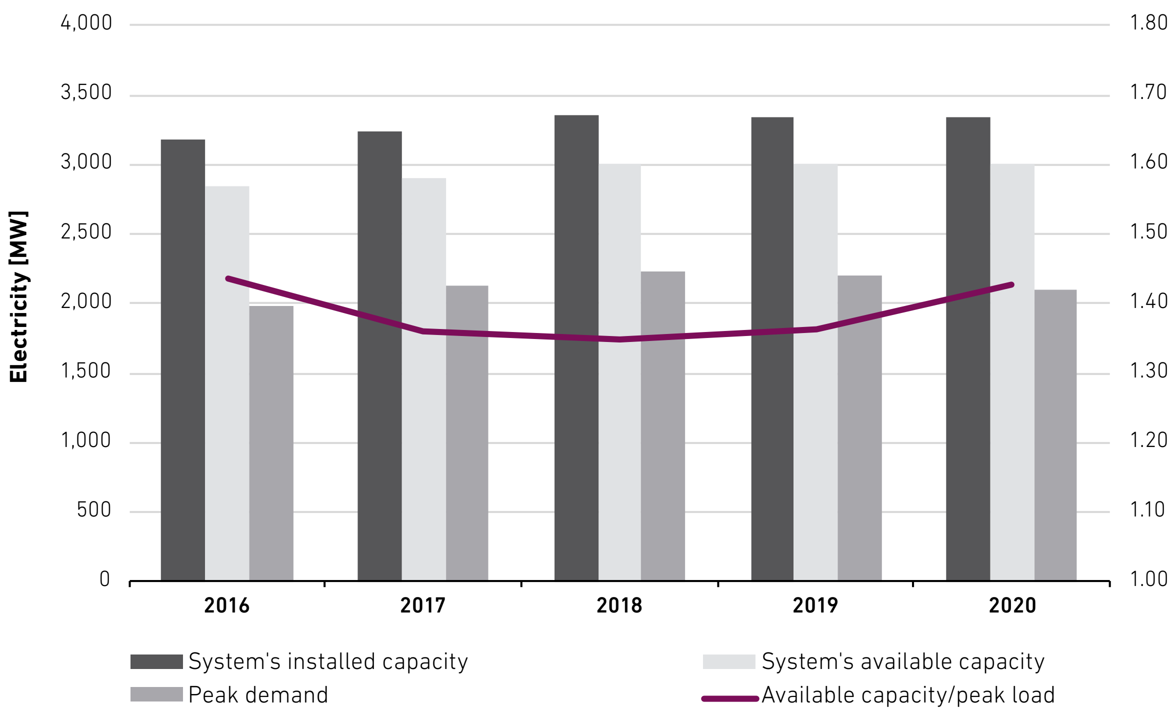
Measures to Cover Peak Demand and Shortages of Electricity

The ratio between the installed or available capacity of production sources and the peak load is an indicator of the sufficiency of production sources. The system must have enough power at its disposal to cover demand and reserve power during normal operation and in the event of unforeseen circumstances. The actual capacity available on the Slovenian market is equal to the difference between the installed capacity of the production facilities and the half of Krško NPP's capacity that belongs to Croatia. The ratio between the available capacity and the peak load in the transmission system in 2020 has improved compared to previous years. This ratio is up by just over 4.5% compared to 2019, at the expense of almost 100 MW less peak load, while the available capacity of the system in 2020 was the same as in 2019.

In the Slovenian electricity system, peaks have historically always occurred in the winter months, coinciding with cooler weather, in the evenings. In the last five years, with the exception of 2017, the peak has occurred during midday hours.

Peak load in Slovenia occurs in the winter months and increasingly during midday hours

FIGURE 103: INSTALLED CAPACITIES OF PRODUCTION FACILITIES, CAPACITIES AVAILABLE FOR THE SLOVENIAN MARKET AND PEAK DEMAND, AND RATIO BETWEEN THE AVAILABLE CAPACITY AND PEAK LOAD IN THE TRANSMISSION SYSTEM IN THE 2016 –2020 PERIOD



SOURCE: ELES

Extreme weather or faults in the network can cause power failures. Electricity not supplied is electricity that would potentially have been supplied from the system if the power failure had not occurred. The volume of electricity not supplied from the transmission system in 2020 was one-third less than the year before at 98.5 MWh, of which 56.5 MWh was due to storms and a good third was due to fallen trees. Electricity that is not supplied is calculated in accordance with the Act on the Rules for Monitoring the Quality of Electricity Supply. Therefore, the actual volume of not supplied electricity may be lower than indicated since a significant share of consumers in the affected areas could be oversupplied by the medium-voltage network.

0.7% LOWER

CONSUMPTION OF ALL CONSUMERS

CUSTOMER SUPPLY WAS NOT DISTURBED DESPITE THE EPIDEMIC

4% HIGHER

AVERAGE HOUSEHOLD CONSUMPTION

2019

NETWORK CHARGES FOR CONSUMERS ON DISTRIBUTION SYSTEMS REMAIN AT 2019 LEVEL

Natural gas - important role of gas in the energy transition

1,328 NEW

CONSUMERS ON NATURAL GAS DISTRIBUTION SYSTEMS

18.4% GROWTH

IN FREE MARKET VOLUMES

THE NATURAL GAS RETAIL MARKET REMAINS HIGHLY CONCENTRATED

84%

OF NATURAL GAS FROM SHORT-TERM CONTRACTS

13% MORE

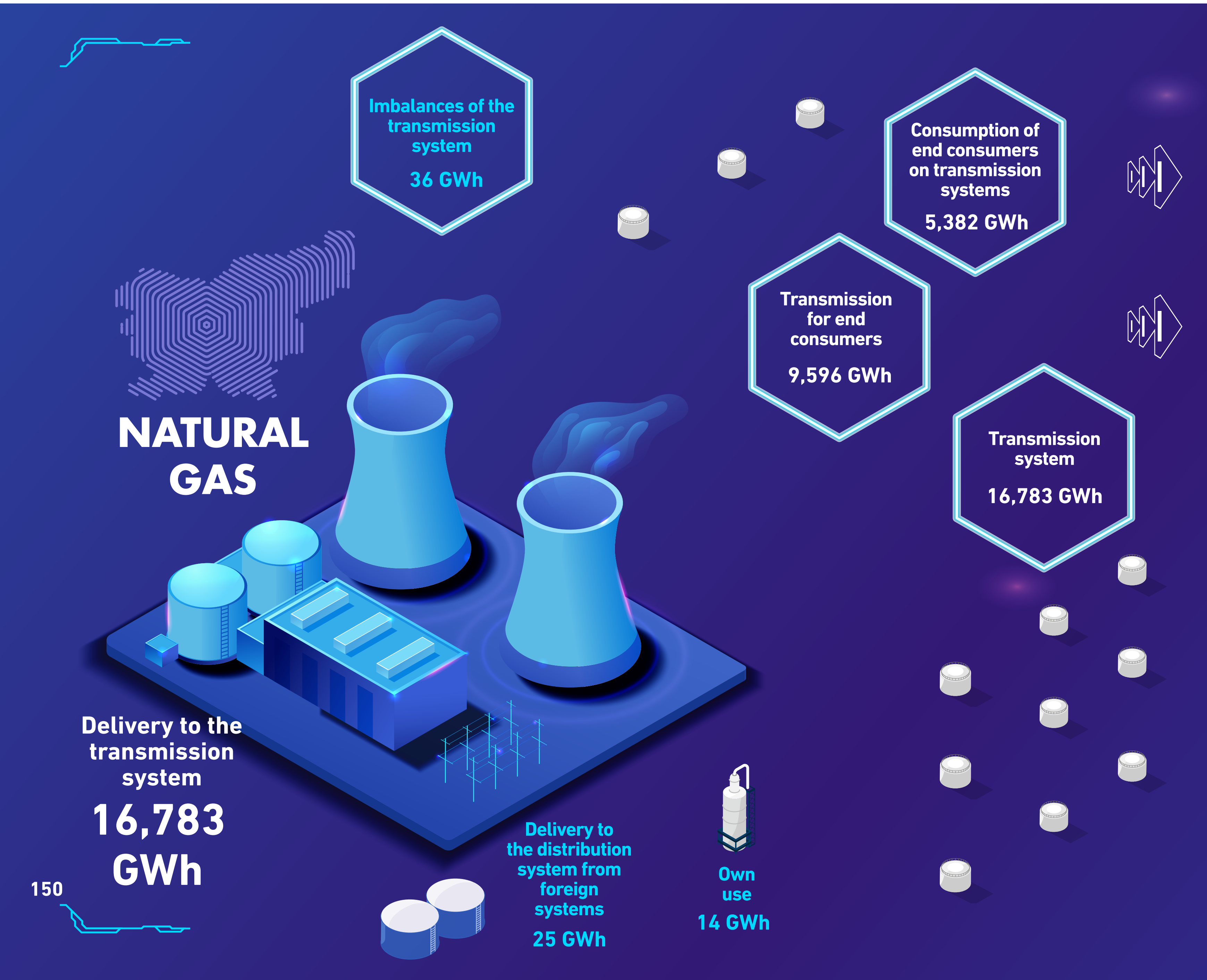
NATURAL GAS TRANSFERRED TO OTHER TRANSMISSION SYSTEMS

NATURAL GAS

Supply and Demand of Natural Gas

In 2020, 16,783 GWh of natural gas was transferred through the transmission system, which is almost 5% more than in the previous year. Of this, 9,596 GWh was transferred for the supply of domestic consumers, 7,137 GWh to other transmission systems, and the difference of 50 GWh represents imbalances of the system and own use of the transmission system. Transmission to other transmission systems increased for the second year in a row by almost 13%, thus reaching 73% of the average value of cross-border transmission of natural gas over the last decade.

For the second consecutive year, higher transmission of natural gas to other transmission systems



0.7% lower total consumption of all consumers

Total consumption of domestic natural gas consumers was 0.7% lower than in 2019, with some consumer groups increasing and others decreasing. Household and non-household consumers connected to distribution systems spent more, the first under 4%, and the second by a good percentage. Higher consumption of household consumers may have been influenced, among other things, by the COVID-19 epidemic due to increased heating needs while working from home. In comparison with the previous year, less gas was consumed by non-household consumers on the transmission system and CDS. This group has consumed nearly 2% less natural gas on the transmission system. Consumers supplied through CDS consumed

4% higher consumption of household consumers

FIGURE 104: BASIC DATA ON QUANTITIES OF NATURAL GAS TRANSFERRED, DISTRIBUTED AND CONSUMED

SOURCE: ENERGY AGENCY

almost 6% less natural gas than in 2019. In addition to changes in the number of consumers, the weather with annual temperature deficits, the competitiveness of natural gas prices compared to other energy products, general economic conditions and other individually dependent factors, the consumption of individual consumer groups was also affected by the country's exceptional measures due to the COVID-19 epidemic. At the end of 2020, 136,284 end consumers were connected to the transmission system, distribution systems and CDS of natural gas. In November 2020, a permit was granted to acquire CDS natural gas status for the geographically rounded area of the Salonit Anhovo complex, which supplies four consumers. At the end of the year, the natural gas distribution activity was carried out by 13 distribution system operators and five CDS operators.

TABLE 31: NUMBER OF CONSUMERS ACCORDING TO CONSUMPTION TYPE IN 2019 AND 2020

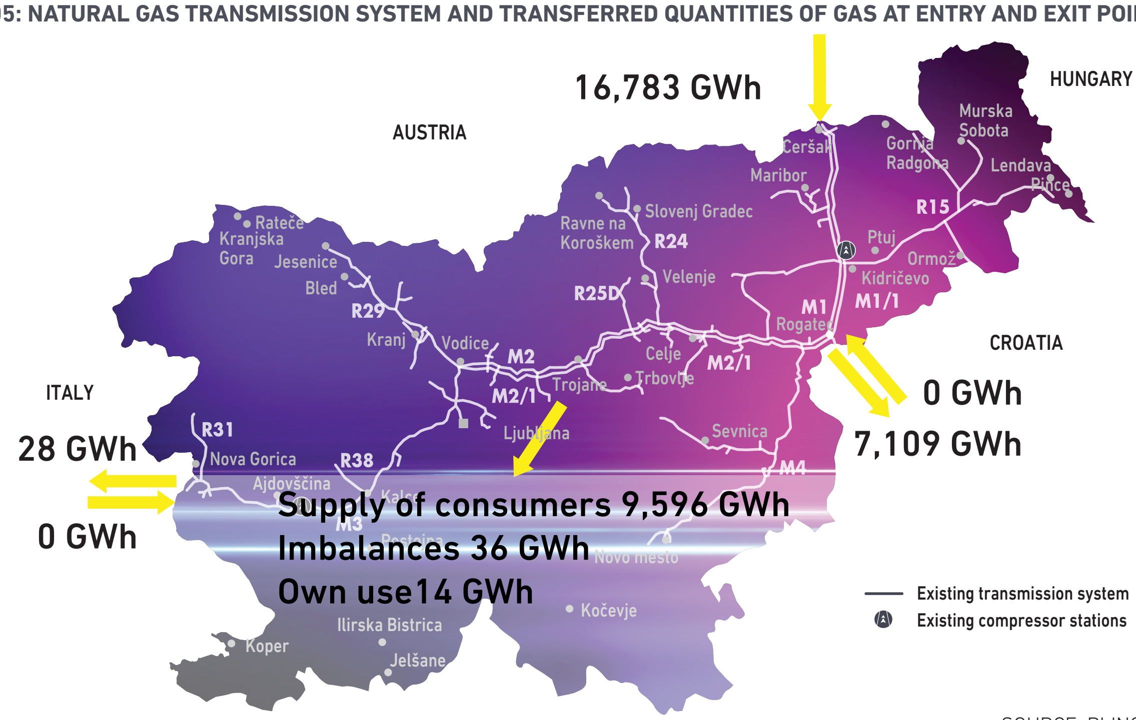
Number of consumers according to consumption type	2019	2020	Index
Business consumers on the transmission system	141	142	100.71
Business consumers on the distribution systems	14,481	14,477	99.97
Business consumers on CDSs	45	49	108.89
Household consumers	120,724	121,616	100.74
Total	**135,391**	**136,284**	**100.66**

SOURCE: ENERGY AGENCY

Transmission of Natural Gas

The transmission system is owned and operated by the transmission system operator, the company Plinovodi. It consists of 967 kilometres of high-pressure pipelines with a nominal pressure above 16 bar, and 210 kilometres of pipelines with a nominal pressure lower than 16 bar. The transmission network consists of 207 metering-regulation stations (MRS), 41 metering stations, seven reduction stations, and compressor stations in Kidričevo and Ajdovščina. The transmission network is connected to the natural gas transmission networks of Austria (MRS Ceršak), Italy (MRS Šempeter pri Gorici) and Croatia (MRS Rogatec). Two-way transport of natural gas is possible at the border point with Italy and Croatia, while at the border point from Austria, gas flow is possible only to Slovenia. Border points are also relevant points of the transmission system. The sixth relevant point is the exit point in the Republic of Slovenia. Gas trading on the wholesale market takes place at a virtual point.

FIGURE 105: NATURAL GAS TRANSMISSION SYSTEM AND TRANSFERRED QUANTITIES OF GAS AT ENTRY AND EXIT POINTS

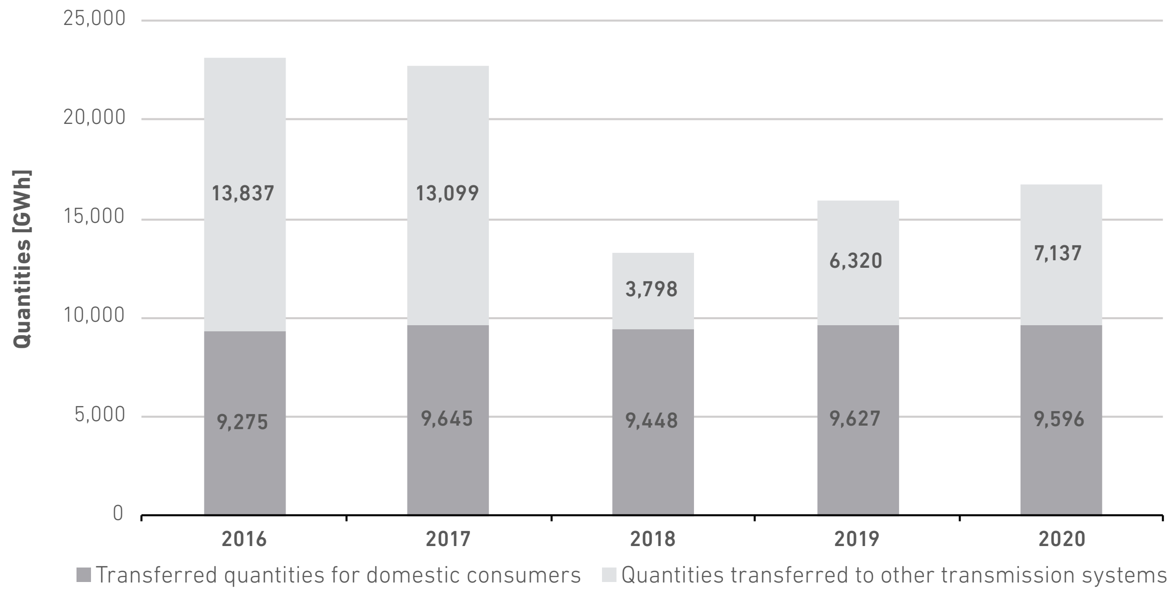


SOURCE: PLINOVODI

13% **more natural gas transferred to other transmission systems**

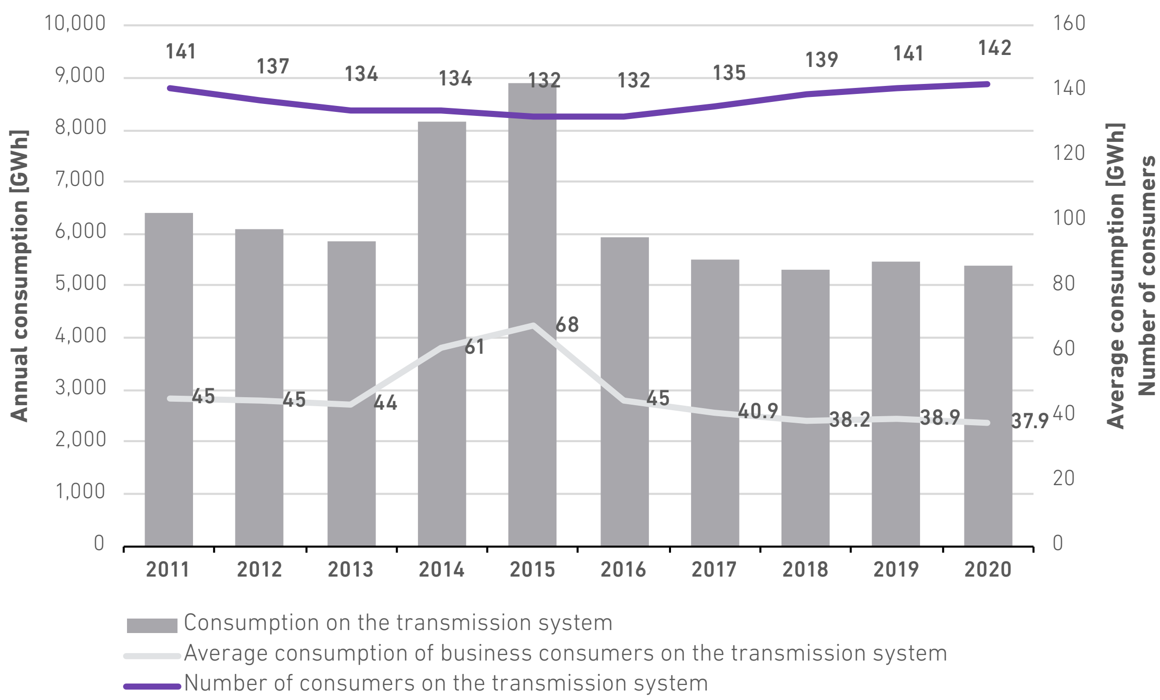
Consumption of Slovenian natural gas consumers in 2020 was almost the same as the previous year (0.3% less). For the second year in a row, there has been an increase in the quantities transferred to other transmission systems. Nevertheless, the quantities carried forward in 2020 represented only 54% of the quantities in 2017, when the flow of natural gas to supply Croatia was diverted through Hungary.

FIGURE 106: QUANTITIES OF NATURAL GAS TRANSFERRED IN THE 2016–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

FIGURE 107: TOTAL AND AVERAGE CONSUMPTION OF A BUSINESS CONSUMER, AND NUMBER OF CONSUMERS AND THE NATURAL GAS TRANSMISSION SYSTEM IN THE 2011–2020 PERIOD

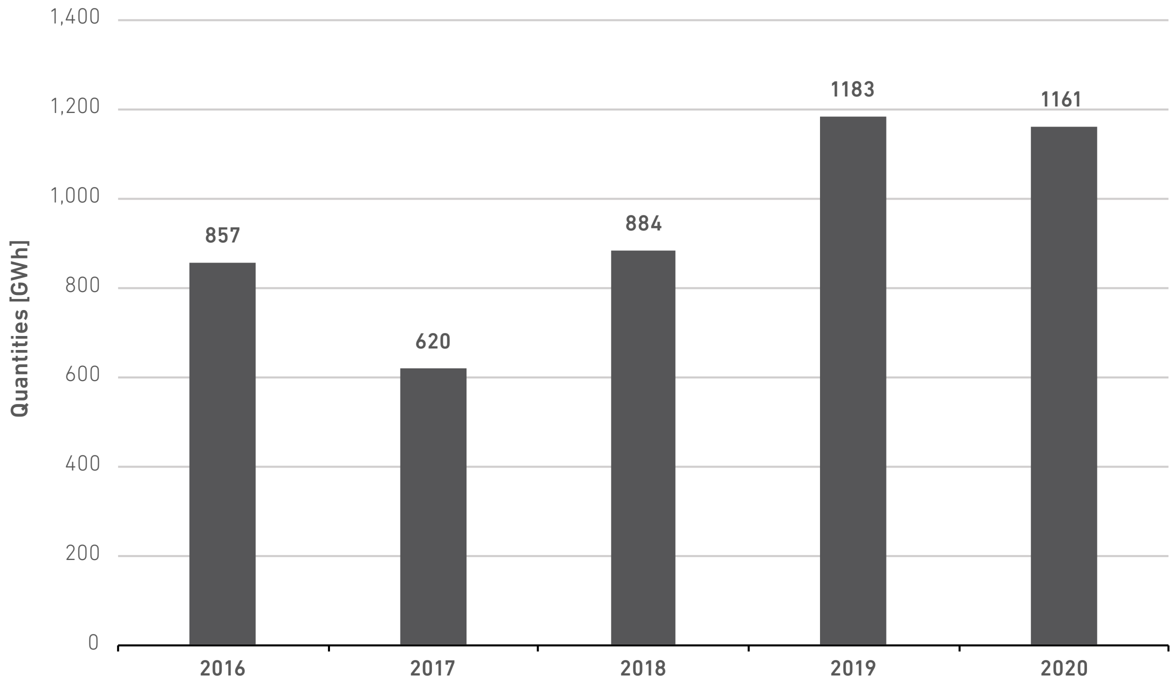


SOURCES: ENERGY AGENCY, PLINOVODI

Five new end consumers were connected to the transmission system, while four end consumers stopped using gas as a result of the cessation of activities or were either acquired or reorganised. The number of end consumers thus amounted to 142.

The transmission system operator used 14.5 GWh of natural gas for its own use or to power compressors in both compressor stations, which is 7% more than the previous year. The quantities transferred, calculated per unit of natural gas consumed for own use, slightly decreased compared to the previous year.

FIGURE 108: RATIO BETWEEN THE QUANTITIES OF NATURAL GAS FOR OWN USE AND QUANTITIES TRANSFERRED IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Distribution of Natural Gas

The distribution of natural gas is carried out as an optional local service of general economic interest of the distribution system operator to supply general consumption consumers in urban areas and settlements and as distribution to industrial and commercial customers in the CDS areas.

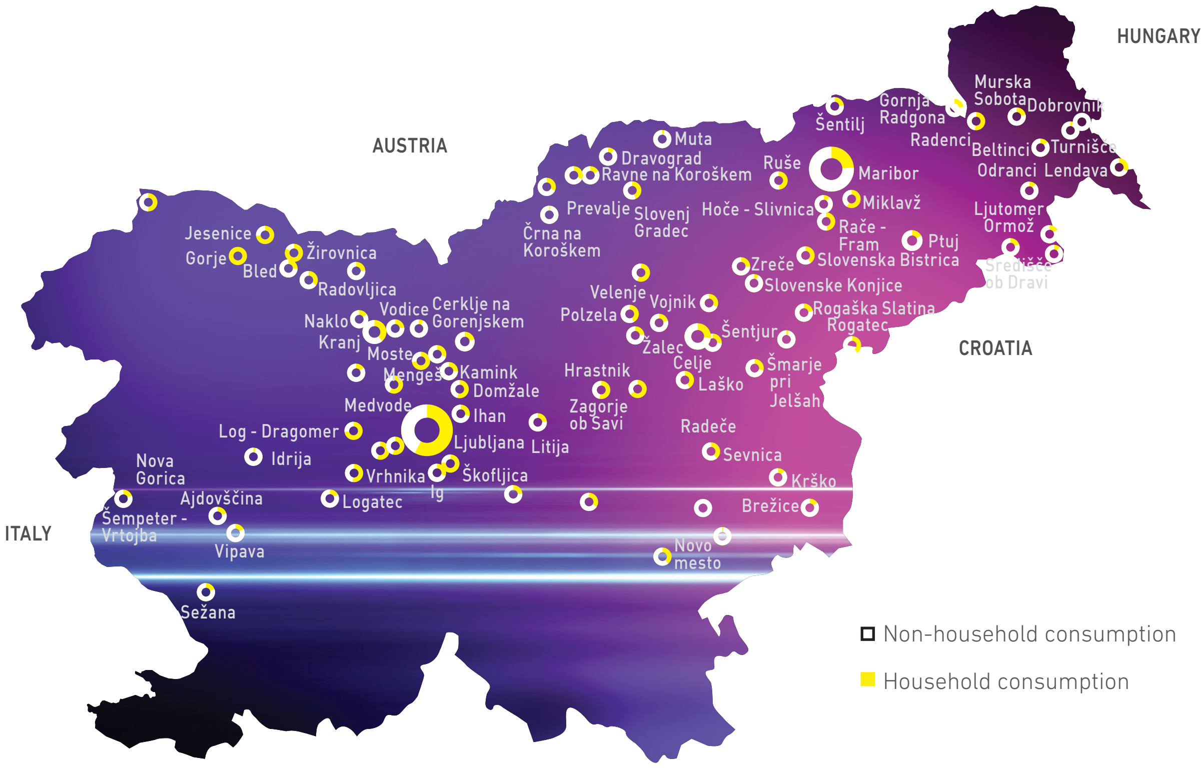
Customer supply was not disturbed despite the epidemic

The following content and data, which do not explicitly indicate that they relate to CDS, describe distribution areas with an organised local service of general economic interest. Despite the COVID-19 epidemic, all distribution systems and closed distribution system operators provided gas to end consumers without disturbance while taking into account safety measures. In 2020, the distribution of natural gas as GJS was carried out in 84 municipalities in most of Slovenia's urban areas with the exception of the Primorska Region. The distribution of natural gas began in the municipalities of Šentjernej and Škocjan. In 2020, the distribution of natural gas as GJS was carried out by 13 operators. In 69 municipalities this activity is organised with a concessional relationship between the concessionaire and the local community, in 14 it is carried out by public undertakings, and in one municipality the service of general economic interest is carried out in the form of an investment of public capital in the activity of private law entities.

In Šenčur and Hrastnik, on the basis of the concession contracts concluded by the municipality, two distribution system operators operated a service of general economic interest. In some municipalities with a concession already granted for the distribution of natural gas, supplies have not yet been made possible because the distribution network has not yet been built or trained for use or because connection to the transmission system is not yet possible.

> **The distribution of natural gas in the form of GJS is carried out in the area of 84 municipalities, newly introduced in Šentjernej and Škocjan**

FIGURE 109: NATURAL GAS DISTRIBUTION SYSTEMS BY QUANTITIES DISTRIBUTED



SOURCE: DSOs, ENERGY AGENCY

Distribution system operators distributed 3621 GWh of natural gas in 2020, which is almost 2% more than the previous year and less than 3% higher than the average of the five-year period 2016–2020. Household consumer consumption increased by almost 4% in 2020, following a fall in consumption in 2018 and 2019. Non-household consumers, however, consumed a good percentage of more natural gas than in the previous year. The number of household consumers increased for the fourth year in a row, while non-domestic consumption slightly decreased. At the end of 2020, 121,616 household and 14,477 non-household consumers were registered. The number of household consumers increased by 892 in 2020 and decreased by four non-households.

> **Consumers on distribution systems consumed 3621 GWh of natural gas, 2.6% more than the five-year average**

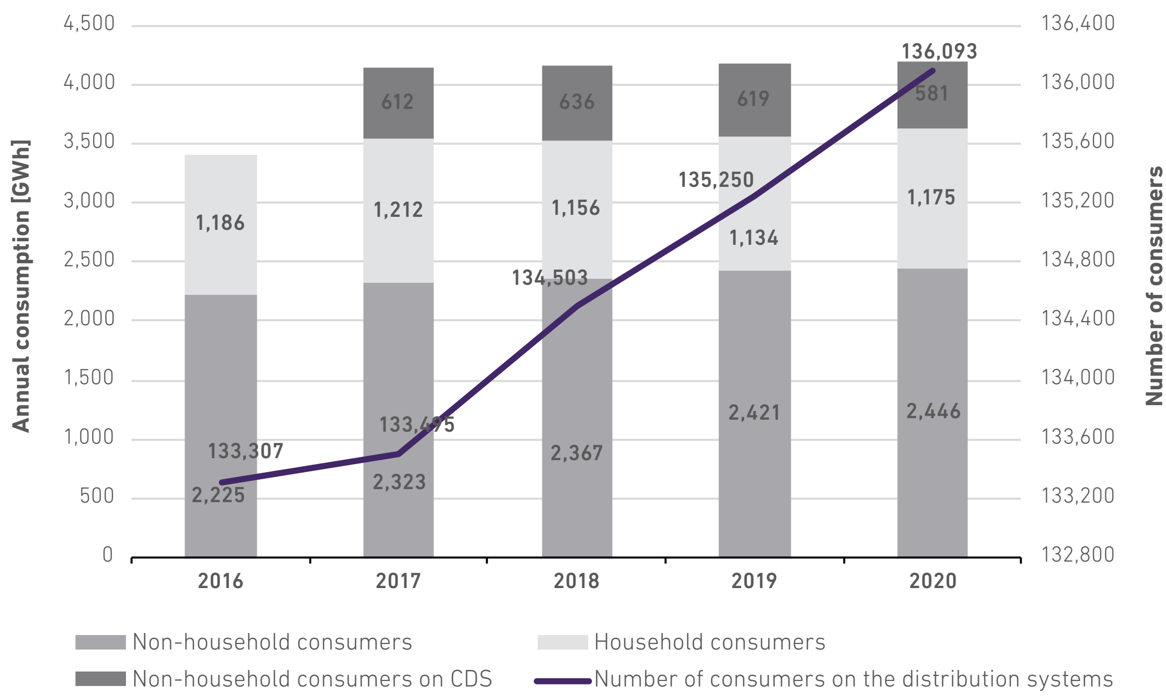
Most new consumers were recorded in the C_{DK1} and C_{DK2} consumer groups, which consume up to 5000 kWh of natural gas per year.

At the end of 2020, 49 consumers were registered in the five CDS areas, Jesenice, Kranj, Kidričevo, Štore, and Anhovo. The new CDS status for the supply of non-household consumers was acquired in November 2020 for the geographically rounded area of the Salonit Anhovo complex. In these rounded distribution areas, the distribution of natural gas is not carried out as a service of general economic interest. Access to CDS is granted only to consumers within the rounded geographical area of these systems. CDS operators distributed 581 GWh of natural gas in these areas. Compared to 2019, consumption fell by 6.1%. This quantity does not take into account the amount of off-take for the CDS Salonit Anhovo area, whose collection point was recorded as the end consumer on the transmission system for most of the year.

6.1% less natural gas consumed in CDS areas

The consumption of household and non-household consumers on distribution systems and CDS and their number by customer type and system type for a period of five years is shown in Figure 110.

FIGURE 110: CONSUMPTION OF CONSUMERS ON THE DISTRIBUTION SYSTEM AND CDS BY TYPE OF CONSUMERS AND NUMBER OF ACTIVE CONSUMERS IN THE 2015–2019 PERIOD

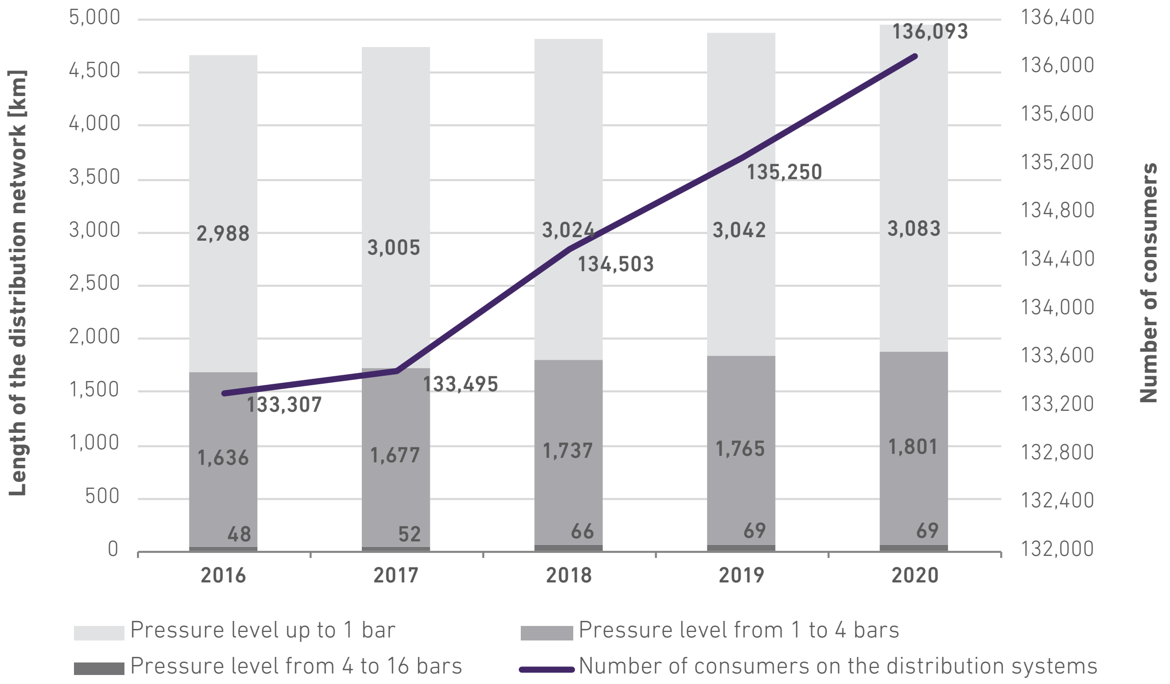


SOURCES: DSOs, ENERGY AGENCY

The length of the distribution network has increased slightly. At the end of 2020, the total length of active lines in distribution systems was recorded and the CDS amounted to 4953 kilometres, which is 1.5% more than the previous year. Distribution lines and related infrastructure are mainly owned by distribution system operators. 15.5 kilometres of activated gas pipelines were recorded in the five CDS areas, of which 8.1 kilometres of pressure level pipelines from 4 to 16 bar, about 5.2 kilometres with pressure level 1 to 4 bar and 2.2 kilometres of gas pipelines with a pressure level of up to 1 bar.

Length breakdown of distribution systems and ZDS, pressure levels, extensions of pipelines together with connections and growth in the number of consumers in the 2016–2020 period are shown in Figure 111.

FIGURE 111: LENGTH OF DISTRIBUTION NETWORKS AND CDSS, AND NUMBER OF ACTIVE CONSUMERS IN THE 2016–2020 PERIOD



SOURCES: DSOs, ENERGY AGENCY

Natural gas distribution system operators connected 1,328 new consumers. The number of new connections decreased by almost 26% compared to the previous year. The lower number of connections may also be due to the emergence of the COVID-19 epidemic, which, due to restrictive measures, influenced the decisions of potential system users and the volume of works carried out by distribution system operators. The total number of consumers connected to distribution systems has increased by 888, taking into account simultaneous disconnections, which is 157 more than in 2019. At the end of 2020, 136,093 end consumers were connected to distribution systems.

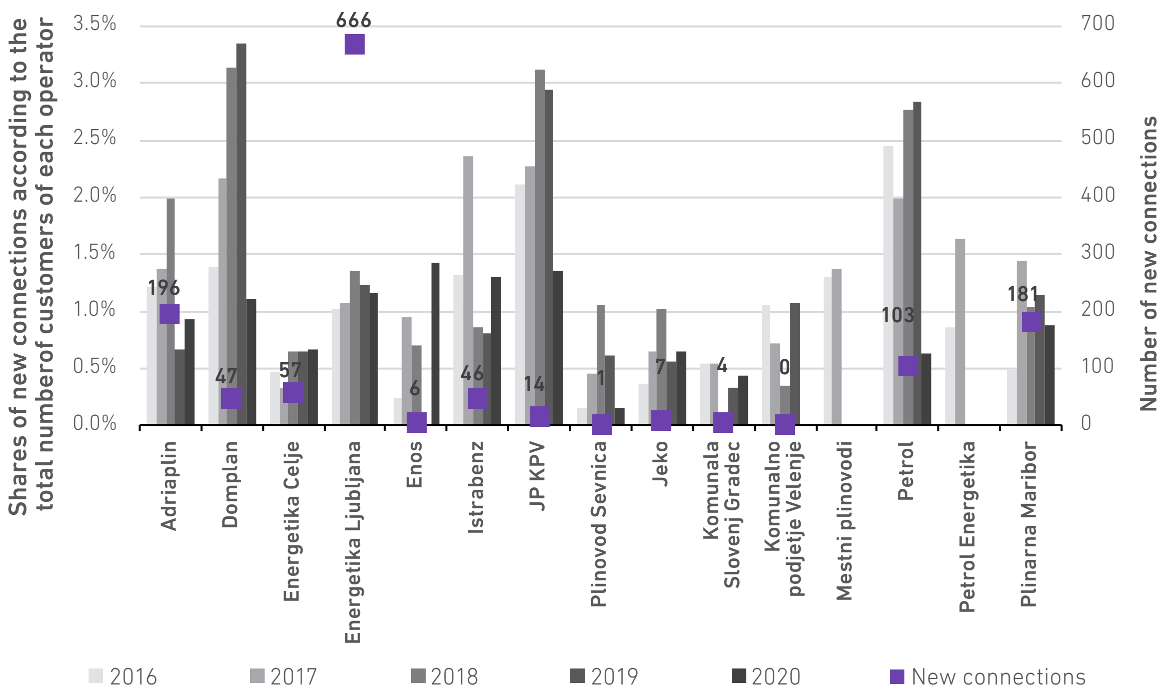
1,328 new consumers on natural gas distribution systems

Distribution systems still without connected generation sources

Growth in the number of consumers can be attributed to the expansion of distribution systems, promotion of natural gas supply, and competitive prices of supply of natural gas, as well as the competitiveness of the overall cost of supply. The shares of new connections in relation to the total number of consumers of each operator and the number of new connections to the distribution systems of each operator are shown in Figure 112. The CDS registered two new connections in 2020, while the total number of consumers per CDS increased by four to 49 due to the newly associated CDS Salonit Anhovo.

None of the distribution systems had a connected source of natural gas, biomethane or synthetic methane.

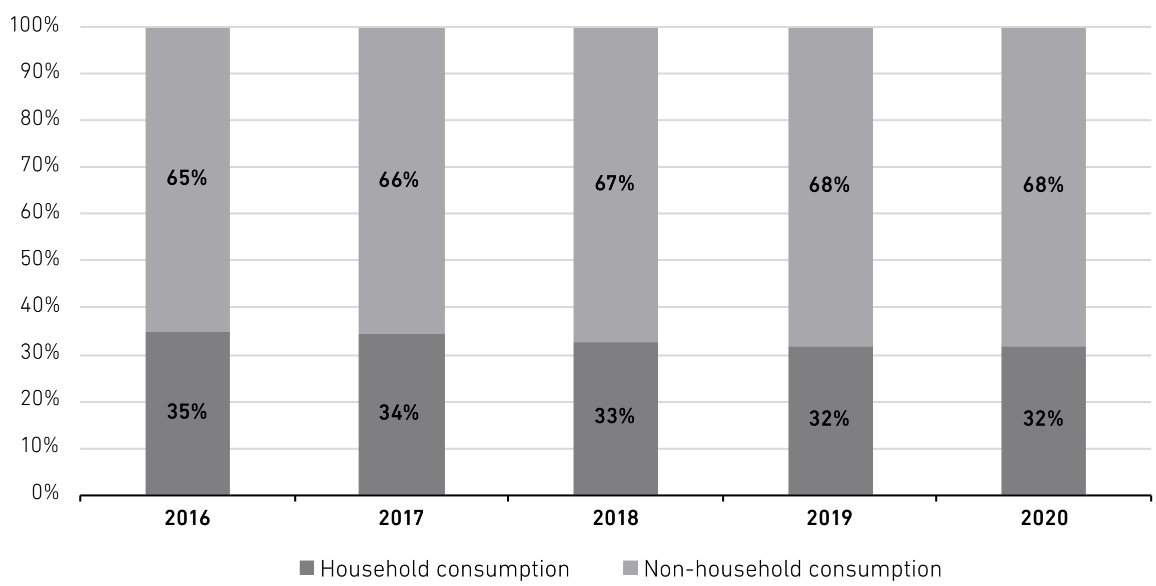
FIGURE 112: SHARE AND NUMBER OF NEW CONSUMERS ON THE DISTRIBUTION SYSTEMS IN THE 2016–2020 PERIOD



SOURCES: DSOs, ENERGY AGENCY

The structure of consumers did not change significantly. Household consumers accounted for around 90% of all consumers on distribution systems. Furthermore, data on distributed quantities of natural gas in 2020 does not show a significant change in shares of household and non-household consumption. The share of household consumption was 32%, while the remaining 68% was distributed to non-household consumers.

FIGURE 113: SHARE OF CONSUMED NATURAL GAS FROM THE DISTRIBUTION SYSTEMS FOR HOUSEHOLD AND NON-HOUSEHOLD CONSUMERS IN THE 2016–2020 PERIOD

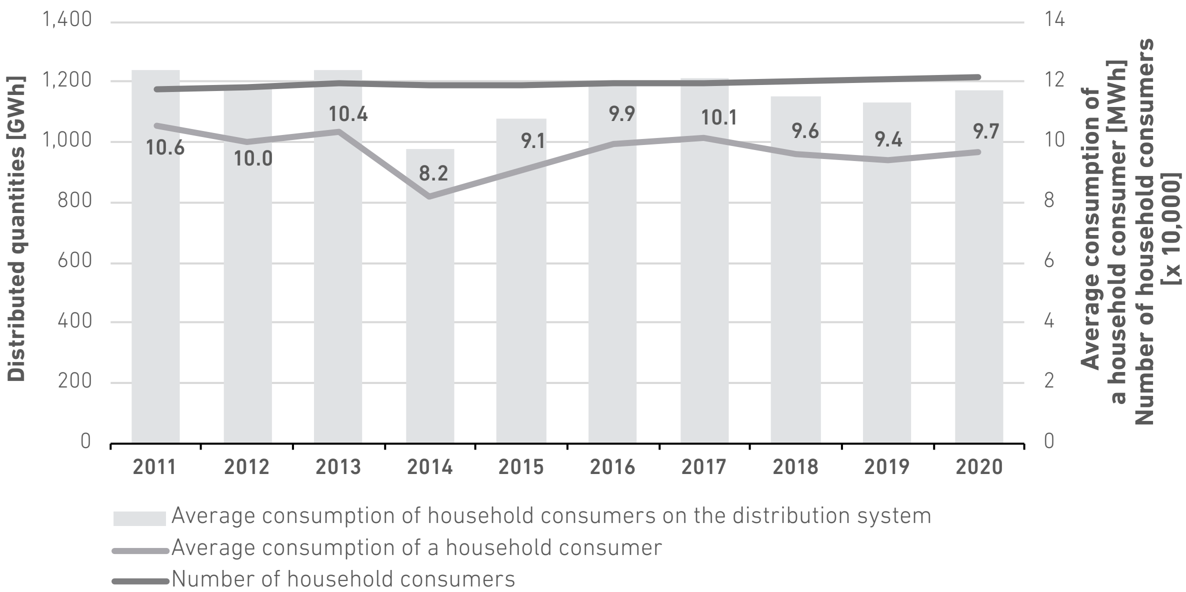


SOURCES: DSOs, ENERGY AGENCY

Household consumers use natural gas mainly for cooking, preparing hot sanitary water and heating. As in previous years, over 96% of all consumers consumed up to 50,000 kWh of natural gas per year in 2020. Over 90% of consumers on distribution systems had a consumption of less than 25,000 kWh of natural gas per year. The share of consumers with annual natural gas consumption above 50,000 kWh was 3.8% of all consumers and their consumption accounted for 68% of the total consumption of all consumers connected to distribution networks.

The average consumption of household consumers increased slightly. The causes of this can be attributed to the weather factors and measures caused by the declared epidemic, which in individual cases may have been demonstrated as the need to ensure higher indoor temperatures and consequently higher consumption. The total and average consumption of natural gas by household consumers and the number of such consumers in each year of the 2011–2020 period are shown in Figure 114.

FIGURE 114: TOTAL AND AVERAGE CONSUMPTION OF HOUSEHOLD CONSUMERS ON THE DISTRIBUTION SYSTEM IN THE 2011–2020 PERIOD



SOURCES: DSOs, ENERGY AGENCY

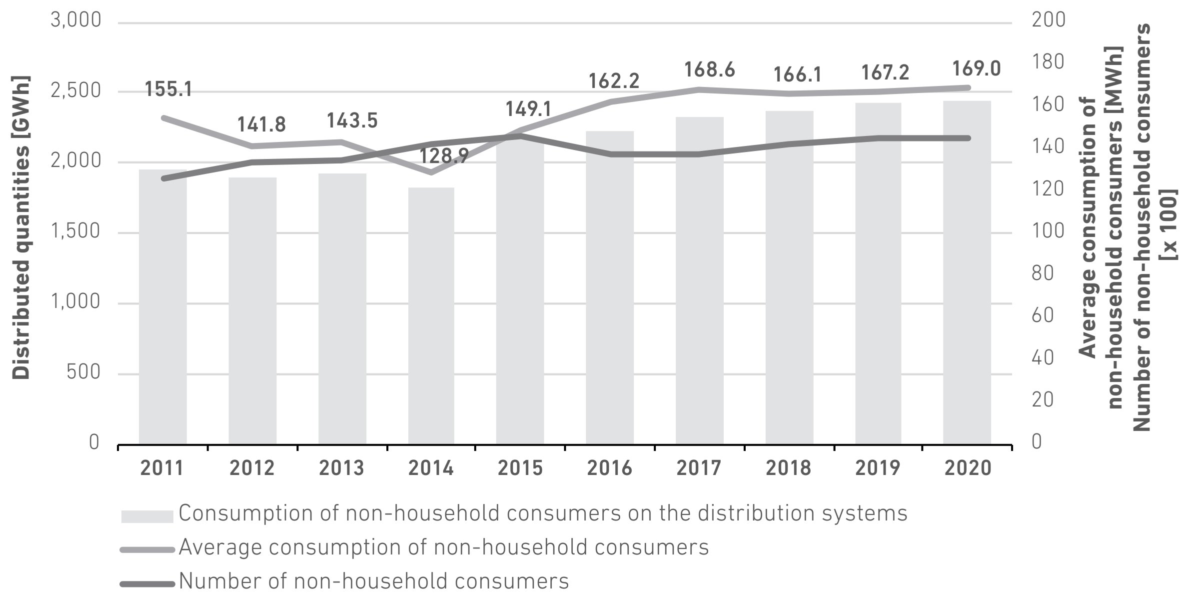
Non-household consumers also used natural gas for cooling, technological and production processes, and other activities. At the end of 2020, there were four non-household consumers fewer than the year before, while their total consumption went up by a good percentage.

Non-household consumers increased their consumption for the sixth year in a row and reached the new highest consumption value of non-household customers in Slovenia so far. The evolution of consumption and the number of non-household customers is shown in Figure 115.

The highest consumption by non-household consumers on the distribution system so far

3% higher average household consumption

FIGURE 115: TOTAL AND AVERAGE CONSUMPTION OF NON-HOUSEHOLD CONSUMERS ON THE DISTRIBUTION SYSTEMS IN THE 2011–2020 PERIOD



SOURCES: DSOs, ENERGY AGENCY

CDSs did not supply household consumers. Average annual consumption of natural gas by consumers connected to CDSs was significantly higher compared to consumers on distribution systems. The average annual consumption of 12.9 GWh in CDS areas represented about 34% of the average consumer's consumption on the transmission system. Most of the consumption in CDS areas is dedicated to the technological and production processes of industrial consumers, while the remaining part of the consumption is made up of smaller business consumers.

The Use of Compressed and Liquefied Natural Gas and Other Gases from Distribution Systems

Compressed Natural Gas in Transport

Compressed natural gas (CGN) is mainly used in transport for personal, delivery and goods vehicles, and public bus transport, especially for short and medium distances. In 2020, the number of public charging stations did not change. A supply was provided at five public charging stations, two in Ljubljana and one each in Maribor, Celje, and Jesenice. Expanding the appropriate infrastructure of public charging stations is one of the key factors for increasing the number of users, so existing and potential new charging service providers are planning to extend the charging network to areas of all major cities with a gas network available. In order to reduce oil dependence and mitigate the negative impact of transport on the environment, the setting

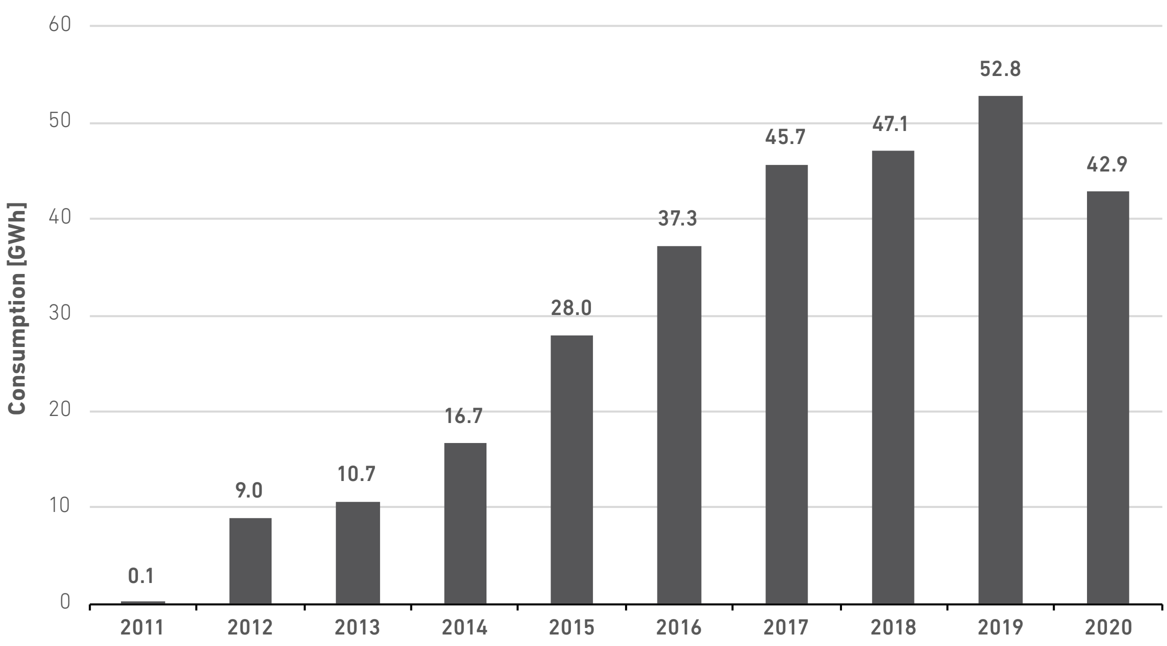
18.8% less used CGN in transport

The objectives set in the Regulation on alternative transport fuels are not achieved

up of an alternative fuel infrastructure is envisaged. In line with the Regulation on alternative transport fuels, natural gas distribution system operators should jointly provide at least ten publicly available CNG supply points in major urban areas and at least four publicly available CZP supply points for CZP on the motorway network by the end of 2020, which has not happened. The COVID-19 epidemic at the beginning of 2020 further jeopardised the achievement of national targets as consumption of SZP declined due to reduced public passenger transport spending, which could have a negative impact on the decisions of potential investors.

Total consumption of compressed natural gas in transport decreased for the first time in 2020 compared to the previous year, by almost 19%. The reduction in consumption is the result of measures that stopped public life and public passenger transport. Lower annual consumption was recorded in all areas with established public supply. One of the major obstacles to the growth of individual users is still a small number of charging stations. Adequate supply is provided mainly for users on the relation Maribor-Celje-Ljubljana-Jesenice. Considering the retail price per kilogram of compressed gas in Ljubljana, which has been unchanged since October 2015 at €0.92, users can achieve high cost-efficiency compared to conventional fuels. The annual consumption of compressed natural gas on Slovenian public chargers is shown in Figure 116.

FIGURE 116: CONSUMPTION OF CNG IN TRANSPORT IN THE 2011–2020 PERIOD



SOURCES: OPERATORS OF CNG CHARGING STATIONS, ENERGY AGENCY

Liquefied Natural Gas

Liquefied natural gas (LNG) is used as an alternative fuel for goods vehicles, to provide a permanent supply of the natural gas distribution system in the area of the Municipality of Grosuplje, to which a natural gas transmission or distribution network has not yet been built, and for the temporary supply of gas systems in cases of interruption of transmission or distribution of natural gas due to breakdowns or maintenance works. The supply system from the temporary LNG storage in Grosuplje is expected to be in use until the construction of a part of the gas network which will enable this distribution system to be connected to the existing distribution system in Škofljica.

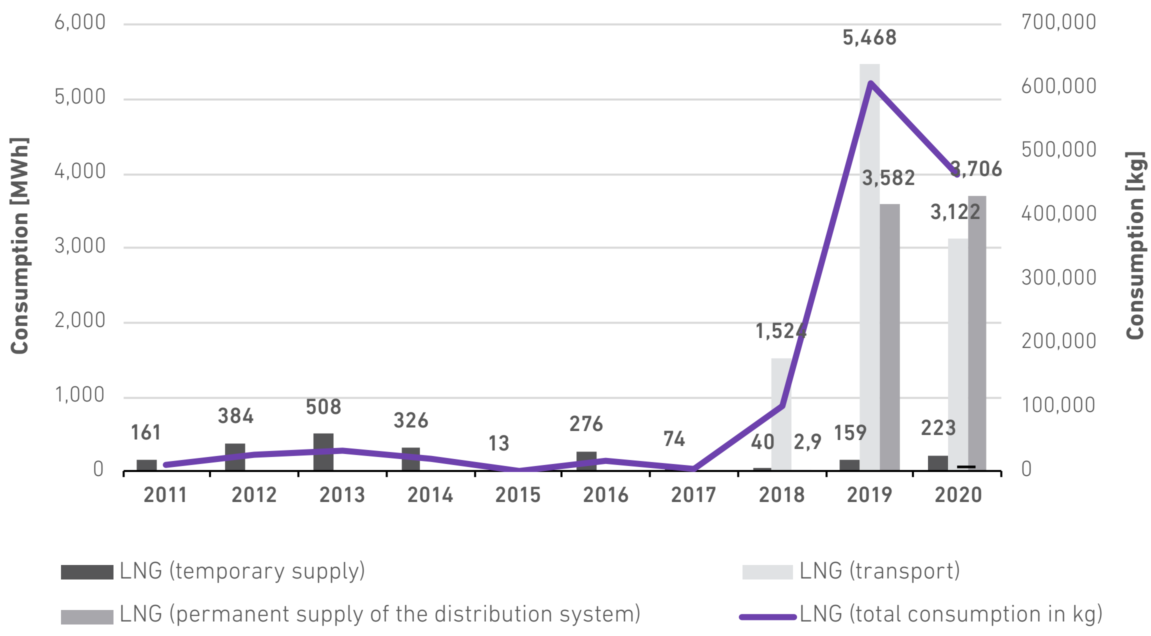
43% lower consumption of LNG in transport

The total quantities of LNG sold in 2020 decreased by more than 23% compared to the previous year, while total LNG consumption for the intervention temporary supply of gas systems and the permanent supply of natural gas distribution system in the Grosuplje area increased by over 5%. The permanent supply of the distribution system accounted for more than half of total consumption, and the quantities used to drive goods vehicles accounted for more than 44% of total LNG consumption, while the share of the temporary supply of gas systems represented over 3% of total consumption.

In transport, LNG is used as an alternative fuel for the supply of heavier road motor vehicles over long distances and for shipping. In 2020, only one public charging stations for LNG was operated in Sežana. Due to the epidemic which, among other things, has had a major impact on the transport sector, and according to the sole LNG provider, there is a risk that further LNG charging facilities will not be built. Sales of LNG for propulsion in transport decreased by almost 43% in 2020. The LNG charging station in Sežana enables the supply of alternative fuel to goods vehicles at very competitive prices. Total LNG consumption represented over 16% of LNG sales in volume. Quantities sold per year are shown in Figure 117.

Lack of interest in building new LNG charging stations

FIGURE 117: CONSUMPTION OF LNG IN TRANSPORT IN THE 2011–2020 PERIOD



SOURCE: ENERGY AGENCY

Other Energy Gases from Distributions Systems

The distribution of other energy gases (energy gases used as energy products other than natural gas) from CDSs was carried out in 2020 by four registered distribution companies in Slovenia. Propane and a mixture of propane and butane were primarily distributed as energy gases. The activity of distributing other energy gases was carried out from 591 distribution systems in 121 Slovenian municipalities. In 116 municipalities, distributors from 549 distribution systems carried out the supply as a market activity, and in the remaining 42 distribution systems in eight municipalities as a service of general economic interest.

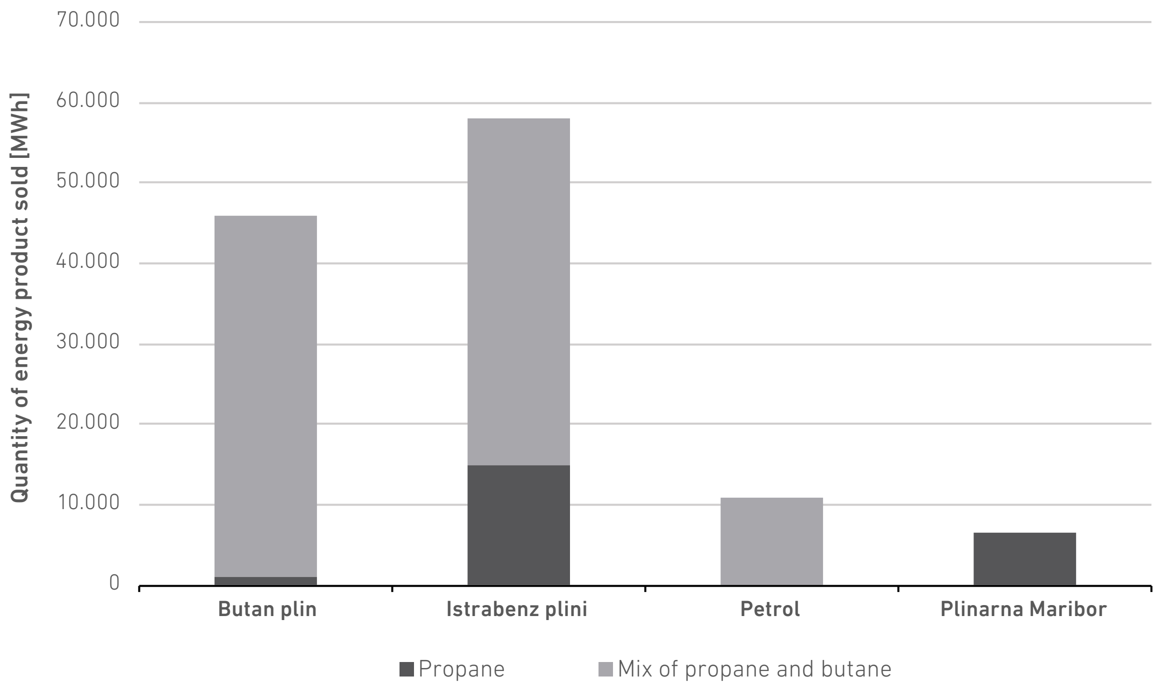
In 2020, 8,283 consumers were supplied from other energy gas distribution systems, which is 9.6% more than the previous year, while the distributed energy value of gases reached 121.6 GWh, a decrease of 2.07% compared to the previous year. The main reason for the increase in the number of consumers is the increase in the number of consumers supplied by the companies Plinarna Maribor and Butan plin, and the reduction a result of more economical use of energy products for heating purposes.

The average annual consumption of a consumer in 2020 is 14.7 MWh, which is 10.7% less than in the previous year. The number of consumers connected to CDSs in individual municipalities ranged from 2 to 1,626, while the average number of consumers per distribution system was 14.

The total length of distribution systems relative to 2019 remains virtually unchanged and stands at 118.8 kilometres. In Figure 118, distributors are shown according to the type and quantity of other energy gas sold.

9.6% higher number of consumers

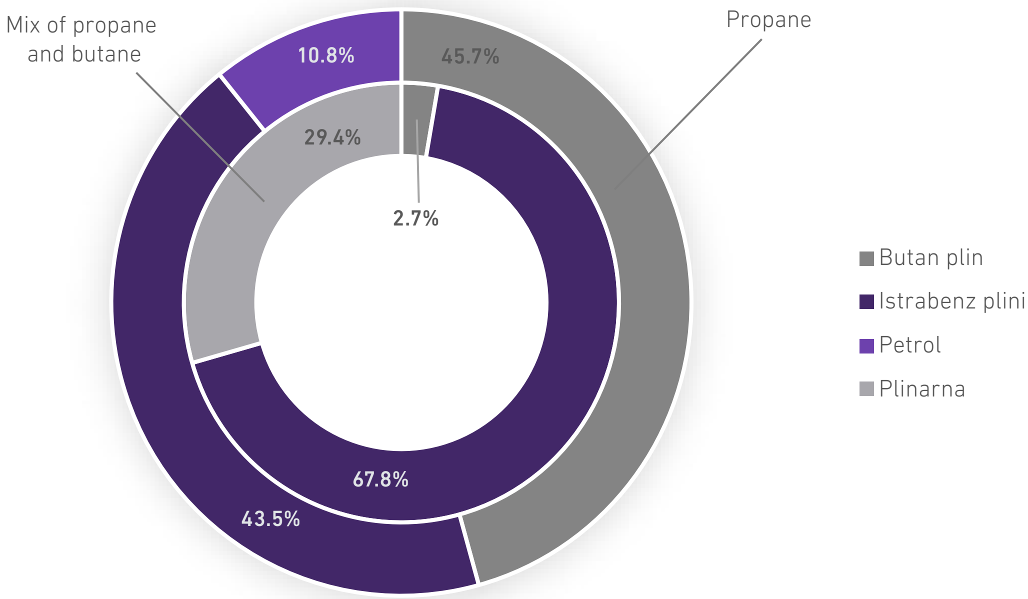
FIGURE 118: DISTRIBUTED QUANTITIES OF OTHER ENERGY GASES BY DISTRIBUTORS AND THE TYPE OF GAS



SOURCE: ENERGY AGENCY

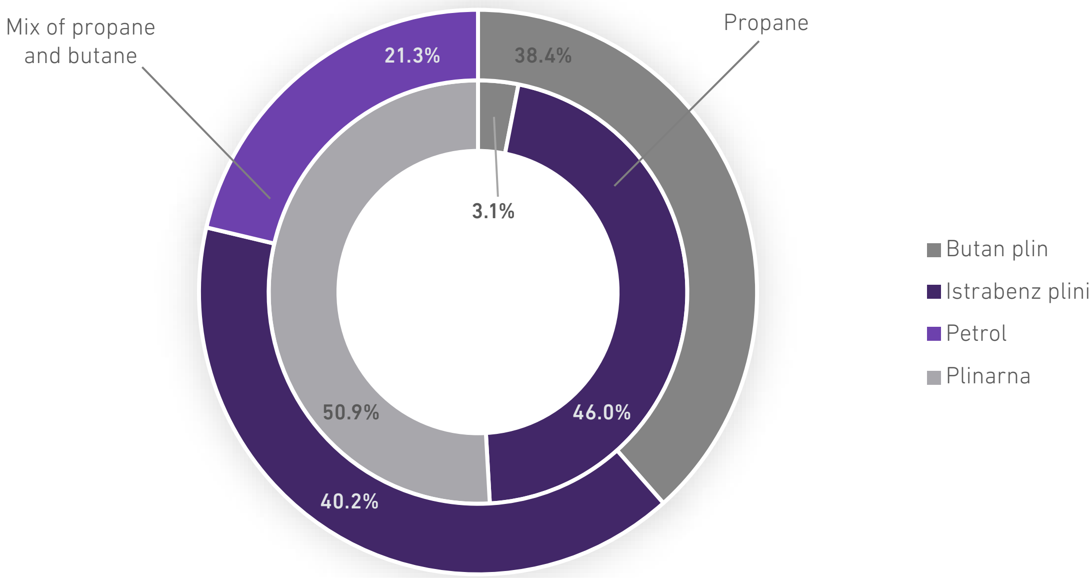
Market shares of distributors of other energy gases by type of energy gas and the energy value of quantities sold in 2020 are shown in Figure 119, and Figure 120 shows the market shares of distributors by the type of energy gas sold and the number of consumers served.

FIGURE 119: MARKET SHARES OF OTHER ENERGY GASES DISTRIBUTORS (ENERGY VALUE OF QUANTITIES SOLD)



SOURCE: ENERGY AGENCY

FIGURE 120: MARKET SHARES OF OTHER ENERGY GASES DISTRIBUTORS (NUMBER OF CONSUMERS)



SOURCE: ENERGY AGENCY

Regulation of Network Activities

Unbundling

In 2020, the service of general economic interest of gas TSO in Slovenia was performed by one entity, while the service of general economic interest of gas DSO was carried out by 13 entities as in the previous year. The gas TSO, the company Plinovodi, owns the assets with which it performs its activity, and it is certified and appointed as an independent transmission system operator. The owner of the TSO is the company Plinhold, the majority of which is owned by the Republic of Slovenia, with a share of 60.1%.

Distribution system operators are not legally separated, as there are not more than 100,000 consumers connected to each distribution system. Given that other energy and market activities were carried out by distribution system operators, they prepared separate accounts in accordance with Article 235 of the EZ-1. System operators are required to prepare annual financial statements as required by the Companies Act for large companies. In the notes to the audited annual financial statements, natural gas undertakings have to disclose the criteria for business allocation. The adequacy of the criteria and the correctness of their application have to be audited annually by the auditor who makes a special report.

Technical Functioning

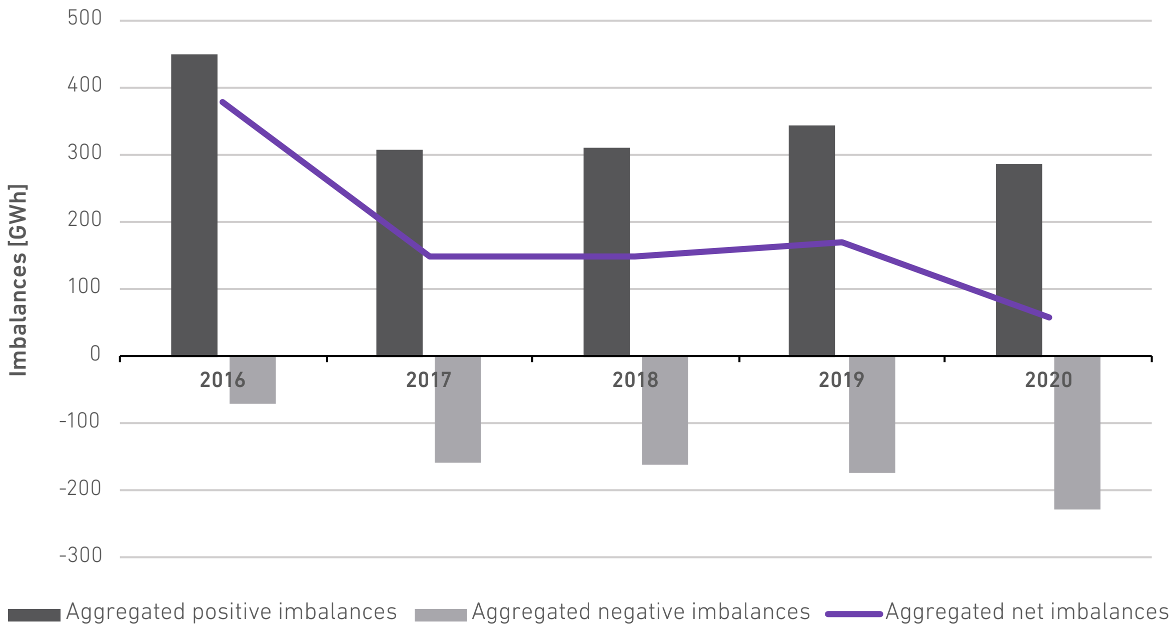
Balancing Services

In 2020, there were 18 active balancing groups leaders were active in Slovenia, of which six were transporting gas to neighbouring transmission systems, which is two less than the year before.

Through the purchase and sale of natural gas on the trading platform and by means of an annual balancing contract, the transmission system operator has managed to balance the transmission system and carry out imbalance accounting. The entire transmission system is one balancing area; the imbalances are determined on a daily basis and calculated on a monthly basis for each gas day.

286 GWh of positive imbalances (17% of annual decrease)
227 GWh of negative imbalances (31% of annual increase)

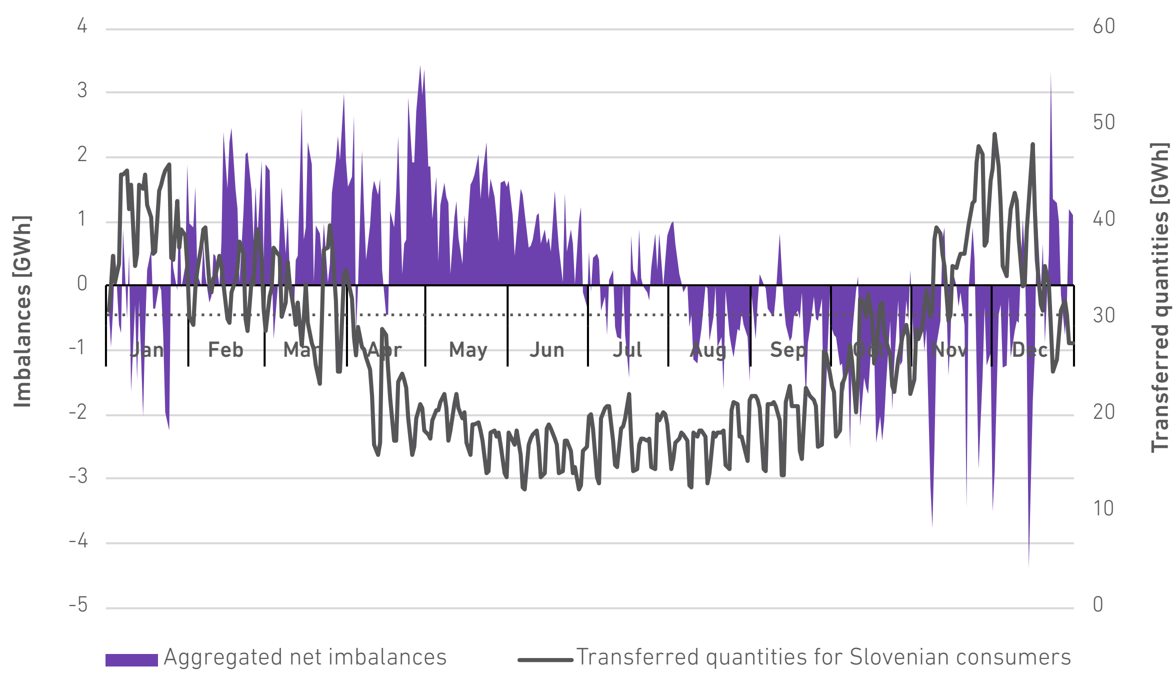
FIGURE 121: AGGREGATED NET IMBALANCES OF BALANCING GROUP LEADERS IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY, PLINOVODI

In the past five-year period, there has been a slight downward trend in positive imbalances (except in 2019) and a slightly more pronounced trend of increasing negative imbalances. Net imbalances are thus decreasing, which means that the balancing market is more and more balanced.

FIGURE 122: AGGREGATED NET IMBALANCES OF BALANCING GROUP LEADERS AND TRANSFERRED QUANTITIES FOR SLOVENIAN CONSUMERS



SOURCE: ENERGY AGENCY, PLINOVODI

Imbalances of balancing group leaders at the annual level amount to 5.3% of quantities consumed by the Slovenian natural gas consumers. Figure 122 shows that aggregated net imbalances of balancing group leaders were the highest in the spring, possibly due to reduced economic activity in the first wave of the epidemic. During the winter months, individual major jumps of negative imbalances can be attributed to temperatures fluctuations.

By trading on the trading platform and dynamic pressure control, the TSO managed to ensure the normal operation of the transmission system without using a system balancing service for the transmission system for the third consecutive year.

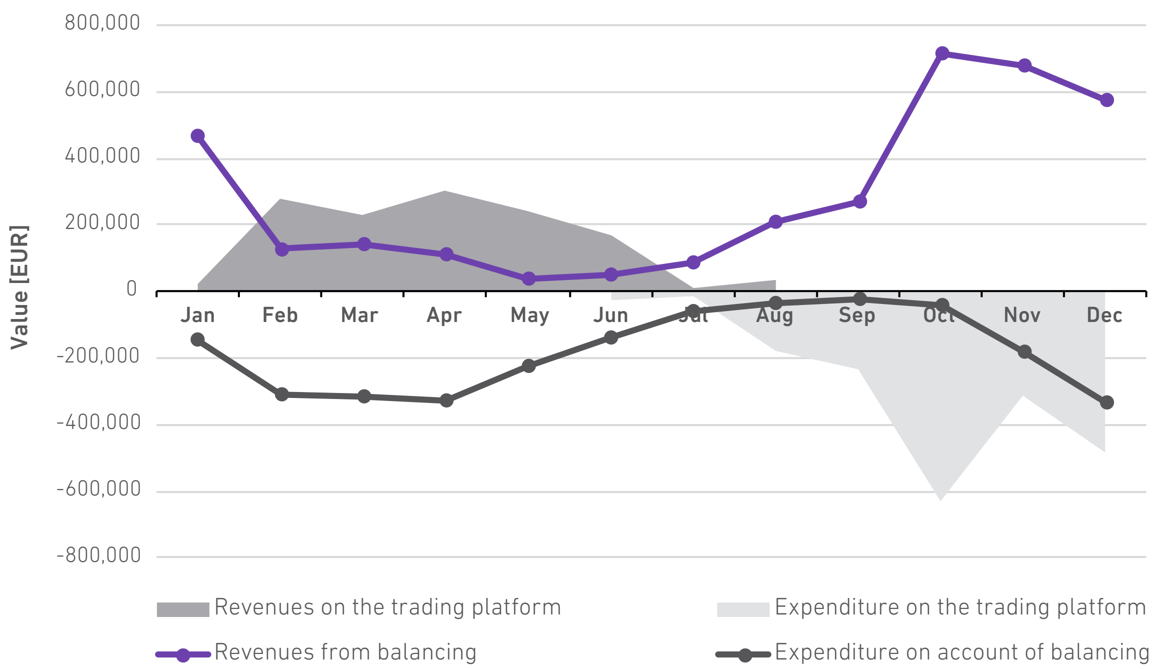
On the trading platform, the transmission system operator generated almost half of its revenue from the previous year, while at the same time, it had more than four times higher revenues than the previous year. Balancing revenue was 9% lower than in 2019 and balancing expenditure was 46% lower than in the previous year. The TSO is cost-neutral when calculating deviations, buying and selling gas for balancing the transmission system and trading on a trading platform, which means that it distributes surpluses or deficits proportionately among the holders of the balancing group leaders. In 2020, it generated a surplus of EUR 0.69 million, which is two thirds less than the previous year.

TABLE 32: REVENUES AND EXPENDITURE OF TSO ON THE TRADING PLATFORM AND SETTLEMENT OF DAILY IMBALANCES AND AVERAGE SALES/PURCHASE PRICE

Activity / service of the TSO		2019	2020
Trading platform	Revenues (mio EUR)	2.7	1.4
	Average sales price (EUR/MWh)	11.9	7.5
	Expenditure (mio EUR)	−0.5	−2.1
	Average sales price (EUR/MWh)	15.7	14.3
Balancing	Revenues (mio EUR)	3.8	3.5
	Average marginal purchase price - settlement of negative imbalances (EUR/MWh)	22.3	14.7
	Expenditures (mio EUR)	−3.9	−2.1
	Average marginal sales price – settlement of positive imbalances (EUR/MWh)	11.6	7.3

SOURCES: ENERGY AGENCY, PLINOVODI

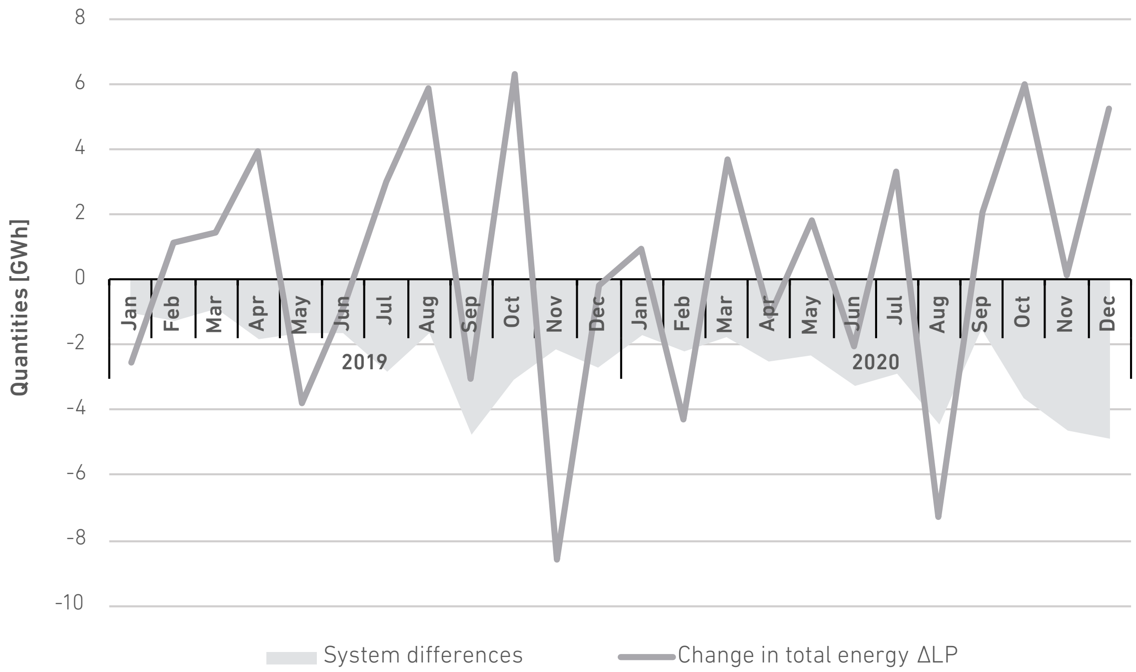
FIGURE 123: REVENUES AND EXPENDITURE OF TSO ON THE BALANCING MARKET



SOURCES: ENERGY AGENCY, PLINOVODI

System differences, which in 2019 replaced imbalances (more in last year's report), were negative throughout the year, while they were 41% higher compared to the previous year. The change in total energy ΔLP in the transmission system had a similar trend in 2020 as in the previous year.

FIGURE 124: SYSTEM DIFFERENCES AND CHANGE IN TOTAL ENERGY ΔLP IN 2019 AND 2020



SOURCES: ENERGY AGENCY, PLINOVODI

Secondary Market for Transmission Capacity

Trading on the secondary market took place only at the Ceršak entry point. As in the year before, only two sub-lease contracts on capacity have been concluded in 2020.

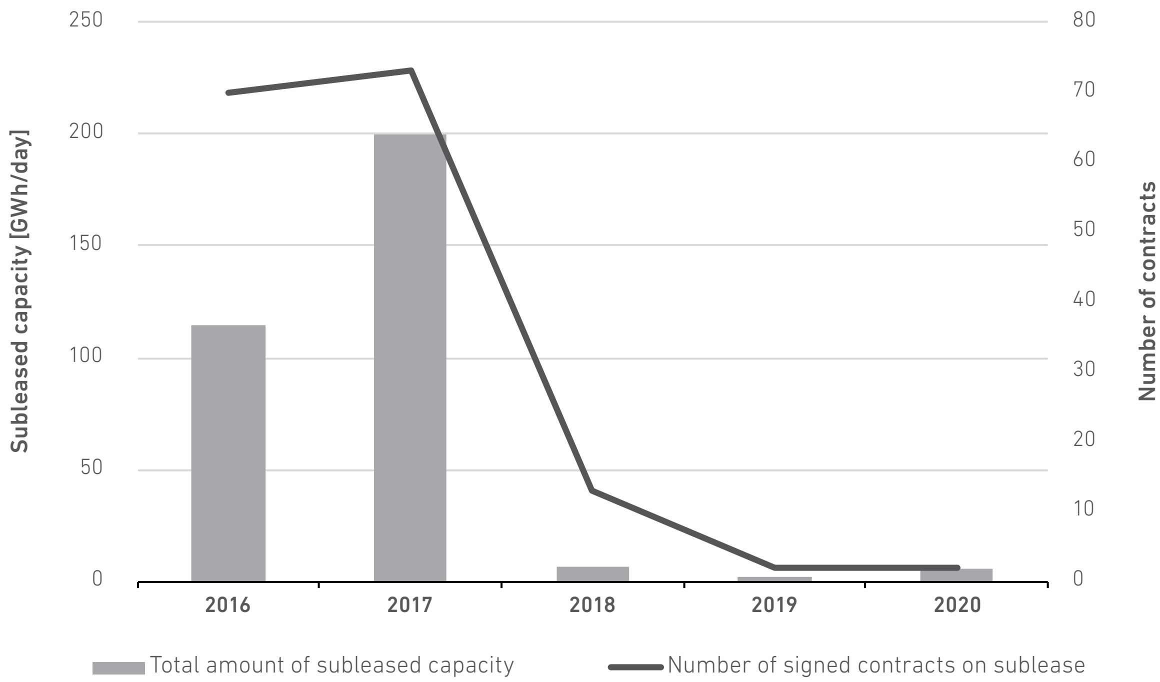
TABLE 33: TRADING OF TRANSMISSION CAPACITY ON THE SECONDARY MARKET

	Ceršak entry border point
Number of transmission capacity providers	2
Number of bids	2
Total amount of offered capacity in kWh/day	5,520,000
Number of enquirers for capacity	2
Number of demands	2
Total amount of enquired capacity in kWh/day	5,520,000
Number of providers that sold transmission capacity	2
Number of enquirers that booked transmission capacity	2
Number of signed contracts on sublease	2
Total amount of subleased capacity in kWh/day	5,520,000
Minimum booked capacity of signed contracts on sublease	720,000
Number of refused subleases	0

SOURCES: ENERGY AGENCY, PLINOVODI

For trading on the secondary transmission capacity market, the break point was 2017, when most long-term transmission contracts expired. Significantly reduced capacity booking at border points, a growing trend towards booking short-term capacity and improved optimisation of capacity leases from transmission system users have also contributed to a reduction in the role of the secondary market.

FIGURE 125: TREND IN DEVELOPMENT OF THE SECONDARY CAPACITY MARKET IN THE 2016–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

Planning of Non-Daily Metered Off-Takes

Consumption points of end consumers on the transmission system and distribution systems that are expected to take over more than 800 MWh of natural gas per year must be equipped for daily metering of natural gas acquired, with operators having access to the daily measurement values.

In 2020, the consumption of natural gas was determined for the first time on the basis of the methodology for forecasting the non-daily metered off-takes of users of the natural gas network. The quality of the forecasted provisional allocation of quantities of natural gas to non-daily metered demand points has improved significantly, allowing suppliers to better monitor ongoing possible discrepancies between the quantities of natural gas taken over into the system and the quantities surrendered at the point of demand. At the beginning of April 2020, the Act Amending the Methodology of Determining the Non-Daily Metered Takeovers of Natural Gas Users, allowing each operator to set for itself the start and end dates of the heating season for the area of the distribution of natural gas, which helped to improve the quality of the provisional and final allocation of natural gas quantities.

Through the use of the methodology and the regular cooperation of the transmission system operator with distribution system operators, a significant shift has been achieved in improving the quality of input data in relation to off-take, quicker correction of potential errors in the reporting process and implementation of provisional allocations, and faster completion of final allocations of natural gas volumes by distribution system operators. In 2020, distribution system operators successfully reduced the time needed to prepare final allocations and implemented them by the fourth working day following the end of the month for which final allocations are made. Prior to that, the final allocations were closed by the tenth day of the month.

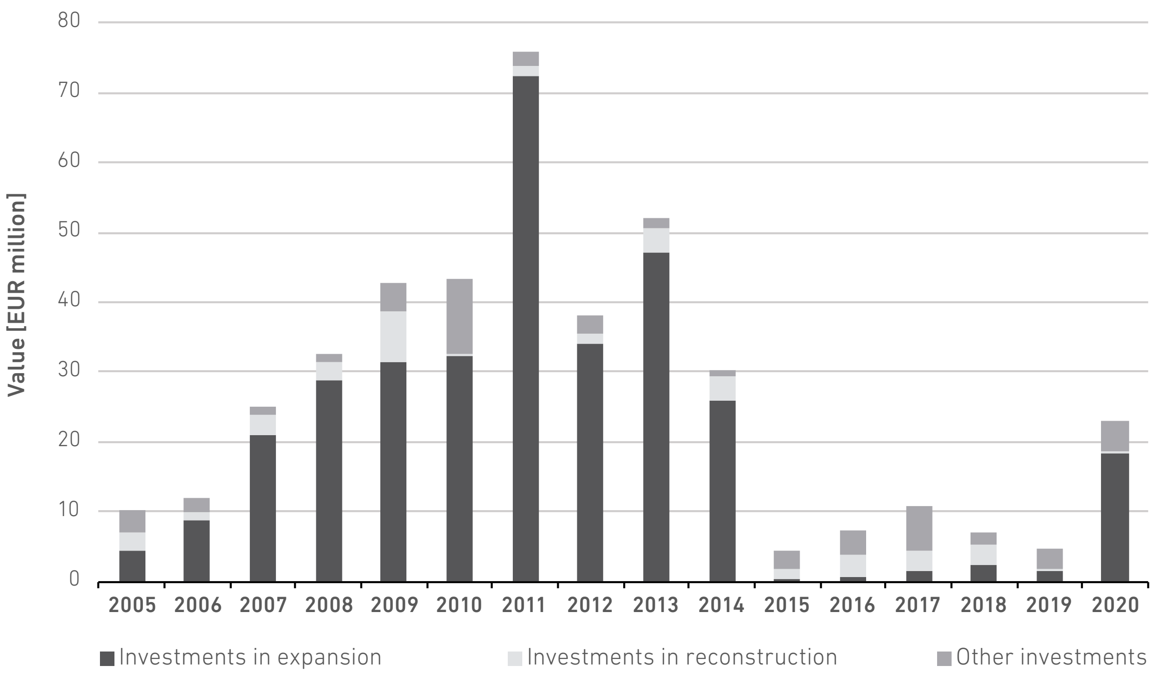
Multi-Year Development of the Transmission Network

Investments in the Natural Gas Transmission System

After a five-year period of lower investment, the TSO started a new investment cycle in 2020. It has earmarked €22.89 million for investments in the transmission system, almost five times more than the previous year. Investments in network expansion amounted to €18.27 million, investments in reconstruction only €0.35 million and other investments of €4.27 million. Most of the investments were financed from the depreciation of fixed assets, 31% of investments were financed by other own resources and less than one per cent from foreign sources.

EUR 22.89 million
investments in the transmission system, five times more than the year before

FIGURE 126: INVESTMENTS IN THE NATURAL GAS TRANSMISSION SYSTEM IN THE 2005–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

Among the investments, the most attention was paid to the construction of the transport pipeline from Vodice to the TE-TOL site in Ljubljana, which was successfully completed in December. Despite the epidemic, the activities on the connection projects were carried out smoothly, among which the construction of MRP Dobruška vas (the new distribution systems in the Municipality of Škocjan and the Municipality of Šentjernej) and MRS Velika Polana (connection of a new user) were completed. For several connections, the production of project documentation was carried out. The Regulation on the national spatial plan for the R15/1 transmission pipeline for the Pince-Lendava section was adopted. For the entire Hungary-Slovenia-Italy gas corridor project, the creation of an investment request was launched with a proposal for a cross-border cost allocation, which is a prerequisite for obtaining European grants.

For 2021, the TSO is planning to start building several infrastructure projects. The largest of these is the construction of the M6 Ajdovščina-Lucija pipeline. The construction of the section to Sežana is scheduled in 2022, Koper will be completed in 2023, and the completion of the project is planned for 2024 with the construction of the Izola-Lucija section. Major investments that will be under construction in 2021 include the Control Centre and the construction of the data transfer network. The construction of seven new connections (MRS Jelovškova, MRS Stanežiče, MRS Preska, MRS Tekstina, MRS Verovškova/KEL, MRS Dobrunje and MRS Zadobrova) is also planned.

Coordination between the Slovenian and Hungarian transmission system operators will also continue in preparation for long-term capacity auctions at a potential new interconnection point between Slovenia and Hungary. This project is included in the list of Projects of Common Interest (PCI) drawn up by the European Commission every two years. Its latest version also includes the establishment of a gas corridor via Slovenia from Hungary to Italy and vice versa. The gas transport corridor between Austria and Croatia via Slovenia is also included in the list of projects of common interest, on an increased scale and in both directions. The implementation of this project depends to a large extent on the further development of the LNG terminal on the island of Krk in Croatia.

Investments in the Natural Gas Distribution Systems

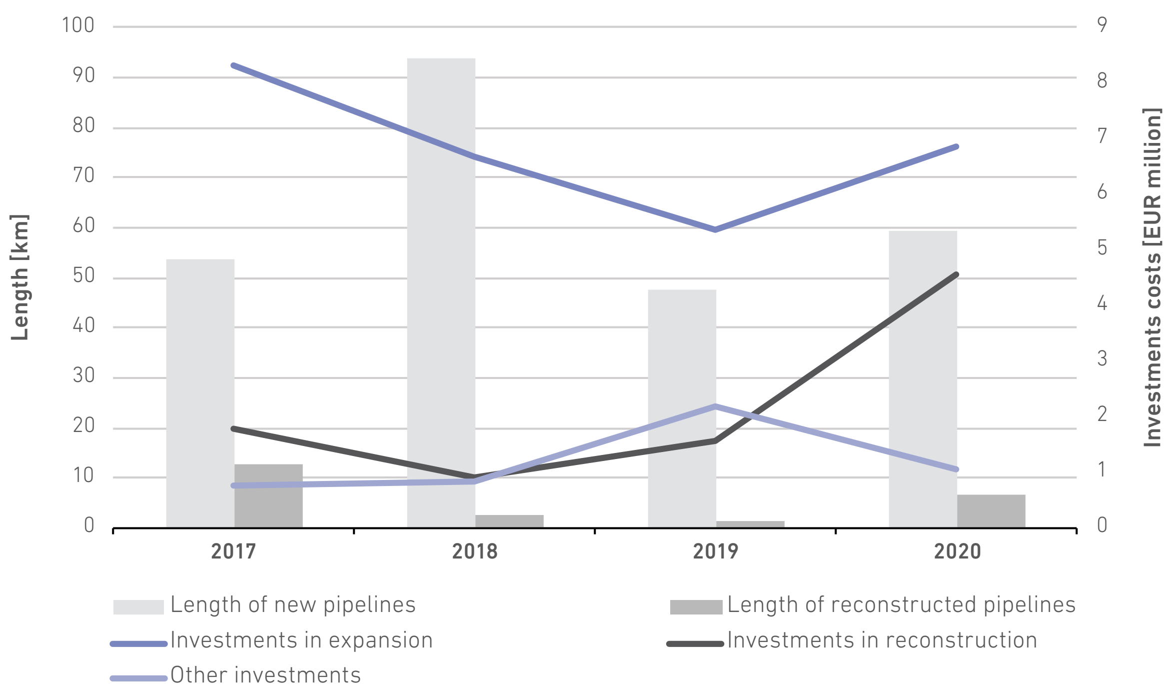
DSOs built 59 kilometres of new pipelines, which is 26% more than the year before, and 6.8 kilometres of distribution pipelines have been reconstructed, almost five times more than in 2019.

59 km of new distribution pipelines, 26% more than the year before

6,8 kilometres of distribution pipelines reconstructed, almost five times more than in 2019

The total value of investments in the distribution systems amounted to €12.5 million. Investments in expansion equalled €6.9 million, for reconstruction €4.6 million, and other investments, which are not directly connected to building and reconstruction of distribution systems, one million euros.

FIGURE 127: TREND OF BUILDING AND RECONSTRUCTING OF PIPELINES AND INVESTMENT COSTS IN THE 2017–2020 PERIOD

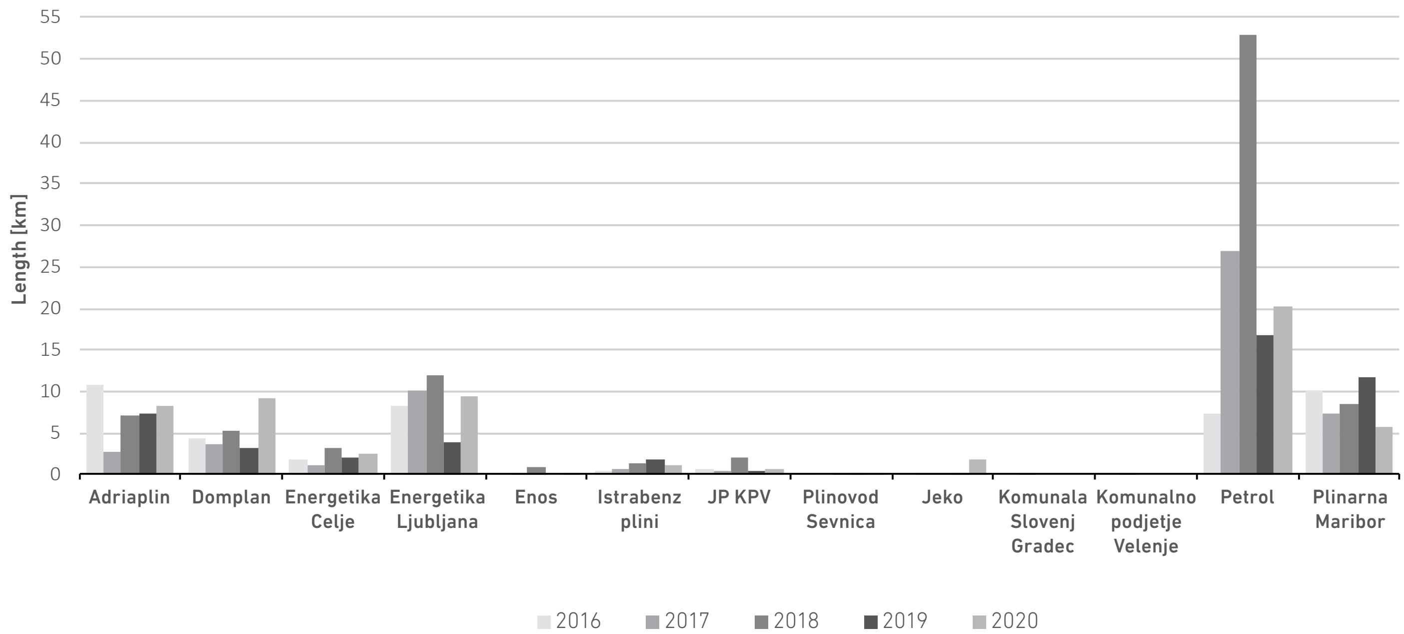


SOURCE: ENERGY AGENCY

Figure 128 shows the intensity of the construction of new pipelines by individual DSO. In the last five years, the five most active operators have built a total of 92% of the new pipelines and the remaining eight operators have almost failed to expand their distribution systems, with only 8% of the new pipelines being built together.

12.5 mio EUR
investments in distribution systems – a third more than a year earlier

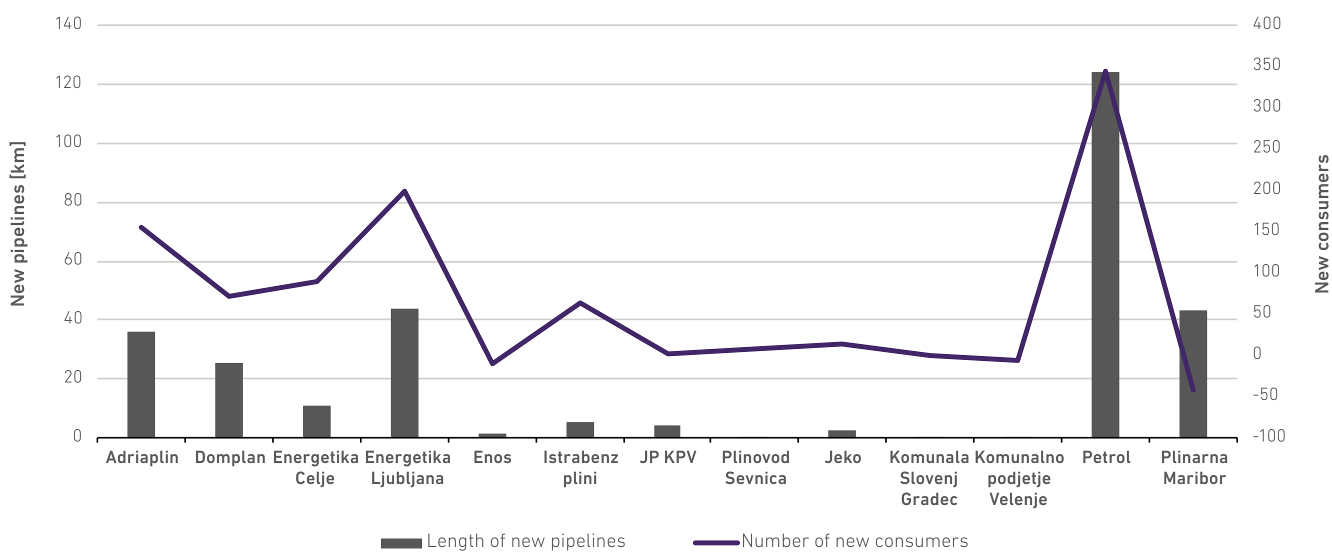
FIGURE 128: LENGTH OF NEW DISTRIBUTION NETWORKS IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Figure 129 shows the ratio of the number of distribution pipelines built to the number of new consumers in 2020 by distribution system operators. With certain exceptions, the expected result is that the DSOs that expand distribution systems the most intensively also have the highest number of new consumers.

FIGURE 129: THE RATIO BETWEEN THE LENGTH OF NEW DISTRIBUTION PIPELINES AND NUMBER OF NEW CONSUMERS



SOURCE: ENERGY AGENCY

Security and Reliability of Operation and Quality of Supply

The year 2020 was extremely marked by the COVID-19 epidemic, which was followed by a number of restrictive measures that halted public life and individual activities, the new rules for implementing preventive protection measures and a number of restrictions on the provision of services. Without prejudice to the measures taken, the transmission system operator, distribution and closed distribution system operators have, subject to preventive measures, ensured the safe and secure transport of natural gas through their networks at all times and carried out connections and all necessary maintenance work on the networks. The daily peak load on the transmission network was recorded again in the winter period (8 January 2020) and amounted to 3,135 MWh/h. Capabilities at border entry-exit points were sufficient as no contractual or physical congestion occurred. The transmission system operator has issued 15 connection consents, four less than the previous year. Three physical connections to the transmission system were carried out for the third year in a row. The average duration of physical connection was 419 days and the average duration of the whole connection process was 468 days.

26% less connections to the distribution systems

Gas distribution system operators received 2,396 applications for consent for connection and issued 2,391 consents. The number of approvals issued decreased by 11% compared to the previous year. Operators connected 1,328 points in the year, or more than a quarter less than the previous year.

For 10 operators the average time of connection of new customers to the distribution system was shorter than 20 working days after the application for connection. For the other three, the total connection process took an average of 25, 30 and 40 working days, respectively. For most operators, the physical connection to the network was carried out on average over a period of three working days. For 12 operators, the average values of the time needed to make a physical connection varied between one and six working days, while one was on average 37 working days.

Operators ensured undisturbed transport of natural gas, subject to preventive safeguards

In 2020, two new connections were made on one of the five CDSs, which were completed within an average of seven working days.

Reliable and secure operation for the undisturbed supply of consumers has been ensured by the transmission system operator and the gas distribution system operators by carrying out regular and extraordinary maintenance work.

The transmission system operator carried out 19 planned and 198 unplanned works on the transmission system. Due to the planned work, natural gas supply was interrupted for a period of 13 hours.

There were 2,083 planned works carried out on distribution systems. Their number increased slightly in 2020 and the total duration of works decreased slightly. The implementation of the planned works resulted in 784 hours' interruption of natural gas supply, or 2.5% less than the previous year. On the distribution systems of the five operators, the planned works were carried out without interruptions or supply interruptions, the two distribution systems had a total interruption time of six and eight hours, respectively, and in the other six, a total interruption time of between 23 and 315 hours was recorded. A total of 315 hours of interruptions was recorded with the DSO with the most consumers. The time of each interruption was at least 25 minutes and a maximum of 148 and a half hours. In July, the supply was interrupted for nine out of 55,573 customers. The duration of interruption did not exceed six hours for four out of the nine operators with supply interruptions. Minimum interruptions lasted half an hour and the average duration of all interruptions was 4.75 hours.

There were 430 unplanned interventions on distribution systems and their number fell by more than 18% compared to the previous year. These interventions caused 134 supply interruptions. The total time of unplanned interruptions was 478 hours, which is 19% more than the previous year. Five operators did not have such interruptions, for four the duration of the interruptions was up to 12 hours, and for the remaining four the total unscheduled interruption time was between 30 and 301 hours.

608 works have also been carried out on the distribution systems on demand and for the needs of third parties; the total duration of these works was 4,330 hours.

In the areas of three CDS operators, one planned maintenance work was carried out, which in one of the CDS areas caused one supply interruption to the consumer for a period of six hours. On the fourth CDS, the operator carried out three planned maintenance works, which resulted in interruptions of supply twice for three hours. The total duration of the planned works was 2,495 hours, of which the total time of regular maintenance was 666 hours, 1,070 hours of checks, 513 hours of reconstructions, 165 hours of tests, 25 hours of monitoring, and 56 hours of network extension.

In August 2020, gas leaks were recorded in the Škofljica area, which required the halting of rail and road traffic and evacuation of 30 people. The event was the result of physical damage to the gas pipeline when the tractor driver hit the road gas cap in reverse, which damaged the gas pipeline and triggered gas leaks. Swift action by the competent services and the responsible distribution system operator secured the area and no one was injured in the event.

TABLE 34: PARAMETERS ON CONNECTION AND MAINTENANCE WORK IN THE 2018–2020 PERIOD

Gas operator	TSO			DSO		
	2018	2019	2020	2018	2019	2020
CONNECTION-RELATED SERVICES						
Number of approvals issued	18	19	15	2,226	2,688	2,391
Average duration of administrative procedure [days]	44	40	48	10	8	6
Maximum length of administrative procedure [days]	-	-	-	45	15	15
Minimum length of administrative procedure [days]	-	-	-	1	1	1
Number of connections performed	3	3	3	2,106	1,798	1,328
Average duration of the entire connection procedure [days]	355	204	468	21	16	14
Maximum length of the entire connection procedure [days]	-	-	-	79	61	40
Minimum length of the entire connection procedure [days]	-	-	-	4	2	2
MAINTENANCE WORK ON THE SYSTEM						
Number of planned works performed	12	28	19	2,962	1,984	2,083
Total duration of the planned work [hours]	102,144	102,600	109,032	117,528	121,088	120,909
Total duration of supply interruption due to planned work [hours]	116	56	13	672	803	784
Maximum duration of each scheduled interruption [hours]	35	12	13	60	52	148
Minimum duration of each schedule interruption [hours]	10	1	-	1	1	1
Number of unplanned interventions performed	302	217	198	479	527	430
Total duration of unplanned interventions [hours]	711	513	504	2,478	1,805	1,900
Number of supply interruption due to unplanned work [hours]	1	-	1	103	107	134
Total duration of supply interruption due to unplanned interventions [hours]	13	-	0.25	639	402	627

SOURCE: ENERGY AGENCY

Network Charges for Gas Transmission and Distribution Systems

Setting the Network Charge

The Energy Agency carries out the regulation of natural gas transmission and distribution activities on the basis of the regulated network charges method. It ensures that the system operator is able to cover all the eligible costs of the regulatory period and the network charge deficit of previous years by setting network charges and other revenues, taking into account the surplus of the network charge in previous years. The eligible costs of the system operator are the costs necessary for carrying out the activities of the distribution or transmission of natural gas and meeting the criteria set out in the methodology for establishing the regulatory framework issued on the basis of Article 250 of the EZ-1.

Eligible costs include operating and maintenance costs (AMS), depreciation (AM) and regulated return on assets (RDS). Through regulation, the Energy Agency promotes the cost-effectiveness of system operators, ensures their sustainable and stable business, a stable environment for investors/owners, and stable and predictable conditions for system users.

The regulated network charge method also imposes an obligation on system operators to identify deviations from the regulatory framework after the expiry of each year of the regulatory period, which are reflected in a network charge surplus or deficit. Deviations from the regulatory framework are taken into account when establishing the regulatory framework for the next regulatory period.

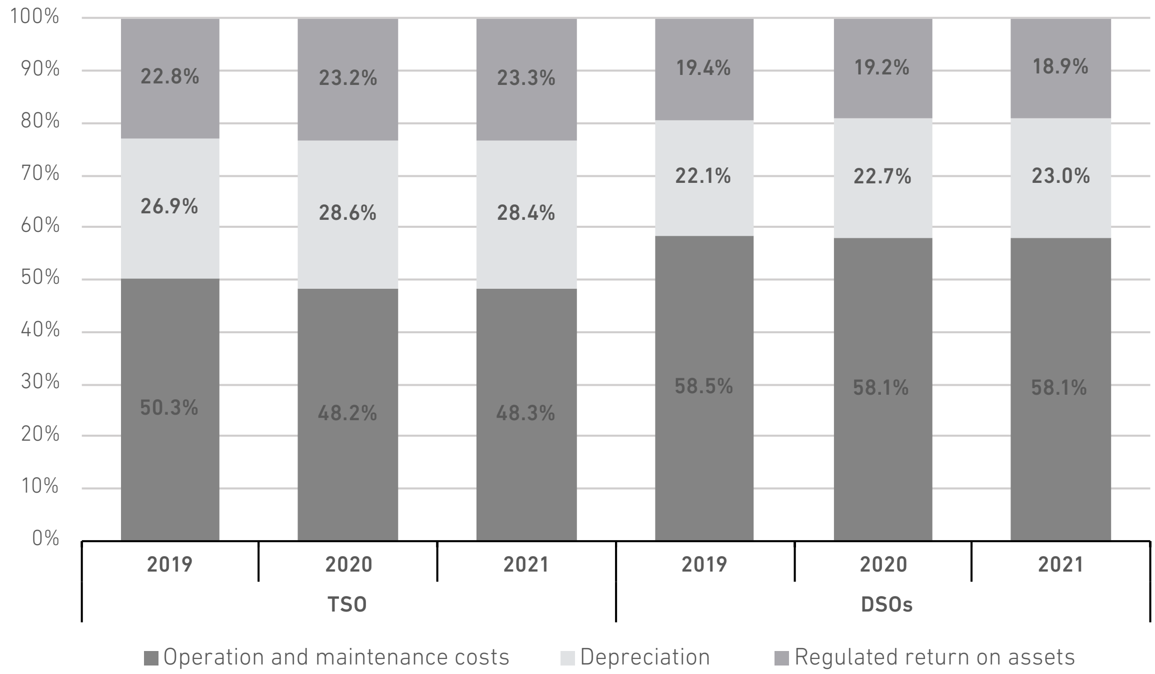
As of 1 January 2019, distribution system operators became subject to a three-year regulatory period until 31 December 2021. In 2018, the Energy Agency issued an Act on the Methodology for Determining the Regulatory Framework of the Natural Gas System Operator, based on which in 2018 the distribution system operators, with the prior agreement of the Energy Agency, determined the regulatory framework and network charge tariffs for the 2019–2021 period.

In 2018, in order to align the tariffs with Regulation 2017/460 establishing a network code on harmonised gas tariff structures with the prior agreement of the Energy Agency, the transmission system operator established the regulatory framework for a one-year regulatory period running from 1 January to 31 December 2019 and, in 2019, the regulatory framework for the biennial regulatory period, which runs from 1 January 2020 to 31 December 2021.

For that three-year period, the transmission system operator planned eligible costs of €164.7 million, which is 9.4% less than for the previous three-year regulatory period. Distribution system operators planned a total of €155.7 million of eligible costs over the regulatory period 2019–2021, which is 4.7% less than in the previous three-year regulatory period.

Figure 130 shows the structure of planned eligible costs of system operators for each year of the regulatory period 2019–2021. A comparison of the planned eligible cost structures shows that their structure for each year of the regulatory period 2019–2021 does not change significantly for both distribution system operators and the transmission system operator.

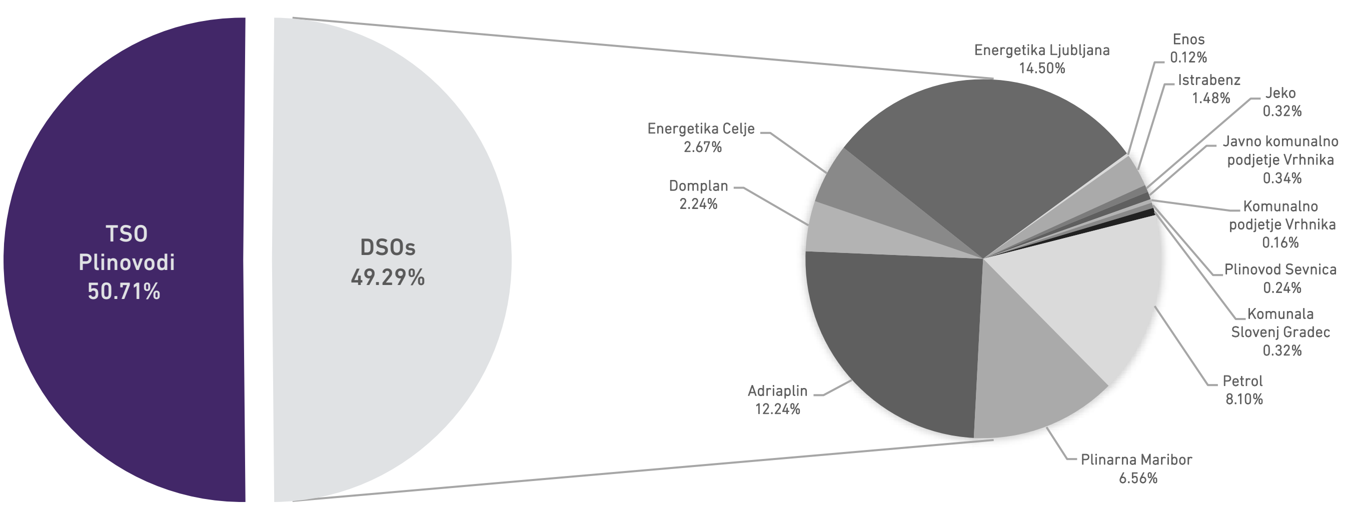
FIGURE 130: THE STRUCTURE OF PLANNED ELIGIBLE COSTS OF SYSTEM OPERATORS IN 2019–2021



SOURCE: ENERGY AGENCY

In 2020, DSOs planned eligible costs in the amount of €52 million, and the TSO in the amount of €53.5 million. Figure 131 shows the structure of the planned eligible costs for 2020 for the activities of the TSO and DSOs.

FIGURE 131: THE STRUCTURE OF PLANNED ELIGIBLE COSTS FOR THE ACTIVITIES OF SYSTEM OPERATORS FOR 2020



SOURCE: ENERGY AGENCY

The Network Charge for the Natural Gas Transmission System

The network fee for the natural gas transmission system is charged to transmission system users and consists of:

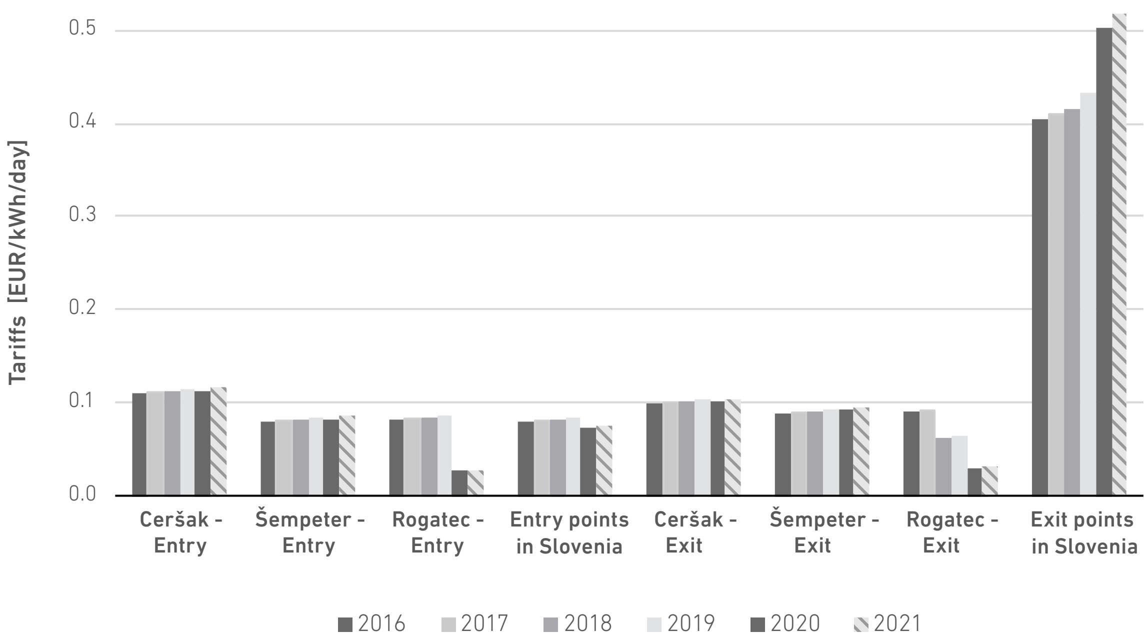
- network charge for the entry point,
- network charge for the exit point,
- network charge for own use,
- network charge for measurements.

The network charge for entry or exit points is determined according to the product capacity and booked capacity. Transmission system users book capacity of entry or exit points, which represent an interconnection or border point via an online booking platform, as an annual, quarterly, monthly, daily or intraday standard product capacity.

System users who book capacity within Slovenia can book annual, monthly, daily standard product capacity and standard day-ahead product capacity. For these users the network charge for the exit point within Slovenia is determined depending on their classification to the consumption group according to the level of the capacity booked.

Transmission system users who book capacity are charged for the network charge for their own use and the network charge for measurements. The network charge for own use depends on the amount of natural gas transferred at each exit point, and the network charge for measurements depends on the size of the measuring device and the number of pressure reductions.

FIGURE 132: MOVEMENT OF THE NETWORK CHARGE TARIFFS FOR THE ENTRY AND EXIT POINTS OF THE TRANSMISSION SYSTEM DURING THE 2016–2021 PERIOD



SOURCE: ENERGY AGENCY

The network charge tariffs for each year of the regulatory period shall be determined by the transmission system operator and approved by the Energy Agency. The network charge tariffs for the 2020–2021 regulatory period were established in May 2019, one month before the annual capacity auction was held. The network charge tariffs were determined only after the publication of a reasoned decision by the Energy Agency referred to in Article 27 of Regulation 2017/460, which was carried out following consultations and on the basis of ACER's findings. For the purposes of determining the transmission tariffs, the matrix method applying the eligible costs of the individual parts of the transmission system is used. The 2020 network charge tariffs are shown in Figure 132, where changes in the individual network charge tariffs headings can be seen. Compared to the tariff for 2019, the charges differ the most for the Rogatec point on the border with Croatia and the point of exit within Slovenia, and the least for the point Šempeter on the border with Italy. In the determination of the 2020 network charge tariffs, those eligible costs belonging only to that part of the transmission system to which each entry or exit point relates taking into account the peak loads of the transmission system are taken into account.

Network Charges for the Natural Gas Distribution Systems

The network charge for the natural gas distribution system consists of a distribution network charge and a network charge for metering.

The network charge tariffs are determined by the distribution system operator uniformly for all areas where it distributes natural gas. Only in specific cases may network charge tariffs be different for different areas of service.

The network charge for distribution is paid by the users of the distribution system according to the quantity of natural gas distributed, which forms the variable part of the distribution tariff, and according to the booked capacity, which reflects the fixed part of the network charge. In the case of smaller consumers, this is calculated in the form of a monthly flat rate and, in the case of larger customers, in the amount of connected power or booked capacity.

The network charge for metering depends on the size and type of measuring device and the ownership or management of that device.

The network charge tariffs for 2020 were set in 2018, when the regulatory framework for 2019–2021 was approved. In 84 municipalities, 17 legal Acts on determining network charge tariffs for the distribution network were used.

On the distribution system user's account, distribution system operators must separately indicate the amount for the distribution of natural gas and the amount for metering.

Network charges for consumers on distribution systems remain at 2019 level

The annual network charges paid by consumers with an estimated annual consumption of up to 50,000 kWh, which in number represent over 96% of all consumers on distribution systems, did not change significantly for the majority of consumers in 2020 compared to the previous year.

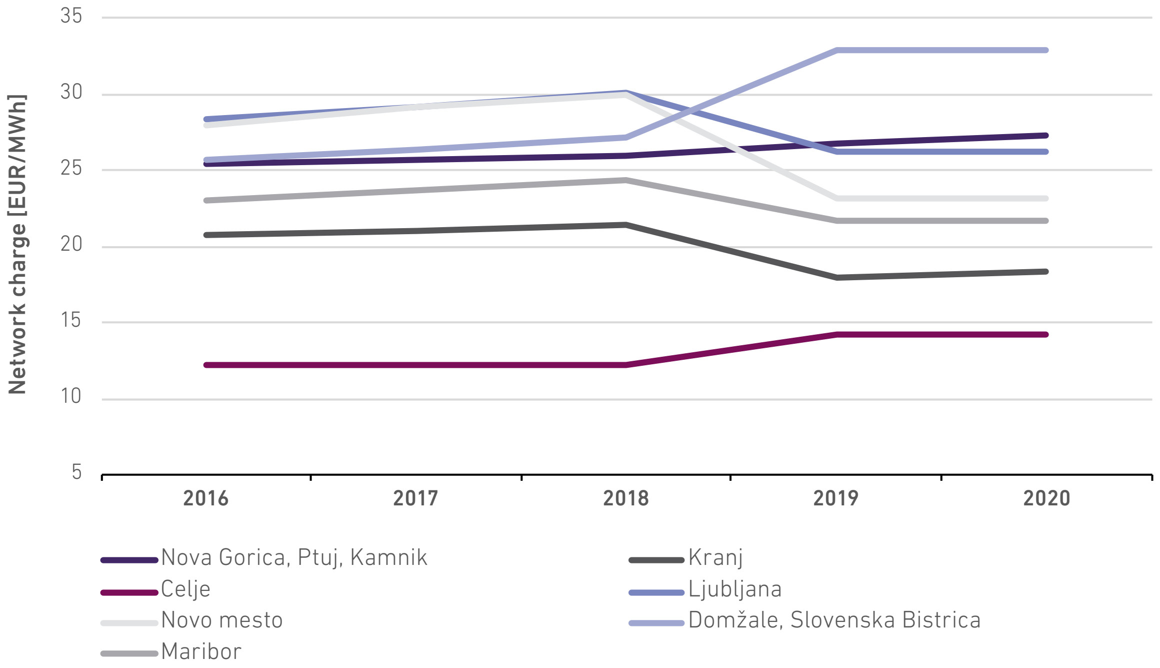
The evolution of the level of the network charge for distribution per MWh of natural gas consumed by typical household customers and medium-sized industrial consumers over the years 2016–2020 for the seven operators distributing natural gas in 10 by number of customers in the largest municipalities is shown in the figures following. These operators are responsible for distribution in 69 other municipalities, which means that the network charges shown are valid in 79 municipalities and for almost 97% of all consumers in distribution.

In these areas, for typical smaller household consumers (group D1 with an annual consumption of 3,765 kWh) the network charge increased in 32 municipalities compared to the previous year, and in 47 municipalities the network charge did not change. For average large household consumers (group D2 with an annual consumption of 10 MWh) and medium-sized household consumers (group D2 with an annual consumption of 32 MWh) the network charge increased in 32 municipalities and remained unchanged in 47 compared to 2019. For large household consumers (group D3 with an annual consumption of 215 MWh) the annual network charge in 2020 increased slightly in comparison with the previous year, and the network charge decreased in 29 municipalities, while in 47 municipalities the network charge remained unchanged.

The average changes of annual network charges in comparison with 2019 for the typical household group D1 (annual consumption of 3,765 kWh) range from 0 to +2.3%. For average household consumers (group D2 with an annual consumption of 10 MWh) and medium-sized household consumers (group D2 with an annual consumption of 32 MWh) values varied from 0 to +3.6% over the same period. For large household consumers (group D3 with an annual consumption of 215 MWh) values varied annually from –0.8 to +2.7%.

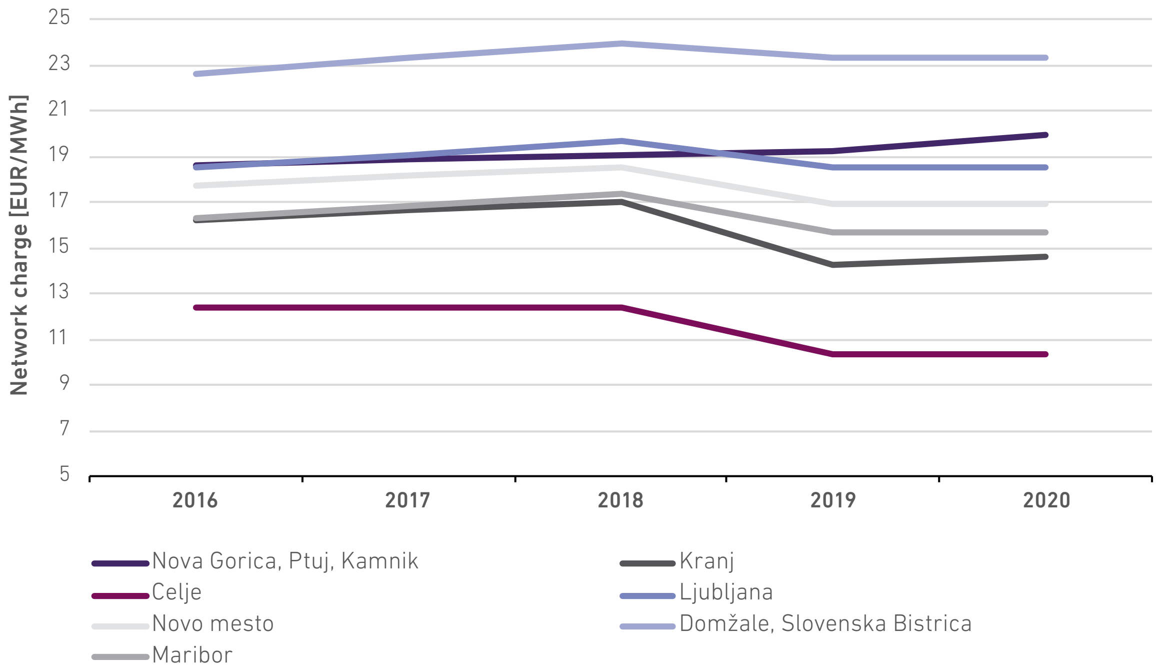
At individual distribution system operators, the annual network charge amounts were even more than 33% lower than five years ago. The highest increase in the network fee between 2015 and 2020 was recorded for smaller consumers with an average annual consumption of 3,765 kWh, namely 28%. The network charge movements in the 2016–2020 period are shown in Figures 133 to 137.

FIGURE 133: DISTRIBUTION NETWORK CHARGE FOR SMALL HOUSEHOLD CONSUMERS–D1 (3765 KWH) IN THE 2016–2020 PERIOD



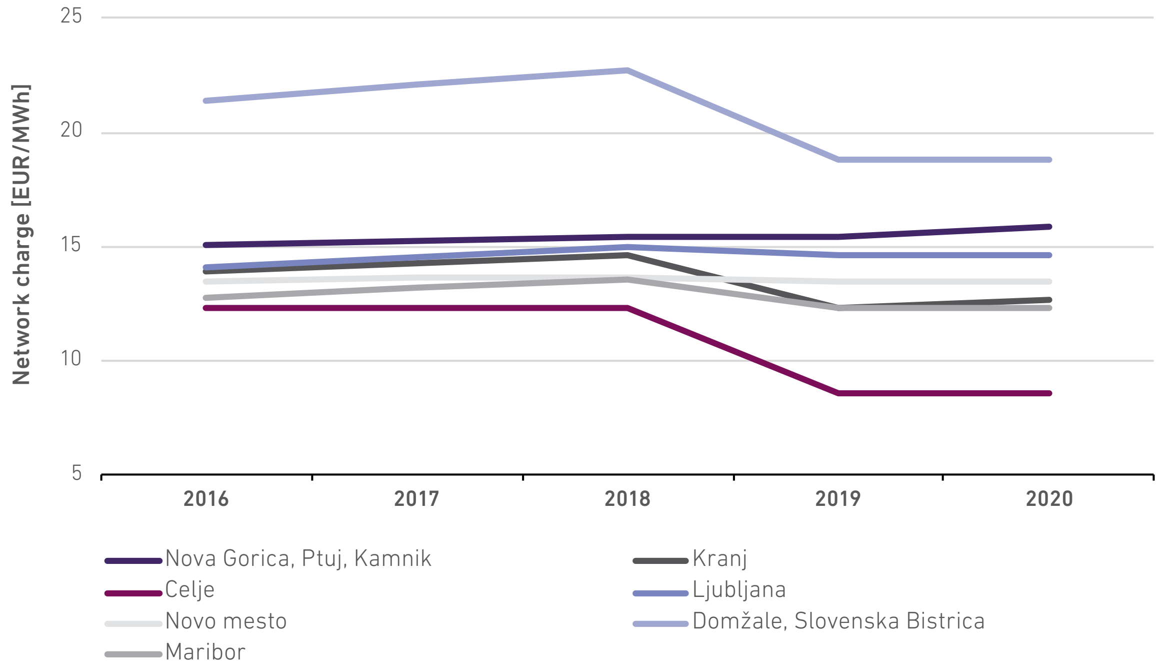
SOURCE: ENERGY AGENCY

FIGURE 134: DISTRIBUTION NETWORK CHARGE FOR MEDIUM-SIZED HOUSEHOLD CONSUMERS–D2 (10 MWH) IN THE 2016–2020 PERIOD



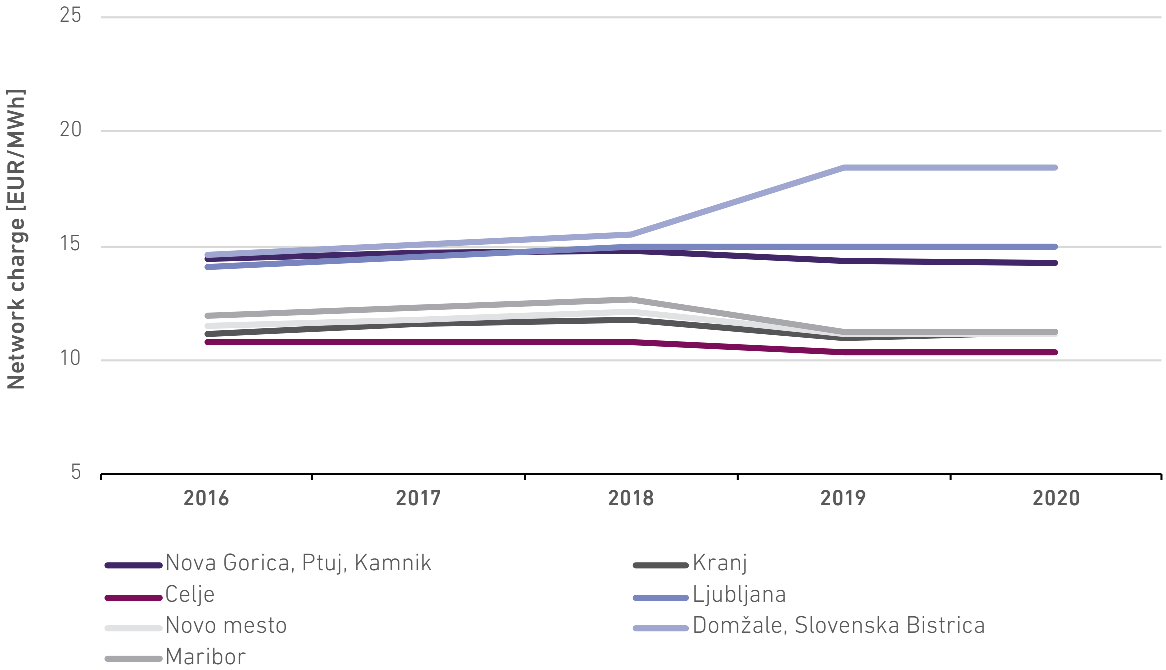
SOURCE: ENERGY AGENCY

FIGURE 135: DISTRIBUTION NETWORK CHARGE FOR MEDIUM-SIZED HOUSEHOLD CONSUMERS–D2 (32 MWH) IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

FIGURE 136: DISTRIBUTION NETWORK CHARGE FOR LARGE HOUSEHOLD CONSUMERS–D3 (215 MWH) IN THE 2016–2020 PERIOD

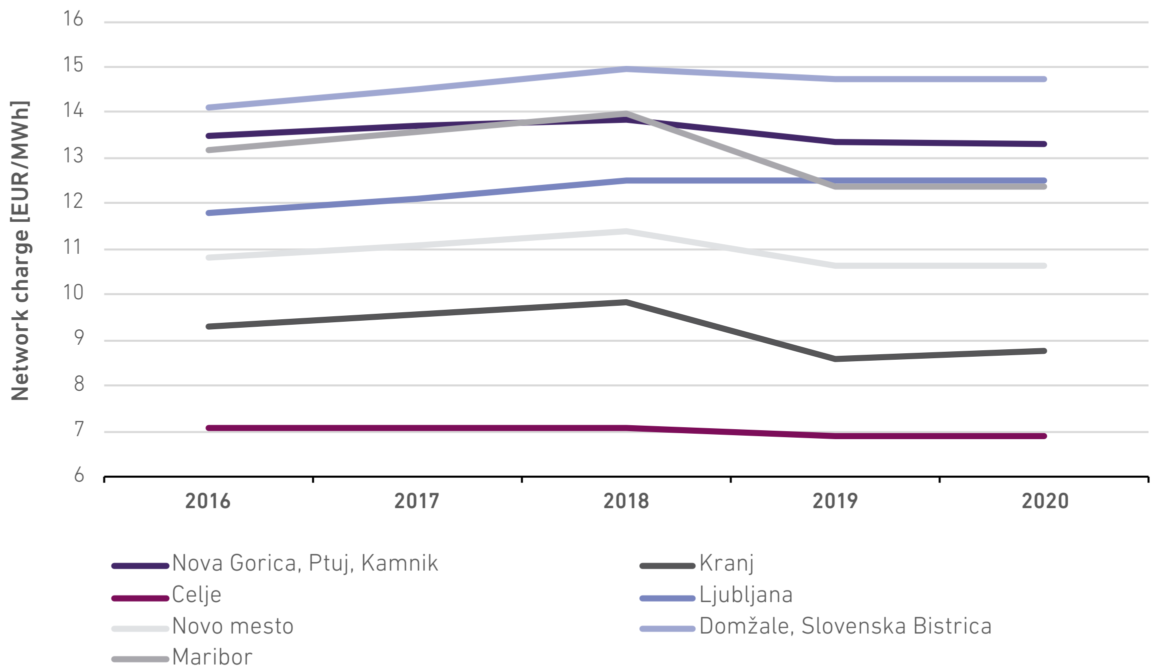


SOURCE: ENERGY AGENCY

For medium-sized industrial consumers (group I3 with an annual consumption of 8,608 MWh), the average annual network charge in comparison with the previous year decreased by 0.6% in 29 municipalities, remained unchanged in 47, and increased by 2.5% in three. The average annual change in network charges for these consumers over the last five-year period was between –0.5 in +1.8% by individual operator. At two operators, consumers paid a lower network charge than five years ago. The differences in the amount of the annual network charge in individual municipalities reflect the different consumer structures and their demand, as well as the age and extent of distribution systems. Figure 137 shows the network charge for medium-sized industrial consumers in the 2016–2020 period.

Most medium-sized industrial consumers paid equal or lower network charges in 2020

FIGURE 137: DISTRIBUTION NETWORK CHARGE FOR MEDIUM-SIZED INDUSTRIAL CONSUMERS–I3 (8608 MWH) IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Capacity at Border Points

Capacities at border points were allocated on the basis of market-based methods through the online reservation platform PRISMA. Auctions of guaranteed and interruptible capacities have been carried out. There were 63,762 auctions published, which is one per cent less than in the year before. Individual and bundled capacities were offered at auctions. The number of successful auctions of guaranteed capacity was 808, which is 2% less than in the previous year. Of all auctions, 68% were bundled capacity auctions. Individual interruptible capacities have been successfully auctioned only twice. A total of 1.3% of all auctions were successful. There were no auctions for incremental capacity in 2020.

TABLE 35: NUMBER OF SUCCESSFUL AUCTIONS OF FIRM CAPACITY

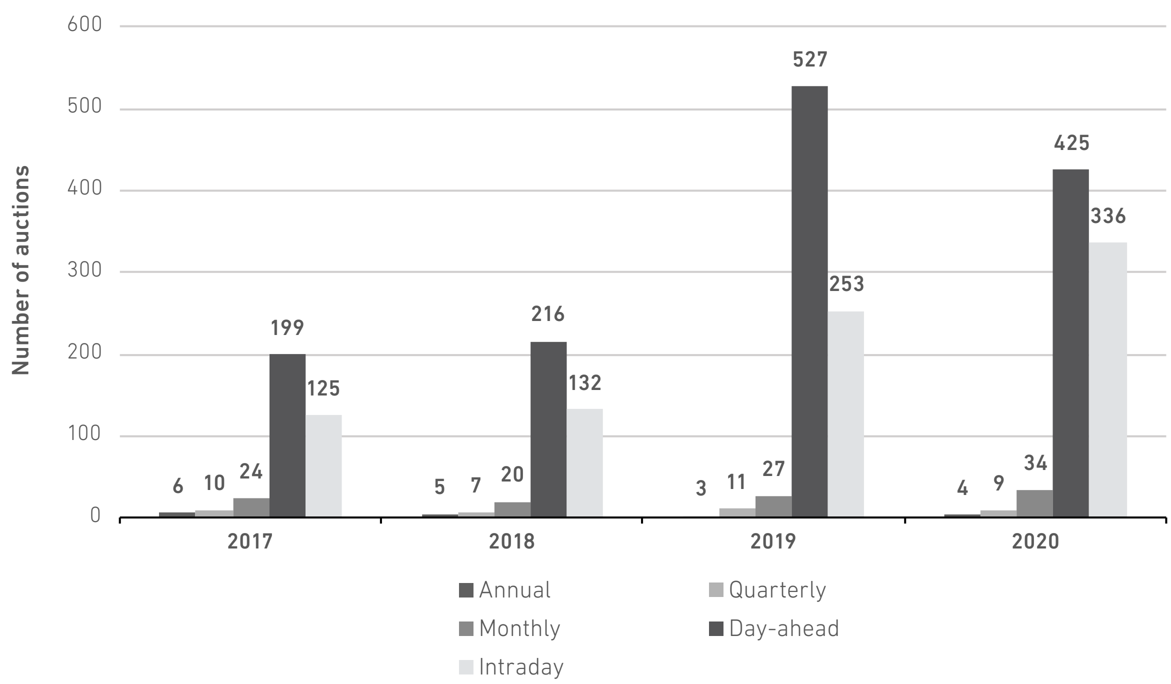
Vrsta dražbe	Ceršak, entry	Rogatec, entry	Rogatec, exit	Šempeter, entry	Šempeter, exit
Annual	3	0	1	0	0
Quarterly	6	0	3	0	0
Monthly	23	0	11	0	0
Day-ahead	335	0	88	0	2
Intraday	267	0	45	2	22
Bundled	434	0	148	2	24
Individual capacity	200	0	0	0	0

SOURCE: ENERGY AGENCY, PLINOVODI

Figure 138 shows the transmission capacity auctions carried out over the last four years. The most obvious is the sharp increase in the number of short-term capacity auctions over the last two years, namely day-ahead auctions, followed by intraday capacity auctions. The trend towards short-term capacity is due to the expiry of long-term capacity booking in 2017, increasing optimisation of capacity booking and high unpredictability in the natural gas market. Obviously, the risks of too much booked long-term capacity are so high that transmission capacity leasers prefer to book more expensive short-term capacities.

Increasing number of successful short-term capacity auctions

FIGURE 138: SUCCESSFUL AUCTIONS OF FIRM CAPACITY IN THE 2017–2020 PERIOD

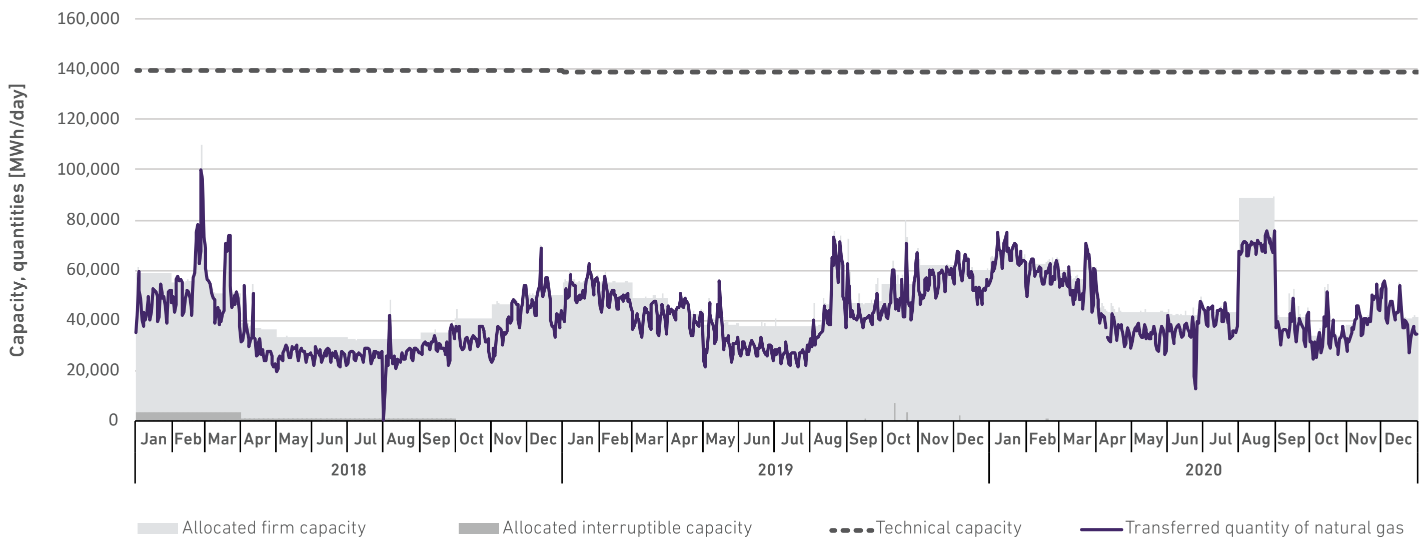


SOURCE: ENERGY AGENCY, PLINOVODI

The TSO, in cooperation with the TSOs of Hungary and Italy, has carried out a public consultation for the additional capacity project on the potential new Hungary–Slovenia–Italy gas corridor. Together with the operators of both neighbouring countries, the TSO continued the preparation of the project proposal. An estimate of market demand was not carried out in 2020.

Following a sharp reduction in capacity booking in 2018 at the largest Slovenian border point of entry point Ceršak (due to the increase in the gas supply of Croatia via Hungary), the booking of capacity at this border point increased for the second year in a row. Compared to 2019, 4% more capacity was booked. Compared to 2017, there was still a 32% reduction in capacity booking in 2020. In line with the capacity booking, transport volumes increased by 5% in 2020 compared to the previous year, reaching 74% of the quantities transported in 2017.

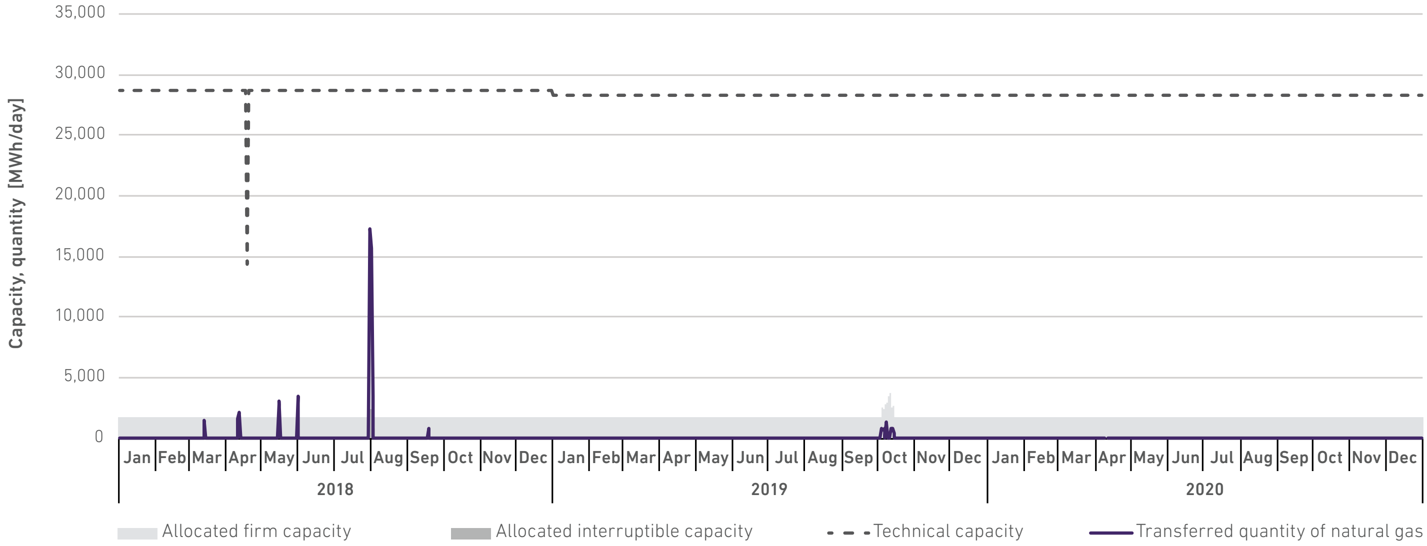
FIGURE 139: DYNAMICS OF DAILY TRANSFERRED QUANTITIES OF NATURAL GAS, TECHNICAL CAPACITY, ALLOCATED FIRM AND INTERRUPTIBLE CAPACITY AT THE CERŠAK ENTRY POINT IN THE 2018–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

At the Šempeter entry point, the amount of booked capacity in 2020 remained unchanged. As a result, only 6% of the technical capacity was booked. There were no quantities of natural gas transferred through this entry point in 2020.

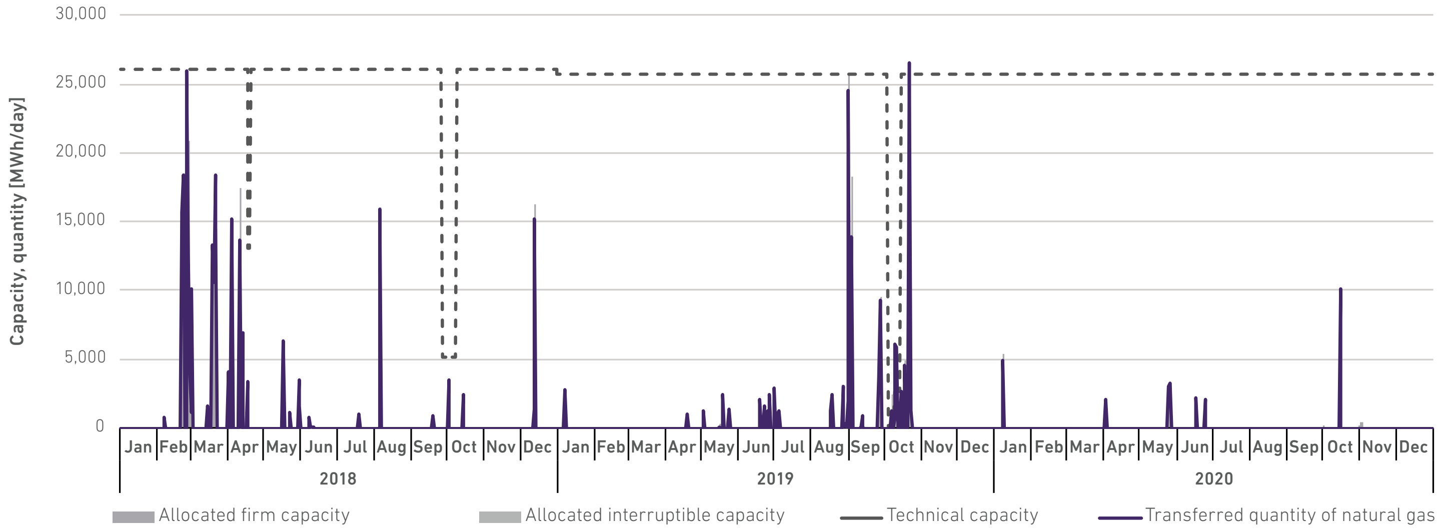
FIGURE 140: DYNAMICS OF DAILY TRANSFERRED QUANTITIES OF NATURAL GAS, TECHNICAL CAPACITY, ALLOCATED FIRM AND INTERRUPTIBLE CAPACITY AT THE ŠEMPETER ENTRY POINT IN THE 2018–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

At the Šempeter exit point, where there is no long-term booked capacity, there was even less booked capacity in 2020 than at the entry point of the same name. Nevertheless, a total of 27.6 GWh of natural gas was transferred on individual days..

FIGURE 141: DYNAMICS OF DAILY TRANSFERRED QUANTITIES OF NATURAL GAS, TECHNICAL CAPACITY, ALLOCATED FIRM AND INTERRUPTIBLE CAPACITY AT THE ŠEMPETER EXIT POINT IN THE 2018–2020 PERIOD

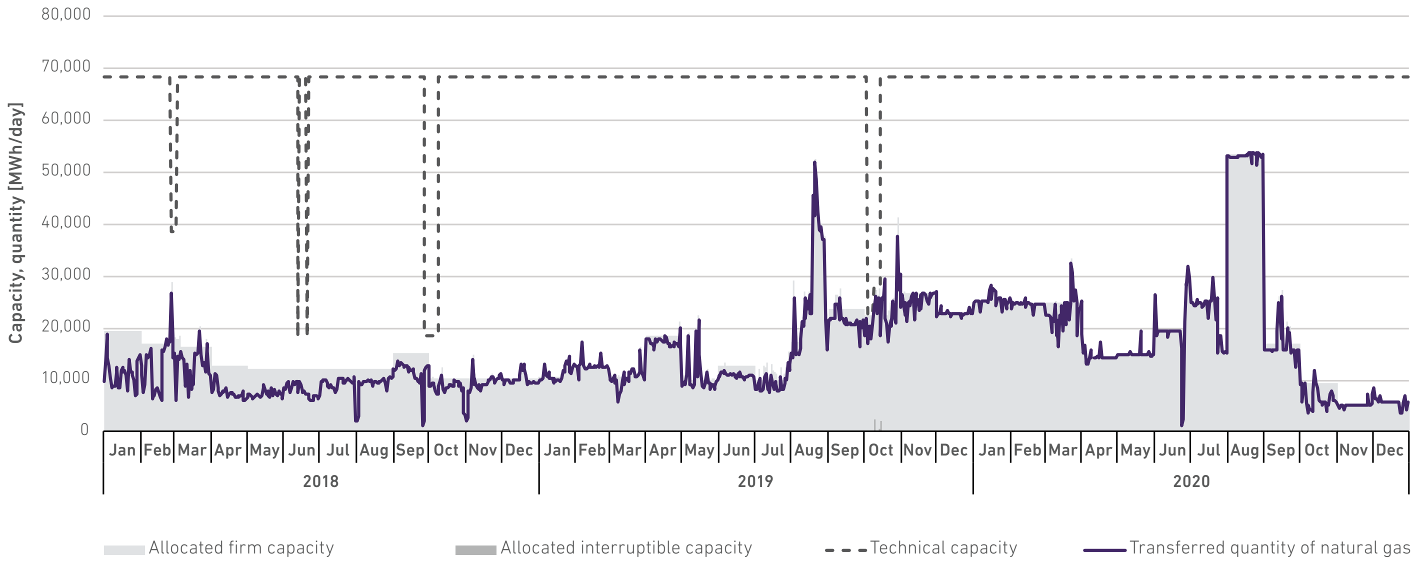


SOURCES: ENERGY AGENCY, PLINOVODI

Similar to the Ceršak entry point, there was an increase in capacity booking for the second consecutive year at the Rogatec exit point. Compared to 2019, 12% more capacity was booked, which is still only 49% of the 2017 capacity booking. There was an even greater improvement in the quantities transported, which increased by 15% in 2019 and reached 55% of the 2017 value.

15% more natural gas transported from Slovenia to Croatia

FIGURE 142: DYNAMICS OF DAILY TRANSFERRED QUANTITIES OF NATURAL GAS, TECHNICAL CAPACITY, ALLOCATED FIRM AND INTERRUPTIBLE CAPACITY AT THE ROGATEC EXIT POINT IN THE 2018–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

There were no activities on the entry side of the Rogatec border point in 2020, and at the Ceršak exit point, no capacity is available, as no physical return flow from Slovenia to Austria is possible.

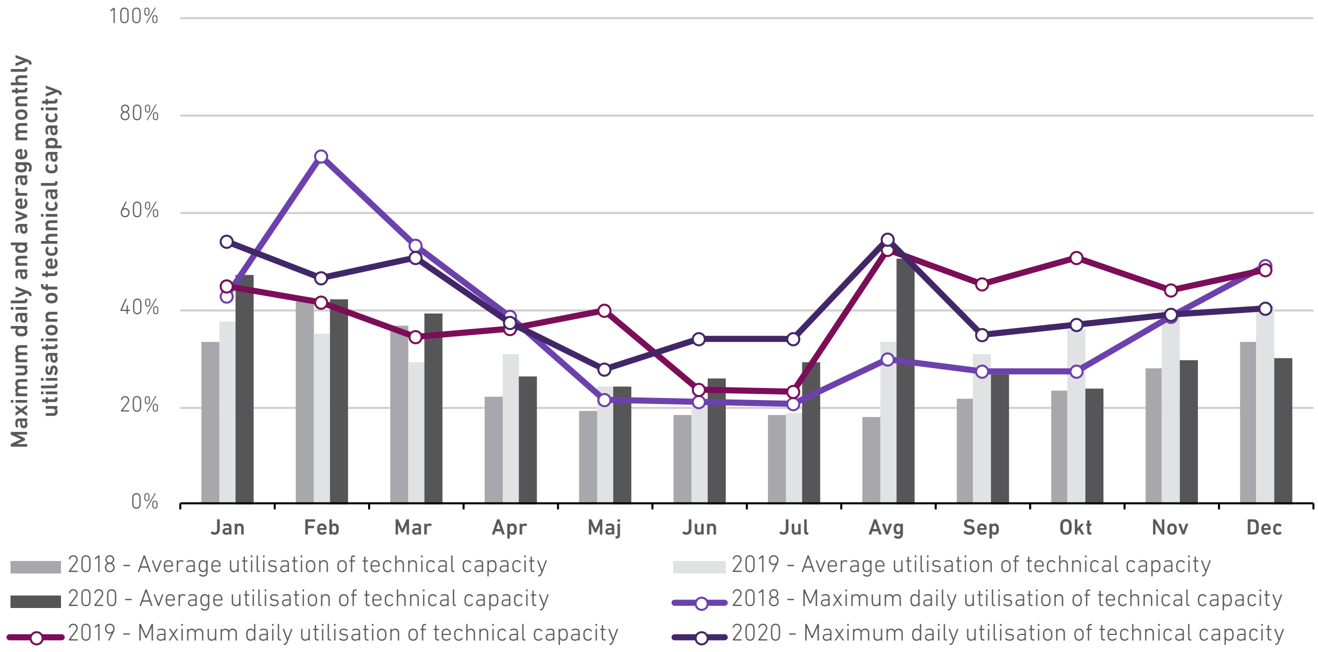
There were no interruptible capacity bookings in 2020. In recent years, interruptible capacity was leased very rarely and in small quantities (at the Ceršak border in 2018 and 2019 and at the Rogatec and Šempeter border exit points in 2019 and at the Šempeter border point in 2018).

The technical capacity at the border posts remained unchanged in 2020.

There are significant changes in the average monthly technical capacity utilisation rate of border points, where there is a trend of increased booking in the summer months. As in 2019, the maximum 55% daily occupancy of the technical capacity of the Ceršak entry point was reached in August.

The average monthly technical capacity occupancy rate at the Ceršak border entry point was 33%, which was two percentage points more than the year before.

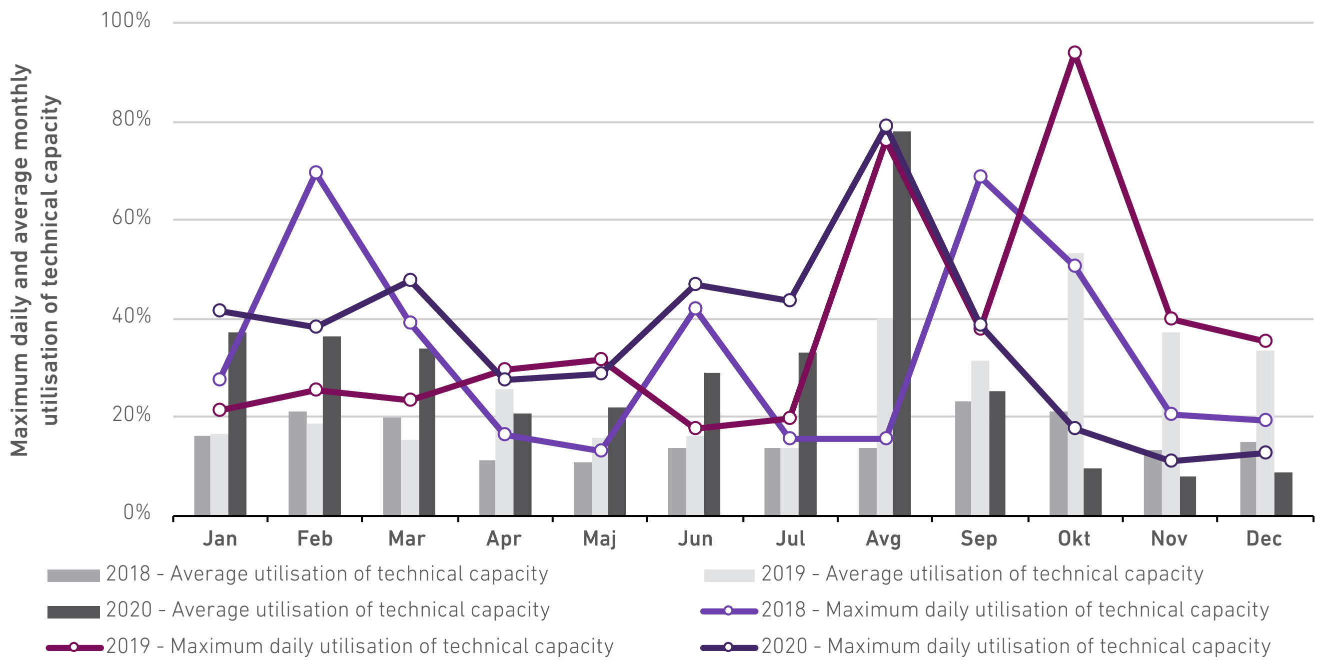
FIGURE 143: MAXIMUM DAILY AND AVERAGE MONTHLY UTILISATION OF THE CAPACITY OF THE CERŠAK BORDER ENTRY POINT IN THE 2018–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

The maximum daily utilisation of the technical capacity of the Rogatec exit point was 79% and was reached in August. At this exit point, the average monthly technical capacity utilisation rate was 28%, which is three percentage points more than the previous year.

FIGURE 144: MAXIMUM DAILY AND AVERAGE MONTHLY UTILISATION OF THE CAPACITY OF THE ROGATEC EXIT POINT IN THE 2018–2020 PERIOD



SOURCES: ENERGY AGENCY, PLINOVODI

Promoting Competition

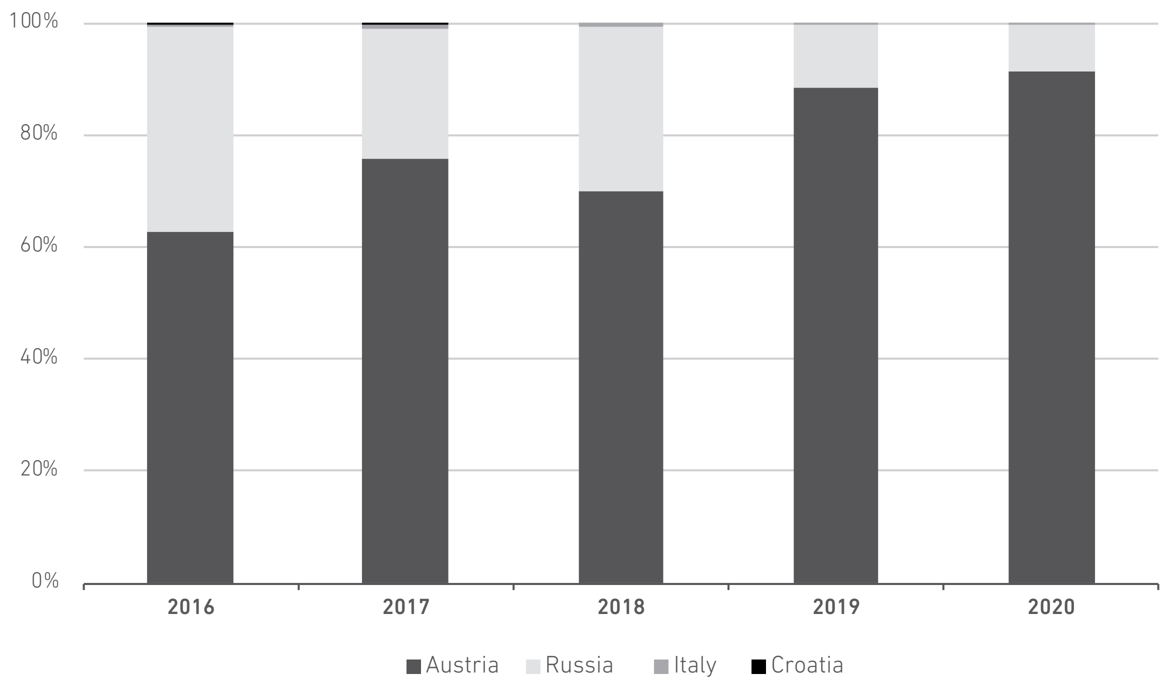
As part of its ongoing monitoring, the Energy Agency monitors developments in the field of pricing (impact factors on prices, price developments, the impact of liquidity on prices, etc.), transparency and integrity of the market (e.g. access to price information, implementation of the wholesale energy market integrity and transparency regulation) and market efficiency (openness and competition). Public publication of the results of market monitoring, in addition to other measures taken by the Energy Agency, contributes to strengthening the market and provides a high-quality energy supply service to natural gas end consumers at an optimal price. Below, the key indicators used to evaluate the competitiveness, transparency and integrity of the markets concerned are presented.

Wholesale Market

This chapter focuses on the assessment of market performance on the basis of selected indicators showing the degree of competition and the functioning of the natural gas market. The range of indicators is adapted to the size, structure and level of development of the Slovenian natural gas market. The specificity is certainly the import dependency, so in addition to national markets, foreign markets from which the largest quantities of natural gas are supplied to Slovenia must be monitored.

Slovenia does not have its own sources of natural gas, natural gas storage facilities, or LNG terminals. Therefore, on the Slovenian wholesale market, there is only gas imported by merchants from neighbouring countries through transmission systems. The Slovenian wholesale market can be supplied with gas from Austria, Italy and Croatia. Figure 145 shows that from among the options described Slovenian traders or suppliers still make the largest use of the connection with Austria, from where they also purchase the largest quantities of gas from the gas hub in Baumgarten and Austrian storage sites. In 2020, as much as 91% of the total imported natural gas was imported from Austria. The remaining part was imported from Russia, while the market with Italy, from where they initially imported gas from Algeria, was completely stalled, with only 0.31% of natural gas imported from Italy.

FIGURE 145: SOURCES OF NATURAL GAS IN THE 2016–2020 PERIOD



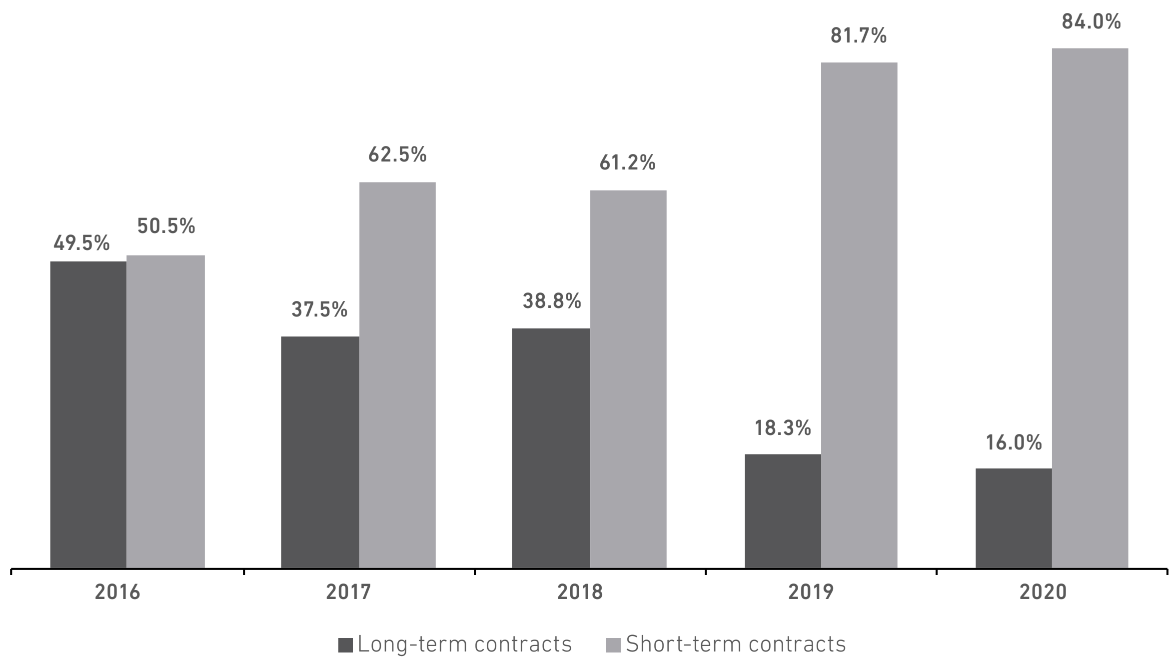
SOURCE: ENERGY AGENCY

Market liberalisation led to a reduction in the number of long-term contracts, which were normally concluded directly with Russian gas producers. They have been replaced with short-term contracts concluded at gas hubs, stock exchanges and other points within the EU. The dynamics of increasing short-term contracts for the purchase of natural gas are shown in Figure 146. In 2020, more than 80% of natural gas was purchased by short-term contracts with a maturity of less than one year. This is a major change compared to 2016.

84% **of natural gas from short-term contracts**

The maturity of contracts or the relationship between short-term and long-term contracts may have an impact on the security of supply, as in the event of a gas shortage there could be a supply shortage, if not all the necessary quantities can be bought on the spot markets.

FIGURE 146: STRUCTURE OF IMPORTED GAS IN RELATION TO THE MATURITY OF CONTRACTS



SOURCE: ENERGY AGENCY

The quantities of natural gas traded on the Slovenian wholesale market include only those sold by traders to other traders or suppliers. They exclude quantities imported to supply customers on the retail market where the supplier is also the importer of natural gas for the retail market. This methodology allows us to determine market shares and the Herfindahl-Hirschman Index (HHI) of the Slovenian wholesale market. The calculated values are presented in Table 36. The largest market share was again held by Geoplin, while Petrol held the second biggest market share. Taking into account the market shares in the retail market, it can be concluded that the largest suppliers in the retail market provide gas on their own on foreign markets, while smaller suppliers buy gas from importers. The concentration of the market measured with HHI shows a very high degree of concentration on the Slovenian wholesale market. The value of the index greatly exceeds the limit delimiting the medium from the high concentration level, although the value of the index dropped from 6507 in 2019 to 5866 in 2020.

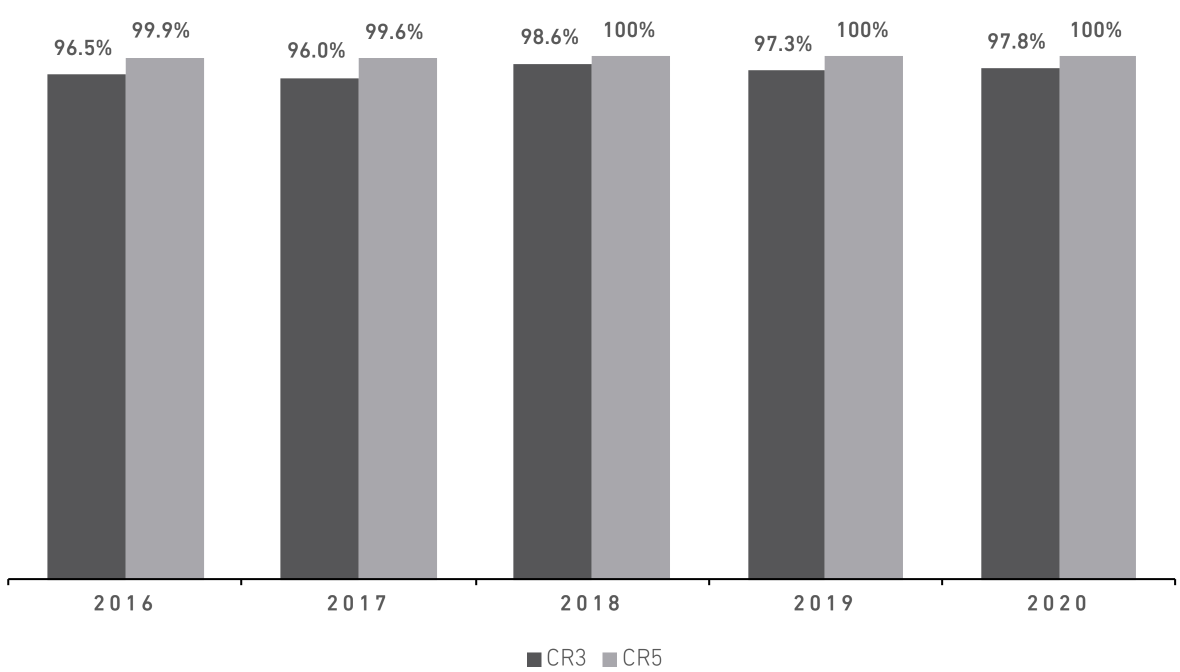
TABLE 36: MARKET SHARES AND THE HHI OF THE WHOLESALE NATURAL GAS MARKET

Company	Market share
Geoplin	73.68%
Petrol	20.50%
Energetika Ljubljana	3.57%
Plinarna Maribor	2.15%
Elektro energija	0.07%
Adriaplin	0.03%
Total	**100%**
HHI of the wholesale market	**5,866**

SOURCE: ENERGY AGENCY

The high concentration level is also shown by the CR3 and CR5 indices shown in Figure 147. The CR3 index gives the three largest market shares and the CR5 index of the five largest suppliers. The three largest suppliers controlled 97.8% of the wholesale market in 2020, while the five largest suppliers controlled the entire Slovenian market.

FIGURE 147: WHOLESALE GAS MARKET CONCENTRATION



SOURCE: ENERGY AGENCY

Market Transparency

The REMIT regulation, Regulation 1348/2014 and the EA-1 provide a comprehensive legal framework to ensure price transparency on the natural gas and electricity wholesale market. This subject is addressed in more detail in the chapter about electricity market transparency.

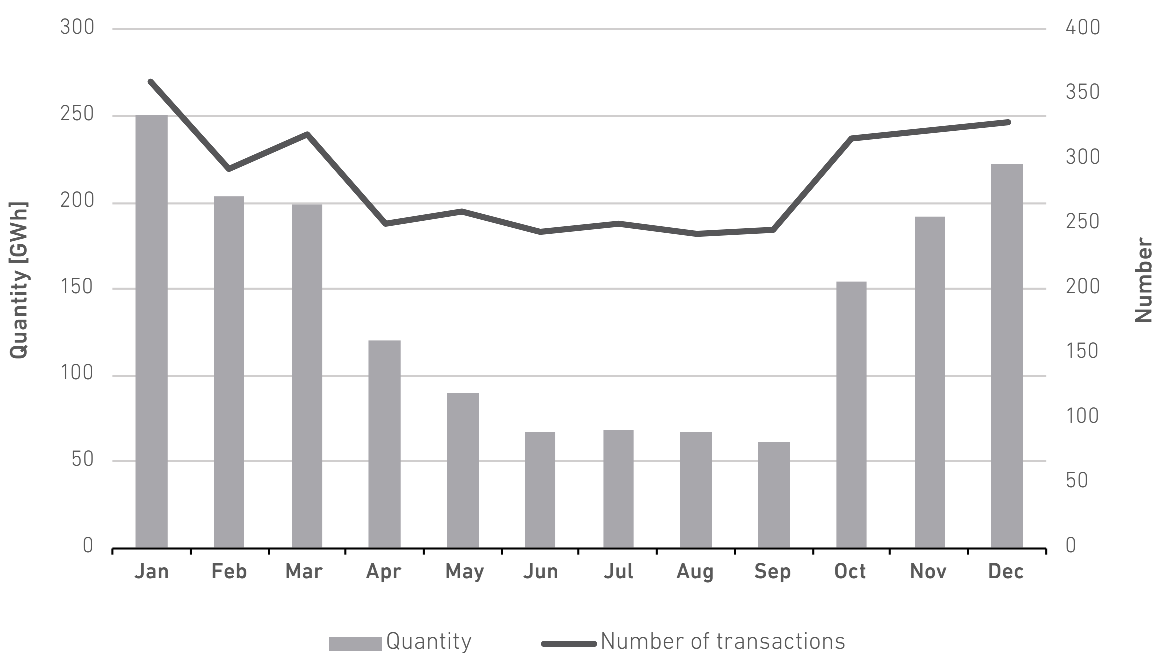
Market Effectiveness

In the context of market effectiveness, the Energy Agency monitors the functioning of the virtual point managed by Plinovodi. The virtual point is intended to carry out natural gas transactions, the functioning of a trading platform for imbalance settlement of balance group leaders and the provision of bulletin board services.

As Figure 148 shows, in 2020 the number of transactions was stable throughout the year and the quantity exchanged followed the normal seasonal fluctuation. Free market trading is still very popular among market participants, as in recent years we have reported record volumes of trade every year. The year 2020 was no exception in this respect. In December 2019, the highest monthly exchanged volume was 191.7 GWh, while the new peak of 251.1 GWh on the monthly level was reached in January 2020. The new peak was also reached on an annual basis. In 2020, the total volume exchanged was 1,694.4 GWh, and the year before 1,431.5 GWh, which represents an 18.4% increase in quantities. The most popular trading still remains day-ahead trading, with 3,340 transactions being carried out on the basis of a day-ahead product and the remaining 92 on an intraday product.

18.4% growth in free market volumes

FIGURE 148:TRADING IN THE VIRTUAL POINT (FREE MARKET)



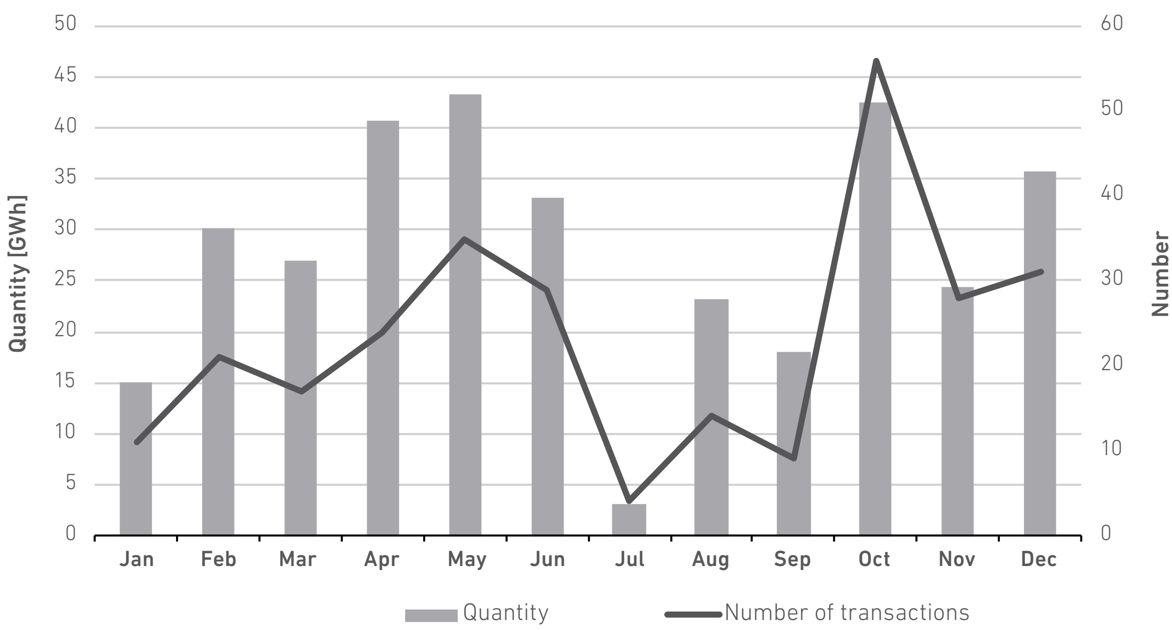
SOURCE: PLINOVODI

The trading platform also operates as a virtual point service. This allows the leaders of balance groups to trade both intraday and day-ahead gas quantities for balancing purposes. On a trading platform, the TSO trades gas quantities on an equal footing with other participants for the purpose of balancing the transmission system. If, at the end of the billing day, trading on a trading platform is unable to successfully balance the quantities in the transmission system, the operator may use a system balancing service for the transmission system based on an annual contract with the most favourable bidder s elected.

On the basis of transactions carried out on the trading platform, 336.2 GWh of natural gas was purchased or sold on the trading platform. Compared to 2019, growth is 27.7%. Most of these quantities, 332.4 GWh, were used by the operator to balance the transmission system, while the leaders of balance groups exchanged 3.8 GWh. On the basis of 298 transactions, 336.2 GWh was exchanged, of which 243 was carried out on a short-term standardised product within the day and 55 on the basis of a short-term standardised day-ahead product.

The quantities of natural gas exchanged and the number of transactions carried out on the trading platform for 2019 per month are shown in Figure 149.

FIGURE 149: TRADING ON A TRADING PLATFORM (BALANCING MARKET)



SOURCE: PLINOVODI

For each transaction carried out on a trading platform, the price at which natural gas was purchased or sold is recorded. The index of the average price achieved on the trading platform is determined by balancing these prices with the quantities exchanged. The index is set on a daily basis and is, therefore, comparable to the daily CEGHIX gas hub CEGHIX index in Vienna. The comparison of the weighted average price with CEGHIX is shown in Figure 150.

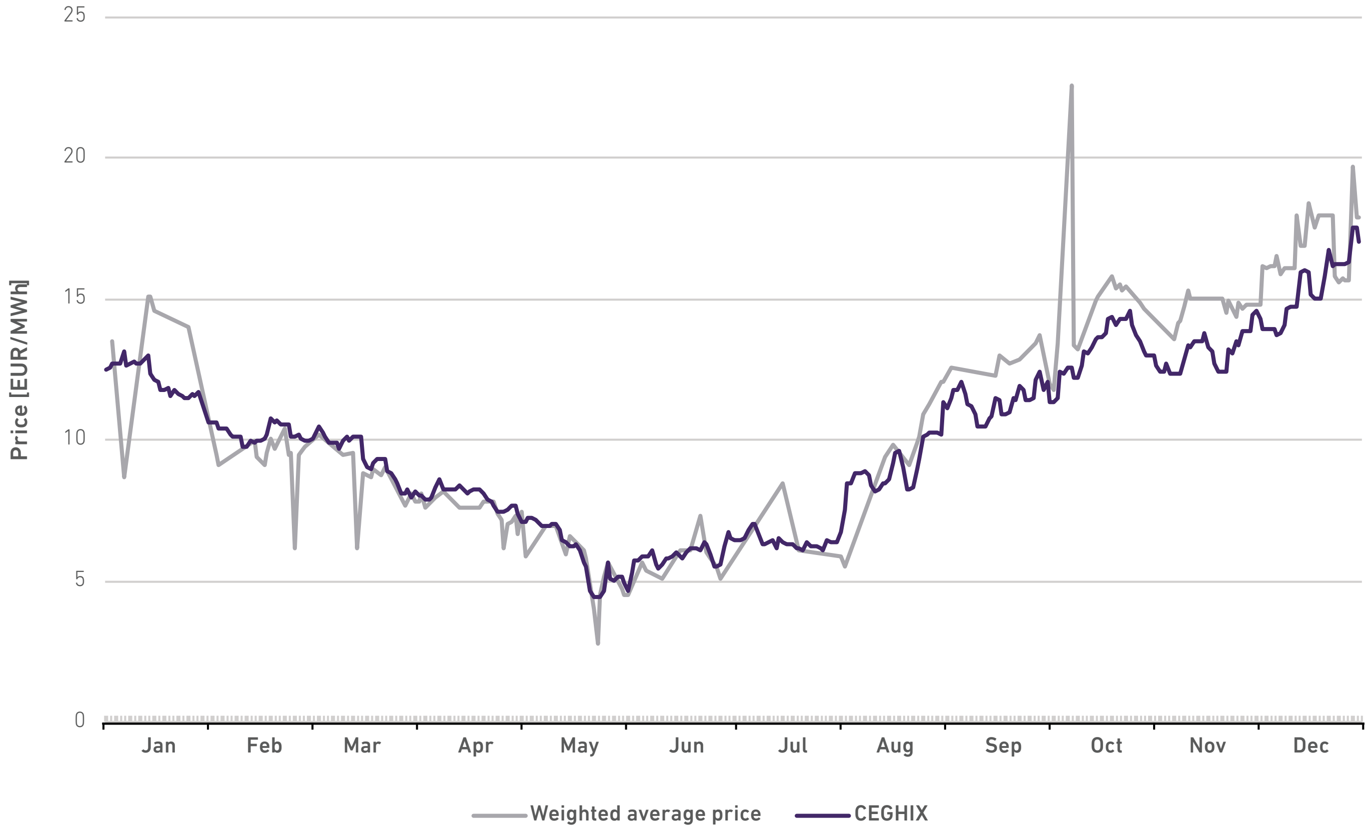
27.7% quantity growth on the trading platform

There is a strong correlation between the two indices, as most of the gas is still imported from Austria. On the trading platform, the level of liquidity is lower, which is reflected strongly on non-trading days. It is, therefore, not possible to establish a weighted average price index for these days.

The revised weighted average price[45] is shown in Figure 150 together with CEGHIX.

Price of natural gas on the trading platform stays in correlation with CEGHIX

FIGURE 150: WEIGHTED AVERAGE PRICE ON THE TRADING PLATFORM (BALANCING MARKET) AND VALUES OF CEGHIX



SOURCES: PLINOVODI, CEGH

In addition to free-market trading and trading platforms, the virtual point includes a set of bulletin boards. This enables members of the virtual points to publish offers and demands for quantities of natural gas in Slovenia's transmission system transparently. Published announcements do not contain prices. In 2020, 27 offers and 13 enquiries were placed on the bulletin board. The average announced supply capacity was 90,189 kWh/h and the average demand capacity was 93,846 kWh/h. All the quantities announced were published by the TSO.

45 If the weighted average price were to be displayed unchanged on the graph, it would be presented in the form of a repeatedly broken line. Therefore, the missing values for the purpose of the correlation display are replaced by a linear interpolation method.

A transaction is any transaction entered into by a natural gas market participant that changes the right to dispose of a specified quantity of natural gas in a transmission system at one or more accounting intervals. Market participants carry out all transactions in the quantities of natural gas in the transmission system at a virtual point established by the transmission system operator. Virtual point services can only be used by virtual point members. The services are payable and are paid by virtual point members to the transmission system operator as the annual registration fee and the price for each transaction carried out at the virtual point. Members of the balance groups must notify all transactions of natural gas to the transmission system operator. They do so by entering data on executed transactions into a virtual trading platform online application operating within the virtual point. In doing so, the transmission system operator is consulted on the transfer of quantities between the leaders of the balance groups. However, the TSO does not have access to all transactions carried out between market participants. Only market participants who are the leaders of balance groups, but not their subordinate members, enter transaction data into the application. Transactions carried out between members of the balance scheme (balance group leaders, leaders of balance sub-groups) remain unnotified. Insight into the trade in natural gas is not complete. As a result, this leads to the reduced efficiency of the management of the balance scheme when it remains unknown with whom and in what quantities the members of the balance scheme do business. The situation deteriorates to the extent that some market participants do not know their role in the market (the balance subgroup leader, supplier to end consumers, end consumers) and therefore the relationship between market participants is not properly regulated. The market situation has led to a situation where it is not fully known which market participants offer, in addition to trading, the supply of natural gas to end consumers. This situation represents a departure from the market customs of a well-functioning market and action is therefore needed.

In the context of market monitoring, the Energy Agency has identified these shortcomings and will propose solutions for more efficient management of the balance scheme by proposing amendments to the legislative framework.

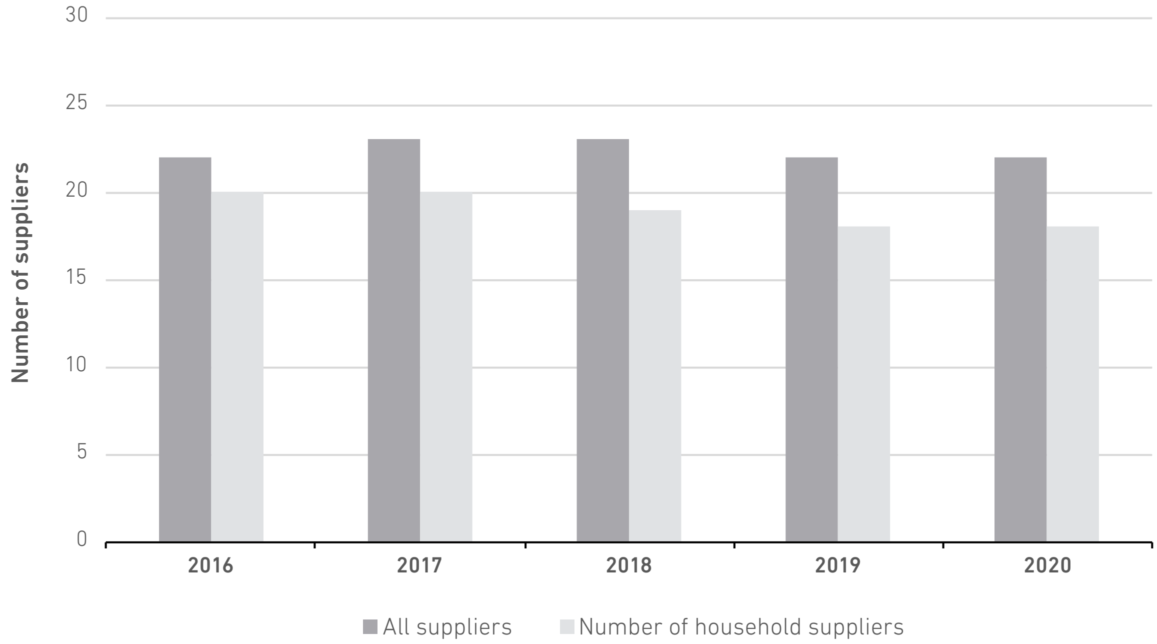
22 suppliers of natural gas on the retail market

The Retail Market

As in the previous year, 22[46] natural gas suppliers were active on the retail market in Slovenia, which, on the basis of contracts concluded, supplied natural gas to household and business consumers connected to distribution systems and transmission systems. Of these 22 suppliers, 18 suppliers offered natural gas only to household consumers. There were no new suppliers on the market, only the supplier of RWE Ljubljana changed its name to E.ON Ljubljana at the beginning of 2020. Consumers can choose between offers from all suppliers offering natural gas in their local community. Natural gas suppliers are also present on the market and supply gas to consumers only in local communities where, within the same company, they also carry out the activity of distribution of natural gas. Consumers pay for the natural gas delivered on a monthly basis on the basis of the actual quantity measured by the relevant meters or, in the absence of the operator with a measuring device reading, on the basis of the estimated consumption[47].

46 The Energy Agency considered as suppliers those companies that are members of the balance group or balance sub-group.
47 Calculated on the basis of the provisions of the Methodology for prognosis of non-daily metered off-takes of users of the natural gas network.

FIGURE 151: NUMBER OF SUPPLIERS ON THE RETAIL MARKET IN SLOVENIA IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

In the five-year period, there were no significant changes in the number of suppliers on the market; the biggest change happened in the number of suppliers to household consumers, which decreased by 10% compared to 2016.

The variety and abundance of offers were low. More than half of the suppliers supplying household consumers offered to supply natural gas only on the basis of so-called regular price lists[48] that do not require time binding for the period of delivery or other conditions, and a consumer can change supplier at any time without payment of a contractual penalty. Special or package offers, which may be limited to a specific consumer range, and which, as a general rule, contain contractual penalties if the consumer terminates the contract early, have occasionally been offered only by individual suppliers.

Natural Gas Prices on the Retail Market

The Energy Agency actively monitors prices on the retail market on the basis of public data and market data from household and small business consumers, which are obtained from suppliers in the framework of benchmarking services of the single contact point.

The gas prices in the supply offers depend mainly on the business decisions of each supplier and on the purchasing conditions provided by suppliers during trading. The level of the purchase price paid by the supplier is influenced by several factors. Thus, natural gas prices depend on the characteristics of gas purchase contracts, developments in oil and petroleum prices, developments in foreign currency exchange rates, weather effects, international stock markets and competition on the market.

48 After termination of the regular price list definition under the EZ-1, these are offers that are accessible to all consumers and do not contain any requirements for meeting specific conditions (bindings, penalties, etc.)

Retail Price Index

In the context of monitoring the market concerned, the Energy Agency determines the retail price index (RPI). RPI is based on the cheapest, affordable offer available to all consumers on the market, which allows consumers to switch supplier at any time without any contractual penalty.

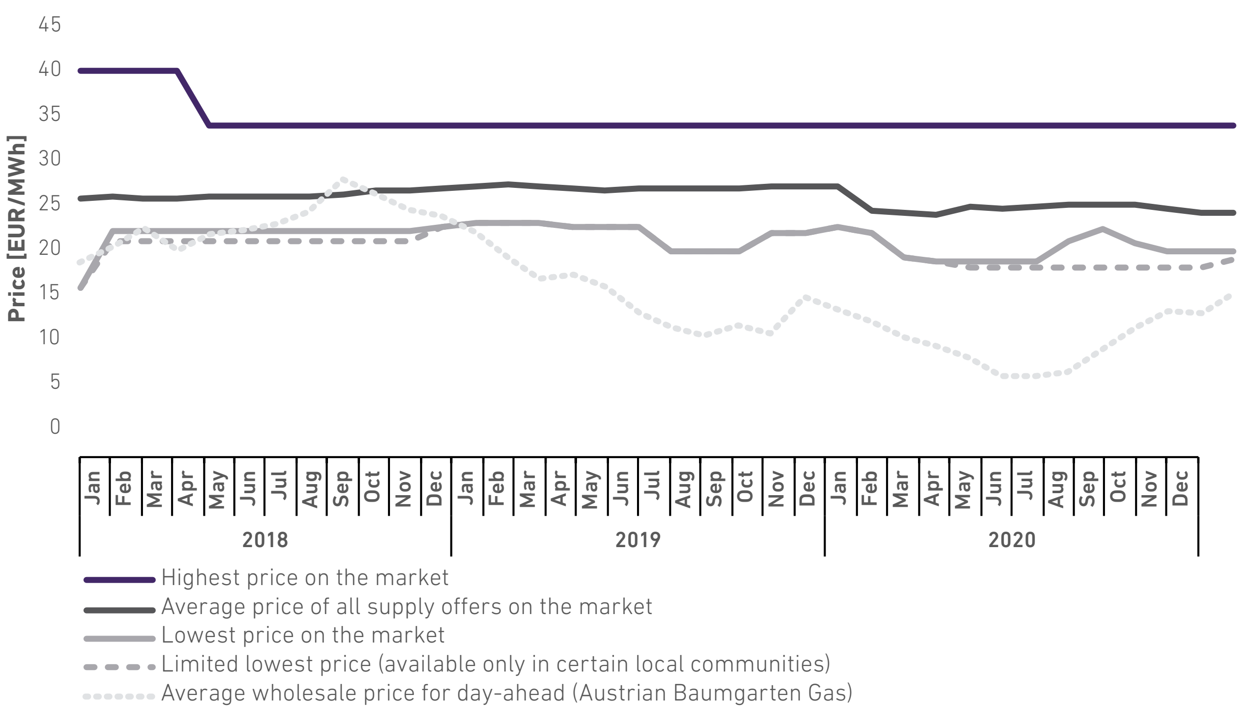
Figure 152 shows the trend in the following prices for a typical household consumer:

- limited lowest price (available only in certain local communities),
- the lowest price on the market,
- the average price of all offers on the market, and
- the highest market price.

Day-ahead wholesale prices below 5 EUR/MWh were not reflected in the decrease in retail prices

In the first four months of 2020, the lowest prices of natural gas decreased. By May, the minimum price offered on the market had fallen by almost 20% compared to December 2019 to 18.20 EUR/MWh. The lowest price on the market, which was only possible for consumers in individual local communities, remained unchanged almost until the end of the year, while the lowest price available on all Slovenian distribution systems increased slightly in the summer months, and towards the end of the year it declined again and ended the year less than 12% lower than the previous year. The decrease in retail prices is likely to be the result of a decrease in wholesale prices in neighbouring wholesale natural gas markets, in particular in Austria, but extremely low wholesale prices have not been passed on to further reductions in retail prices in the summer period. At the end of May 2020, prices of natural gas on the day-ahead wholesale market decreased significantly to less than 5 EUR/MWh (the wholesale price ranged between 4.5 and 17.5 EUR/MWh on an annual basis). Low wholesale prices were very likely due to the COVID-19 epidemic, when demand for natural gas at the international level declined. At the end of 2020, prices on the wholesale markets increased again slightly and ended less than 14% higher than in 2019. On average, wholesale prices at the gas hub in Baumgarten in Austria were over 32% lower in 2020 compared to 2019. At the end of 2020, the lowest retail price on the market thus ranged from 19 to 20 EUR/MWh.

FIGURE 152: RETAIL PRICE INDEX AND SOME TYPICAL NATURAL GAS PRICES WITHOUT NETWORK CHARGE, DUTIES, AND VAT IN THE 2018–2020 PERIOD



SOURCE: ENERGY AGENCY

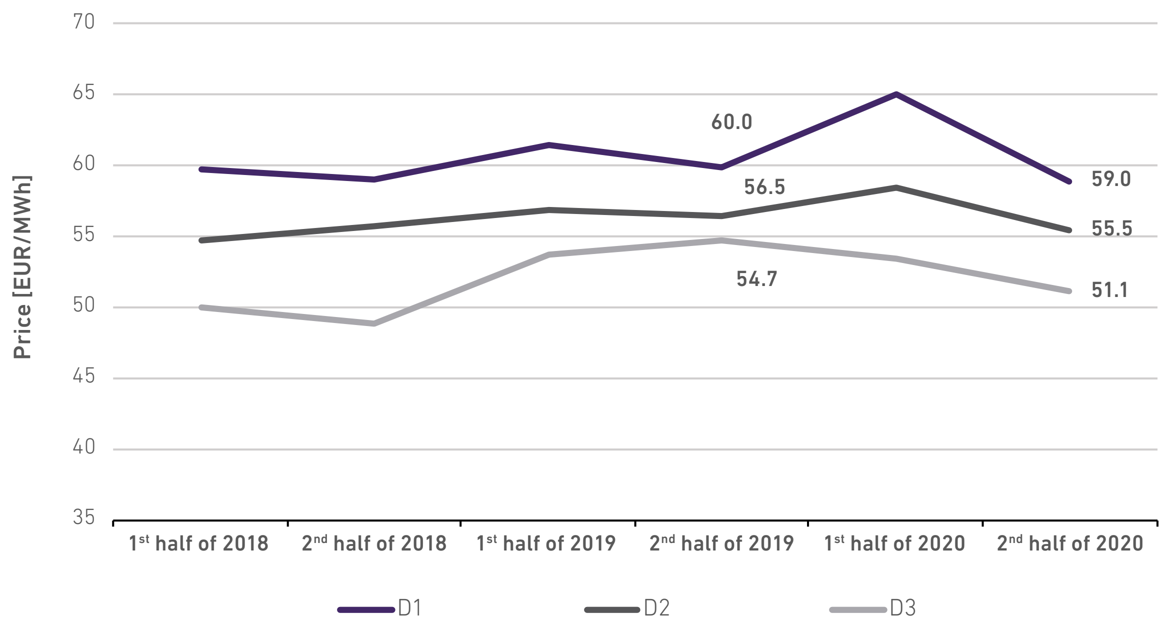
Major corrections of prices in suppliers' offers were only recorded for some suppliers at the beginning of the year. At the beginning of the year, there were more activities on the market, as some suppliers offered new, cheaper offers, leading to a decrease in RPI (Figure 152). In January and February, the company Petrol offered the lowest delivery price available in all local communities, and in the period until July that followed, the lowest price was offered by GEN-I, in July Petrol again, in August Energetika Ljubljana, in September Plinarna Maribor and in the last trimester Energetika Celje. A slightly lower price was offered from April to December by the supplier KP Vrhnika, which supplies natural gas only to consumers in Vrhnika, Domžale, the wider area of Ljubljana and Novo mesto. The maximum supply price on the market has remained unchanged since the end of April 2018. The average bid price decreased by almost 9% in 2020.

9% lower average price for natural gas

Final Prices of Natural Gas

Figure 153 shows the evolution of the price of natural gas, including all taxes and levies, for household consumers over the period 2018–2020. Compared to 2019, prices for small and medium-sized household consumers increased in the first half, and at the end of the year they were around 2% lower than the year before. For large household consumers in the D3 group, prices were decreasing over the two half-years. In the first half of the year, prices for these consumers were down by 0.6%, and 6.6% down in the second half.

FIGURE 153: FINAL NATURAL GAS PRICES FOR HOUSEHOLD CONSUMERS IN SLOVENIA WITH ALL TAXES AND DUTIES IN THE 2018–2020 PERIOD

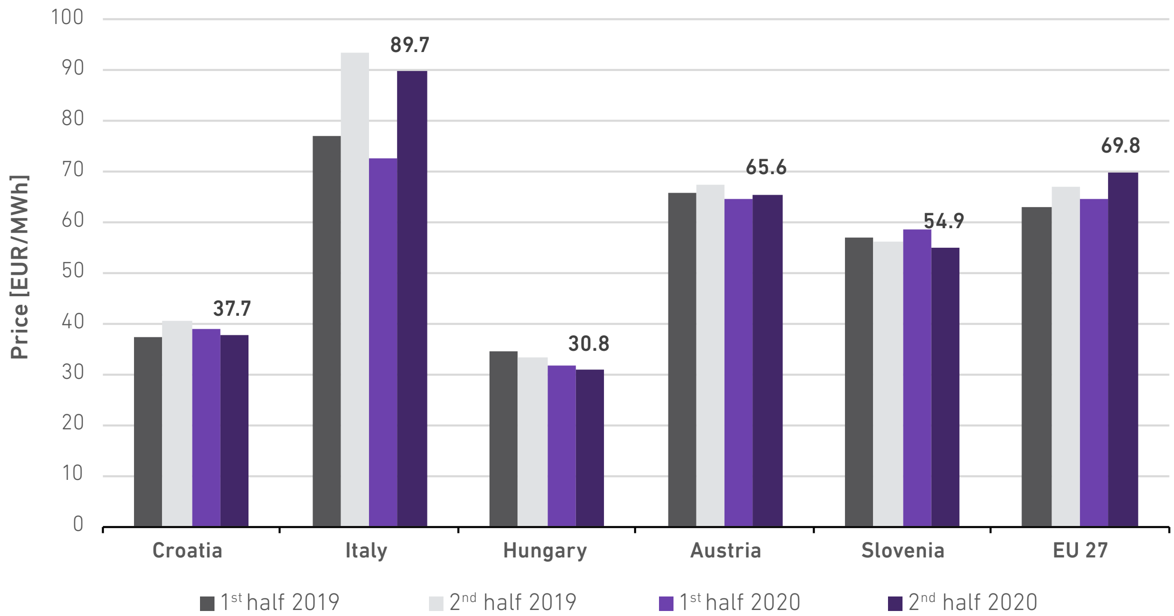


SOURCE: STATISTICAL OFFICE OF THE REPUBLIC OF SLOVENIA

Figure 154 shows the evolution of final gas prices with all taxes and levies in 2019 and 2020 for typical household gas consumers D2 in Slovenia and neighbouring countries. Final prices of natural gas in Slovenia in 2020 did not change significantly compared to the previous year and remained below the average prices in the EU. In all neighbouring countries, prices of natural gas have fallen. Prices fell most in Hungary, by almost 8% compared to 2019.

The final price of natural gas for household consumers remains below the average EU-27 prices

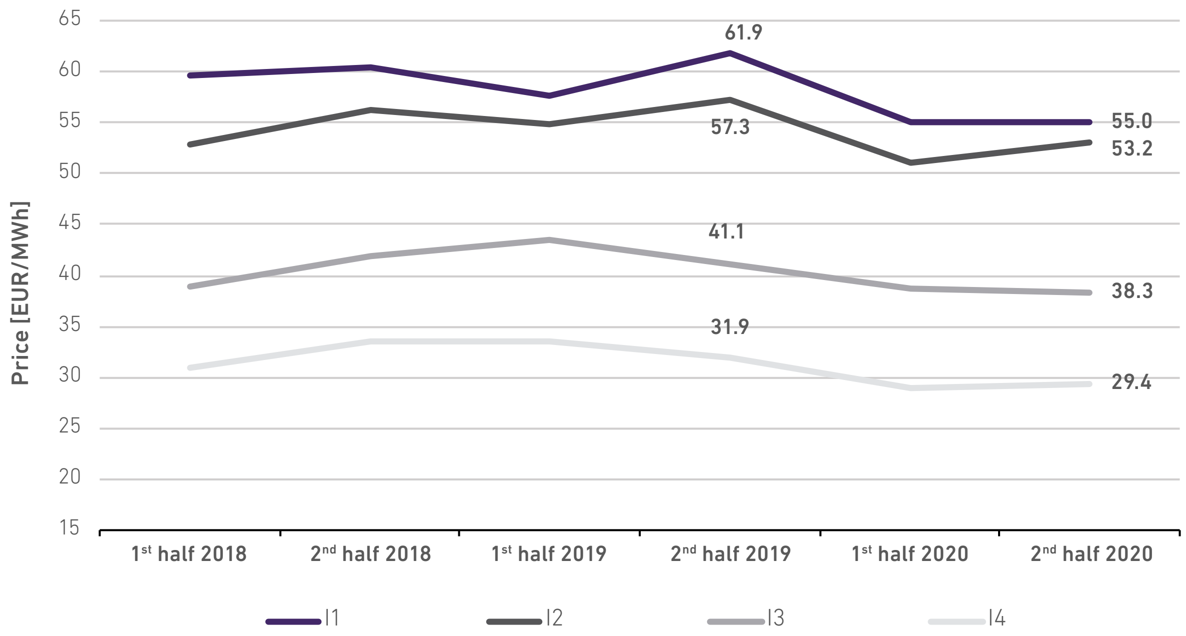
FIGURE 154: FINAL PRICES OF NATURAL GAS FOR TYPICAL HOUSEHOLD CONSUMERS D2, INCLUDING TAXES AND LEVIES, IN SLOVENIA AND IN NEIGHBOURING COUNTRIES IN 2019 AND 2020



SOURCE: EUROSTAT

Figure 155 shows the evolution of the price of natural gas, including all taxes and levies, for business consumers, over the period 2018–2020. Compared to 2019, prices were lower for all consumer groups. Prices fell the most on an annual basis for the consumer group I4, i.e. by almost 11%. Final prices of natural gas for consumer group I1 decreased by less than 8% on an annual basis, for consumer group I2 by 7%, and for consumer group I3 by almost 9%. The decrease in final prices for business consumers is also likely to have been influenced by low prices in wholesale markets as a result of the fall in demand due to the epidemic.

FIGURE 155: FINAL PRICES OF NATURAL GAS FOR BUSINESS CONSUMERS IN SLOVENIA, INCLUDING TAXES AND LEVIES, IN THE 2018–2020 PERIOD

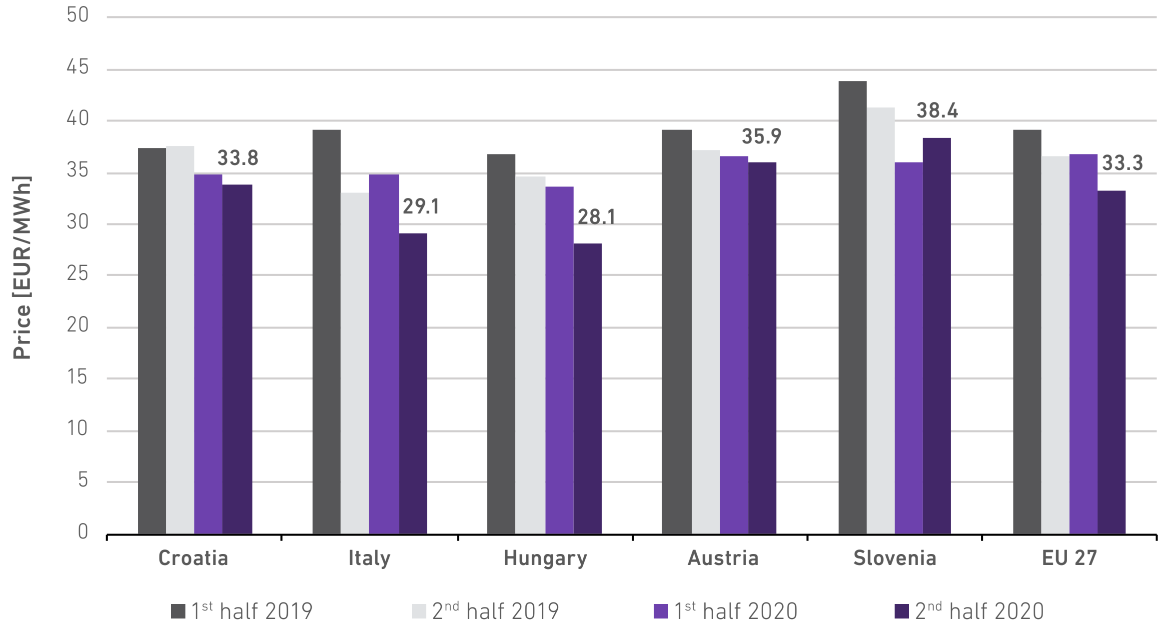


SOURCE: STATISTICAL OFFICE OF THE REPUBLIC OF SLOVENIA

Figure 156 the evolution of natural gas prices with all taxes and levies in 2019 and 2020 for typical I3 consumers of natural gas in Slovenia and neighbouring countries. For these consumers, the final price of natural gas in Slovenia decreased by almost 13%, but it was still more than 6% above the EU average and it was also higher than in all neighbouring countries. Compared to Slovenia, business consumers in neighbouring countries had lower prices ranging from 3% to 17%. Final prices for natural gas fell the most in Hungary, where prices for business demand under consideration were also the lowest.

The final gas price for business consumers was above the average EU-27 prices

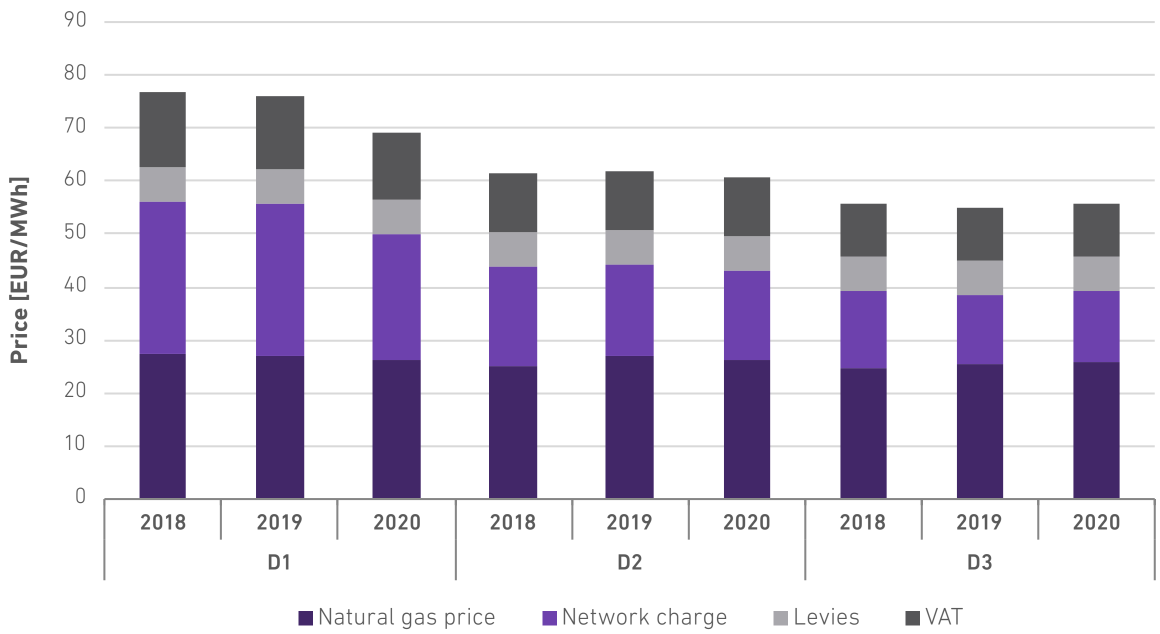
FIGURE 156: FINAL PRICES OF NATURAL GAS FOR TYPICAL BUSINESS CONSUMER I3, INCLUDING TAXES AND LEVIES, IN SLOVENIA AND IN NEIGHBOURING COUNTRIES IN 2019 AND 2020



SOURCE: EUROSTAT

Figures 157 and 158 show the structure of the final price for typical household and business consumers connected to distribution systems in the period 2018–2020.

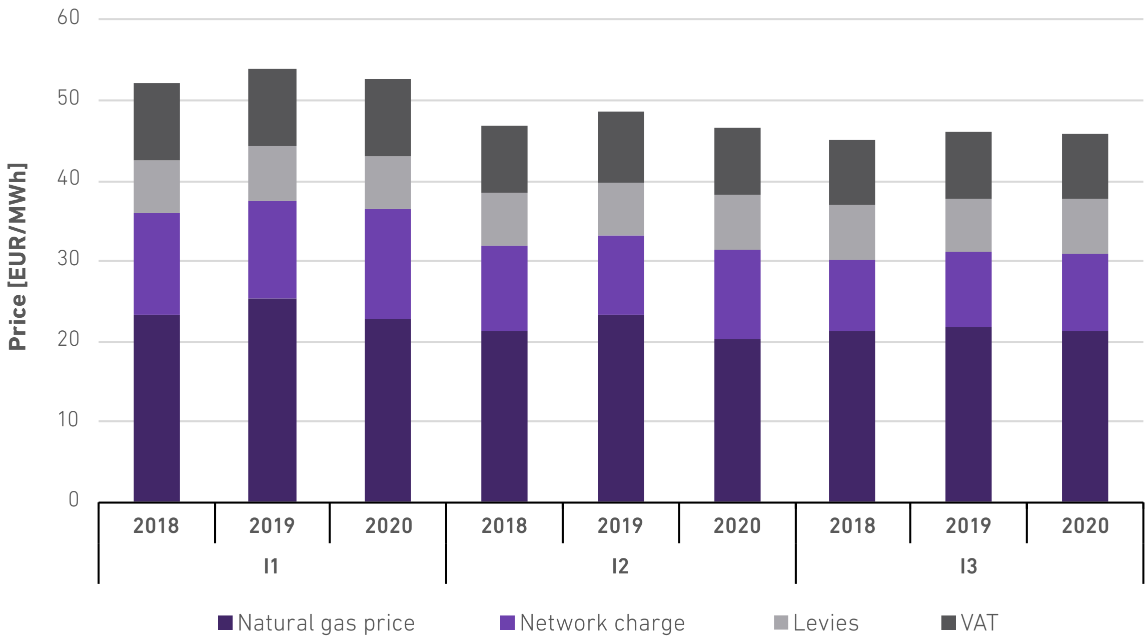
FIGURE 157: STRUCTURE OF THE FINAL NATURAL GAS PRICE FOR HOUSEHOLD CONSUMERS IN THE 2018–2020 PERIOD



SOURCE: SUPPLIERS' DATA

The shares of individual components in the final price of natural gas for household consumers did not change significantly during the observed period.

FIGURE 158: STRUCTURE OF THE FINAL NATURAL GAS PRICE FOR HOUSEHOLD CONSUMERS IN THE 2018–2020 PERIOD



SOURCE: SUPPLIERS' DATA

Even for business customers, the average final price did not change significantly. The energy price still has a dominant influence in the structure of the final price. For all consumer groups, the average final gas price decreased and the average network charge increased. Final prices for natural gas have fallen for all consumer groups.

Market Transparency

Financial Transparency of Suppliers and Transparency of Bills

As part of market monitoring, the Energy Agency analyses the annual reports of suppliers and sample bills of suppliers and prepares appropriate internal reports for decision-making purposes. The transparency of bills is systemically regulated on the basis of the EA-1 and the current Act on the Methodology for Network Charges for the Natural Gas Distribution System. The bill for natural gas supplied thus shows separately the quantities of natural gas consumed, the network charge (amount for distribution and the amount for measurements) and the energy efficiency contribution, the RES and CHP contribution, the environmental levy (CO_2 tax), excise duty and VAT.

Based on its analysis of the situation, the Energy Agency considers that the overarching legislation continued in 2019 to ensure a sufficiently high level of transparency.

Obligation to Publish Supply Offers

Suppliers must provide transparent information to household and small business consumers on their offers for the supply of natural gas and the related applicable price lists, as well as the general contract terms and conditions for the supply service.

The Energy Agency's Activities for Providing Transparency

The Energy Agency regularly monitors the functioning of the natural gas retail market, whereby monitoring the number and characteristics of the supply offers published, with an emphasis on swift action in case of identified conflicting practices. Information on current offers and any changes in the characteristics of these offers are transmitted monthly by the liable entities to the Energy Agency, which uses them in the framework of the single contact point to inform all interested parties. In order to ensure transparency in the natural gas retail market, comparative e-services are available to users on the Energy Agency's website, among which the online application for comparison of natural gas supply costs. The application allows the calculation and comparison of the costs for the supply of natural gas for an individual type of consumption profile on the basis of offers entered by suppliers in the online application.

The Energy Agency also provides an e-service, Check the Invoice, by which users can verify the correctness of the issued gas bill according to the selected offer and client profile. The calculation at the monthly level is shown separately by statutory components. Users of comparative services had access to all price lists or basic information about all suppliers' offers. Among other things, the users of the cost comparator have the possibility to quickly access individual price lists of suppliers and general contract terms.

Comparison of supply costs provided for all supply services

The analysis of the use of benchmarking services in the field of natural gas supply is set out in the chapter Ensuring the transparency of the retail electricity market. In 2020, there was an increase of around 85% in the number of comparative calculations carried out compared to 2019, while the number of checks on bills continued to decline and fell below 500 checks per year.

Market Effectiveness

The Energy Agency monitors the efficiency and competitiveness of the retail natural gas market on the basis of continuous collection of data sent by reporting entities (suppliers).

Market Shares and HHI of the Natural Gas Retail Market

Supply of natural gas to end consumers

Table 37 shows the market shares of suppliers to all end consumers on the natural gas retail market in Slovenia.

TABLE 37: MARKET SHARES AND HHI OF SUPPLIERS TO ALL END CONSUMERS IN THE NATURAL GAS RETAIL MARKET

Supplier	Delivered energy (GWh)	Market share
Geoplin	4,453	46.5%
Adriaplin	939	9.8%
GEN-I	929	9.7%
Energetika Ljubljana	924	9.6%
Petrol	881	9.2%
Plinarna Maribor	676	7.1%
Energija plus	140	1.5%
ECE	130	1.4%
Energetika Celje	130	1.4%
Other small suppliers	372	3.9%
Total	**9,574**	**100%**
HHI of the retail market		**2,590**

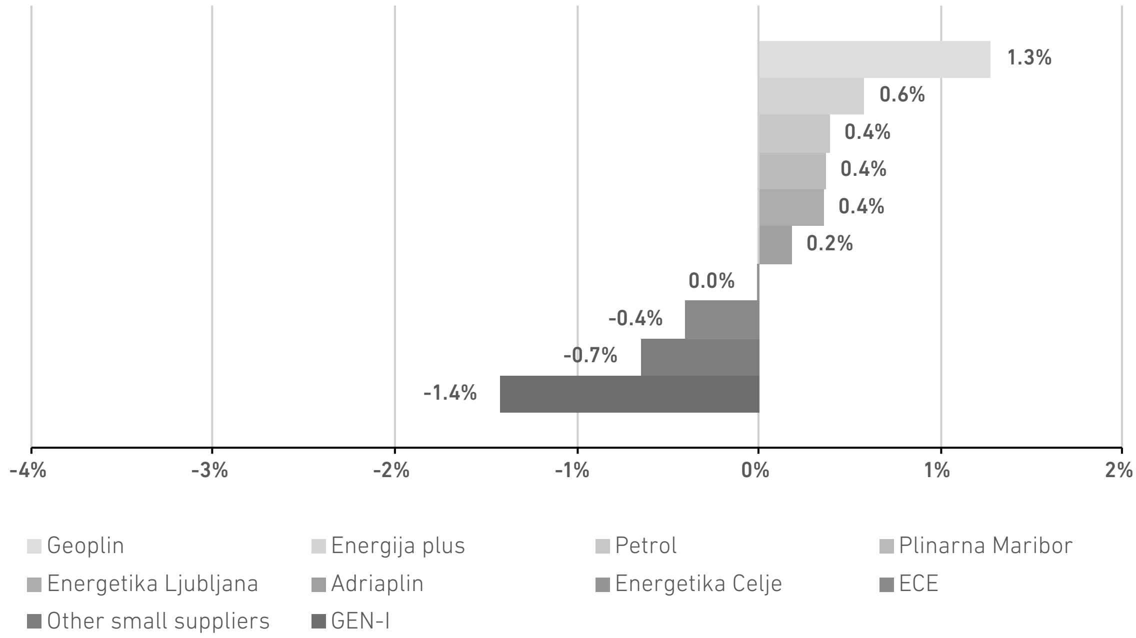
SOURCE: ENERGY AGENCY

HHI shows that the retail market is highly concentrated (HHI is more than 1,800). Following years of decline in HHI (in the period 2014–2018) the value of HHI increased for the second year in a row (2,410 in the year 2018 and 2,483 in 2019), which may have a negative impact on market competitiveness. Five out of the six largest suppliers increased their market share in 2020, with the largest supplier supplying more than 46% of the total quantity delivered. The high concentration requires the competent supervisory authorities to monitor the market closely in view of possible abuses of market power.

For the majority of suppliers, no significant changes in the market shares of the supply to end consumers were recorded. Year-on-year changes in suppliers' market shares are shown in Figure 159.

The natural gas retail market remains highly concentrated

FIGURE 159: CHANGES IN MARKET SHARES IN THE END CONSUMERS MARKET IN 2020 IN COMPARISON TO 2019



SOURCE: ENERGY AGENCY

Supply of Natural Gas to Business Consumers

Market shares of natural gas suppliers in the retail market for business consumers in 2020 are presented in Table 38.

TABLE 38: MARKET SHARES AND HHI OF SUPPLIERS TO ALL BUSINESS CONSUMERS IN THE NATURAL GAS RETAIL MARKET

Supplier	Delivered energy (GWh)	Market share
Geoplin	4,453	52.6%
Adriaplin	824	9.7%
Petrol	755	8.9%
GEN-I	677	8.0%
Energetika Ljubljana	611	7.2%
Plinarna Maribor	569	6.7%
Energija plus	127	1.5%
ECE	117	1.4%
Enos	110	1.3%
Other small suppliers	222	2.6%
Total	**8,465**	**100%**
HHI of the retail market		**3,110**

SOURCE: ENERGY AGENCY

HHI shows that the retail market is highly concentrated (HHI is more than 1,800). In the retail market for business consumers, HHI also increased for the second year in a row in 2020. At the end of 2019, HHI was 2,944, compared to 3,110 in 2020. The largest supplier, whose share of the supply to business consumers accounted for almost 53% of the total quantities delivered to these consumers, was also the largest supplier in the market for supply to business consumers.

The year-on-year change in suppliers' market shares to business consumers did not change significantly, with Geoplin gaining the largest share (1.7%), and GEN-I losing the largest share (–1.6%).

Supply of Natural Gas to Household Consumers

Market shares of natural gas suppliers in the retail market for household consumers in 2020 are presented in Table 39.

TABLE 39: MARKET SHARES AND HHI OF SUPPLIERS TO ALL HOUSEHOLD CONSUMERS IN THE NATURAL GAS RETAIL MARKET

Supplier	Delivered energy (GWh)	Market share
Energetika Ljubljana	312	28.2%
GEN-I	252	22.8%
Petrol	126	11.4%
Adriaplin	115	10.4%
Plinarna Maribor	107	9.7%
Energetika Celje	51	4.6%
Domplan	40	3.6%
Istrabenz plini	25	2.2%
ECE	13	1.2%
Energija plus	13	1.1%
Other small suppliers	54	4.8%
Total	**1,109**	**100%**
HHI of the retail market		**1,689**

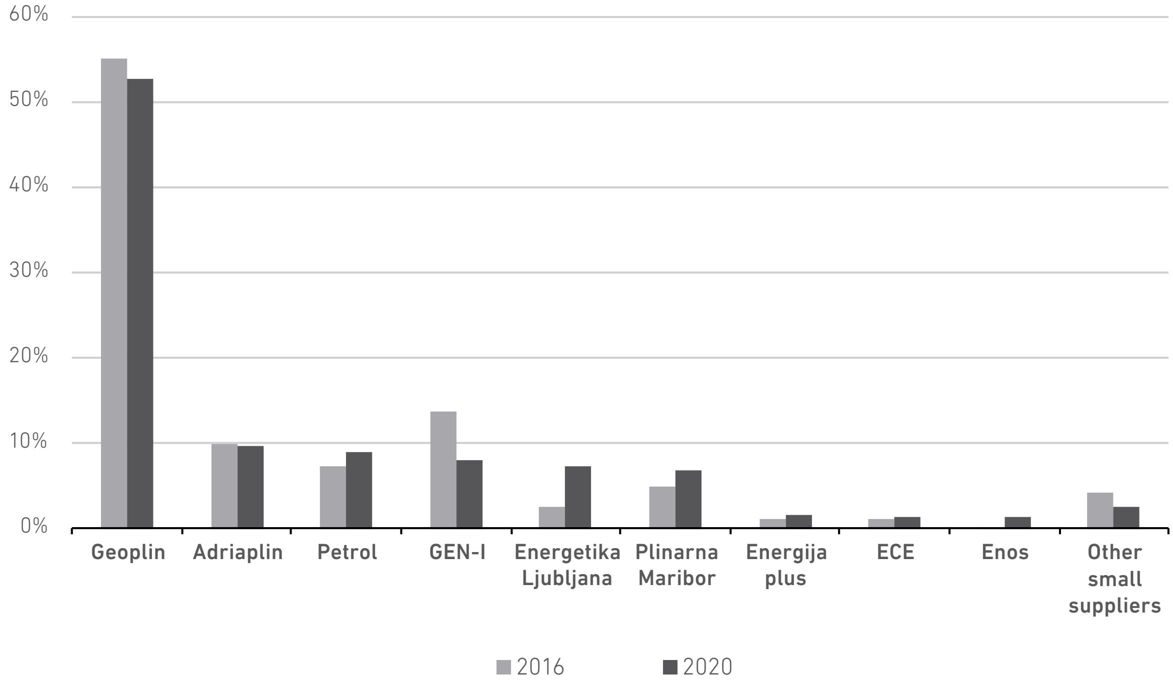
SOURCE: ENERGY AGENCY

HHI shows that this is a moderately concentrated retail market (HHI ranges from 1,000 to 1,800). Compared to 2018 and 2019, when it was 1,775 and 1,744, HHI in 2020 decreased slightly. The market share of the three largest suppliers (CR3) was over 62%, while the largest suppliers remain the same as the previous year. The remaining suppliers with a share of supply above the percentage of total deliveries to household customers also remain the same as in 2019.

Changes in market shares in 2020 compared to the previous year are insignificant (less than one percentage point).

The changes in suppliers' market shares for business customers over the period 2016–2020 are shown in Figure 160. Energetika Ljubljana (4.7%), Plinarna Maribor (1.7%), Petrol (1.6%), and Enos (1.2%) had the largest increase in market shares, while Geoplin, GEN-I, and a group of smaller suppliers experienced a decrease.

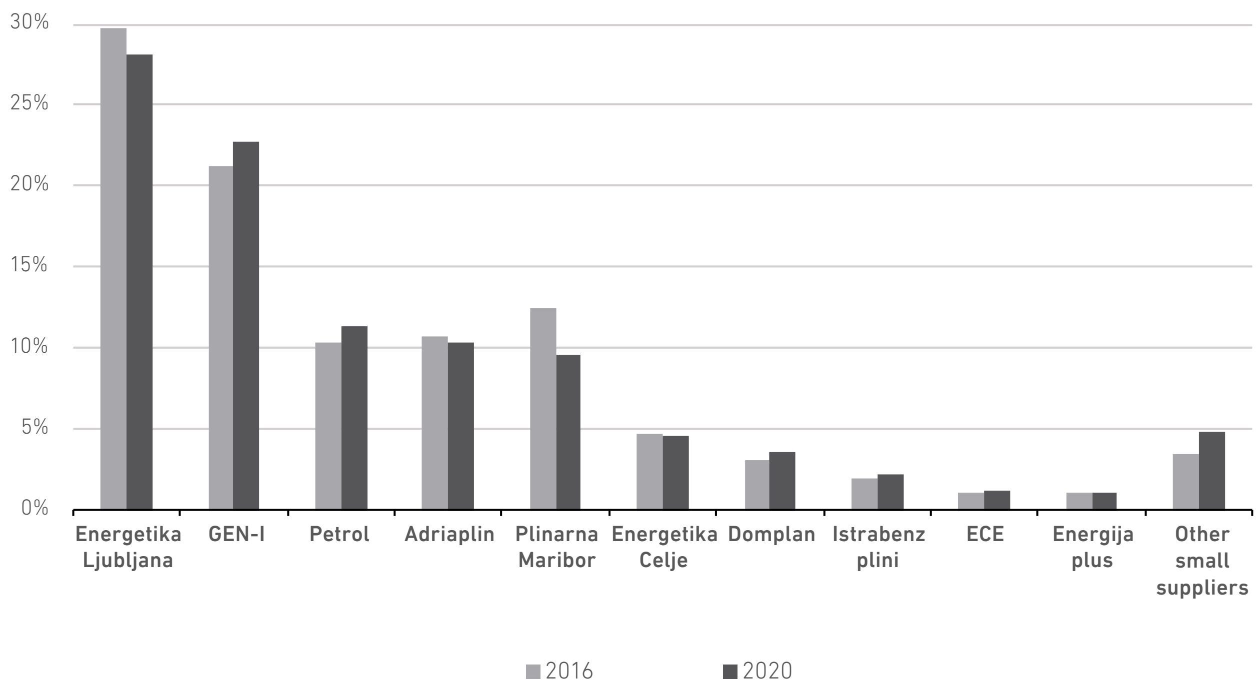
FIGURE 160: COMPARISON OF SUPPLIERS' MARKET SHARES TO BUSINESS CONSUMERS IN 2016 AND 2020



SOURCE: ENERGY AGENCY

In the household consumers market, the largest increase in market share was achieved by GEN-I (1.6%), followed by a group of smaller suppliers with individual delivery shares below the percentage of total deliveries to household consumers (1.4%), Petrol (1%), Domplan (0.5%), and Istrabenz (0.3%).

FIGURE 161: MARKET SHARE OF SUPPLIERS TO HOUSEHOLD CONSUMERS IN 2016 AND 2020

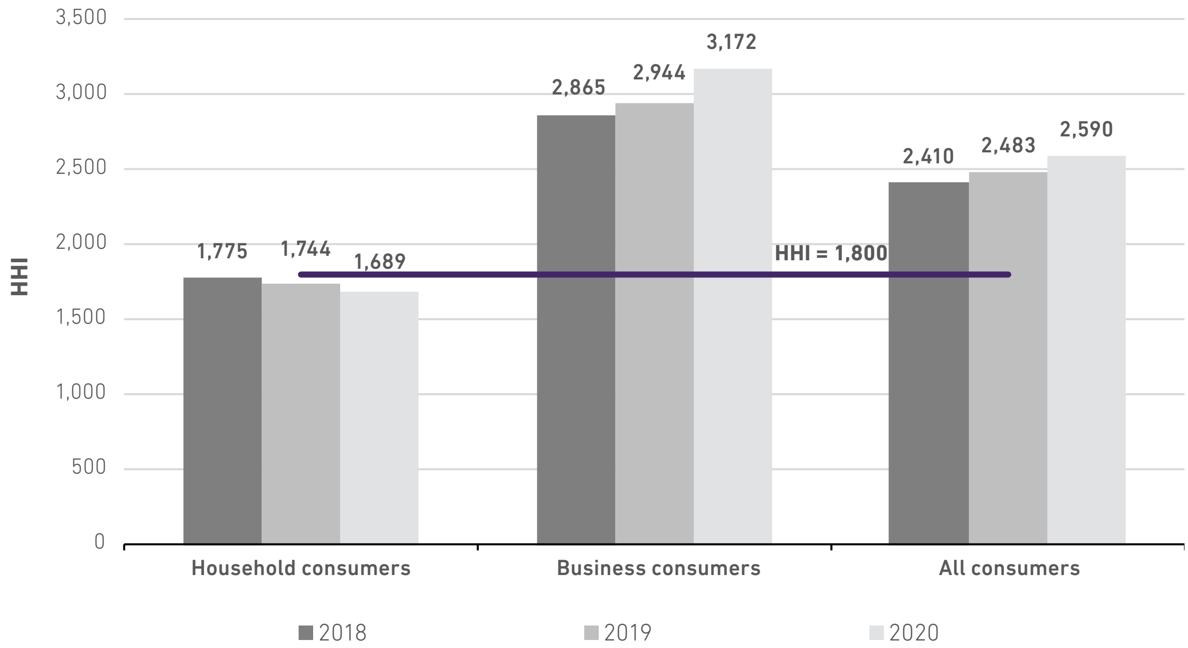


SOURCE: ENERGY AGENCY

Comparison of Concentrations on the Markets Concerned

HHI increased significantly in 2020 in the supply to all end consumers and business consumers in the retail market, while HHI decreased slightly for the third year in a row in the segment of household consumers, which is also the only observed market with moderate concentration. According to HHI, the market for business consumers is a highly concentrated market.

FIGURE 162: MOVEMENT OF HHI IN THE RETAIL MARKET IN THE 2018–2020 PERIOD

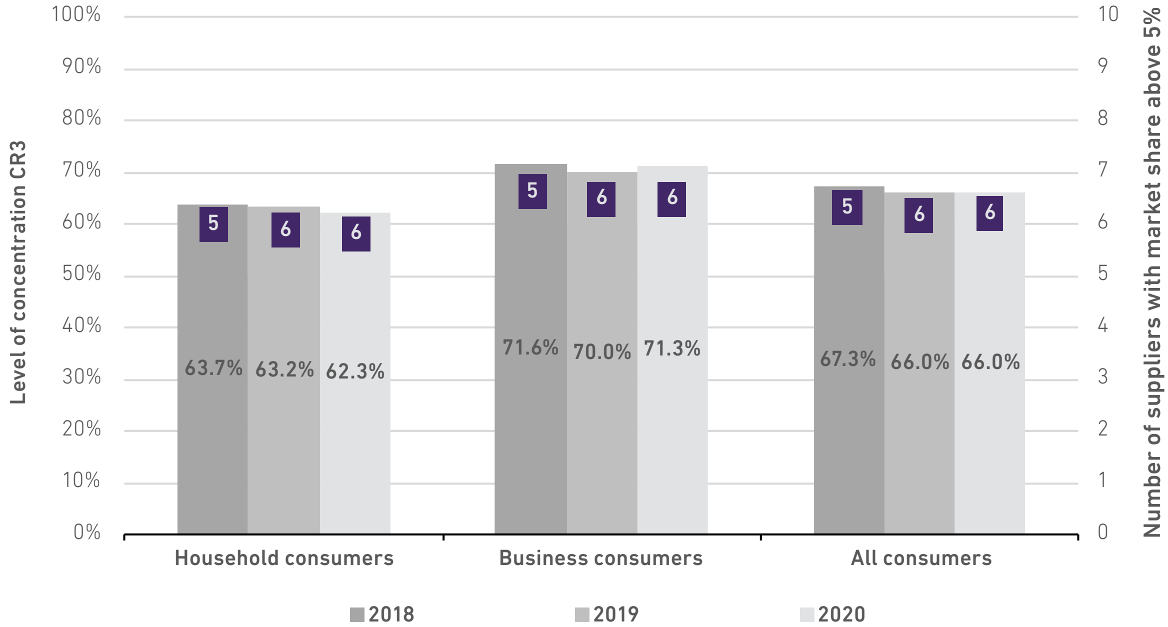


SOURCE: SUPPLIERS

Figure 163 shows the concentration index of the CR3[49] on individual segments of the market over the last three years. In all segments, CR3 values are close to the high concentration limit (70%) or slightly above this limit. The positive trend is observed only in the supply to household consumers, where the concentration rate of the three largest suppliers is slightly decreasing.

49 Total market share of the three largest suppliers on the market

FIGURE 163: LEVEL OF CONCENTRATION OF CR3 AND NUMBER OF SUPPLIERS WITH A MARKET SHARE ABOVE 5% IN THE 2018–2020 PERIOD



SOURCE: SUPPLIERS

Switching Supplier

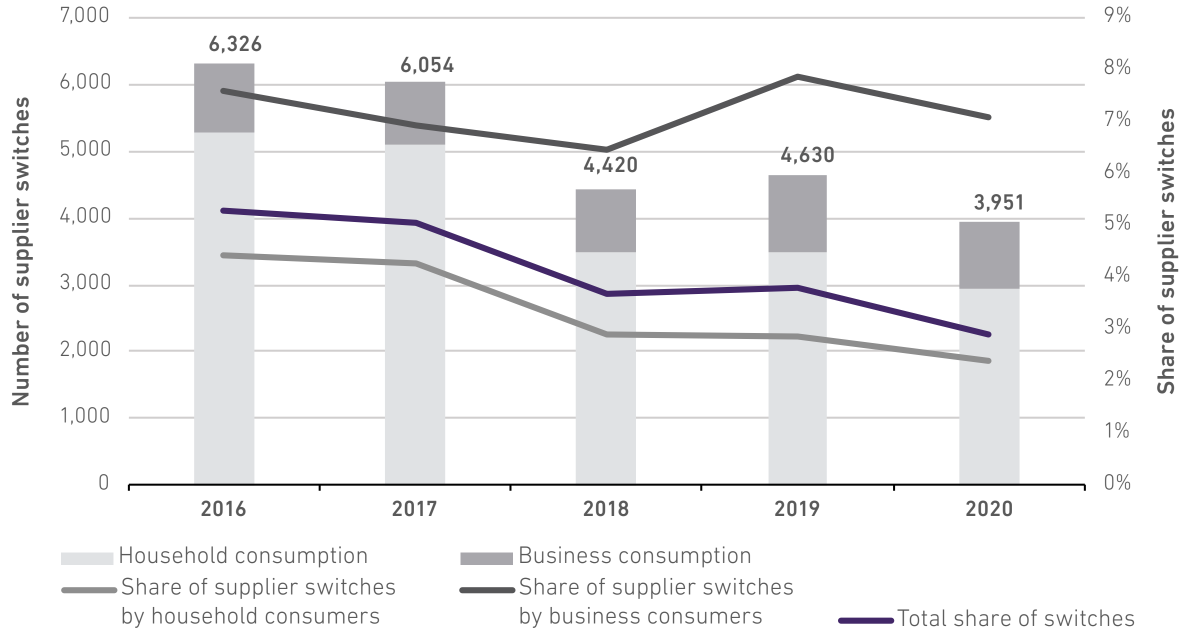
In 2020, the natural gas supplier was changed by 3,951 consumers connected to the distribution network, 2,928 household consumers and 1,023 business consumers. On average, 244 household and 85 non-household consumers switched natural gas suppliers per month. Compared to 2019, the total number of switches decreased by almost 15% (by households almost 16%, by non-households more than 11%). The reduced number of switches could also be due to a lack of consumer interest in regularly monitoring the terms of supply offers by different suppliers, but a certain proportion of consumers are likely to remain unaware of the possibility of switching supplier and hence savings in supply costs.

16% less supplier switches by households and

11% less switches by business natural gas consumers

Figure 164 shows the trend of the total number of switches and the share of switches per type of consumption in the 2016–2020 period.

FIGURE 164: NUMBER OF SUPPLIER SWITCHES IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

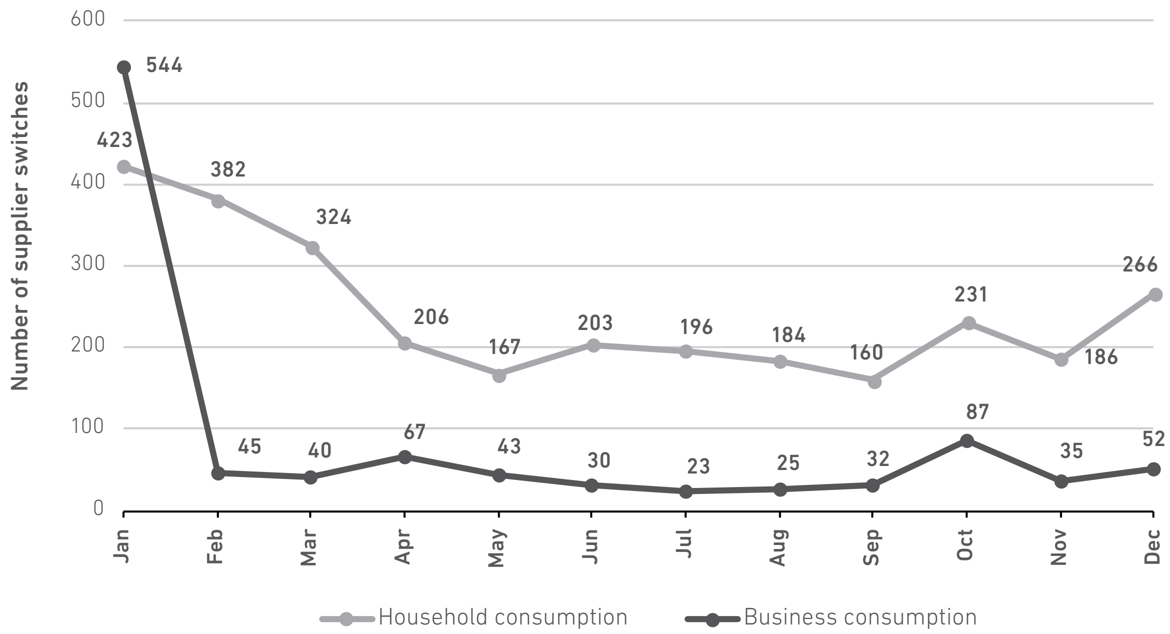
Slovenian natural gas consumers not active enough in search of potential savings

The share of switching supplier for household consumers in 2020 was 2.4%, the lowest since 2012, when 8.4% of household and 10.6% of business consumers switched supplier when a new supplier entered the market in the last three months of the year. Compared to the previous year, the share of household switching decreased by half a percentage point. For business customers, the share of switching compared to 2019 decreased by 0.7%. In recent years, the highest proportions of switching of suppliers[50] were recorded in Belgium, Great Britain and Norway, and exceeded 20% on an annual basis. The number of switches of supplier is one of the key indicators of a well-functioning retail market. In Slovenia we want more diverse and attractive supplier offers, and especially more active customers, who can currently be assumed to be quite unaware of the possibility of switching supplier and most of them have never done so. Since market opening until the end of 2020, the overall share of supplier switching per year for household consumers has not exceeded 40%, but in the absence of data on consumers who have switched several times, this share is very likely to be much lower. The average annual value of the switching rate for the last five-year period was 3.4% for household consumers. For business consumers, the annual number of switching of suppliers is much more stable. In 2020, 7.1% of business consumers switched supplier and the average share for the last five-year period was 7.2%.

In 2020, there was an increase in supplier switching at the beginning of the year, which is not surprising, as it is precisely during the heating season that household consumers are more actively monitoring published offers and looking for potential savings. Figure 165 shows that the number of supplier changes among household customers has started to increase again at the end of the year, which coincides with the beginning of the new heating season.

50 Data for 2019 (Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019, October 2020)

FIGURE 165: DYNAMICS OF THE NUMBER OF SUPPLIER SWITCHES DEPENDING ON THE TYPE OF CONSUMPTION



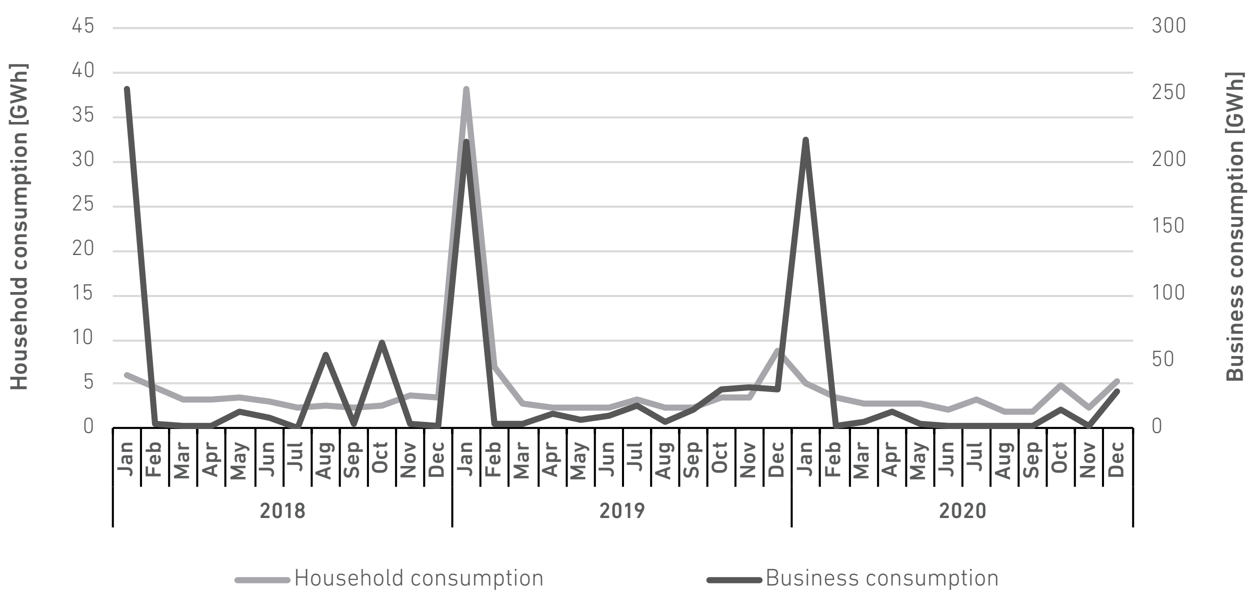
SOURCE: ENERGY AGENCY

Business consumers carried out more than half of all switches in January, which is a normal pattern of behaviour for these consumers, as a comparable proportion of switches took place in January and December-January as well in previous years. As a rule, the delivery contracts expired at that time. The share of energy exchanged for business customers in 2020 was 3.5%. The amount of energy exchanged is the estimated annual consumption of natural gas by consumers who switched supplier.

In recent years, in the EU, the largest share of supplier switching among business consumers (based on the energy exchanged) was recorded in Italy[51] with a value of 31.4%, while nine more countries had a share of switching above 10%, which is significantly higher than in Slovenia.

Figure 166 shows the trend in the quantities of natural gas exchanged over the period from January 2018 to December 2020.

FIGURE 166: QUANTITIES OF EXCHANGED GAS WITH RESPECT TO THE TYPE OF CONSUMPTION



SOURCE: ENERGY AGENCY

51 Monitoring Report on the Performance of European Retail Markets in 2018, CEER, november 2019

As can be seen in Figure 166, the quantities of gas exchanged in the segment of household consumption was the highest in January and December, indicating a typical seasonal pattern of supplier switching intensity during the heating season, when the price of natural gas has a significant impact on the total supply costs of an individual consumer.

Estimating the Potential Benefits of Switching Supplier

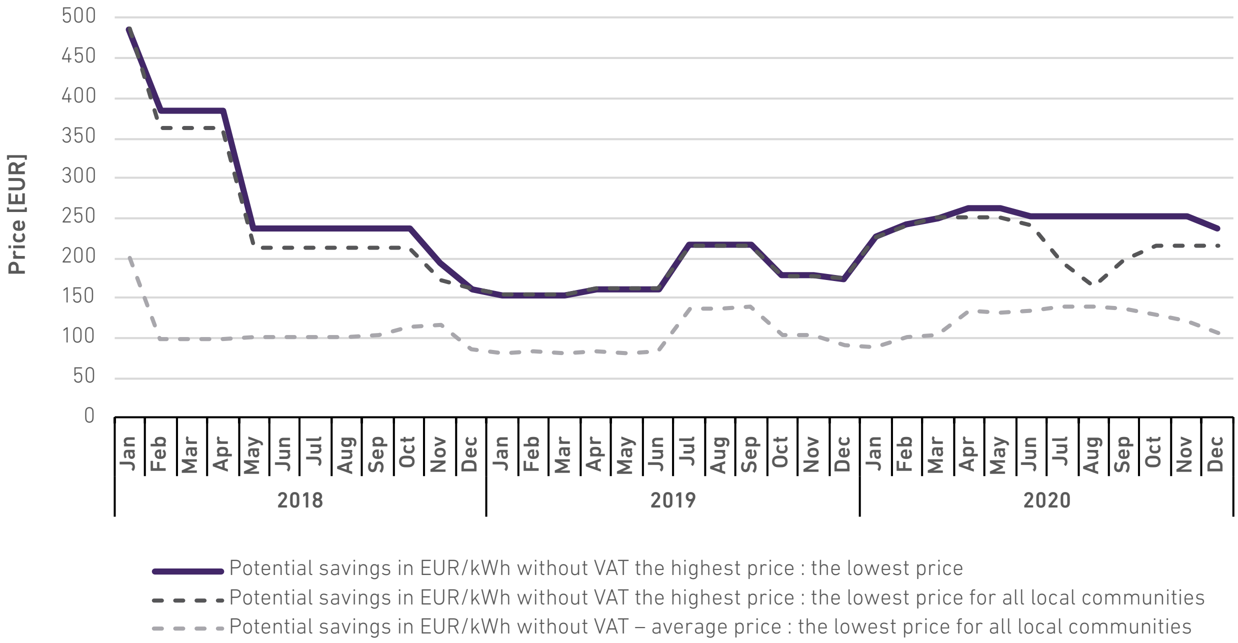
By switching suppliers, each household or legal entity can reduce its annual natural gas costs, harmonise and improve contractual relations with the supplier, and thereby receive additional benefits. As the consumption of natural gas is closely linked to the heating season period, consumers can achieve high savings in the months with the highest consumption, if they are supplied on the basis of a more affordable supply.

Figure 167 shows the fluctuation of potential savings for a typical household consumer with an annual consumption of 20,000 kWh.

Consumers could reduce the cost of natural gas supply by 18% on average

.

FIGURE 167: POTENTIAL SAVINGS IN CASE OF SWITCHING NATURAL GAS SUPPLIER FOR A TYPICAL HOUSEHOLD CONSUMER IN THE PERIOD 2018–2020



SOURCE: ENERGY AGENCY

The potential savings in switching from the supplier with the highest supply price to the lowest supply price available in all local communities ranged between EUR 226 and EUR 262 in 2020, on the assumption that the supply would take place under the same conditions over a twelve-month period. Compared to 2019, consumers had the opportunity to achieve higher savings in 2020. The potential savings of replacing the product with the highest price with the lowest price possible only in individual local communities could be higher up to 40%, and when replacing the highest price with the lowest available in all local communities, the potential savings could be 25% higher than the previous year. When the offer was replaced by the average price with the lowest price, it was possible to achieve 21% higher potential savings. For a well-functioning and competitive retail market, it is important that end customers actively monitor the offers and supply conditions of individual suppliers sufficiently, identify savings opportunities and switch suppliers, as they will pay less for supply and encourage suppliers to compete more and offer more competitive services.

Measures to Promote Competition

The Energy Agency monitors the natural gas retail market and cooperates with regulatory and supervisory authorities at the national level, such as the market inspectorate of the Republic of Slovenia, the Slovenian Competition Protection Agency and, where appropriate, with independent and non-profit consumer organisations. The Energy Agency's actions are diverse and result from internal analyses of the Energy Agency, bilateral activities and results of public consultations. Within the framework of the single contact point, the Energy Agency keeps up-to-date relevant information on market development.

The price of natural gas as an energy product is not regulated and is created freely in line with supply and demand on the wholesale and retail markets.

In the natural gas market, the Energy Agency carries out activities to unify the most important data exchange processes at the national and regional levels. The Act on the Identification of Entities in Electronic Data Exchange Between Electricity and Natural Gas Market Participants obliges market participants to use standardised identifiers of key data entities in the electronic exchange of data on the market. The implementation of data exchange processes in the natural gas market is not yet largely based on open standards. The harmonisation of data exchange processes in the natural gas market is very slow. In autumn 2018, the Economic Interest Association for the Distribution of Natural Gas decided to use the standard GS1 for harmonised labelling of metering points in all the natural gas distribution networks in Slovenia. The uniform and standardised identification of measuring sites across Slovenia is important for reducing the costs of implementing IT systems by market participants (entry costs for new entrants), for improving the efficiency of the supplier change process and for the effective deployment of data and other services in the relevant market. According to the information available, the process of shifting to standardised labelling, which started at the beginning of 2019, is underway and the marking of measuring sites on the basis of standardised identifiers by the end of 2020 has not been yet implemented.

In the natural gas market, the same rules apply as regards the prevention of restrictions of competition and abuse of dominant position as for other goods. As is apparent from publicly available data, in 2019 the Slovenian Competition Protection Agency did not find any restrictive practices or a possible dominant position in the natural gas market in the case of companies operating in the natural gas market. In the context of the assessment of concentrations in 2019, no concentrations were notified on the natural gas market.

Security of Natural Gas Supply

In 2020, gas supply in Slovenia took place without interruptions and disruptions, which was ensured by appropriate measures in particular by the transmission operator and natural gas distribution system operators even during the period when the COVID-19 measures were in force. In addition, gas supplies in all EU Member States and gas transport routes to Europe have been ensured throughout this period.

The Slovenian gas system is connected to the transmission systems of three neighbouring countries. Regulation (EU) 2017/1938 requires a solidarity agreement for each border between EU Member States whose gas systems are connected. The preparation of these agreements has started earlier across the EU, and in 2020 Member States made the greatest progress so far in the preparation of these agreements. They are being prepared for the first time and, in particular, due to the possible financial implications of different solutions, the preparation is very demanding and time-consuming. Draft agreements were prepared or renewed in 2020; a second round of substantive coordination has already taken place with Italy, a first round with Austria, and alignment with Croatia has yet to start. The preparation and coordination of such agreements took place throughout the year in other EU countries and is still ongoing, with only the first such agreement concluded in December 2020 for the border between Germany and Denmark.

Renewal of the Preventive Action Plan and the Emergency Plan

In accordance with the EU Regulation, the Energy Agency, as the Competent Authority, has issued new acts to redefine the preparedness of natural gas for the occurrence and resolution of possible crisis situations that may arise in the event of otherwise unlikely gas shortages. The acts provide for a preventive action plan and a natural gas emergency plan. In substance, they are in line with the EU Regulation and will need to be supplemented in particular to include solidarity assistance, which will be possible after the above-mentioned agreements have entered into force. The two acts are more extensive and detailed compared to the previous ones, which required longer coordination. New developments in the Emergency Plan Act include, for example, the requirement that the procedures laid down therein be tested over a maximum period of four years.

The acts mainly regulate the supply of protected customers. The Preventive Action Plan Act sets out a supply standard that determines annually the quantities of gas to be provided by gas suppliers to protected customers. In order to meet the supply standard for the whole of Slovenia, in the gas year starting on 1 October 2020, suppliers must ensure that:

- average daily quantities of 14,851 MWh/day over a seven-day period with the lowest temperatures;
- a total of 30-daily volumes of 276,123 MWh or an average of 9,204 MWh/day over a 30-day period with particularly high demand; and
- average daily quantities of 10,515 MWh/day over a 30-day break-off period on the single largest infrastructure.

Suppliers have also demonstrated the necessary diversification of supply sources and transmission routes for these volumes of natural gas. Sufficient free transmission capacity is available to transport these quantities of gas.

27% LESS

DISCONNECTION OF HOUSEHOLD CONSUMERS OF BOTH ELECTRICITY AND NATURAL GAS COMPARED TO 2019

A DECLINE IN THE NUMBER OF EMERGENCY CARE APPLICATIONS

42% LESS

CANCELLED ELECTRICITY SUPPLY CONTRACTS

Consumer protection - the right to quality, reliable, and affordable energy

OVER THE PAST THREE YEARS, A MARKED TREND TOWARDS INCREASING THE NUMBER OF COMPLAINTS MADE BY HOUSEHOLD CONSUMERS AGAINST ELECTRICITY SUPPLIERS

21% LESS

TERMINATED CONTRACTS FOR THE SUPPLY OF NATURAL GAS

INCREASE IN COMPLAINTS DUE TO NON-CONNECTION OR FAILURE TO GRANT APPROVAL TO CONNECT SELF-SUPPLY FACILITY

CONSUMER PROTECTION

One of the key objectives of the Energy Agency's operation is to promote effective competition and thus a well-functioning market, thereby ensuring the benefits of all customers within the scope of the regulatory powers, while protecting consumers (household customers). A key role in protecting consumers' rights in the field of energy is performed by the Energy Agency and indirectly by other market participants and institutions.

The area of consumer protection focuses in particular on protecting the rights of household customers, as these players are, as a rule, not very active in the energy market. This could be the result of ignorance of the rights and facts that they do not have a strong negotiating position in contractual relationships, are among the weaker players and therefore require special protection.

The EA-1 ensures the protection of consumers' rights the most important of which are:

- the right to be informed,
- the right to emergency supply (for household customers),
- the right to last resort supply (for electricity consumers),
- the right of appeal to suppliers and to out-of-court dispute resolution (for household customers),
- the right to protection of rights in the administrative procedure,
- the right to safe and reliable operation and to a quality supply of electricity or natural gas at a reasonable price.

Under the mandate given to the Energy Agency by the EZ-1 in the area of consumer protection, the Energy Agency again sent questionnaires to operators and suppliers in the field of electricity and natural gas for the reporting year 2020. We obtained information on security and emergency supply, notifications of intended disconnection, actual disconnection and reconnection of disconnected final customers, and customer complaints against the operator, customer complaints against suppliers, terminations of supply contracts and suppliers' activities in the event of non-payments of household customers.

The Right to be Informed

Informing customers of their rights, applicable rules and general acts of public authority, as well as methods for dealing with complaints concerning the supply of electricity and natural gas, is managed by the Energy Agency, which publishes on its website all necessary information in the single contact point. It lists links to wider content that is relevant to household customers, including a link to a comparison and calculation of supply costs tool managed by the Energy Agency.

Suppliers and operators are also responsible for informing customers. Electricity suppliers must inform customers about the origin of the electricity supplied and all suppliers and operators must periodically inform[52] final customers about consumption and consumption characteristics[53]. All suppliers of electricity and natural gas customers should also be informed of the general conditions of supply, which they ensure at least through publication on their website, and these terms are published on the Energy Agency's website. Household and small business customers must be informed at least one month prior to the entry into force of any change in the general conditions of supply relating to the performance of the contract. As a result of the change in the general terms of supply, household or small business customers may terminate the delivery contract without notice or without any obligation to pay the contract within one month of the date of entry into force of the general terms and conditions, which requires suppliers to inform them in the notification of the modification of the general terms and conditions.

Electricity and natural gas distribution system operators must inform customers before they are connected to the system that they are free to choose their supplier on the market. In order to facilitate the choice of supplier, a comparison of supply costs is available on the Energy Agency's website, which contains information on packaged and action offers from electricity and natural gas suppliers and price lists, as well as a comparison and calculation of supply costs on a monthly or annual basis. The comparator is intended primarily for household and small business customers and enables them to verify the monthly calculation of electricity or natural gas supplied and the calculation of the cost of using the network.

In order to provide customers with all the information required, the Energy Agency carries out control procedures in this area. In 2020, the content of the control procedures concerned mainly:

- checking the provision of consumption data and comparing it with that of electricity suppliers and verifying information to final customers on dispute resolution methods with the supplier;
- verification of the conditions for obtaining the status of a closed distribution system (so-called grey CDS)
- disable direct access to data in order to inform final customers;
- the illegal and unfair commercial practices of suppliers;
- the flat-rate operating costs of suppliers,
- verification of members of the balancing group and inclusion in the balance scheme,
- ensuring that customers are informed about the rights and obligations relating to the choice of supplier and emergency or emergency supplies prior to connection.

In particular, the operation of controls has had a positive impact on the regulation of the management and take-over of the networks located in the so-called grey closed distribution systems, the electricity distribution system operator is provided with continuous and direct access to data, as well as effective informing users of their rights.

52 Customers are informed with indication on the invoice, through promotional materials or on the supplier's website.
53 Customers can regulate their energy consumption on the basis of data. If suppliers do not have this data, they must be provided by the operator.

The Right to Last Resort and Emergency Supply

The Right to Last Resort Supply

Last resort supply of electricity is provided by the electricity DSO if the supply contract of household or small business consumers is terminated because of measures resulting from the insolvency or illiquidity of a supplier, or at the explicit request of household or small business consumers, of which they shall be duly informed.

The electricity price for last resort supply is regulated under the provisions of the EA-1, set by the electricity DSO and made public. The price must be higher than the market price for the supply of a comparable customer and must not exceed the price by more than 25%. If the electricity DSO does not set it or sets it contrary to the rules, the price is set by the Energy Agency.

In June, the DSO provided last resort supply to two business consumers, while no household or small business consumers were supplied under last resort supply in 2020.

The Right to Emergency Supply

Emergency supply is a measure that, subject to certain conditions, delays the disconnection of electricity or natural gas and is intended only for extreme cases of endangering the life and health of a vulnerable customer.

The definition of a vulnerable customer is left to each EU Member State. The latest ACER report on consumer protection for 2019[54] shows that most Member States associate the definition of vulnerable customers with the level of income in the household (19 in the field of electricity and 14 in the field of natural gas), the use of medical devices that are necessarily related to the use of energy (11 in the field of electricity and 6 in the field of natural gas), and age (9 in the field of electricity and 7 in the field of natural gas).

In Slovenia, the definition of vulnerable customers is set out in the EA-1, namely vulnerable customers are defined as a specific category of household customers who, due to their financial circumstances, income and other social circumstances and living conditions, are unable to obtain an alternative source of energy for household use that would incur the same or smaller costs for essential household use. A household customer may demonstrate the status of a vulnerable customer and thus entitlement to the emergency supply with a certified statement from the Social Work Centre (SWC), showing that the household customer has applied for regular social assistance benefit before the receipt of the notification of the electricity DSO or natural gas DSO of its intended disconnection and the decision process has not yet been completed in the SWC.

Before disconnection, all DSOs must notify (as a rule by written notification of the intended disconnection) household customers of the possibilities of emergency supply, the conditions under which it is possible, and of the evidence to be provided by the customer in order to be approved for emergency supply by the operator, and of the time limits within which such evidence must be submitted.

The costs of an emergency supply of electricity to vulnerable customers are eligible costs of the electricity DSO, while in the case of the supply of natural gas, the expenses of emergency supply are borne by the natural gas DSO until they are paid by a vulnerable consumer.

Eligibility for emergency supply is assessed by the electricity and natural gas DSO and is carried out in accordance with the procedure laid down in the system operating instructions and, in the field of electricity, under the rules and criteria laid down by the Energy Agency in the Legal Act on the Criteria and Rules for Providing an Emergency Supply of Electricity.

The number of applications for emergency supply decreased compared to the previous year when five applications were made in the field of electricity and 22 in natural gas. In 2020, the electricity distribution system operator received two requests for emergency supply authorisation (not authorised) and eight distribution system operators, in six cases delaying the disconnection of the customer.

54 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume, page 72

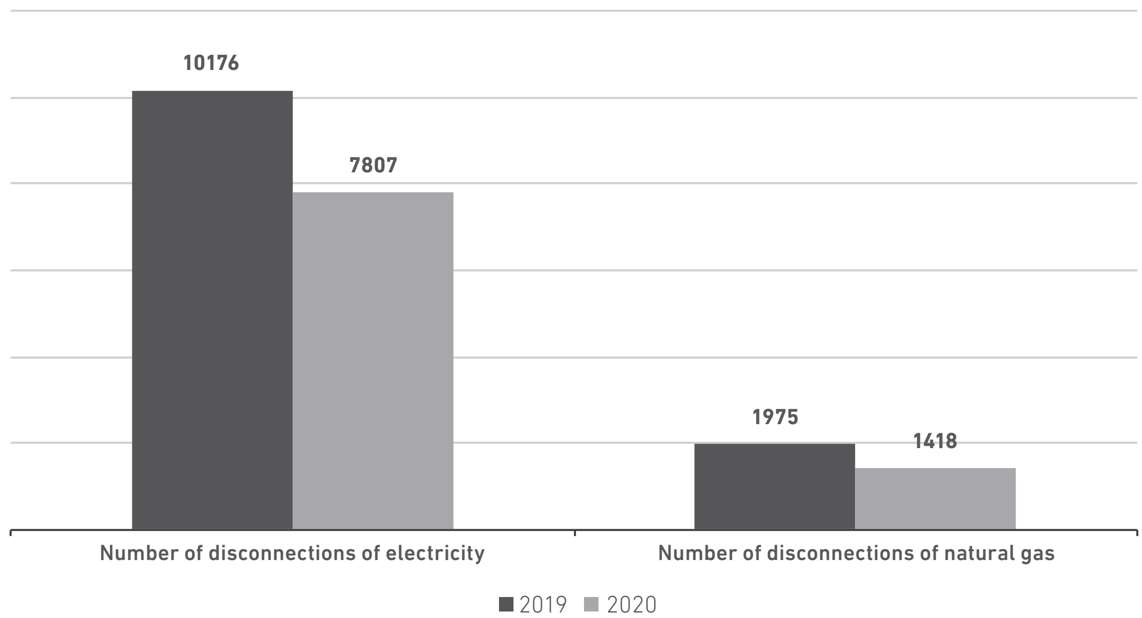
If the emergency supply application is not approved and the customer does not pay the energy supply bill, disconnection follows. Given that all other electricity consumers pay the costs of the emergency supply of the network, the eligibility criteria for emergency supplies are very strict. This is in line with the orientations of European legislation that Member States should provide measures to protect vulnerable consumers primarily through general social policy measures and other measures, which are not only linked to delay or non-payment of electricity bills.

Disconnections

Disconnecting the customer is one of the most extreme ways of correcting the infringements caused or committed by the customer. The distribution system operator of electricity or natural gas may disconnect the customer as a result of the termination of a supply contract terminated by the energy supplier or for other reasons (infringement) specified in the EZ-1. Depending on the nature of the infringement, the disconnection procedure is carried out with prior notice, without prior notice or at the request of the system user.

A total of 7,807 electricity consumers and 1,418 natural gas consumers were disconnected in 2020.

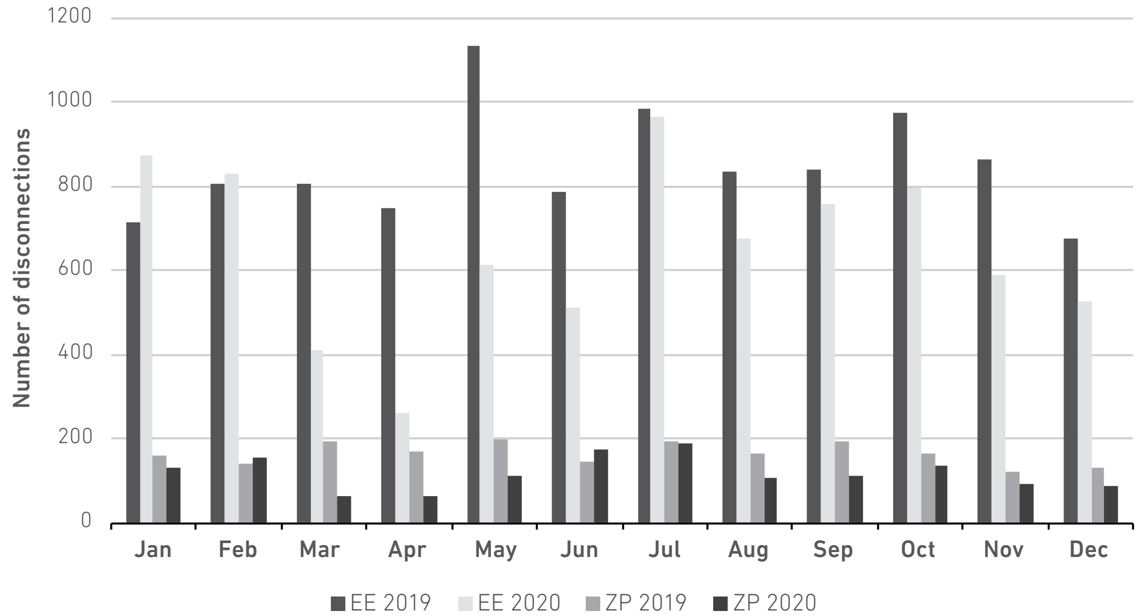
FIGURE 168: COMPARISON OF THE NUMBER OF DISCONNECTIONS IN 2019 AND 2020



SOURCES: OPERATORS, ENERGY AGENCY

The number of disconnections of electricity decreased by 23% compared to 2019. As shown in Figure 169, the largest decrease in disconnections is observed in the March–June period (with 65% fewer disconnections than in the previous year), coinciding with the declared COVID-19 epidemic.

FIGURE 169: COMPARISON OF THE NUMBER OF DISCONNECTIONS BY MONTH IN 2019 AND 2020

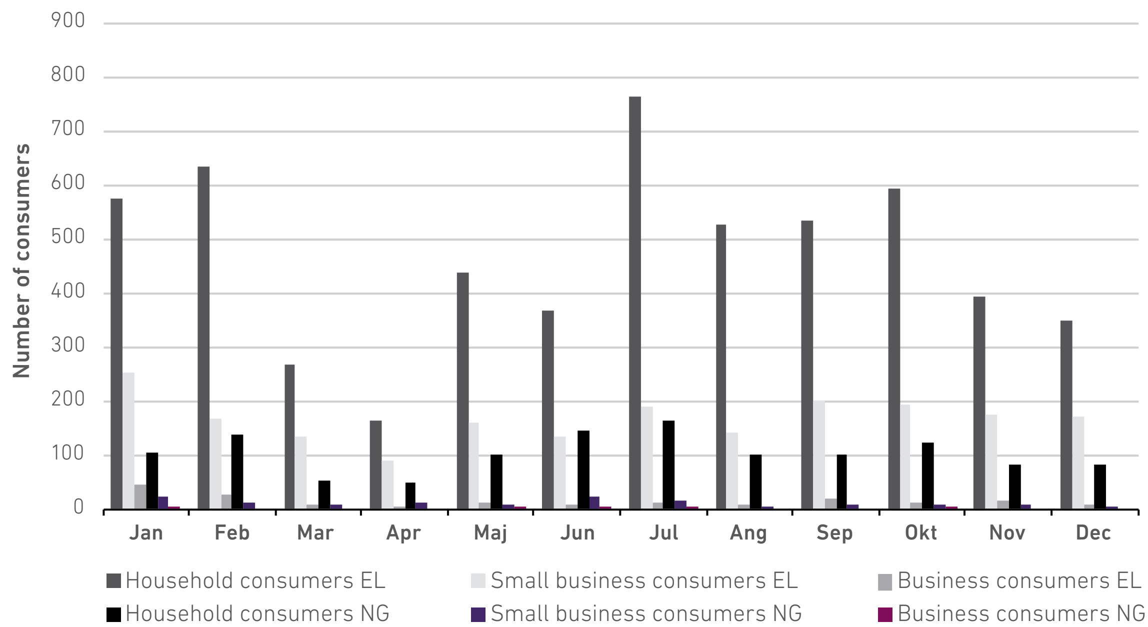


SOURCES: OPERATORS, ENERGY AGENCY

Disconnections According to the Disconnection Procedures

One of the reasons for disconnecting is the failure to pay the network charge. This is a disconnection subject to prior notice provided by the distribution system operator of the electricity or natural gas distribution system after the customer has been informed by the energy supplier of the termination of the supply contract due to outstanding obligations. Seventy-two per cent of all disconnections in the field of electricity concerned the disconnection of household customers (5603), while the share in natural gas was even higher, accounting for 88% (2,510 disconnections of household natural gas customers). Domestic electricity and natural gas consumers were most disconnected in July, resulting from Figure 170.

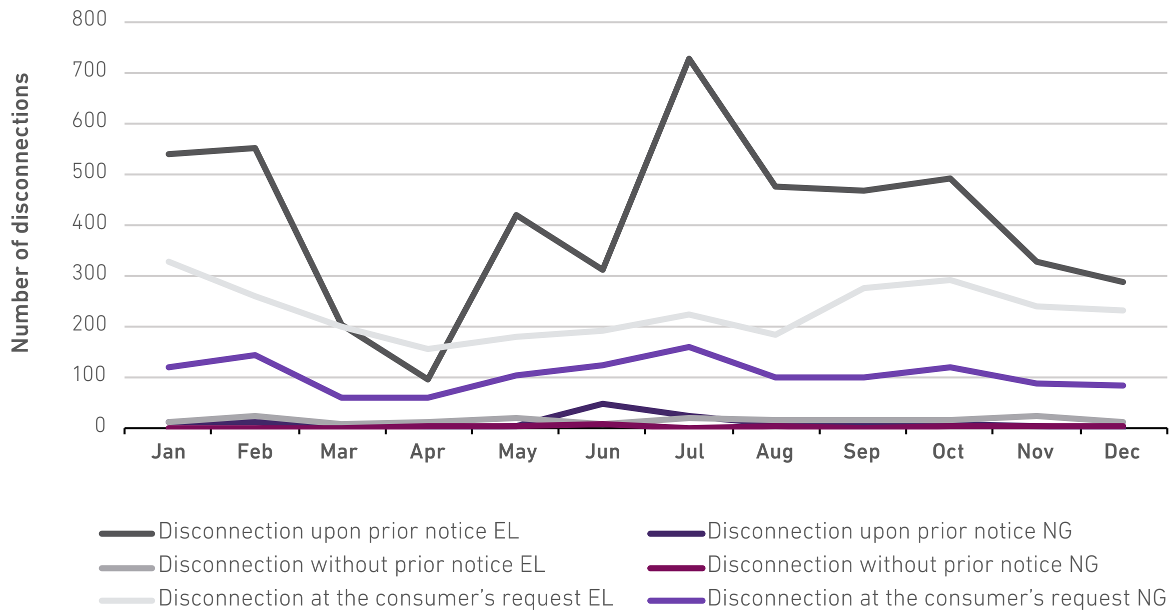
FIGURE 170: DISCONNECTIONS BY GROUPS OF END CONSUMERS



SOURCES: OPERATORS, ENERGY AGENCY

The reasons for the disconnection of electricity and natural gas differ in particular in that the most common reason for the disconnection of electricity is non-payment and therefore the termination of the supply contract (disconnection upon prior notification), while in the field of natural gas most disconnections are made at the request of the customer (Figure 171).

FIGURE 171: DISCONNECTIONS ACCORDING TO THE DISCONNECTION PROCEDURES



SOURCES: OPERATORS, ENERGY AGENCY

The EZ-1 requires operators of the distribution system of electricity and natural gas to inform the household customer of its intended disconnection with a prior warning at least 15 days before the intended disconnection and business customers at least eight days before the intended disconnection. In the meantime, customers may eliminate the reasons for which they are at risk of disconnection and household customers may exercise any right to emergency care.

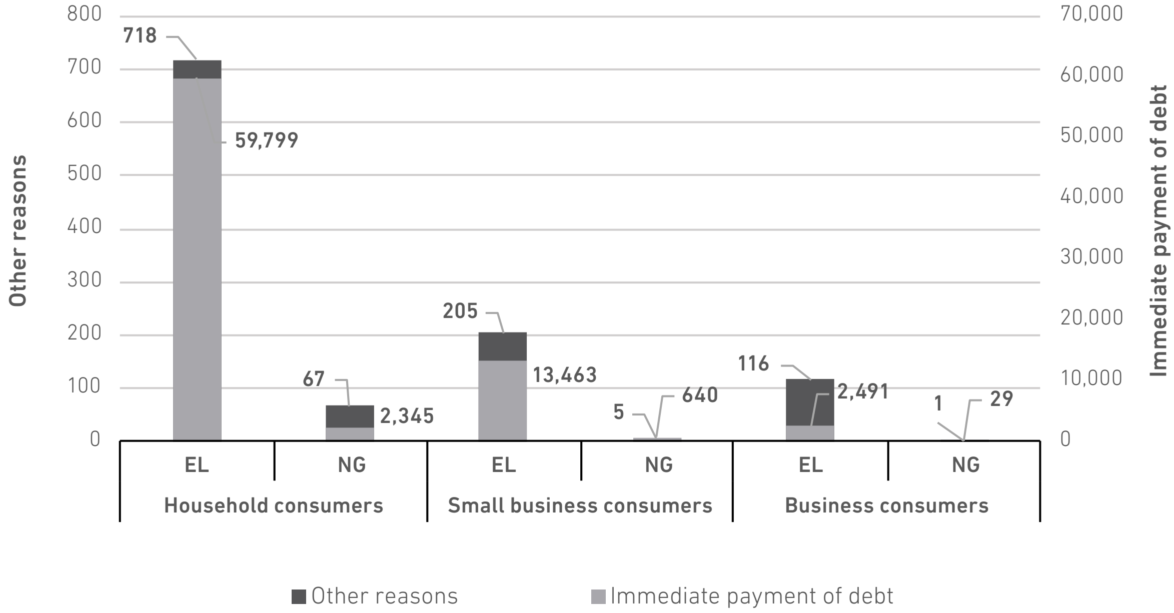
Cancellation of the Supply Contract

Electricity suppliers often cancel the supply contract to household customers due to non-payment. In 2020, all cancellations of supply contracts to household customers were 60,517, of which 59,799 contracts were cancelled due to non-payment.

Suppliers of natural gas cancelled 2,412 contracts for household customers in 2020, of which 2,345 contracts were cancelled due to non-payment. Here, too, there is a decrease of 21% compared to 2019.

42% less cancelled electricity supply contracts and 21% less for the supply of natural gas

FIGURE 172: TERMINATION OF SUPPLY CONTRACT BY SUPPLIERS

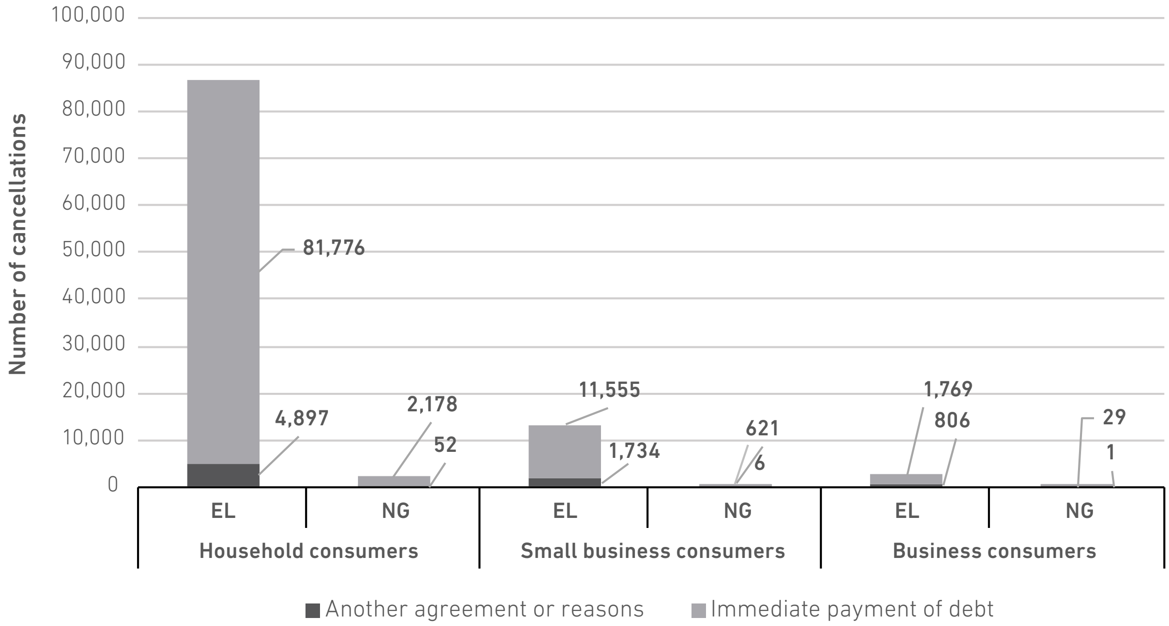


SOURCE: OPERATORS, ENERGY AGENCY

The number of cancellations of electricity supply contracts increased by 33% compared to the previous year. As shown in Figure 173, in 2020, electricity suppliers cancelled their supply contract 86,673 times, of which 81,776 were due to immediate repayment of the debt. In the field of natural gas, there has been a decrease in the number of cancellations of contracts in the past year, with 2.230 cancellations for household customers (3,089 in 2019), of which 2,178 due to debt repayment and 52 for other reasons or arrangements.

94% of all cancellations of electricity supply contracts to household customers cancelled due to immediate repayment of debt

FIGURE 173: CANCELLATION OF TERMINATION OF SUPPLY CONTRACT BY SUPPLIERS



SOURCES: SUPPLIERS, ENERGY AGENCY

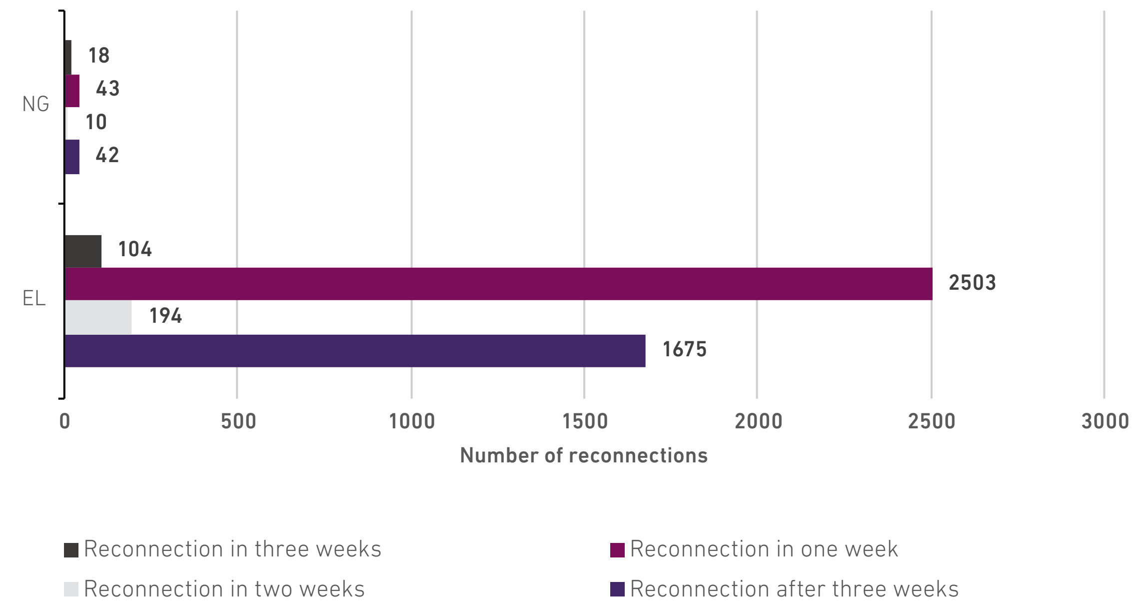
Of the 855,039 household electricity consumers, 59,799 supply contracts have been cancelled by electricity suppliers, which is almost 7% of all household consumers. Indeed, according to the electricity distribution system operator, only 5,603 household electricity consumers were disconnected in 2020, representing 0.7% of all household consumer.

Of the 121,616 household consumers of natural gas, 2,345 supply contracts have been cancelled by natural gas suppliers, almost 2% of all household consumers. According to the natural gas distribution system operators, 1,255 household gas consumers were disconnected in 2020, representing 1% of all household consumers.

The main reasons for the termination of the contract for the supply of the household consumer due to non-payment, followed by disconnection, are usually late payment culture or the poor social and financial situation of the household consumer.

27% less disconnection of household consumers of both electricity and natural gas compared to 2019

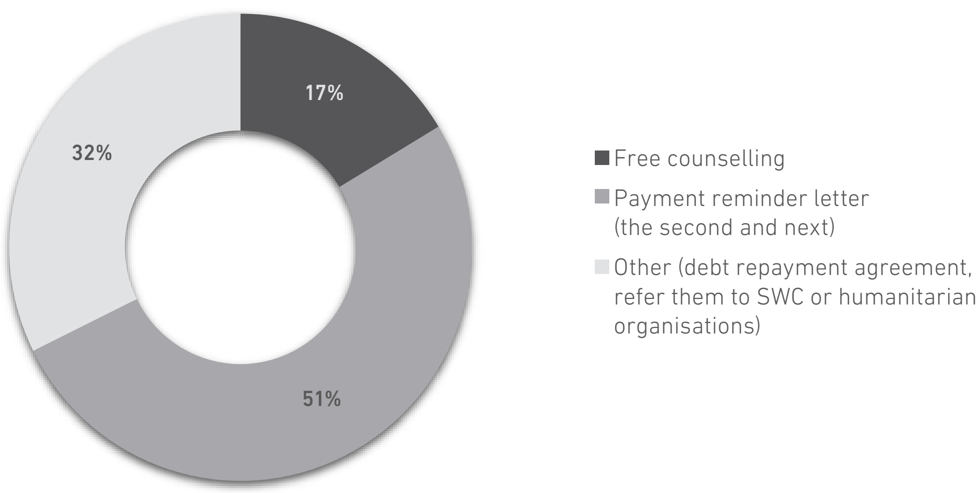
FIGURE 174: RECONNECTIONS



SOURCES: OPERATORS, ENERGY AGENCY

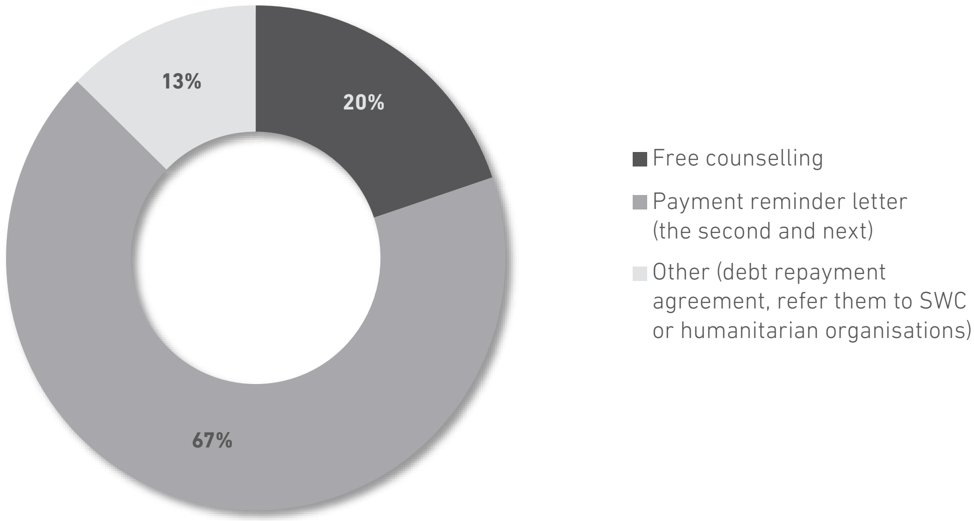
Figure 174 shows that the majority of household electricity consumers (56%) and natural gas (38%) whose supply contract was terminated due to non-payment default were disconnected were reconnected to the grid within one week of their disconnection. The reconnection is usually due to the repayment of the debt. However, most electricity and natural gas suppliers also offer free advice to household consumers at risk of disconnecting, agreeing on debt payment, referring them to SWC or humanitarian organisations, or instructing them on the emergency supply institute.

FIGURE 175: AID MEASURES IN THE FIELD OF ELECTRICITY



SOURCES: ELECTRICITY SUPPLIERS, ENERGY AGENCY

FIGURE 176: AID MEASURES IN THE FIELD OF NATURAL GAS



SOURCES: NATURAL GAS SUPPLIERS, ENERGY AGENCY

Measures Related to the COVID-19 Epidemic

In order to protect consumers in the context of the epidemic measures, the Energy Agency in March 2020 adopted an amendment to the network charge tariffs. For the period from 1 March to 31 May 2020, household and small business consumers were not charged a tariff item for capacity charged or the price for this item was EUR 0.00/kW. Thus, for the average household consumer (and small business consumer) the network charge on the invoices for this period decreased.

The Government of the Republic of Slovenia also adopted a measure whereby household consumers and small business consumers did not pay a contribution to the production of renewable energy sources during this period, which further reduced their bill. In addition, the Government of the Republic of Slovenia extended the payment deadline for small business and business consumers from 30 days to 60 days when the creditor is a public body. This deadline for payment remains in force for one year after the end of the epidemic.

As a result of the epidemic in spring, some energy suppliers have also taken measures to lower the price of energy charged to household consumers for a certain period of time.

Right of Complaint and the Out-of-Court Settlement of Consumer Disputes with Suppliers and Right of Complaint with Operators

Complaints and Out-of-Court Consumers' Dispute Settlements with Energy Suppliers

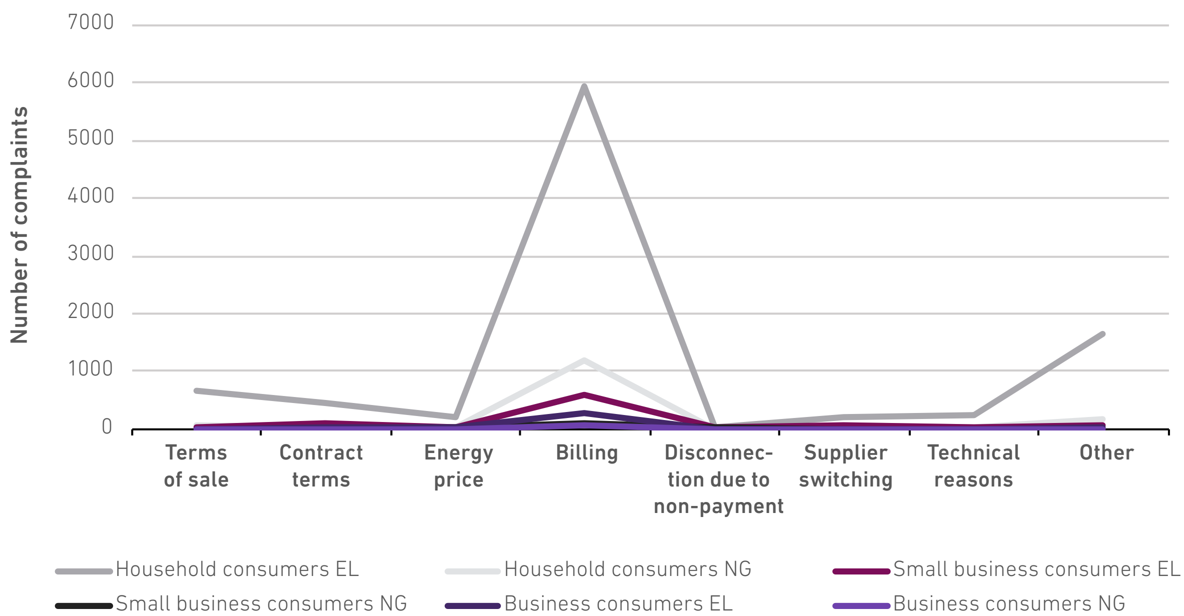
All consumers have the right to complain to the energy supplier. Disputes between small or large business consumers, on the one hand, and energy suppliers, on the other, are settled at first with an individual supplier and later on before the competent court. For household consumers, the EZ-1 also specifically regulates out-of-court dispute resolution with energy suppliers.

The number of complaints by household electricity consumers increased by 20% compared to the previous year to 9,410, while the number of complaints from household gas customers remained almost unchanged (four fewer complaints were submitted in 2020, i.e. 1,542).

Figure 177 shows the number of complaints from electricity and gas consumers against energy suppliers in 2020 by reason of substance. The largest number of complaints were lodged by household consumers of electricity and natural gas, with a significantly higher number of complaints submitted in the field of electricity than in natural gas. The majority of all consumer complaints related in substance to the invoice of the energy supplier. In doing so, it should be added that complaints against invoices include in part complaints against measured amounts of energy consumed or delivered electricity, which are subject to billing and which fall within the competence of the distribution system operators of electricity or natural gas that communicate this information to energy suppliers (the result of disagreement with measured amounts of energy is reflected in the number of complaints against invoices).

Over the past three years, a marked trend towards increasing the number of complaints made by household consumers against electricity suppliers

FIGURE 177: CONSUMERS' COMPLAINTS AGAINST SUPPLIERS BY REASONS

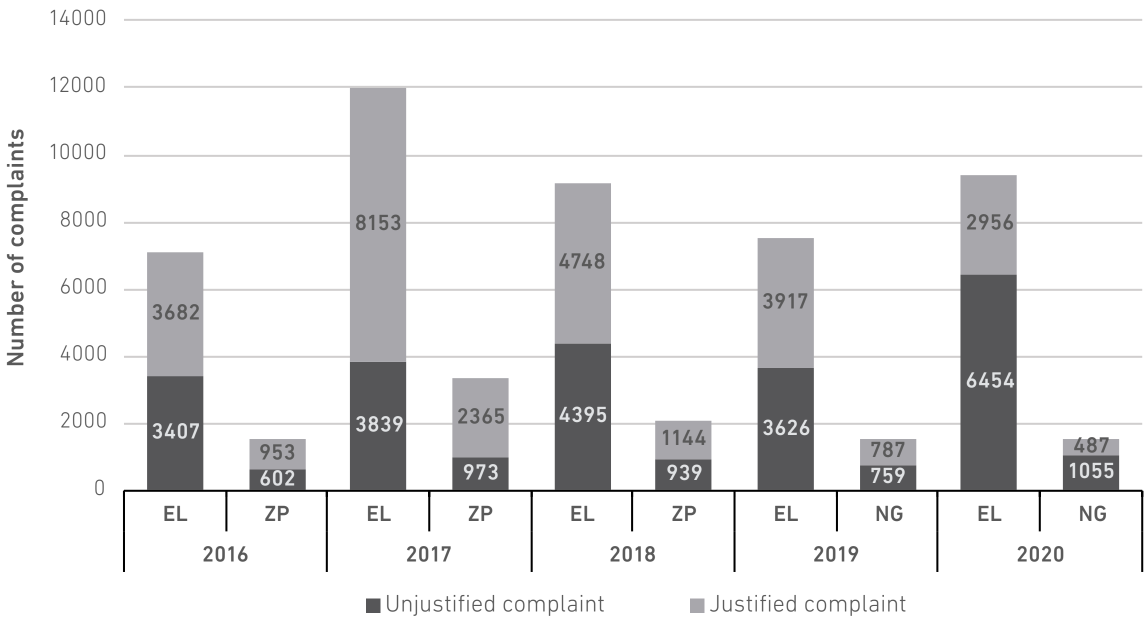


SOURCES: SUPPLIERS, ENERGY AGENCY

During the last two years, the suppliers approved most of the complaints, while in 2020 this trend reversed. In both electricity and natural gas, almost 70% of all complaints received were unjustified and consequently were not approved by energy suppliers. Figure 178 shows energy suppliers' decisions on complaints by household electricity and natural gas consumers depending on the type of decision.

Number of eligible complaints from household customers against suppliers is decreasing

FIGURE 178: SUPPLIERS' DECISIONS ON THE ELIGIBILITY OF COMPLAINTS BY HOUSEHOLD CONSUMERS IN THE 2015–2020 PERIOD



SOURCES: OPERATORS, ENERGY AGENCY

Only one household electricity consumer whose complaint was rejected as unjustified by the supplier continued with the out-of-court resolution of consumer disputes, while in the field of natural gas there were no requirements for the out-of-court resolution of consumer disputes in 2020. While consumers of electricity and natural gas are familiar with this dispute resolution option, they do not use it.

Eventual breaches of the general consumer protection rules in Slovenia are also monitored and sanctioned by the Market Inspectorate of the Republic of Slovenia, but with the amendment of the EZ-1 in 2019 regarding the powers to control unfair commercial practices related to:

- untrue or misleading presentation of the company, which the person addressing the end consumer represents, or in the name and on behalf of which he acts;
- listing false reasons for visiting end consumers;
- false or misleading claims relating to contract,

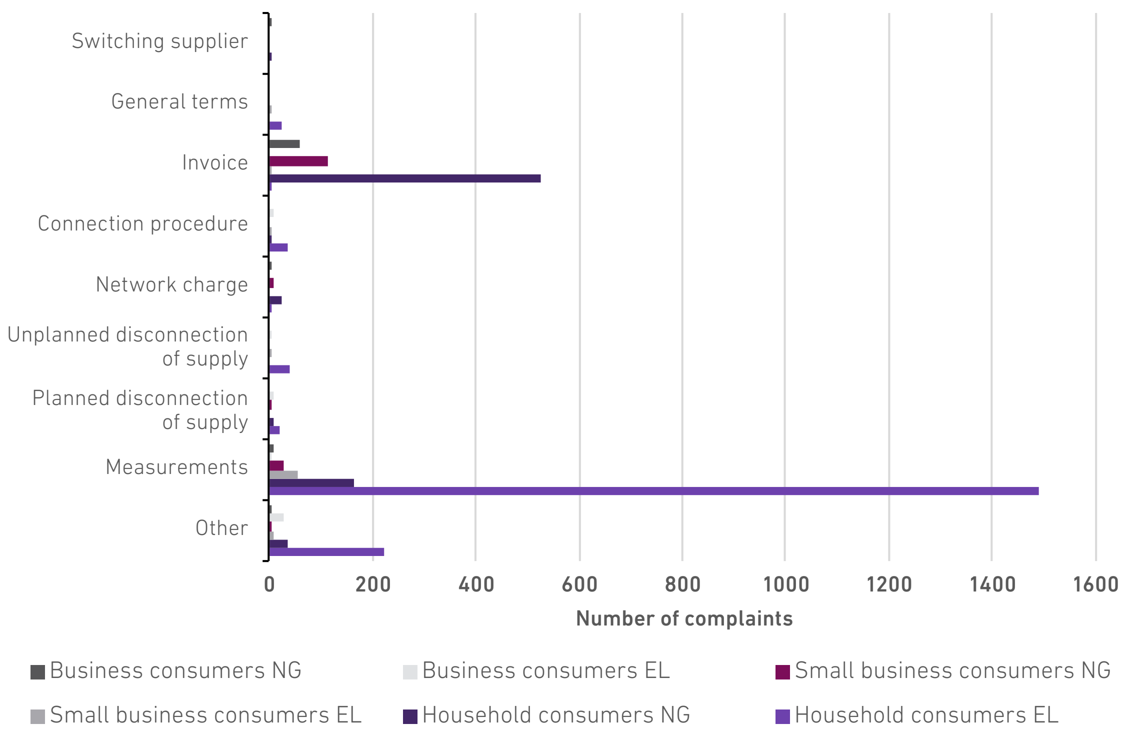
transferred from the Market Inspectorate of the Republic of Slovenia to the Energy Agency. In 2020, the Energy Agency started four supervisory procedures relating to unfair commercial practices.

Consumer Complaints to Electricity and Natural Gas Distribution System Operators

In the event of disagreement with the operator relating to the bill, measurement, network charges, interruption, etc. (more in the figure below), consumers have the right to submit a complaint directly to the operator of the electricity or natural gas distribution system. Where consumers fail to resolve complaints directly with electricity or natural gas distribution system operators, disputes are being settled by the Energy Agency in accordance with the procedures described in more detail in the following chapter.

A total of 1,970 complaints from electricity consumers were submitted directly to the distribution system operator in 2020 and 994 complaints to natural gas distribution system operators (almost a third less than in the previous year). Most complaints were addressed to electricity and natural gas distribution system operators by household consumers (1,841 electricity consumers and 764 natural gas); most complaints related to measurements in the field of electricity and in the field of natural gas to invoices issued.

FIGURE 179: NUMBER OF CONSUMER COMPLAINTS TO OPERATORS BY REASON

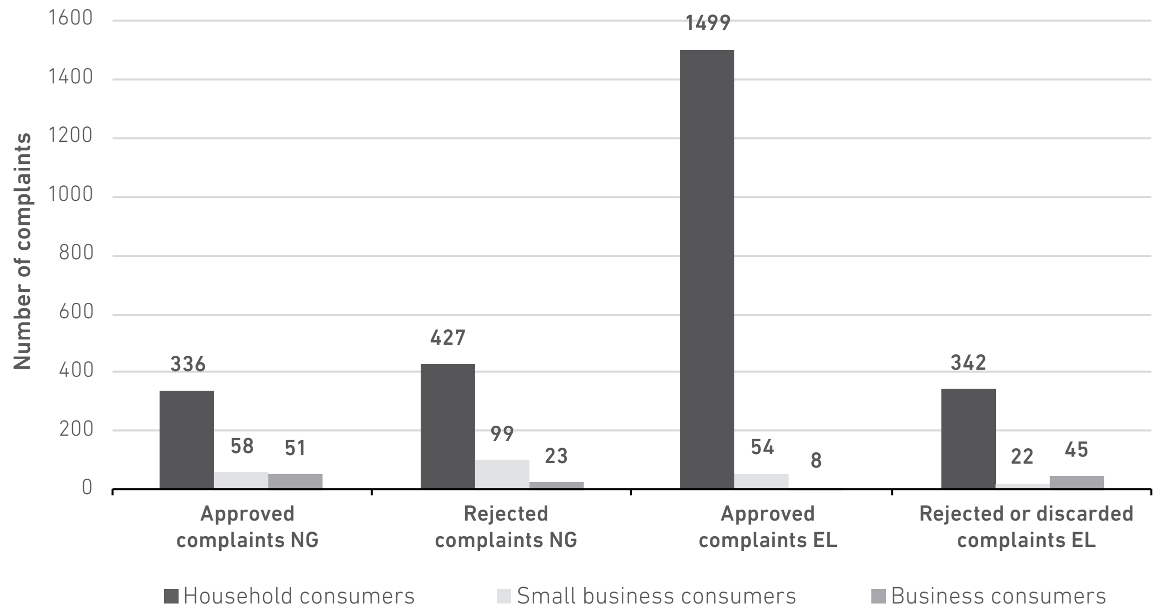


SOURCES: OPERATORS, ENERGY AGENCY

Figure 180 shows the number of approved and rejected complaints against electricity and natural gas distribution system operators.

Out of a total of 1,970 complaints from all electricity consumers, 79%, or 1,561, were approved, the rest were rejected (404) or discarded (5). In the field of natural gas, there is a reverse trend–most complaints are rejected, but none have been disregarded, operators approved only 45% of complaints filed. There is also a sharp decline in the number of complaints in the area of natural gas compared to the previous year. In 2020, a total of 994 complaints were filed in the field of natural gas, while the year before there were 1,372 complaints.

FIGURE 180: NUMBER OF COMPLAINTS DEALT WITH BY OPERATORS



SOURCES: OPERATORS, ENERGY AGENCY

The Right to the Protection of Rights in the Administrative Procedure

In addition to electricity or natural gas consumers, suppliers of electricity or natural gas may make a request to resolve a dispute before the Energy Agency. These are disputes brought before the Energy Agency by those eligible entities vis-à-vis the transmission system operators of electricity and natural gas, distribution system operators of electricity and natural gas, or before the electricity market operator, subject to the prior implementation of the procedure laid down by the EZ-1 before requesting a decision by the Energy Agency.

The disputes related to infringements of the Decree on self-supply of electricity from renewable energy sources are also added to the disputes within the competence of the Energy Agency relating to access to the system, the amount charged for the use of the system, breaches of the system's operating instructions, and the discrepancies identified.

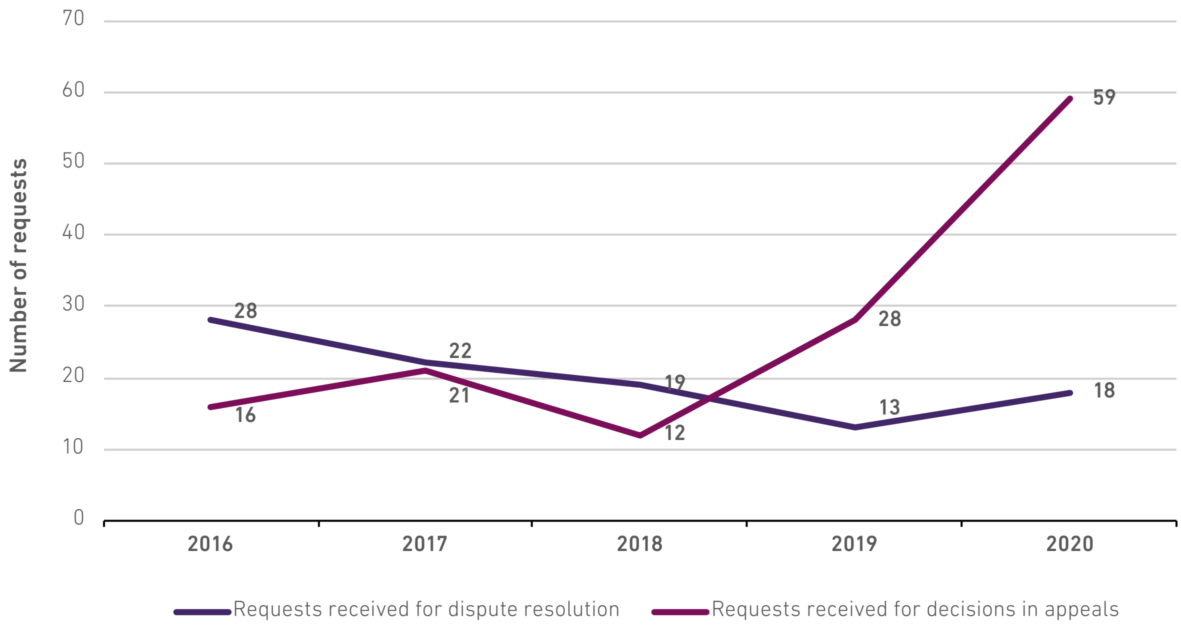
Administrative procedures before the Energy Agency are quick and free of charge. A request for dispute settlement is decided within two to four months.

In 2020, the Energy Agency took decisions in 79 proceedings (individual cases), in 19 cases on first instance disputes (one case transferred from the previous period) and in 60 cases at second instance–complaints concerning approval for the connection to the system (of which one case has also been transferred from the previous period).

Increase in complaints due to non-connection or failure to grant approval to connect self-supply facility

Of all the requests made, only three concerned the field of natural gas, one request for a decision in the dispute proceedings and two directly submitted complaints, which were referred to the first instance body. Once again, the number of complaints against approvals for the connection of installations for self-supply of electricity increased, as 20 complaints were related to the connection of self-supply production facilities, and 18 cases concerned a complaint about the silence of the first instance body for failure to grant consent to the connection of the plant, and one concerning the failure to grant consent to the connection of the installation. Figure 181 shows the ratio of the requests received decided by the Energy Agency at first and second degree over the last five years.

FIGURE 181: ENERGY AGENCY DECISIONS IN DISPUTES AND APPEALS IN THE 2016–2020 PERIOD



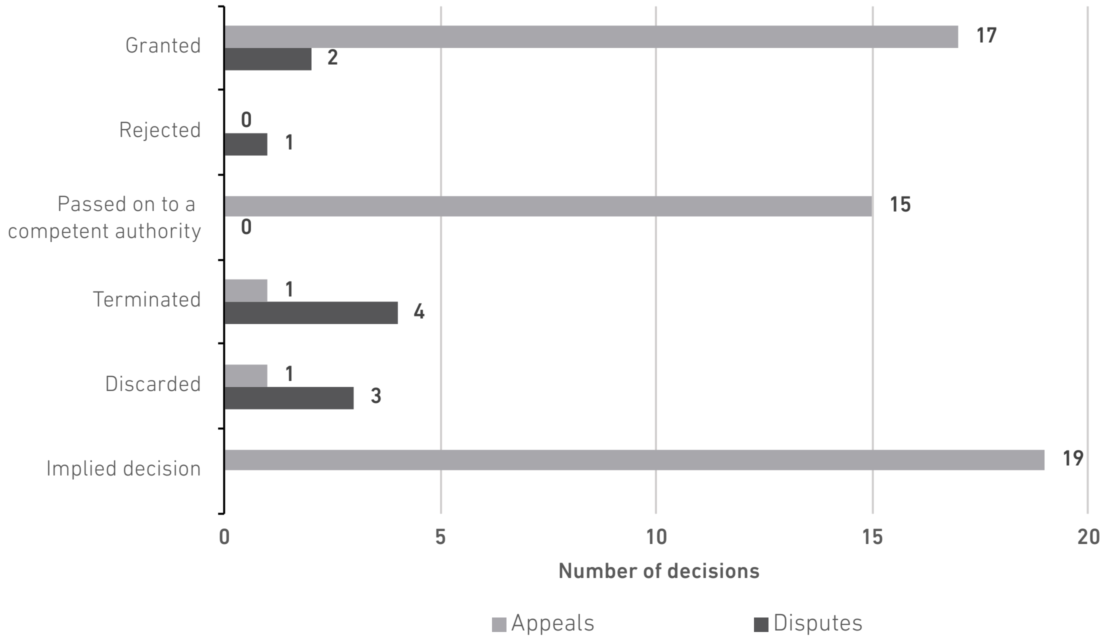
SOURCE: ENERGY AGENCY

Six requests for a decision in the dispute did not meet the conditions for initiating proceedings before the Energy Agency and, in these cases, applicants were referred to the preliminary procedure. Of the remaining 10 claims under consideration, the procedure was suspended in four applications (in most cases the parties were settled during the proceedings), three were rejected (either because of the Energy Agency's intrinsic lack of competence or because the preliminary procedure was not carried out), the other three were granted–one granted in full, one partially granted, and one was rejected. The three applications submitted were not yet decided in 2020.

The Energy Agency also protects consumers' rights by resolving complaints submitted by consumers against decisions of electricity or natural gas DSOs relating to the granting of connection approval.

In deciding on appeals against the consent to be connected in the field of electricity, the Energy Agency decided on procedural irregularities (a breach of the rules of administrative procedure) in most cases, whereby abolishing the contested act (connection approval) under the right of supervision in two cases.

FIGURE 182: ENERGY AGENCY DECISIONS IN DISPUTES AND APPEALS



SOURCE: ENERGY AGENCY

The Right to the Safe and Reliable Operation of the System and Quality of Supply

All consumers have the right to the safe and reliable operation of the system and to the quality supply of electricity and natural gas provided by the electricity and natural gas system operators in accordance with the system operating instructions to which the Energy Agency gives its approval.

At the systemic level, the quality of supply regulation seeks to improve or maintain the level already reached at optimal costs. In addressing the quality of electricity supply, various activities are carried out, such as monitoring, reporting, and data analysis of the following observed dimensions: power continuity, commercial quality, and voltage quality. In addition to the above, the Energy Agency shall also carry out the regulation of the quality of supply through the publication of data and analyses published in the report on the quality of electricity supply. In the field of commercial quality, we record maintaining of the level of service achieved, compared to the previous year; however, the share of eligible complaints increased. As regards the voltage quality, the number of complaints received and justified has increased. More on this can be found in the chapter on voltage quality in electricity.

In 2020, natural gas system operators continued to ensure reliable and safe operation for smooth and high-quality supply by carrying out regular and extraordinary maintenance work.

More on this can be found in the chapter on the safe and reliable operation and quality of the electricity supply and the chapter on the safe and reliable operation and quality of natural gas supply.

673 GWh

ENERGY SAVINGS,
11% MORE THAN IN 2019

Efficient use of energy - lower costs, less pollution, better security of energy supply

82%

OF ALL SAVINGS ACHIEVED
WITH ONLY FIVE MEASURES

91,921 TONS

REDUCED ANNUAL CO_2 EMISSIONS WITH IMPLEMENTED MEASURES

51%

OF ALL SAVINGS GENERATED BY INDUSTRY

250

LARGE COMPANIES FULFIL THE OBLIGATION OF ENERGY AUDITS

ENERGY EFFICIENCY

Energy efficiency is one of the most cost-effective measures to achieve sustainable energy policy objectives. Efficient use of energy means the introduction of modern technologies and measures that reduce energy use and hence greenhouse gas emissions and, at the same time, increase the share of RES in final energy consumption.

In the AN-URE 2017–2020 (National Energy Efficiency Action Plan 2017–2020), Slovenia committed not to exceed 82.86 TWh in 2020 and commitments under the NEPN that the use of primary energy would not exceed 73.9 TWh by 2030 and energy efficiency will increase by at least 35% under the baseline scenario of 2007, although a target increase of 32.5% is set at the EU level.

The stated objectives of energy efficiency policy in Slovenia are implemented through measures to promote energy efficiency in all final energy consumption sectors as well as in the transformation, distribution and transmission sectors, including networks for efficient district heating and cooling.

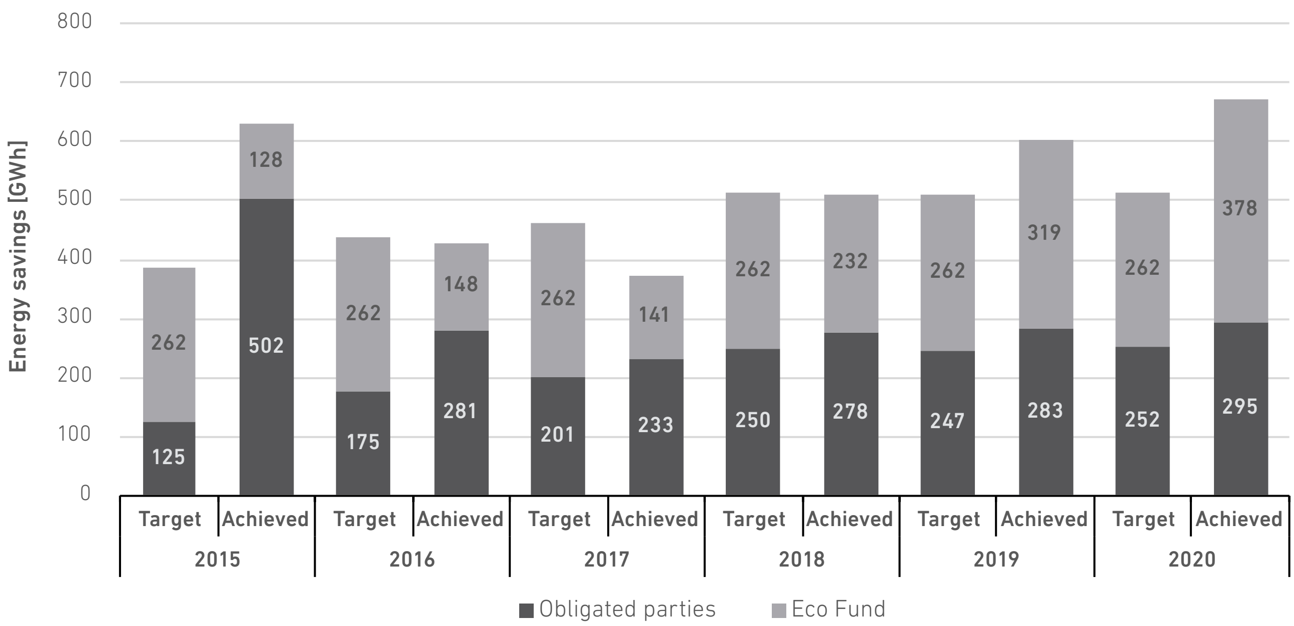
Slovenia achieves the majority of the energy savings with which it pursues its energy efficiency objectives by implementing measures in a mandatory energy savings system that binds energy suppliers to final customers and an alternative energy efficiency programme implemented by the Eco Fund. The savings achieved by these measures represent almost 85% of Slovenia's total final energy consumption savings since 2015.

The Energy Efficiency Obligation Scheme and Alternative Measure

As part of the mandatory energy savings system, Slovenia has to achieve, on an annual basis, 0.8% savings in final energy consumption, in accordance with Directive (EU) 2018/2002 amending Directive 2012/27/EU on energy efficiency. In doing so, the country took advantage of the possibility of applying the transitional period and stipulated in the Energy Efficiency Act that energy suppliers should reach 0.75% for final customers and suppliers of liquid fuels 0.25% of final energy savings for petrol and diesel, and gradually increased their commitment to the annual savings target of 0.8% by 2026.

Energy savings are also generated through an alternative measure implemented under the Energy Efficiency Programme of the Eco Fund. The programme shall be financed through funds collected from final energy consumers as part of the energy efficiency contribution.

FIGURE 183: COMPARISON OF TARGET AND ACHIEVED TOTAL ENERGY SAVINGS



SOURCES: ECO FUND, AN-URE 2017–2020, ENERGY AGENCY

In 2020, Slovenia also exceeded the annual energy savings target by implementing energy efficiency measures as part of the mandatory energy savings system and the alternative Eco Fund programme, as shown in Figure 183[55]. Overall, 673 GWh of energy savings were achieved in 2020, which exceeded the target for savings by 33%. The savings achieved in 2020 were also by 71 GWh or 11% higher than in 2019.

11% higher energy savings than in 2019

55 When verifying the savings achieved by suppliers in previous years, the Energy Agency identified deviations from the reported amounts of savings in each year and included them in this report.

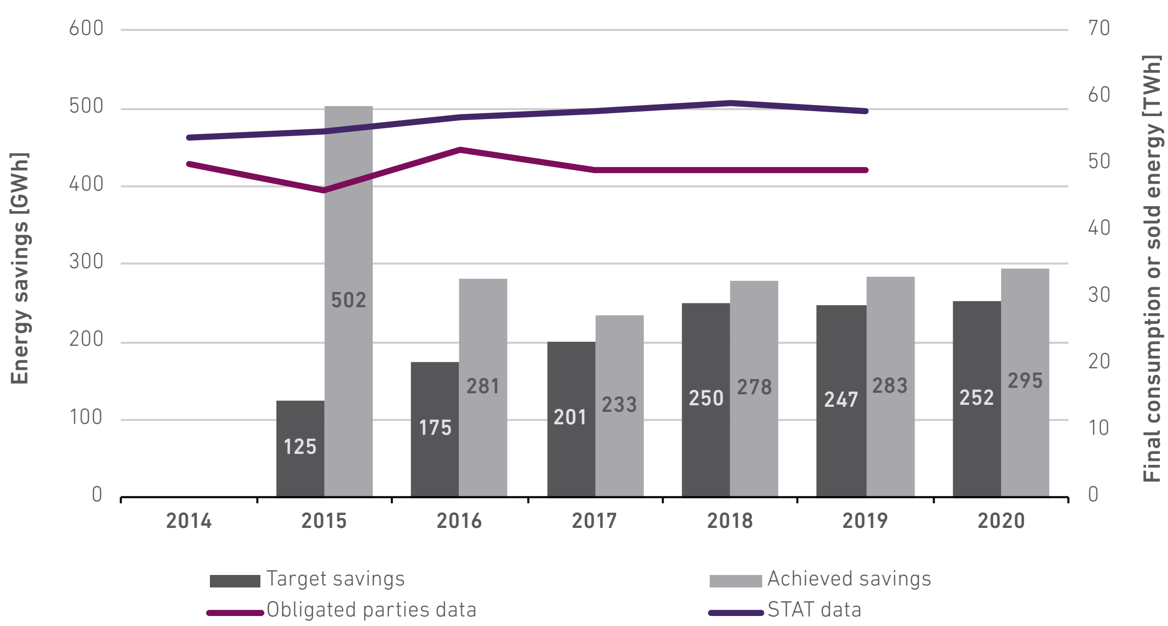
Target Energy Savings by Obligated Parties

Obligated parties are the suppliers of electricity, heat, gas and liquid and solid fuels to final customers, which also had to contribute to the implementation of energy efficiency measures in 2020 at the annual level to provide energy saving to the extent of 0.75% of sold energy to final customers in 2019. This obligation excludes suppliers of liquid fuels which had to achieve savings of 0.25% of the petrol and diesel sold in 2020. However, since 2020, solid fuel suppliers to final customers who deliver less than 100 MWh of energy per year have been exempted from the system of mandatory savings.

According to the reported data, energy suppliers sold 49,352 GWh of energy to final customers in 2019. Based on the quantity of energy products sold in 2019, the target savings in 2020 amounted to 252 GWh, which is 0.75% of the volume of energy products sold in 2019, except for liquid fuels, where the savings target was 0.25% of the energy products sold. Suppliers of liquid fuels (25,623 GWh) and electricity (12,193 GWh) sold most in 2019 and their target savings in relation to the defined shares in the regulation for 2020 amounted to 186 GWh (for liquid fuel suppliers 95 GWh and 91 GWh), which is 74% of the total energy savings target. The lowest energy was sold to final customers by solid fuel suppliers, i.e. only 305 GWh in 2019. Their energy savings target was 2 GWh.

Figure 184 shows the volume of energy products sold to final customers and a comparison with the final energy consumption data of the STAT and the energy savings target and achieved in the 2015–2020[56] period.

FIGURE 184: COMPARISON OF FINAL ENERGY CONSUMPTION OR SOLD ENERGY BETWEEN LIABLE ENTITIES DATA AND STAT IN THE 2015–2020 PERIOD AND TARGET AND ACHIEVED ENERGY SAVINGS OF LIABLE ENTITIES IN THE 2015–2020 PERIOD



SOURCES: ENERGY AGENCY, STAT

56 When verifying the savings achieved by suppliers in previous years, the Energy Agency identified deviations from the reported amounts of savings in each year and included them in this report.

With their contribution to the implementation of energy efficiency measures, suppliers achieved 295 GWh of energy savings in 2020, thus exceeding the target savings by 43 GWh and 17% in this year as in 2016–2019. Suppliers may also use excess savings over the previous three years to demonstrate their own target savings in a given year.

295 GWh generated energy savings

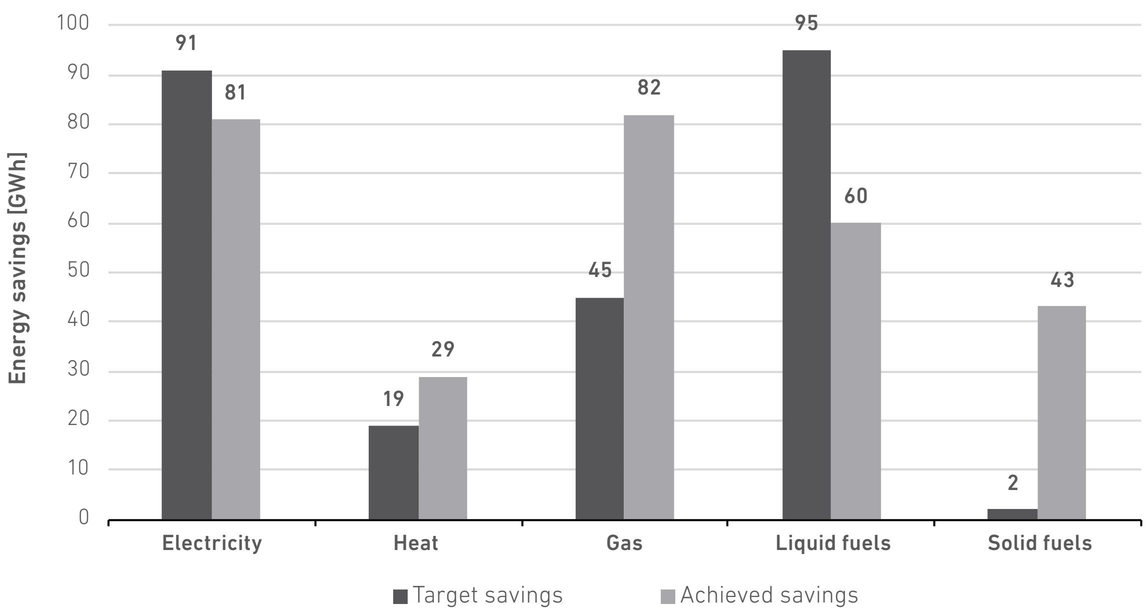
Activities of Suppliers to Achieve Target Energy Savings

The report for 2020 was submitted by 211 suppliers of energy products, while the previous year, 239 suppliers reported on the savings achieved. Overall, 145 suppliers achieved savings–20 with surpluses in previous years, 52 with participation in the implementation of the measures, and the remaining with their own contribution to the implementation of the measures. Among the suppliers (66) that have not achieved or have not fully achieved the energy savings target are the suppliers of solid fuels. However, the volume of target savings that these suppliers would have to achieve according to the reported amount of energy sold represents only 0.4% (0.9 GWh) of the target savings. Suppliers who, through their contribution to the implementation of energy efficiency measures, fail to deliver their energy savings target can fulfil their obligation for each MWh of unachieved energy savings by paying financial compensation to the Eco Fund. The value of the compensation is determined annually by the Eco Fund in accordance with the Decree on energy savings requirements.

Figure 185 shows that the largest savings were generated by gas suppliers, which have achieved 82 GWh of savings, and electricity suppliers with 81 GWh of savings. They are followed by suppliers of liquid fuels with 60 GWh, solid fuel suppliers with 43 GWh, and heat suppliers, which generated 29 GWh of energy savings. Both electricity suppliers and liquid fuel suppliers failed to achieve their energy savings target in 2020, while gas and solid fuel suppliers obviously exceeded the target savings of that year.

Most savings achieved by gas suppliers

FIGURE 185: TARGET AND ACHIEVED ENERGY SAVINGS BY THE TYPE OF ENERGY SUPPLIER



SOURCE: ENERGY AGENCY

Energy Savings by Individual Measures

Suppliers have achieved energy savings by contributing to the implementation of energy efficiency measures in industry, services and the public sector, and in housing, as well as in the transformation, distribution and transmission sectors. In the context of individual measures (except for measures where savings are to be demonstrated by the energy audit carried out), the savings achieved are not measured but calculated in accordance with the methodologies for calculating the savings for each measure set out in the Rules on methods for determining energy savings.

TABLE 40: ENERGY SAVINGS BY INDIVIDUAL MEASURES IN THE 2015–2019 PERIOD

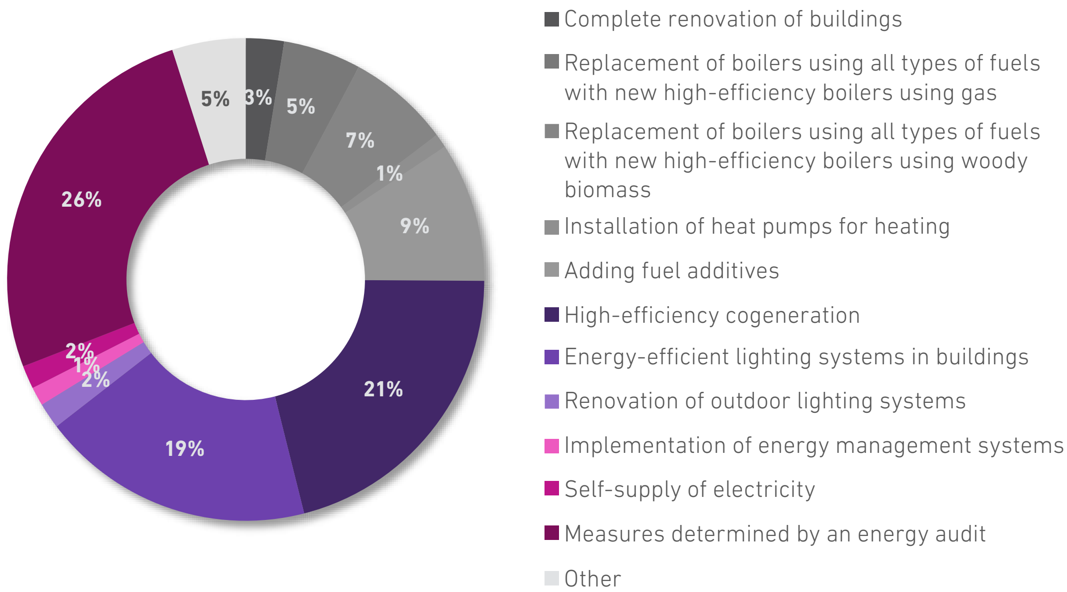
Measure	2015 (GWh)	2016 (GWh)	2017 (GWh)	2018 (GWh)	2019 (GWh)	2020 (GWh)
Complete renovation of buildings	0.02	0.6	0.12	15.94	6.97	7.68
Replacement of boilers using all types of fuels with new high-efficiency boilers using gas	7.60	13.57	22.81	14.79	13.48	15.63
Replacement of boilers using all types of fuels with new high-efficiency boilers using woody biomass	1.57	2.39	0.82	1.48	2.87	20.54
Replacement of electric heating systems with central heating with new high-efficiency gas boilers	0.00	0.01	0.00	1.45	0.00	0.00
Installation of heat pumps for heating	2.72	0.34	1.65	3.46	6.06	2.79
Comprehensive renovation of heat station	73.49	3.08	0.75	1.68	0.49	1.90
Connecting buildings to the district heating system	2.25	4.68	5.82	2.55	2.23	2.26
Renovation of the distribution network for district heating	3.92	4.37	2.91	4.54	3.75	1.57
Systems for the recovery of waste heat in buildings	0.00	9.16	1.95	0.62	0.04	0.90
Optimisation of technological processes, which is based on implemented energy audits in small and medium-sized enterprises	15.27	9.72	3.92	4.78	12.13	2.36
Adding fuel additives	195.52	99.07	45.20	54.43	33.37	27.81
High-efficiency cogeneration	37.66	9.84	11.92	66.16	78.92	62.21
Energy-efficient lighting systems in buildings	14.49	15.49	24.08	42.46	57.77	54.95
Renovation of outdoor lighting systems	0.07	0.00	2.74	2.22	0.27	5.17
Energy-efficient household appliances	0.04	0.06	0.10	0.92	0.12	1.11
Energy-efficient electric motors	0.21	0.06	1.64	1.58	0.07	0.03
Use of frequency converters	1.12	0.37	5.60	3.79	1.20	1.90
Implementation of energy management systems	98.34	92.94	103.81	9.71	29.79	3.37
Use of excessive heat in industry and service sectors	0.00	0.00	6.00	22.58	0.26	0.00
Self-supply of electricity	0.00	0.00	0.00	0.00	4.95	4.62
Measures determined by an energy audit	44.93	12.25	7.49	27.06	27.6	75.35
Other	2.17	3.73	2.32	1.85	3.36	2.77

SOURCE: ENERGY AGENCY

The figures in Table 40 and Figure 186 show that most energy savings were achieved in 2020 by cogeneration systems, energy-efficient lighting in buildings, adding an additive to motor fuel, replacing hot water boilers on all types of fuels with new high-efficiency boilers on woody biomass, and by measures demonstrated by the energy audit. These measures generated 241 GWh or 82% of total energy savings that year.

82% of all savings achieved with only five measures

FIGURE 186: SHARES OF ENERGY SAVINGS ACHIEVED THROUGH INDIVIDUAL MEASURES



SOURCE: ENERGY AGENCY

Based on methodologically defined calculations of CO_2 reduction for each type of measure, the measures implemented under the Energy Efficiency Obligation Scheme have reduced annual CO_2 emissions by 91,921 tonnes, most notably in the industry sector, where, by sector, the most savings have been achieved.

Annual CO_2 emissions lower by 91,921 tons

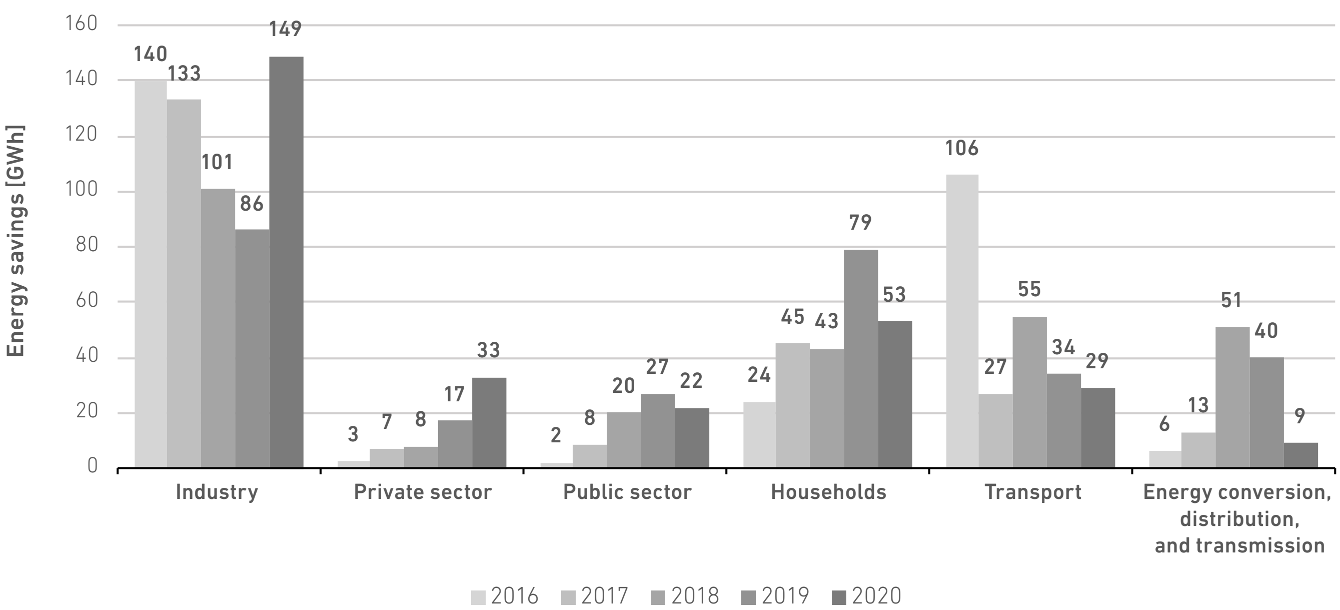
Energy Savings by Sector

The highest savings in 2020 were achieved by industry, a total of 149 GWh, representing 51% of the total final energy savings achieved in 2020, with the largest share of other measures achieving 70 GWh of savings. Suppliers made the least savings in the conversion sector, i.e. only 9 GWh, representing 3% of the total energy savings achieved. In this sector, the most savings were generated by replacing hot water boilers on all types of fuels with new high-efficiency boilers on woody biomass and other measures.

Over the entire 2016–2020 reporting period, savings were achieved in industry and the least in the private and public sectors. However, savings in transport continue to decrease and, in the last year, also in households and in the sectors of energy conversion, distribution and transmission.

51% of all savings generated by industry

FIGURE 187: ENERGY SAVINGS BY SECTOR IN THE 2016–2020 PERIOD



SOURCE: ENERGY AGENCY

Energy Savings Achieved Under the Alternative Measure

The alternative measure under the combined system to achieve the target share of final energy savings is implemented by the Eco Fund under the Energy Efficiency Improvement Programme. The Eco Fund had to achieve additional savings of 262 GWh per year in individual years of the 2014–2020 period, which amounts to 0.75% of the indicative annual savings target.

The Eco Fund achieves energy savings through three systems, as shown in Table 41, by lending investments in efficient use measures, awarding grants for the implementation of efficient use measures in the context of public tenders, and by providing energy advice to citizens through a network of advisory offices under the ENSVET code. In doing so, the most savings are achieved through actions implemented through financial incentives–grants awarded under the Eco Fund's calls for tenders. A total of 314 GWh energy savings were achieved in 2020.

TABLE 41: ACHIEVED ENERGY SAVINGS IN THE ECO FUND PROGRAMME FOR IMPROVING ENERGY EFFICIENCY IN THE 2015–2020 PERIOD

	2015	2016	2017	2018	2019	2020
Credited investments (GWh)	5	7.5	10.6	23.8	23.2	39.3
Non-refundable grants (GWh)	123.0	126.6	116.8	190.3	272.4	314
Energy advisory for public (GWh)	0.0	13.7	13.6	18.1	23.2	24.9

SOURCES: ECO FUND ANNUAL REPORTS FOR 2015, 2016, 2017, 2018, 2019, AND 2020

Most of the savings made by the Eco Fund are achieved through actions undertaken by individual investors in households and companies and partly financed by grants awarded through calls for tender from the Eco Fund. In the last three years, the most savings have been achieved through two measures: the installation of heat pumps (103.8 GWh in 2020) and the thermal insulation of building facades (48.9 GWh in 2020), a total of 152.7 GWh in 2020, equivalent to 48.6% of the total Eco Fund savings. Compared to previous years, the savings increased the most in 2020 with self-supply, achieving 30.9 GWh of savings.

TABLE 42: ENERGY SAVINGS BY MEASURES IN 2018, 2019, AND 2020, PARTLY FINANCED BY ECO FUND GRANTS

	2018 (GWh)	2019 (GWh)	2020 (GWh)
Woody biomass	18.3	30.6	27.2
Heat pumps	63.1	102.7	103.8
Self-supply	10	16.3	30.9
Installation of joinery	2.9	3.3	4.1
Thermal insulation of the facade	49.9	55	48.9
Thermal insulation of the roof	18	15.2	13.6
Heat recovery ventilation	0	2.1	4.2
Natural gas condensing boilers	10.9	31.7	39.4
sNES Public buildings (almost zero energy building)	3.7	1.9	1.3
Energy audits	3.3	1.3	4.1
Environmentally friendly passenger cars	3.2	2.5	3.8
Replacement of lighting	0	1.6	4.9
Exploitation of excess heat	0	0.1	3.8
Energy optimisation	0	2	11.1
Tyres	0	0	7.9
Other measures	6.8	6.1	5

SOURCE: ECO FUND

Energy Audits

Large companies are required to carry out an energy audit every four years and report on the audit carried out to the Energy Agency. An energy audit is a systematic review and analysis of energy consumption in all segments of the company's operation, which includes energy consumption for buildings, processes, transport, and operation of people, to identify energy flows and potential for improving energy efficiency. The minimum requirement of the energy audit is a detailed review of the energy use of buildings, technological processes or industrial installations, transport, and possible measures to improve energy efficiency at the final customer. The energy audit should be based on actual, measured, demonstrable, and operational energy consumption data for all energy sources.

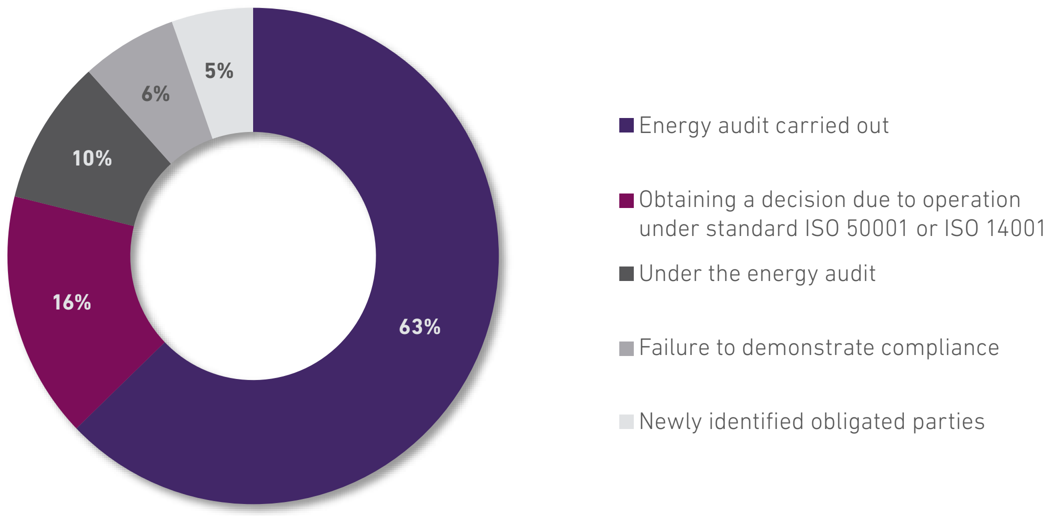
In 2020, the Energy Agency updated the register of large companies in which, based on data from the Business Register of Slovenia, the Energy Agency identified 317 companies that meet the conditions for large companies according to the ZGD-1 and have to carry out an energy audit every four years.

Companies fulfil the mandatory energy audit by:

- carrying out an energy audit in line with standards SIST ISO 50002 or the series of standards SIST EN 16 247-1, SIST EN 16 247-2, SIST EN 16 247-3 and SIST EN 16 247-4) or
- obtained energy management certificates in line with standard SIST EN ISO 50001 or the environmental management system in accordance with standard SIST EN ISO 14001, whereby the minimum inspection under Annex A, point A3 of standard SIST ISO 50002, which has to be carried out every four years. Based on the submitted certificate, the Energy Agency issues a decision on the fulfilment of the energy audit obligation.

At the end of 2020, out of a total of 317 large companies, 250 companies fulfilled the obligation to carry out the energy audit, of which 199 companies carried out an energy audit and 51 companies were certified according to one of the relevant standards. 30 companies have an energy audit and 17 companies met the criteria defining large companies in 2020 and they have to carry out energy audits within one year.

FIGURE 188: ENERGY AUDITS OF LARGE COMPANIES



SOURCE: ENERGY AGENCY

Comparison of compliance with the obligation to carry out energy audits of large companies in 2019 and 2020 shows progress, as in 2020 another 66 companies carried out an energy audit, and process there are only 30 companies to carry out the energy audit, while 20 companies have failed to comply with their obligations.

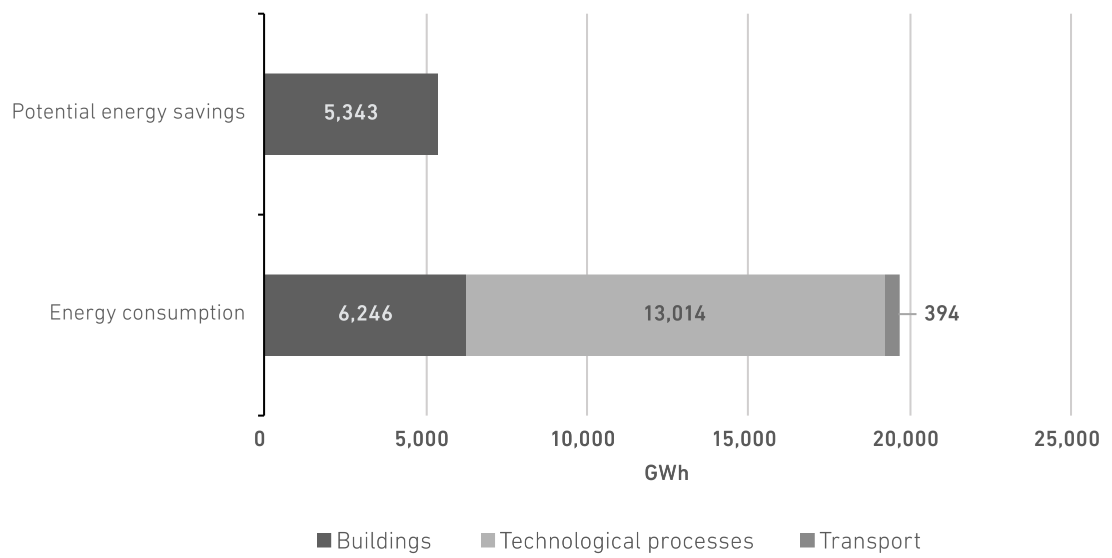
250 large companies fulfil the obligation of energy audits

Savings Achieved

According to the submitted reports on energy audits carried out (199), the companies used a total of around 19,654 GWh of energy per year. 13.014 GWh or 66% of all energy was consumed in technological processes, while 6246 GWh or 32% of total energy was used in buildings. It is also clear from the company reports that the companies used only 394 GWh of energy in transport.

It follows from the reports of the companies that the measures implemented (optimisation of energy consumption in production, renovation of internal lighting, establishment of cooling and heating, the introduction of a computer system for energy management, renovation of boiler room, refurbishment of heat envelope and building furniture) defined in the context of energy audits could save a total of 5343 GWh of energy during the next four-year period, i.e. 27% of the annual energy consumed.

FIGURE 189: ENERGY CONSUMPTION AND POTENTIAL FOR ENERGY SAVINGS BY INDUSTRY

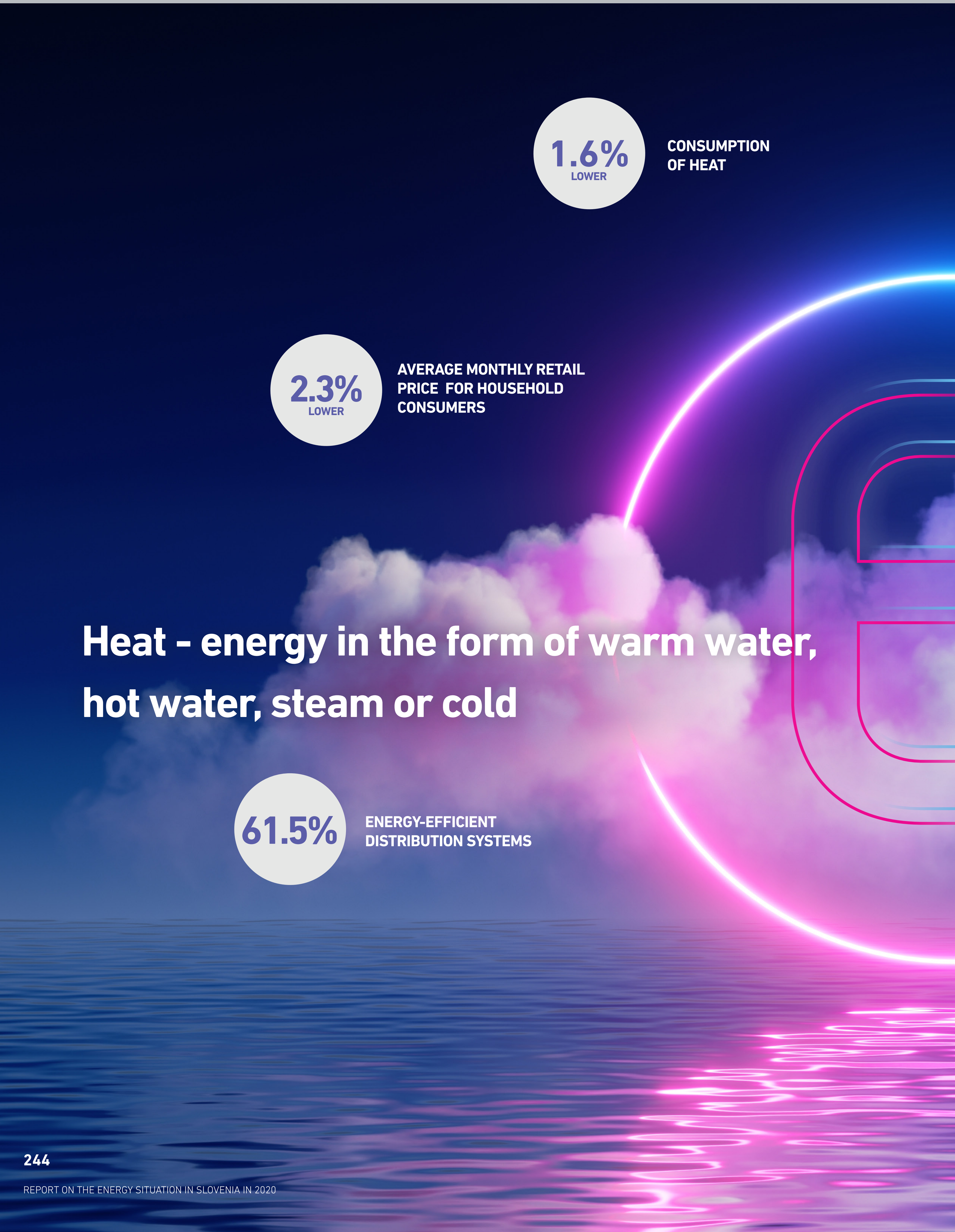


SOURCES: ENERGY AGENCY, COMPANIES

The reports submitted by companies on energy audits carried out also show that the total costs related to energy consumption by companies amounted to around EUR 407 million per year and that companies could reduce these costs by around 8% by implementing the measures announced over the next four years.

Possibility of an 8% reduction in energy consumption costs with announced measures over the next four years

Compared to the previous year, only 66 new energy audits were carried out in 2020. As most companies are classified as service activities, energy consumption and potentially achieved energy savings are lower compared to the previous year. Energy-intensive companies had already carried out energy audits a year earlier.



1.6% LOWER — CONSUMPTION OF HEAT

2.3% LOWER — AVERAGE MONTHLY RETAIL PRICE FOR HOUSEHOLD CONSUMERS

Heat - energy in the form of warm water, hot water, steam or cold

61.5% — ENERGY-EFFICIENT DISTRIBUTION SYSTEMS

18.28% OF HEAT PRODUCED FROM RENEWABLE SOURCES

79% OF DISTRIBUTED HEAT PRODUCED IN COGENERATION UNITS

4.3% DECREASE IN THE SHARE OF COAL

4.7% INCREASE IN THE SHARE OF NATURAL GAS IN HEAT PRODUCTION

HEAT

Heat supply is the distribution of heat and cold, used for heating and cooling, industrial processes, and for the preparation of sanitary hot water. Heat supply covers activities of distribution and supply of heat, and the heat distribution itself can be carried out as an optional local service of general economic interest or commercial activity. The supply of heat can also be carried out by private distribution systems, which are fully owned by heat consumers.

The situation illustrates the aggregated data of the recorded distribution systems and the data of the recorded heat producers supplying these distribution systems.

Supply of Heat

In 2020, 53 heat suppliers provided heat from district heating. Distribution was carried out in 68 municipalities from 111 distribution systems.

Heat distributors supplied 2215.3 GWh of heat for the heating of buildings, domestic hot water, and industrial steam processes, and delivered 1852.7 GWh of heat to 106,762 consumers. The difference represents losses amounting to 362.6 GWh of heat. Heat consumption for the supply of consumers on registered distribution systems was 1.6% lower compared to the year before, without taking into account own use of heat producers, and compared to 2018 it was 2.4% lower, which is a result of slightly higher outdoor temperatures during heating seasons in the last three years, and partially because of thermal insulation of single- and multi-apartment buildings.

1.6% lower consumption of heat

The number of heat consumers is almost 0.2% higher than in the previous year.

FIGURE 190: BASIC DATA ON PRODUCED AND DISTRIBUTED HEAT FOR CONSUMERS OF HEAT CONNECTED TO THE DISTRIBUTION SYSTEMS IN

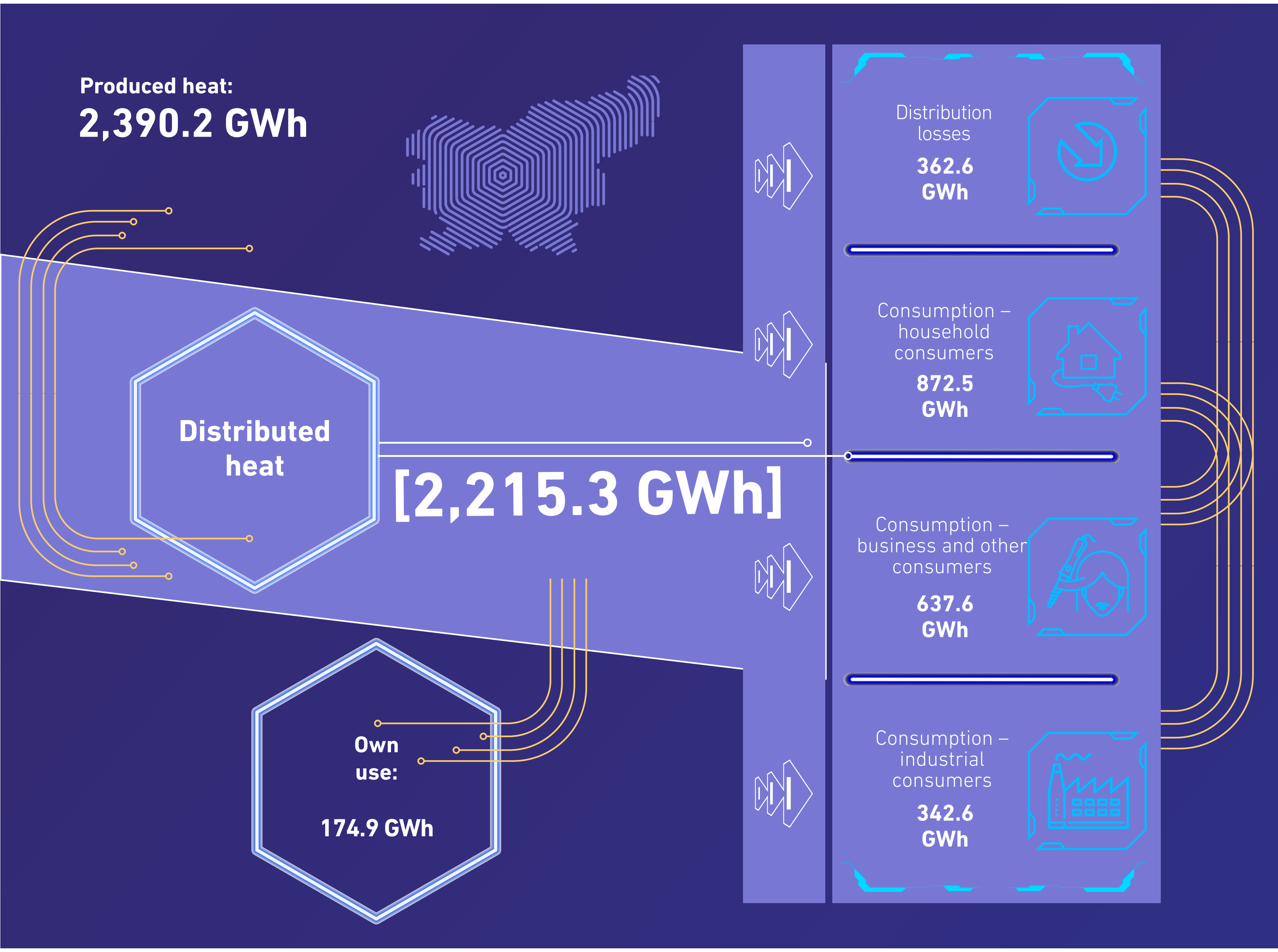
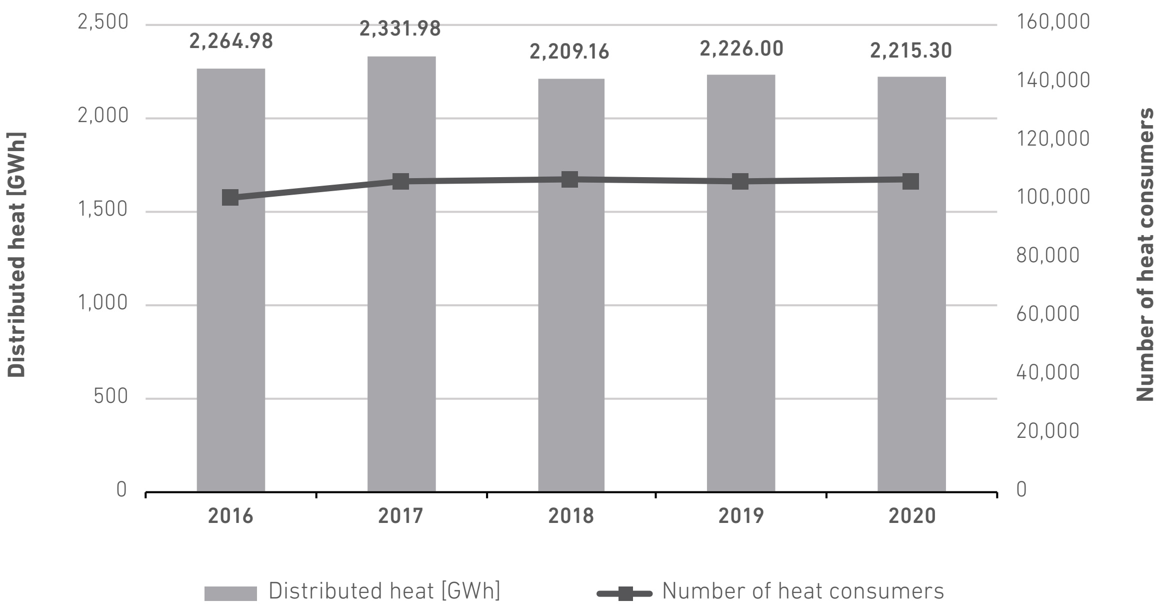


FIGURE 191: DISTRIBUTED HEAT AND NUMBER OF CONSUMERS IN THE 2016–2020 PERIOD



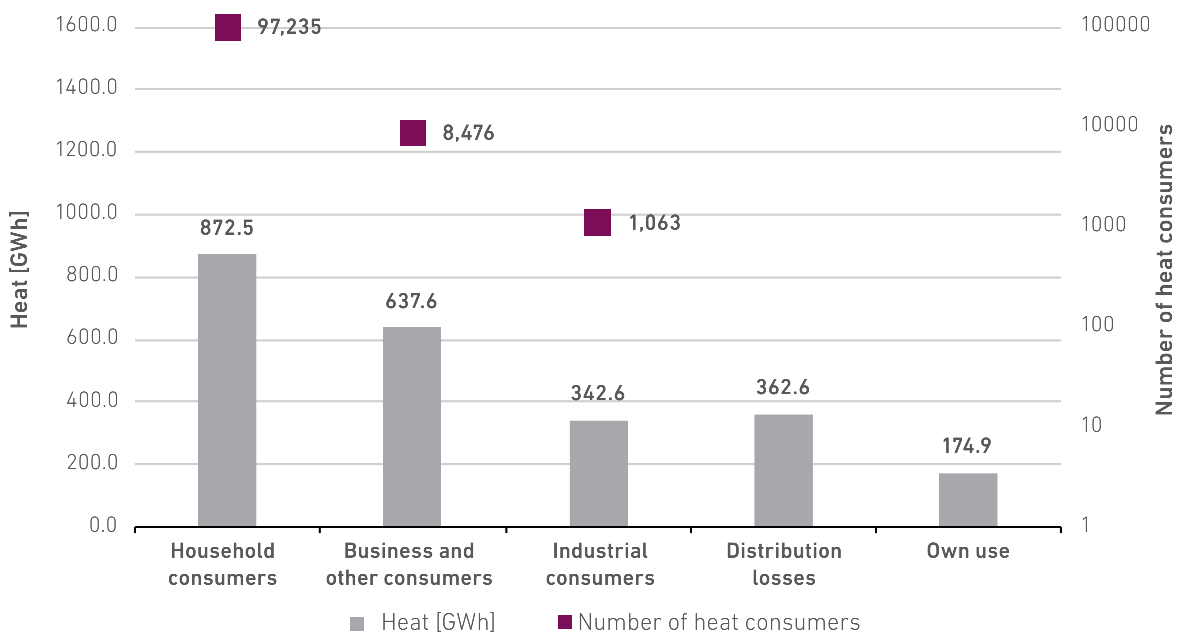
SOURCE: ENERGY AGENCY

In 2020, a smaller but already existing distribution system for district cooling was recorded in the industrial area of the former Iskra in Ljubljana. The other two bigger distribution systems with a total installed capacity of 3.88 MW of refrigeration units mainly supplied business consumers in Velenje and industrial consumers in Kranj.

Heat distributors with own production and heat producers supplying distribution systems have produced 2390.2 GWh of useful heat for heating, the preparation of sanitary hot water, the supply of industrial processes, and their own needs. At the same time, 848.7 GWh of electricity or 759.3 GWh was produced at the threshold of cogeneration processes. The heat produced in cogeneration production processes accounted for 76.2% of all useful heat produced (for own use and distribution systems). The remaining 23.9% was produced in other technological processes (woody biomass boilers, natural gas, liquefied petroleum gas, heat recovery processes from geothermal wells, waste heat from industrial processes, incineration plants, etc.). In the share of heat supplied by distribution systems, heat from cogeneration sources was represented by 79%. The highest share of total useful heat produced, i.e. 37%, was delivered to 97,235 household consumers, 26.7% to 8,466 business consumers, and 14.3% to 1,061 industrial consumers. Average annual distribution losses were estimated at 15.2% of distributed heat and increased by around 1.2% compared to 2019, and the remaining 6.8% of the heat produced represent the difference between the heat produced and the delivered heat used in the industrial processes of the heat producers or distributors, i.e. for own use. The heat consumption by type of consumers and their number is shown in Figure 192.

79% of distributed heat produced in cogeneration units

FIGURE 192: HEAT CONSUMPTION BY THE TYPE OF CONSUMERS AND THEIR NUMBER



SOURCE: ENERGY AGENCY

Coal represents 45.4% of total primary sources for heat production

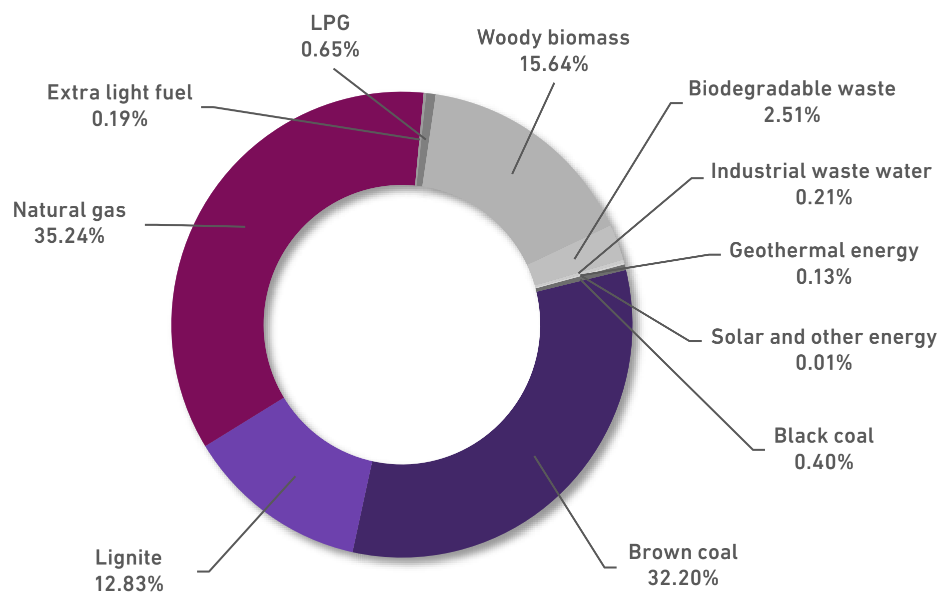
For heat supply, almost exactly the same amount of heat was produced as the year before. Due to the change in the structure of consumed primary energy sources and slightly adjusted operating regime of production facilities in relation to the daily needs for heat and electricity, their consumption increased a little, by about 2.3%.

Coal, with a 45.4% share, remained the primary energy for the production of heat for distribution systems, followed by natural gas with a share of 35.2%. The share of natural gas increased by 18.0% compared to 2019 due to the decline in the share of coal. Oil and petroleum products were represented with a share of 0.8%, renewable sources (woody biomass, geothermal energy, and biodegradable waste) with 18.3%, and industrial waste heat with a 0.2% share. Heat from biodegradable waste was produced only at the Celje municipal waste incineration plant, and heat from industrial processes was produced in the area of the former Ravne Ironworks (SIJ Metal Ravne) and the company Lek. The use of excess heat from production processes for the supply of district heating distribution systems is a good example of cooperation between the distribution system operator Energetika Ljubljana and the customer or heat producer, Lek company. The structure of primary energy products for heat production is presented in Figure 193.

4.3% decrease in the share of coal and

4.7% increase in the share of natural gas in heat production

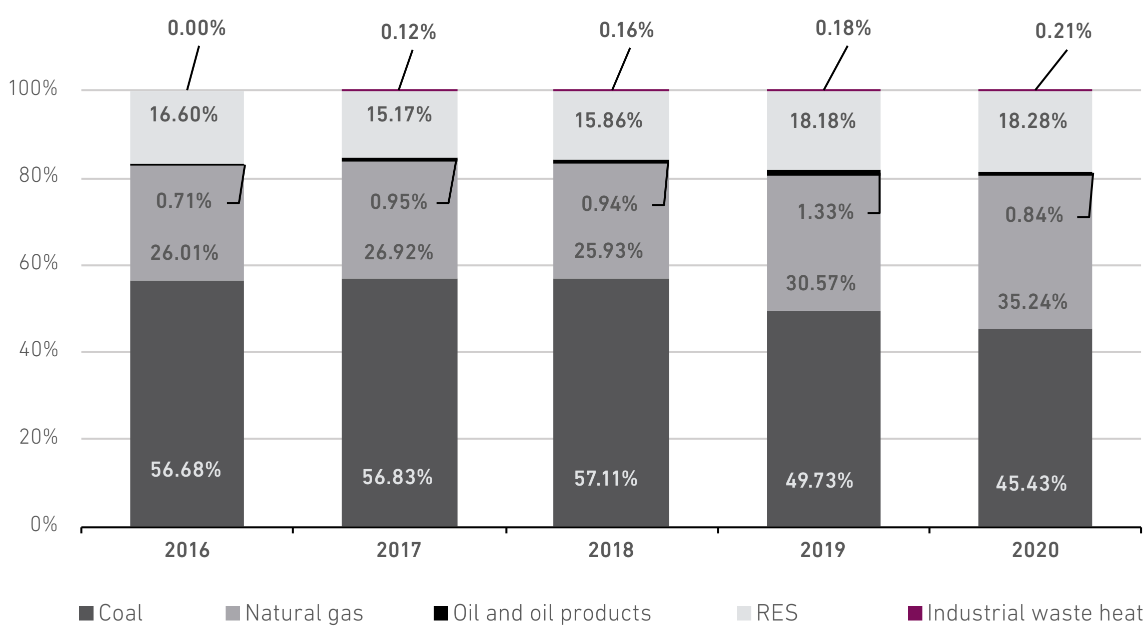
FIGURE 193: STRUCTURE OF THE PRIMARY ENERGY PRODUCTS FOR HEAT GENERATION



SOURCE: ENERGY AGENCY

The shares of coal and natural gas changed the most in the structure of primary energy sources (Figure 194). The lower coal consumption is the result of almost 7% lower heat production and changes in the structure of primary energy sources in Energetika Ljubljana and 3% lower lignite consumption in the second-largest producer of heat for the supply of district heating systems, Šoštanj Thermal Power Plant. In 2020, the above-mentioned producers who use coal as their primary energy source also experienced the first pressures to increase heat prices for district heating systems due to the constant increase in CO_2 emission coupon prices on the emission coupon stock markets.

FIGURE 194: STRUCTURE OF THE PRIMARY ENERGY PRODUCTS IN THE 2016–2020 PERIOD

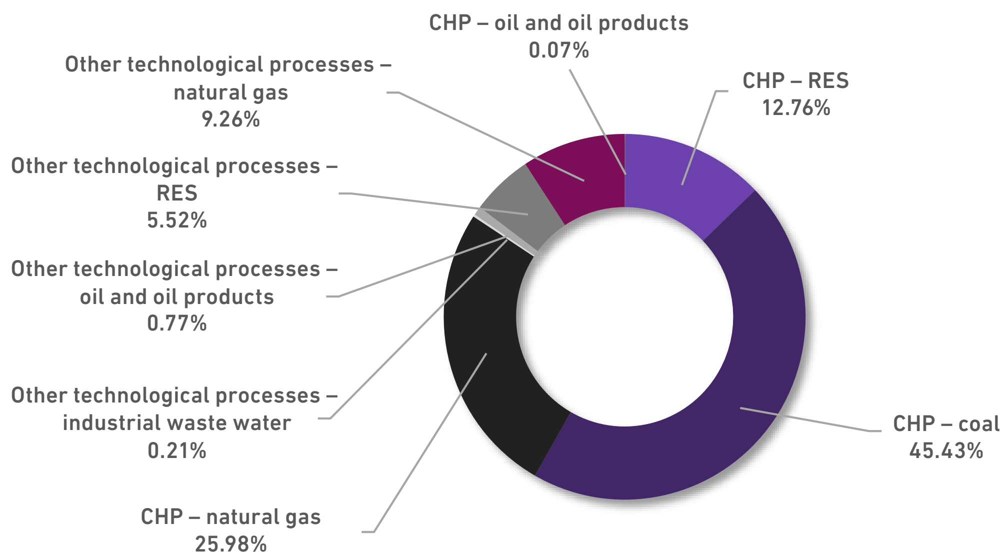


SOURCE: ENERGY AGENCY

Coal was used only in cogeneration processes of electricity and heat, producing 414.5 GWh of gross electricity and 1199.7 GWh of heat. To a greater extent, natural gas is used in cogeneration and other technological processes (producing 325.7 GWh of electricity and 697.6 GWh of heat). From RES 107.8 GWh of gross electricity and 459.5 GWh of heat were produced. The structural share of primary energy products consumed in relation to the method of obtaining heat for heat supply systems is shown in Figure 195.

18.28% of heat produced from renewable sources

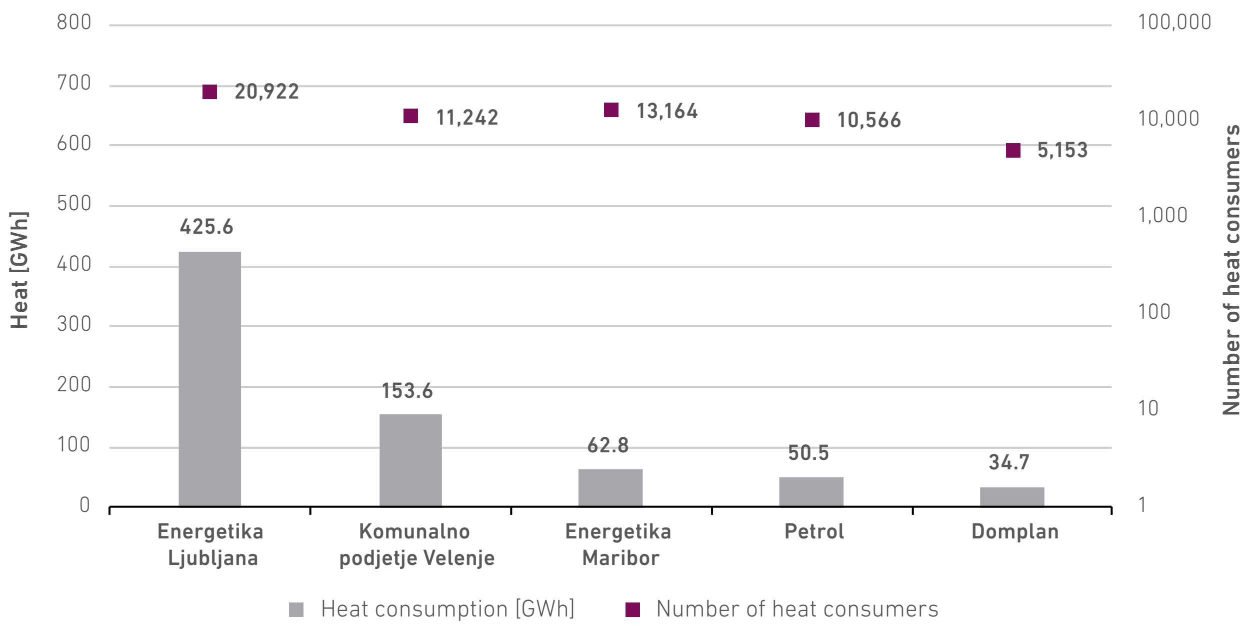
FIGURE 195: STRUCTURE OF THE PRIMARY ENERGY PRODUCTS FOR THE PRODUCTION OF HEAT FOR THE DISTRIBUTION SYSTEMS



SOURCE: ENERGY AGENCY

In 2020, the first five largest heat distributors delivered to end consumers as much as 85.7% of all delivered heat from the distribution systems. The first five largest distributors to household consumers supplied 62.8% of these consumers and delivered 83.4% of heat to them. This is shown in Figure 196.

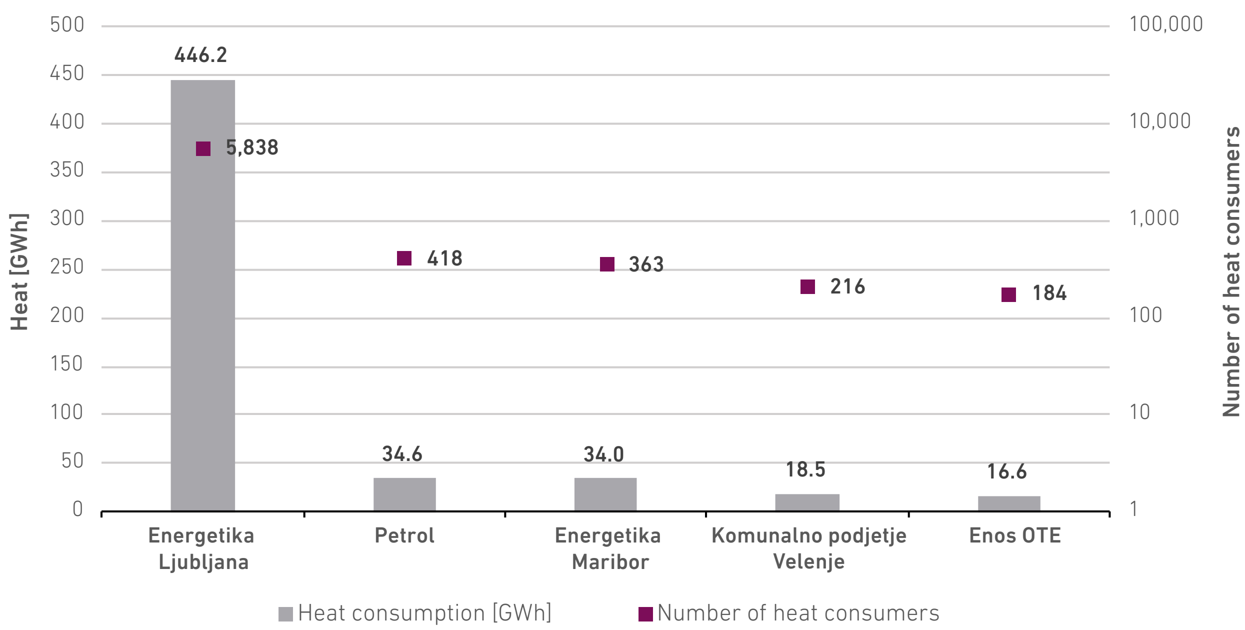
FIGURE 196: HEAT CONSUMPTION AND THE NUMBER OF HOUSEHOLD CONSUMERS AT THE FIVE LARGEST HEAT DISTRIBUTORS



SOURCE: ENERGY AGENCY

The first five largest heat distributors, which supply heat to business and other heat consumers, delivered heat to 82.8% of these consumers and supplied them with 86.2% of heat intended for them (Figure 197).

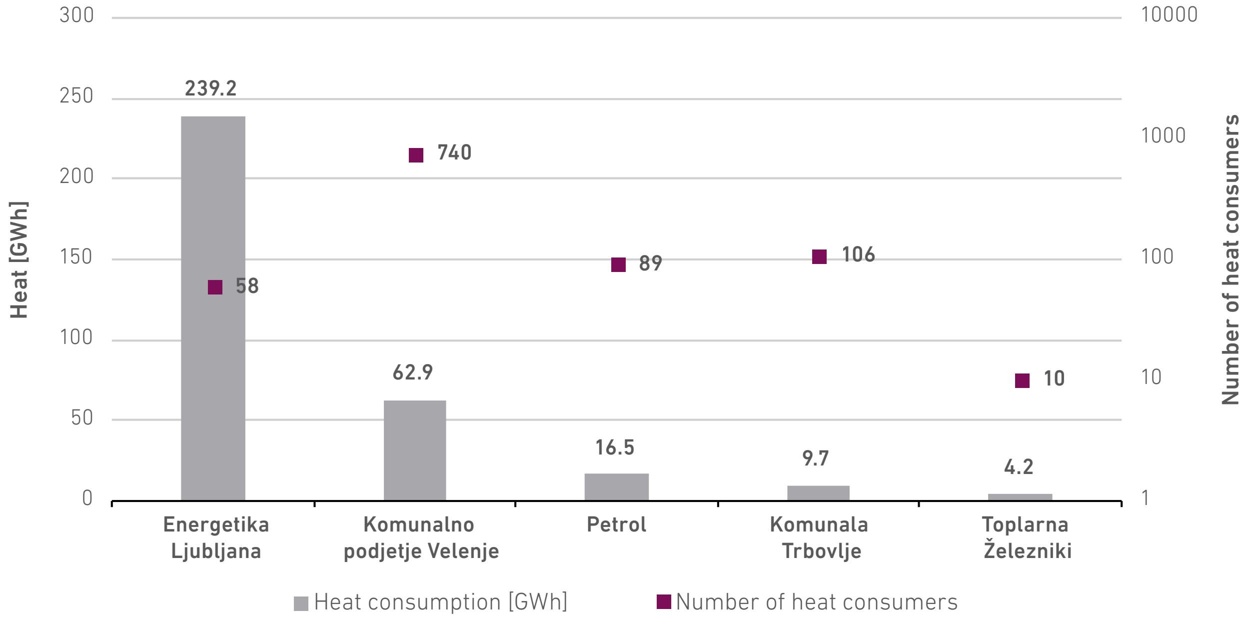
FIGURE 197: HEAT CONSUMPTION AND NUMBER OF BUSINESS AND OTHER CONSUMERS AT THE LARGEST HEAT DISTRIBUTORS TO THESE CONSUMERS



SOURCE: ENERGY AGENCY

The five largest heat distributors regarding the amount of delivered heat for industrial processes and heating supplied as much as 94.4% of these consumers and delivered 97% of heat to them (Figure 198).

FIGURE 198: HEAT CONSUMPTION AND THE NUMBER OF INDUSTRIAL CONSUMERS AT THE LARGEST DISTRIBUTORS OF HEAT TO THESE CONSUMERS



SOURCE: ENERGY AGENCY

Heat Distribution Systems

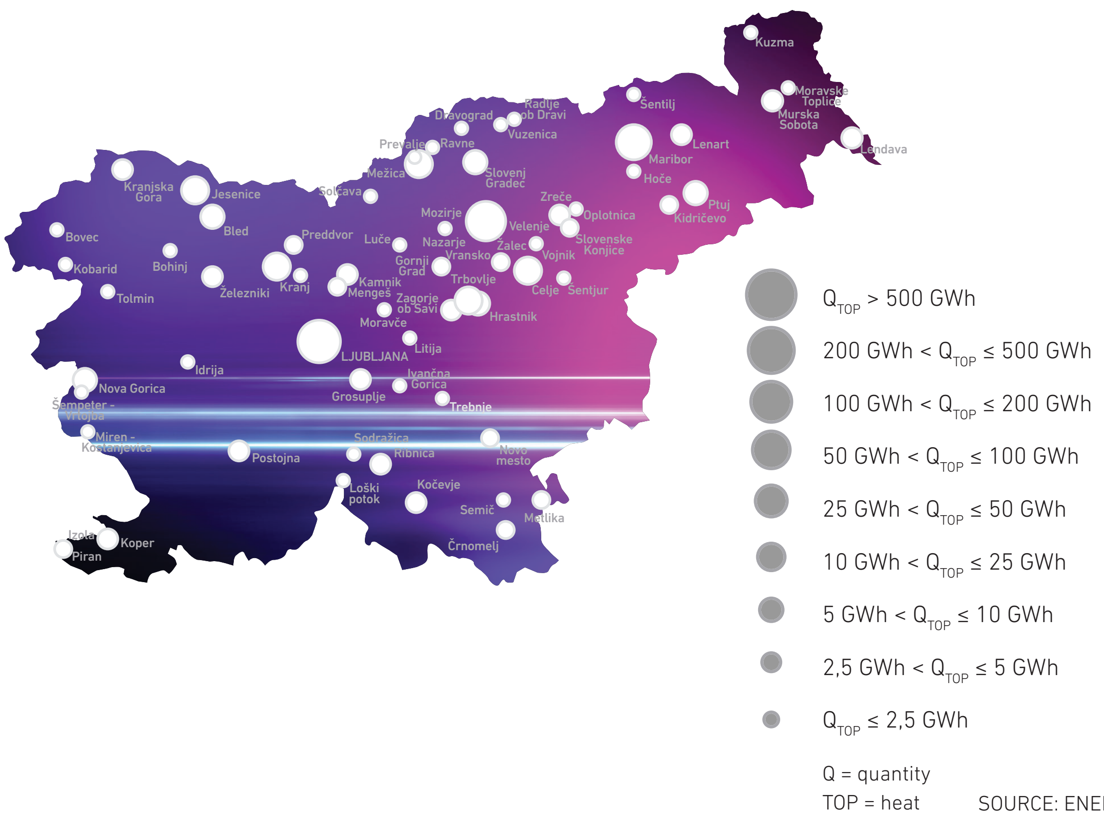
According to the Energy Agency's records, in 2020 the heat supply from distribution systems was carried out from 111 distribution systems (59 as a service of general economic interest, 19 commercial distributions, and 33 private distribution systems) in 68 Slovenian municipalities. The total length of distribution systems was 908.3 km. As an optional local service of general economic interest, heat supply was carried out by 56 distribution systems operated by 34 distributors in 52 Slovenian municipalities. In 15 municipalities, the supply was carried out as a market activity, and in 18 municipalities, the heat supply was carried out by private distribution systems. Private distribution systems in the area of municipalities Kranj, Koper, Maribor, and Žalec are large distribution systems for the supply of household and business customers, as they supplied as many as 10,053 customers, including 9,931 households.

The distribution systems where the activity of distributing heat is carried out as an optional local service provided heat to 87.5% heat consumers, and their share of the transferred heat was 93.7%.

Large district cooling systems are located only in the municipalities of Velenje and Kranj, with a total of 1.5 kilometres.

Municipalities with distribution systems and quantities of distributed heat in 20 are shown in Figure 199.

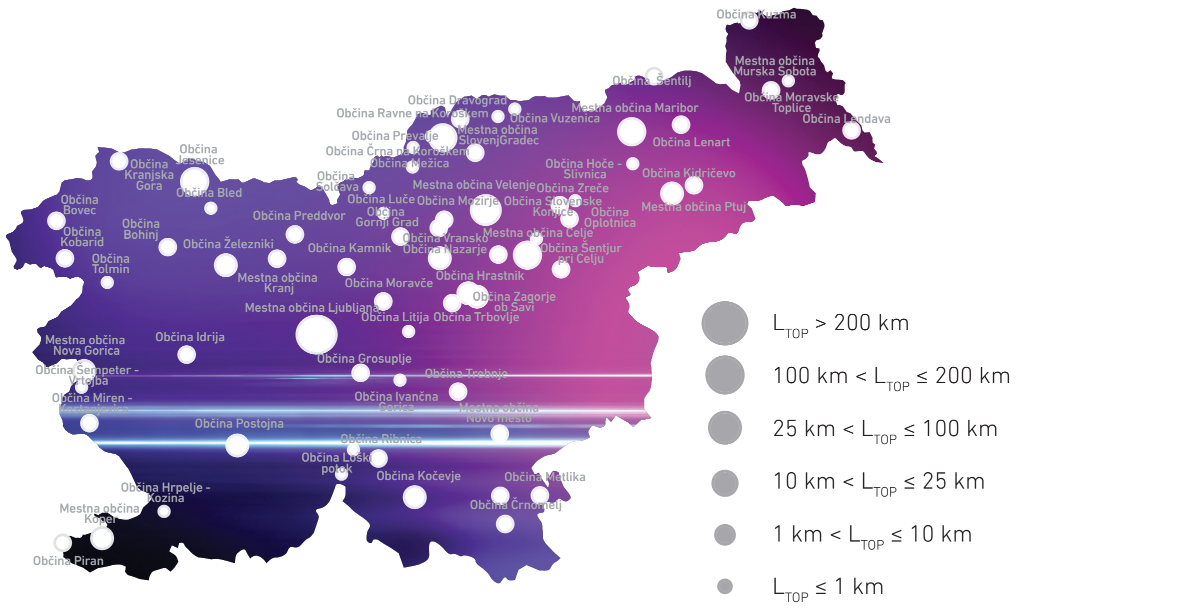
FIGURE 199: QUANTITIES OF DISTRIBUTED HEAT BY SLOVENIAN MUNICIPALITIES



SOURCE: ENERGY AGENCY

With respect to the temperature regime of the operations of the individual system, the systems are divided into warm-water systems, hot-water systems, steam distribution systems, and district cooling systems. The length of warm-water and hot-water distribution systems accounts for 98.8% of the entire length of distribution systems, steam distribution systems 1%, and district cooling systems slightly less than 0.2% of the total length of distribution systems. The longest distribution systems are in Ljubljana (280-km-long warm-water distribution system) and Velenje with Šoštanj (180.6-km-long warm-water distribution system). The average length of the warm-water distribution systems was 9.1 kilometres, and the average annual distribution losses of heat was 16.4%.

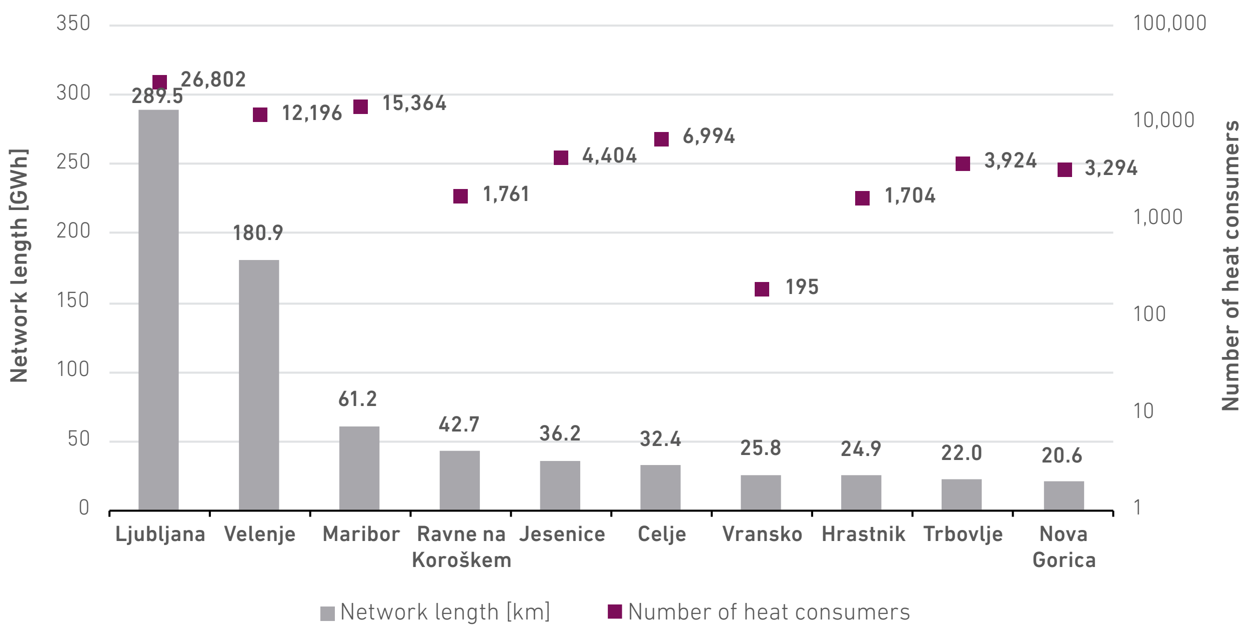
FIGURE 200: LENGTH OF HEAT DISTRIBUTION SYSTEMS IN SLOVENIAN MUNICIPALITIES



SOURCE: ENERGY AGENCY

The length of the ten largest heat distribution systems and the number of consumers in 2020 are shown in Figure 201.

FIGURE 201: LENGTH OF HEAT DISTRIBUTION SYSTEMS AND NUMBER OF CONNECTED CONSUMERS IN INDIVIDUAL MUNICIPALITIES



SOURCE: ENERGY AGENCY

Energy-Efficient District Heating Systems

District heating and cooling systems are energy efficient if the heat distributor ensures an annual level of heat by using at least one of the following sources:

- at least 50% of the heat produced from renewable energy sources;
- at least 50% of waste heat;
- at least 75% of cogenerated heat; or
- at least 75% of a combination of the heat referred to in the above three indents.

Every year, the Energy Agency monitors which heat distribution systems meet the criteria and publishes a **list of energy-efficient heat distribution systems** on its website.

According to the data, as many as 67 of 109 heat distribution systems where the distribution of heat is carried out either as a service of general economic interest or market activity or from a private distribution system are classed as energy-efficient distribution systems according to the criteria (this means that they met at least one criterion, some even more). Most distribution systems, i.e. 51, met the energy-efficiency criterion by producing at least 50% of heat directly or indirectly from RES.

61.5% energy-efficient distribution systems

For 15 distribution systems, the energy efficiency criterion was met because at least 75% of heat was produced by cogeneration. However, no distribution system was sufficiently energy-efficient to meet the criterion of achieving at least 50% of heat produced from excess heat.

A heat distribution system can also be energy efficient if the heat produced is a combination of production from RES, waste heat, or cogeneration. This criterion was met by nine distribution systems.

Price of Heat

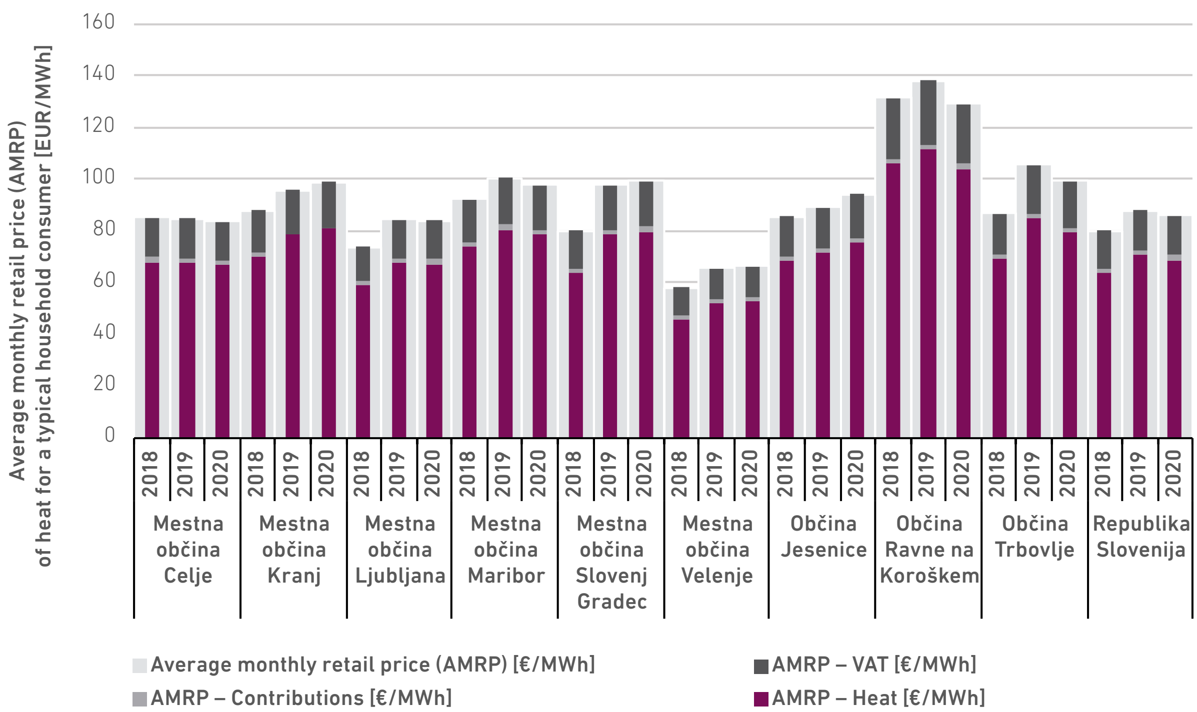
The average retail price of heat in nine selected Slovenian municipalities with heat distribution systems is calculated as the average monthly retail price of heat for residential heating and sanitary hot water on the basis of publicly announces price lists of heat distributors for 2020 for a typical household heat consumer in a multi-dwelling residential building with an annual capacity of 7 kW and average annual consumption of 6.21 MWh.

In 2020, distribution systems in selected Slovenian municipalities supplied 69.9% of all household consumers supplied in Slovenia, while their acquired heat was 86.7% of all heat delivered to these consumers.

2.3% lower average monthly retail price

Average retail heat prices in the selected Slovenian municipalities are shown in Figure 202. They are calculated as the weighted average monthly retail prices for a typical household heat consumer living in a multi-dwelling residential building in each selected municipality, and the average monthly retail price of heat for the entire territory of Slovenia, weighted by the number of household consumers supplied is also shown. The average monthly retail price of heat for household consumers decreased on average by 2.3% in all of the mentioned municipalities in comparison with the previous year, and was 86 EUR/MWh in 2020.

FIGURE 202: AVERAGE RETAIL PRICE OF HEAT FOR HOUSEHOLD CONSUMERS IN INDIVIDUAL SLOVENIAN MUNICIPALITIES FOR THE 2018–2020 PERIOD



SOURCE: ENERGY AGENCY

Regulating the Price of Heat for District Heating

The Energy Agency implements the regulation of the price of heat for district heating on the basis of the current Act on Heat Supply Pricing Methodology. Persons subject to regulation are heat distributors performing optional service of general economic interest and producers of heat that supply heat to distributors of heat more than 30% of the intended distributed heat or have ownership links with them. Persons subject to economic regulation must obtain the Energy Agency's agreement on the starting price of heat for each distribution system or the supply of heat. They form the base price according to the criteria and baselines set out in the Act.

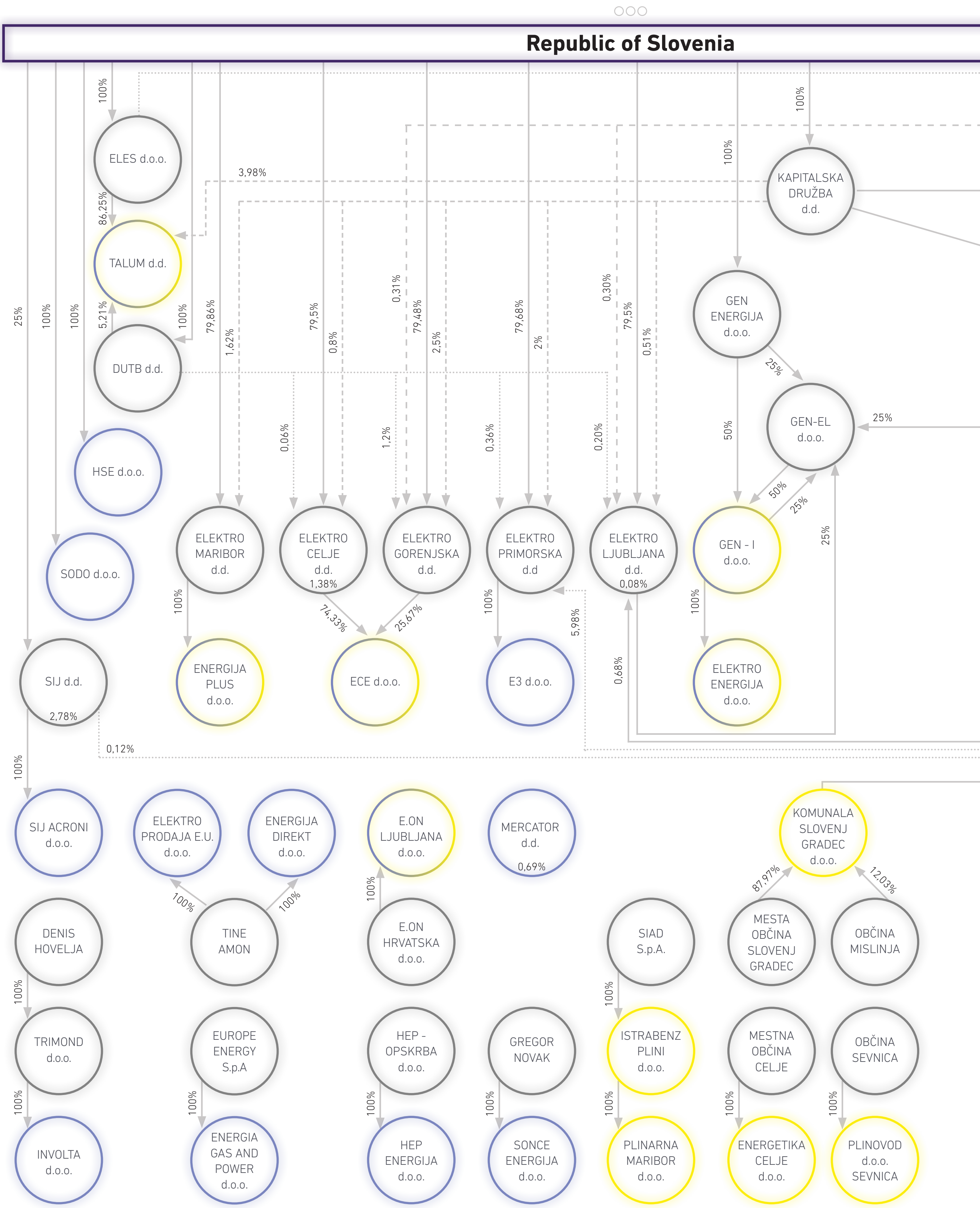
The Energy Agency dealt with the demands for granting consent to the starting price of heat of persons who did not yet have a valid starting price, and the requirements it received due to the fulfilment of criteria for the new requirements of the Act on Heat Supply Pricing Methodology. These criteria relate to major technological changes, changes in the tariff system, changes in planned quantities of distributed heat by more than 20% or changes in consumers' planned accounting power by more than 10%, a substantial change or suspension of an undertaking's activities and a lower actual cost-plus price than the last applicable average price. In 2019, the Energy Agency did not receive any request for issuing consent due to the notification of the new distribution system.

Two consents were given to the starting price of heat for a distributor who did not yet have a valid starting price, two decisions were issued to reject the requirement to give approval to the starting price, and four approvals to the regulated persons who requested consent to be granted on the basis of the criteria for submitting a new requirement set out in the above-mentioned Act. In addition, the Energy Agency issued two consents resulting from the reopening of the procedure at the request of the parties.

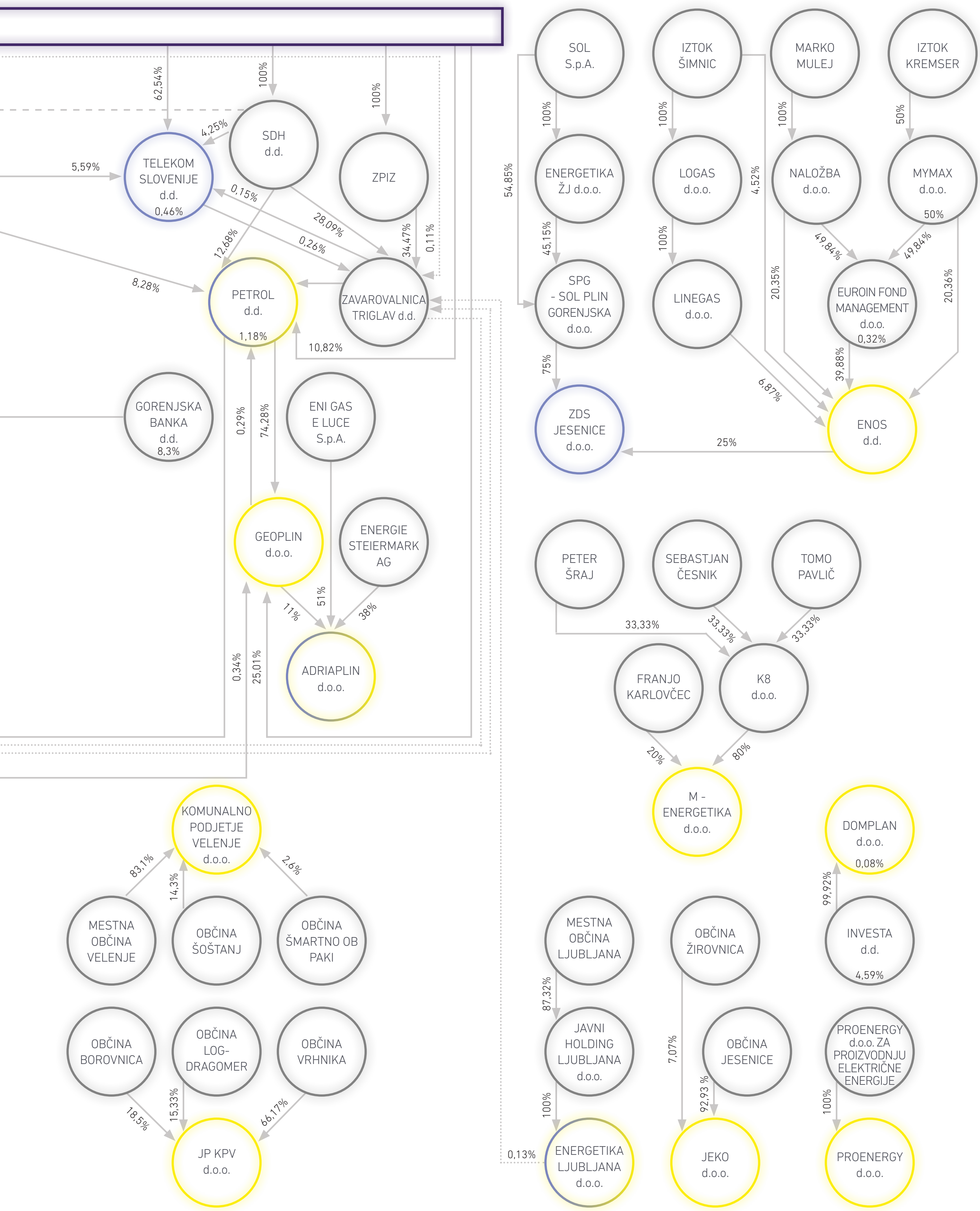
Unbundling

Distributors performing services of general economic interest and carrying out activities other than heat distribution should keep separate accounts in accordance with accounting standards and disclose separate accounts in the notes to the financial statements for heat distribution, heat production and other activities. To this end, they should define in their internal acts the criteria for allocating assets and liabilities, costs and expenditure, and revenues, which they take into account in the management of accounts and the preparation of separate accounts. They must also be disclosed in full in the notes to the financial statements. The adequacy and correctness of the application of judgments should be audited annually by the auditor, who must produce a special report.

FIGURE 203: OWNERSHIP STRUCTURE OF ELECTRICITY AND NATURAL GAS SUPPLIERS–ON 31 DECEMBER 2020

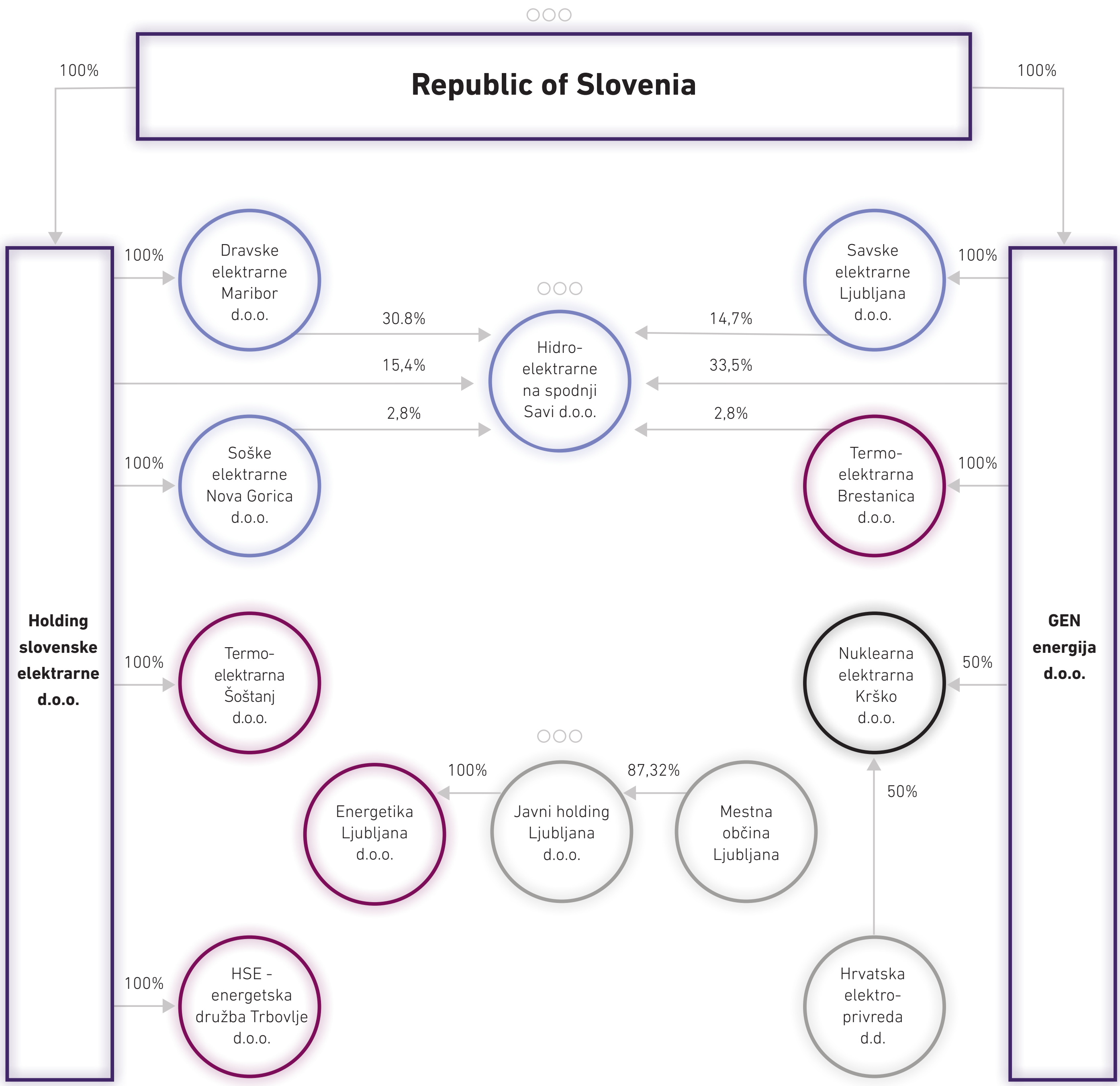


Electricity supplier
Natural gas supplier
Electricity and natural gas supplier



SOURCE: GVIN.COM

FIGURE 204: OWNERSHIP STRUCTURE OF ELECTRICITY PRODUCERS WITH INSTALLED CAPACITY MORE THAN 10 MV– ON 31 DECEMBER 2020



SOURCE: GVIN.COM

LIST OF ABBREVIATIONS AND ACRONYMS

ACER	Agency for the Cooperation of Energy Regulators
Agencija za energijo	Energy Agency
AIB	Association of Issuing Bodies
AJPES	Agency of the Republic of Slovenia for Public Legal Records and Related Services
AMS	Advanced Metering System
AN-OVE	National Renewable Energy Action Plan 2010–2020
AM	Amortisation
AN-URE 2020	National Energy Efficiency Action Plan 2017–2020
AREDOP	Active Regulation of Energy Activities and Networks of the Future
Borzen	Borzen, Power Market Operator
BS	Balance Group
BSP, Southpool	BSP, Regional Energy Exchange, Southpool
B2B	Business to Business
B2C	Business to Consumer
BEV	Battery Electric Vehicle
Cneg in Cpoz	Basic Imbalance Prices
CDS	Closed Distribution System
CEEPS	Centralni elektroenergetski portal Slovenije
CEER	Council of European Energy Regulators
CEER CS WS	CEER Cyber Security Workstream
CEGH	Central European Gas Hub AG Vienna; (stock index)
CEP	Clean Energy Package
CHP	Combined Heat and Power
CIM	Common Information Model (IEC 61970-3XX)
CNG	Compressed Natural Gas
CRIDA	Complementary Regional Intraday Auctions proposal
CROPEX	Croatian Power Exchange
CSDMP	Central system for the access to metering data

CZC	Cross-zonal capacity
DEM	Dravske elektrarne Maribor d.o.o. (Dravske elektrarne HPP)
DSO	Distribution System Operator
DTO	Distribution-Transformer Station
E	Electricity
ebIX	European forum for energy Business Information eXchange
EEX	European Energy Exchange AG, Leipzig
ENISA	The European Union Agency for Cybersecurity
ENTSO-E	European Network of Transmission System Operators for Electricity
EPOS-G2	E-poročanje podatkov izvajalcev energetskih dejavnosti
ESMIG	European Smart Energy Solution Providers
EXAA	Energy Exchange Austria
EZ-1	Energy Act, Official Gazette of the RS. no. 60/19–official consolidated text and 65/20
EU	European Union
EXAA	Energy Exchange Austria
GDP	Gross Domestic Product
GIAC	Global Information Assurance Certification
GIZ	Economic Interest Grouping
GJS	Service of general economic interest
GME	Gestore Mercati Energetici, Italian Power Exchange
GO	Guarantee of Origin
GS1	Global Business Languages ((http://www.gs1.org)
HEP	Hrvatska elektroprivreda d.d.
HESS	Hidroelektrarne na Spodnji Savi, d.o.o. (Hidroelektrarne na Spodnji Savi HPP)
HHI	Herfindahl-Hirschman index
HOPS	Hrvatski operator prijenosnog sustava d.o.o
HPP	Hydroelectric Power Plant
HSE	Holding Slovenske elektrarne, d.o.o.
HUPX	Hungarian Power Exchange
HV	High Voltage
I	Incentives
ICT	Information and communication technology
IEGSA	Interoperable pan-European Grid Service Architecture

IPET	Energy Market Data Exchange (IPET Section)
JAO	Joint Allocation Office
JPEL	Javno podjetje Energetika Ljubljana
KORRR	Key Organisational Requirements, Roles and Responsibilities
LNG	Liquified Natural Gas
LT	Low Tariff
LV	Low Voltage
MAIFI	Momentary Average Interruption Frequency Index
MRS	Metering-regulation Station
MV	Medium Voltage
NBIoT	Narrow Band Internet of Things (Ozkopasovni internet stvari)
NEMO	Nominated Electricity Market Operator)
NG	National Gas
NNP	Nuclear Power Plant
NREAP	National Renewable Energy Action Plan
P	Power
PCI	Projects of Common Interest
PHEV	Plug-in hybrid electric vehicles
PL	Power Line
PSHPP	Pumped-Storage Hydroelectric Power Plant
PT	Peak Tariff
RDS	Reguliran donos na sredstva
REMIT	Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency
RES	Renewable Energy Sources
R&I	Research and Innovations
RF	Regulatory Framework
RPI	Retail Price Index
RRM	Registered Reporting Mechanism
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SANS	SysAdmin, Audit, Network, and Security (Escal Institute of Advanced Technologies)
SCT	Single Contact Point

SDV	Operating and maintenance costs
SEE	South-East Europe
SEL	Savske elektrarne Ljubljana d.o.o. (Savske elektrarne HPP)
SEEI	Costs of electrical power system losses (Stroški električne energije za izgube v omrežju)
SEDMP	System for Uniform Access to Measurement Data
SENG	Soške elektrarne Nova Gorica d.o.o.
SEVF	Slovenian Energy Security Forum
SGTF-EG2	Smart Grid Task Force Expert Group 2
SHB	Slovenia, Croatia, Bosnia in Herzegovina (block SHB)
SIDC	Single IntraDay Coupling
SIPX	Slovenian Price Index
SODO	Slovenian Distribution System Operator
SONDSEE	System operating instructions for the electricity distribution system
STAT	Statistical Office of the Republic of Slovenia
SWC	Social Work Centre (CSD–Center za socilano delo)
T	Annual operating hours
TEB	Termoelektrarna Brestanica d.o.o. (Brestanica TPP)
TEŠ	Termoelektrarna Šoštanj d.o.o. (Šoštanj TPP)
URSIV	Information Security Administration (Uprava Republike Slovenije za informacijsko varnost)
TPP	Thermoelectric Power Plant
TS	Transformer Station
TSO	Transmission System Operator
VAT	Value-Added Tax
ZGD-1	Companies Act, Official Gazette of the RS. Nos. 65/09 – official consolidated text, 33/11, 91/11, 32/12, 57/12, 44/13 – dec. CC, 82/13, 55/15, 15/17 and 22/19 – ZPosS

LIST OF TABLES

LIST OF FIGURES

Agencija za energijo

REPORT ON THE ENERGY SITUATION IN SLOVENIA IN 2020

MEDIA CLINIC