



Elektro Ljubljana

Development of the electricity market at the distribution network level

MOSTAR 17.10.2022

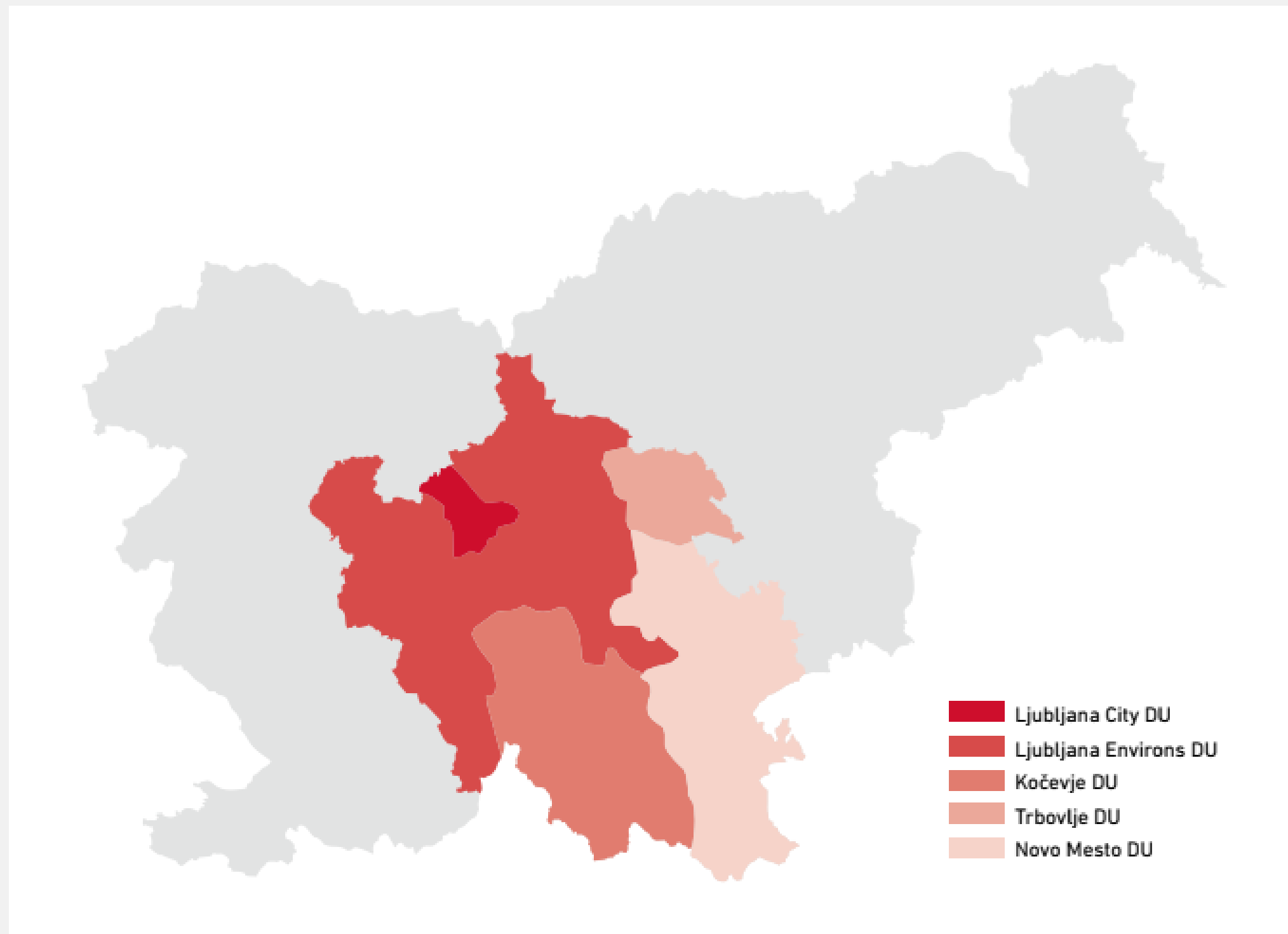
Matjaž Osvald
Executive Director BU ORDO



The largest electricity distribution network in Slovenia

–

5 distribution units





Our history





126 years of the company's activities

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- **1896** Start of the company's activities: in Kočevje, the first water and power plant were built
- **1898** Ljubljana obtains its own thermal power station
-
- **2008** start of development of new billing system
- **2010** The first electric vehicle charging station is installed.
- **2011** The subsidiary Elektro energija starts fully functioning on 1 December.
- **2014** The first virtual power plant acts in the electric power system.
- **2016** Merging Elektro energija with GEN-I
- **2017** Start of Advanced Metering Infrastructure (NMS) project
- **2017** Implementation of AX as ERP system
- **2017** Implementation of Maximo as Asset Management System
- **2019** First module of Common Entry Point (EVT) in production
- **2019** Big Data Project started
- **2021** Introduction of a new SCADA/ADMS system



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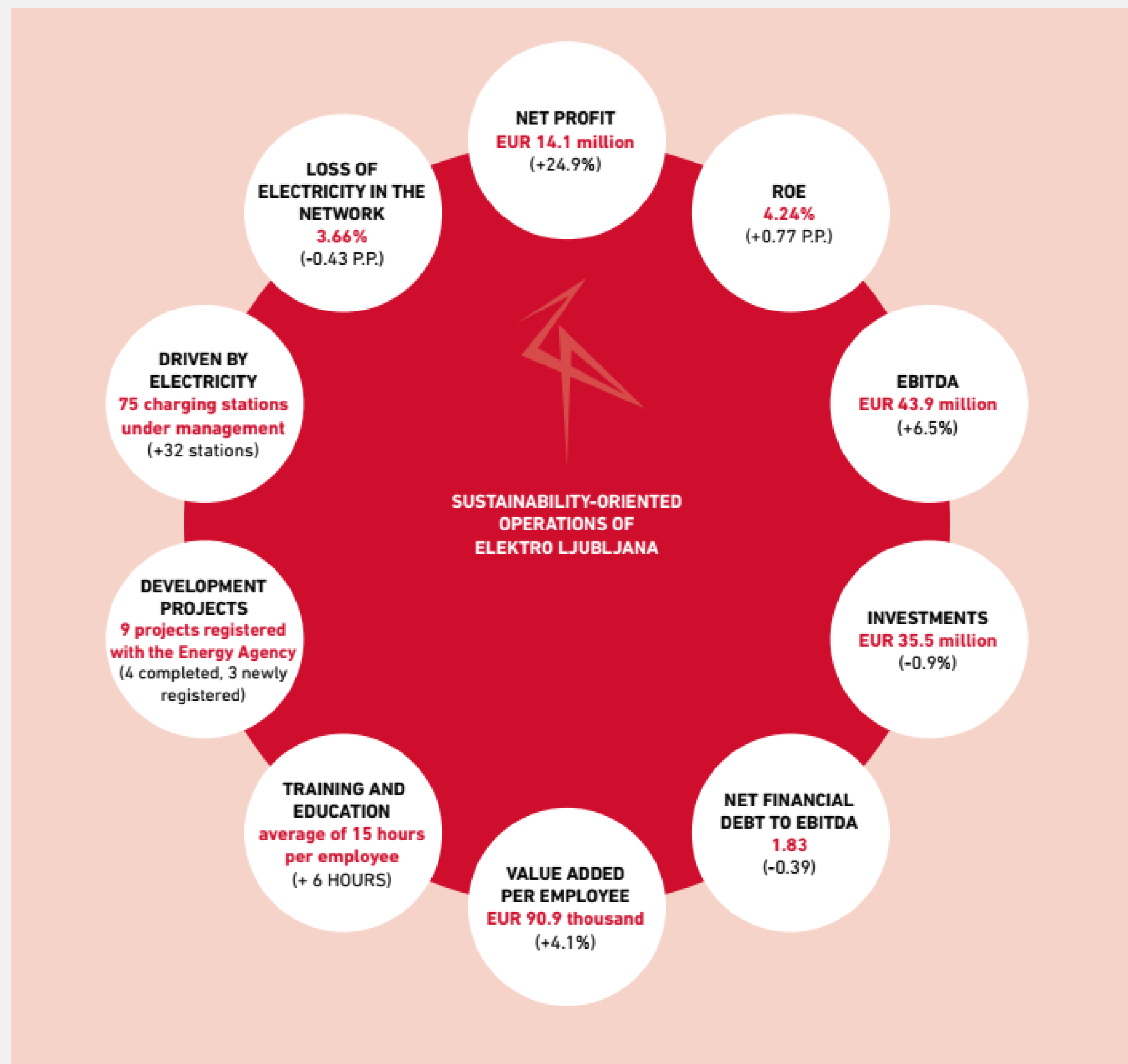
Business Operations





Financial and non-financial indicators

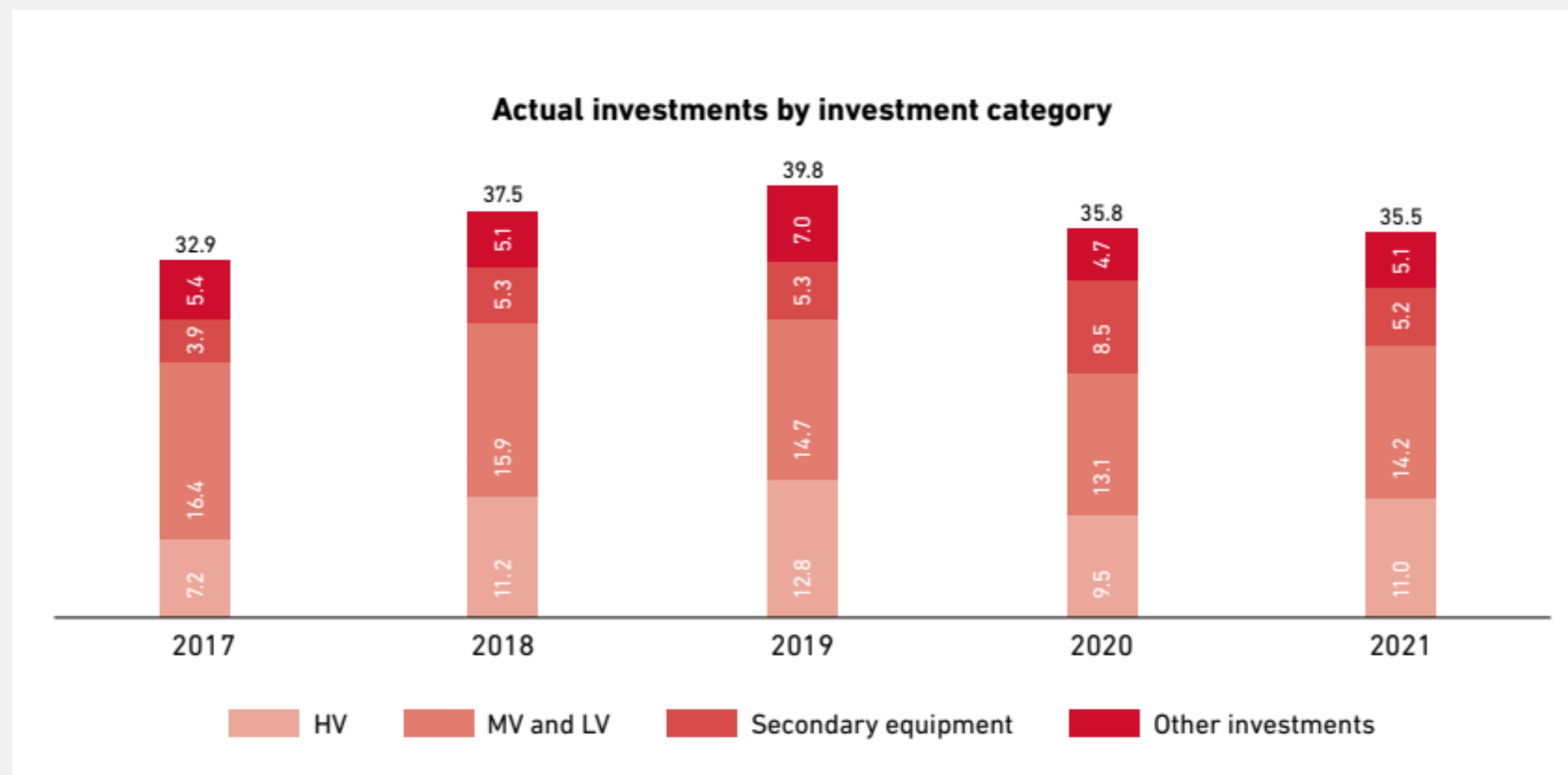
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Investments

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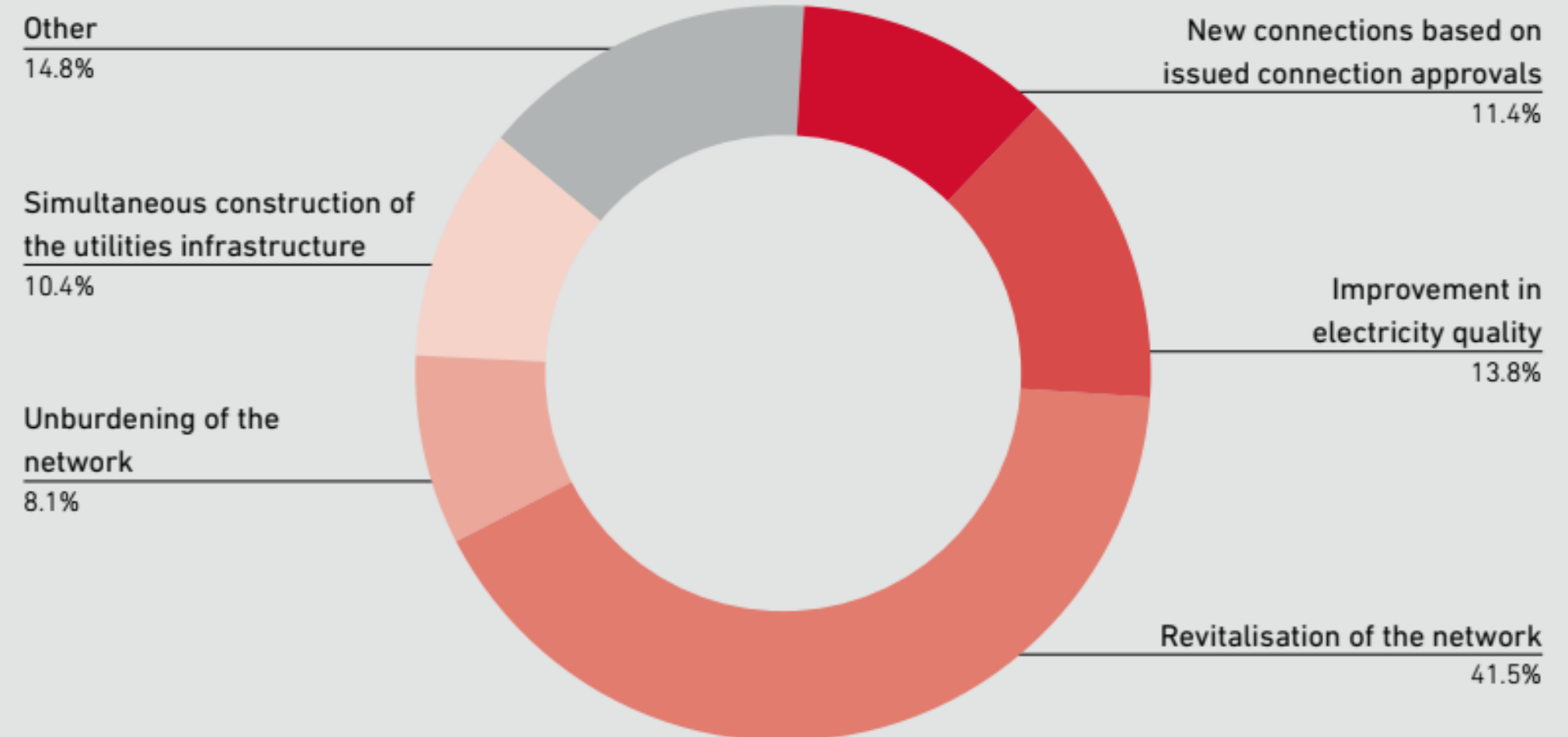
- Actual investments in 2021 were down by 0.9% relative to actual investments in 2020. The epidemic impacted the implementation of investments again in 2021m while supply of metering equipment came to a virtual standstill during the year due to global problems faced by the suppliers of basic electronic components.



Investments in the MV- and LV-network in 2021 by purpose

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Investments in the MV- and LV-network by purpose in 2021





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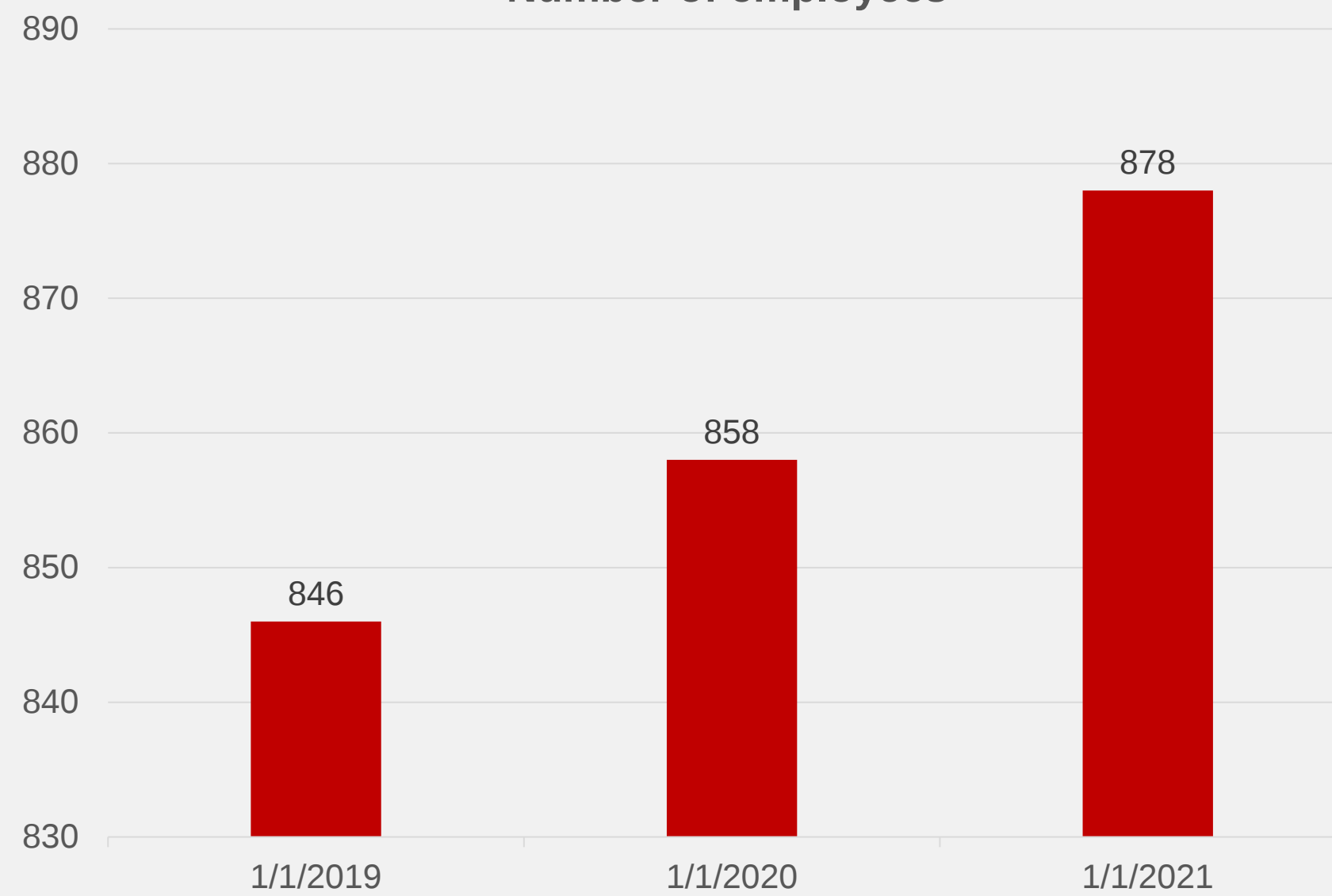
Employees





Number of employees

Number of employees





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Distribution network





Reliability and safety

–
Network
managed by
Elektro
Ljubljana

NETWORK UNDER MANAGEMENT

17,342

km of power lines

30

DTS

21

substations

5,627

TS

261,001

metering points
in the remote
control system
(+9.4%)

ELECTRICITY DISTRIBUTION

4,311

GWh of distributed
electricity
(+4.8%)

744

MW
maximum peak
load of the network
(+2.3%)

348,447

network users
(+0.8%)

QUALITY OF SUPPLY

SAIFI -

number of protracted
interruptions per
customer

1.73*

(+0.05)

SAIDI -

duration of
the protracted
interruptions per
customer in minutes

126 min*

(+5 min)

MAIFI -

number of momentary
interruptions per
customer

3.37*

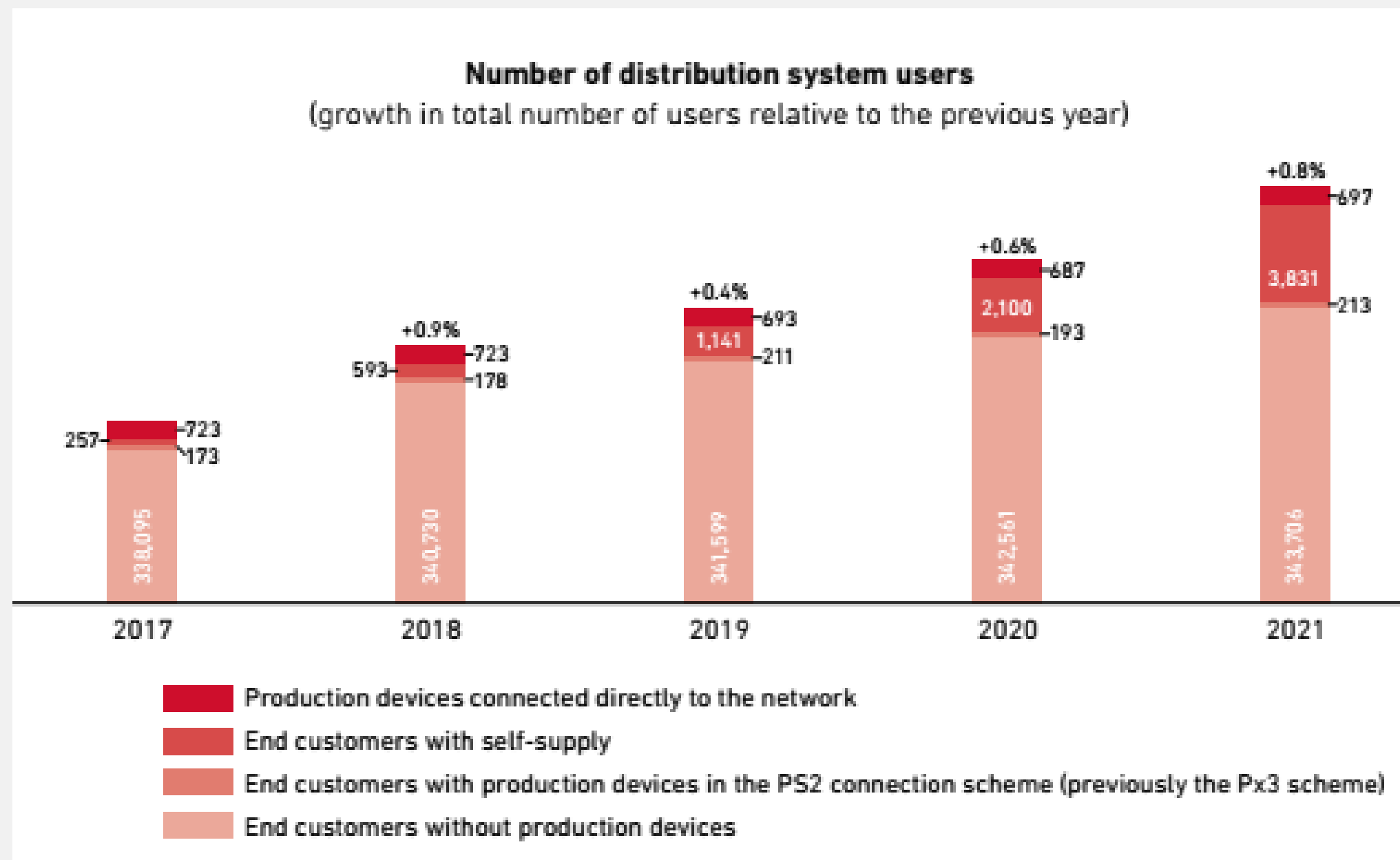
(-0.21)

* All reasons for interruptions
(internal, external, force
majeure).



Distribution system users

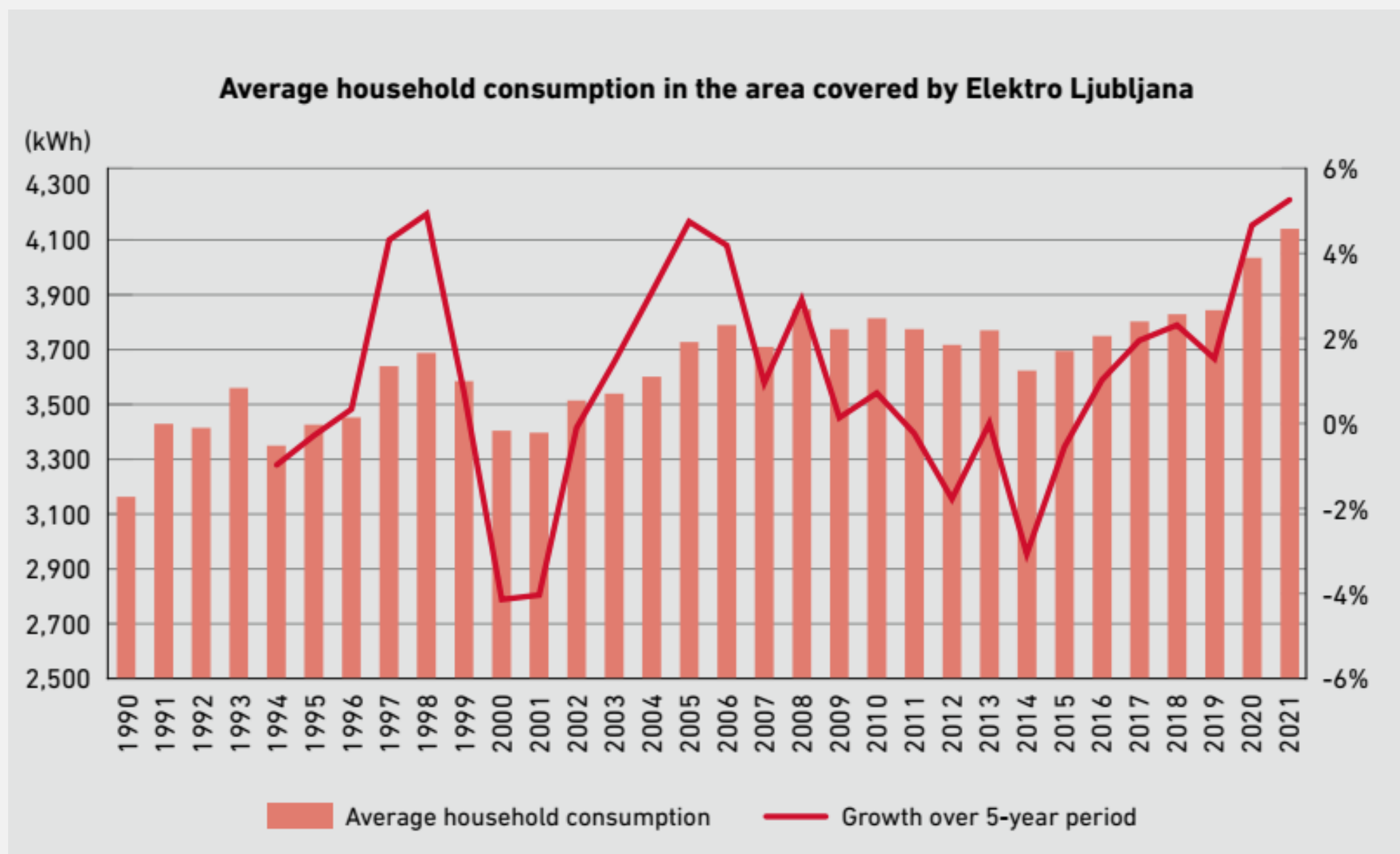
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Number of distribution system users is growing increasingly from year to year, increasing at a rate of 0.8% annually.





Consumption of the electricity

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Total consumption was up by 4.4% relative to the previous year

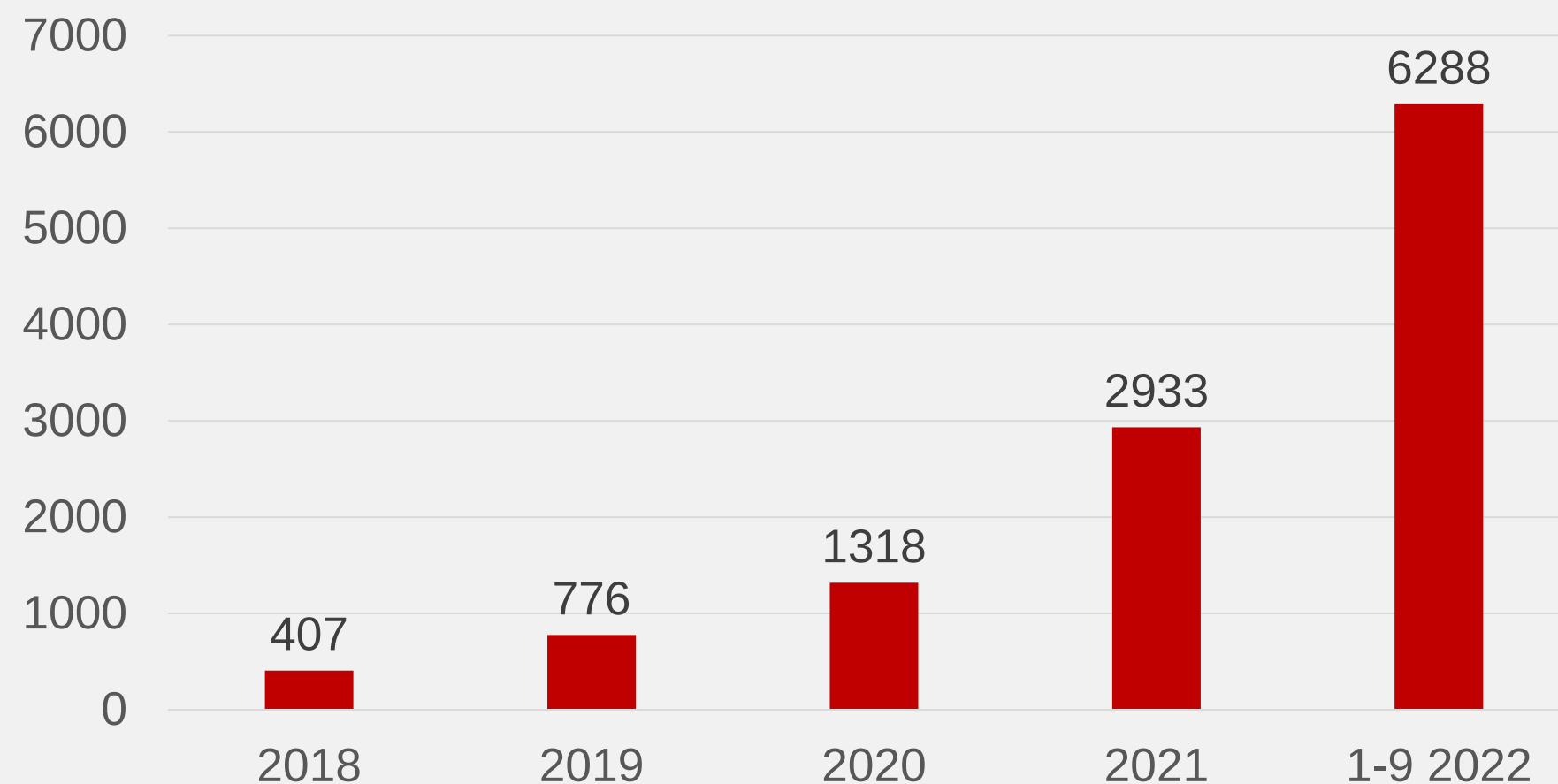




Number of approvals issued

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The number of issued approvals was up by 14% in 2020 and by 44% in 2021 due to tremendous amount of interest in the set-up of self-supply production devices

Number of approvals issued for the connection of producers





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Gremo na električno
(*Driven by electricity)





The largest Slovenian CSs network

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- 2010: Elektro Ljubljana installs first public charging station
- 90.000 free charges in 9 years
- 450 charging stations in the system





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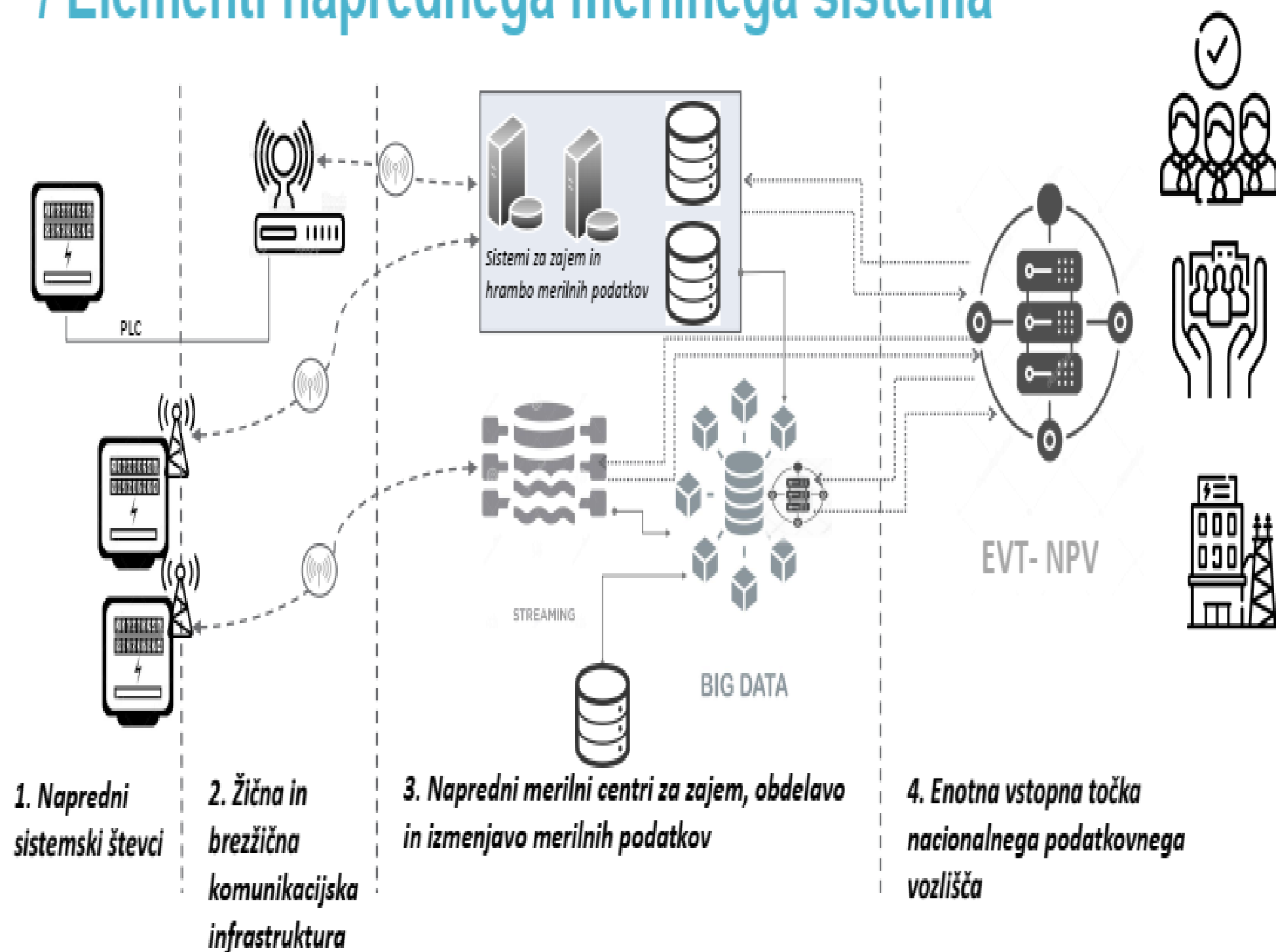
Latest development





NMS Advanced Metering System

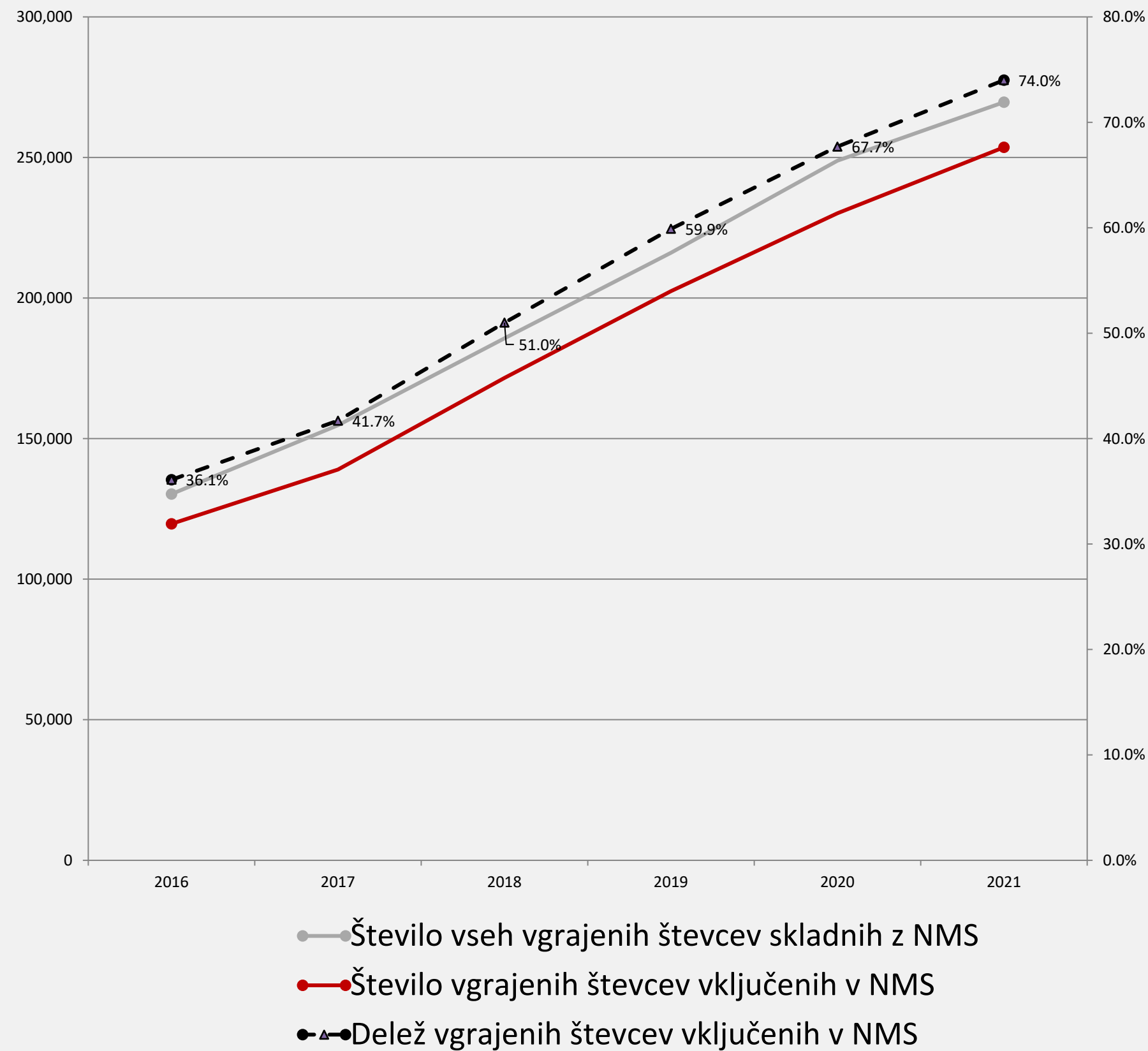
/ Elementi naprednega merilnega sistema





NMS

74% of
customers
with
advanced
meter

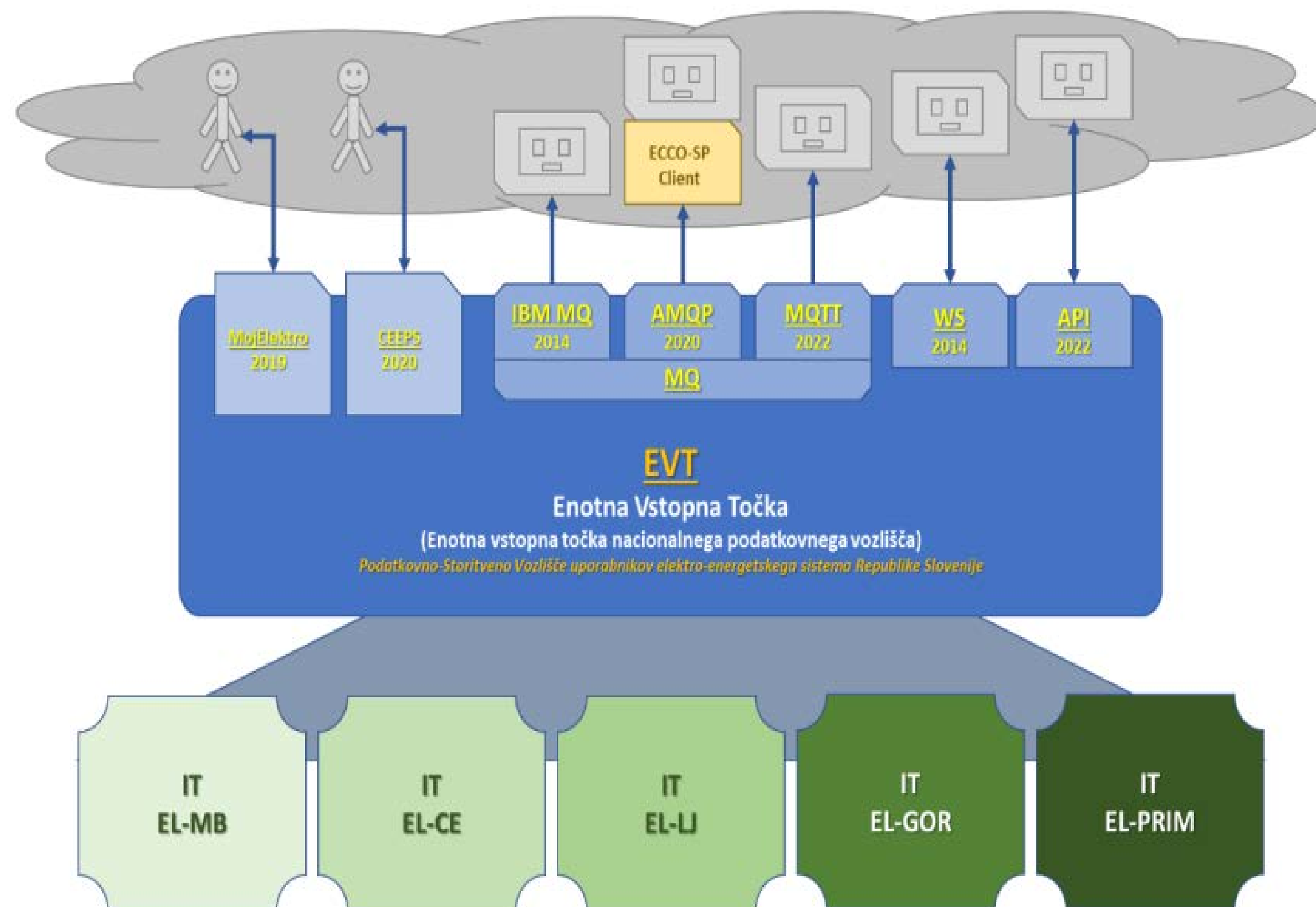




System for Uniform Access to Measurement Data - SEDMp

**National
Data Hub**

**Single entry
point (EVT)**





SEDMp

- Intended for all electricity users, data beneficiaries, suppliers, aggregators, etc.
- Ensures uniform exchange of data between operators (inter-operator data exchange)
- Access to the available measurement data is independent of the electricity distribution area or the supplier's affiliation



SEDMp

Ponudniki storitve
identifikacije – REKONO,
SIPASS



Uporabniški portal

MOJELEKTRO
app

MOJELEKTRO.si

**Portal za upravičence do
podatkov**

**Centralni
elektroenergetski portal
Slovenije - CEEPS**

Registracija,
upravljanje,
administracija

End Customer service portal

e-obrazci

e-storitve

...
(ostale
funkcionalnosti)

B2B Storitve - MQ

Podatki MM
za D-1

15min podatki
na zahtevo

15 min podatki
na urnik

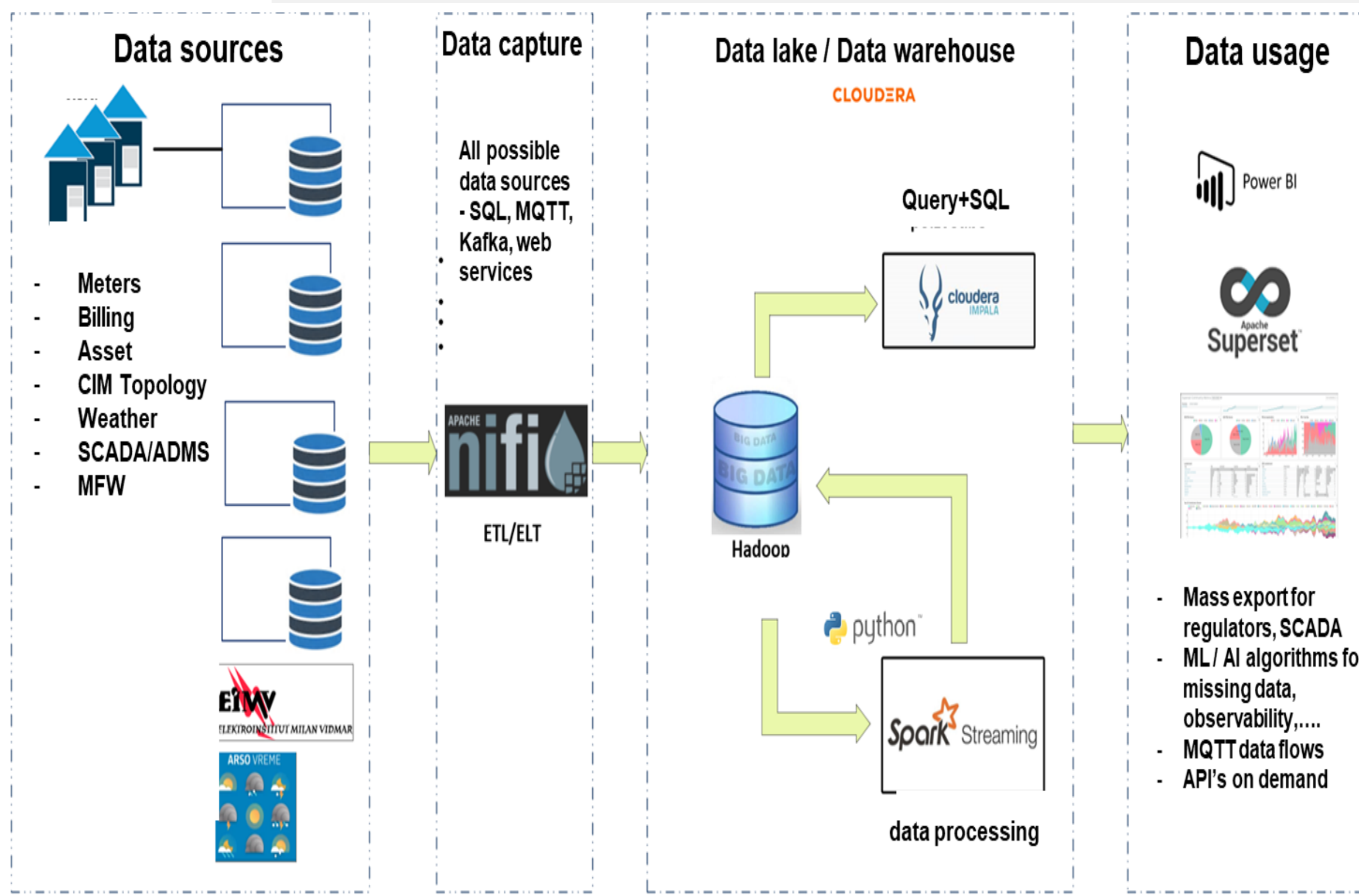
...
(ostale
funkcionalnosti)

CIM zasnova storitvenega vodila

Enotna vstopna točka



Big Data platform (POVP)





Big data

/ VOLUMETRIČNA STATISTIKA

- 5 let zgodovine podatkov

9 4 . 1 5 1 . 7 6 7 . 3 0 9

- Procesiranje **31 milijonov** zapisov energije
v **2 minutah**

- **Dnevno** procesiranje

- čas **4 uro** in **50 min**
- zapisov: **8.058.432.631 (8 milijard)**



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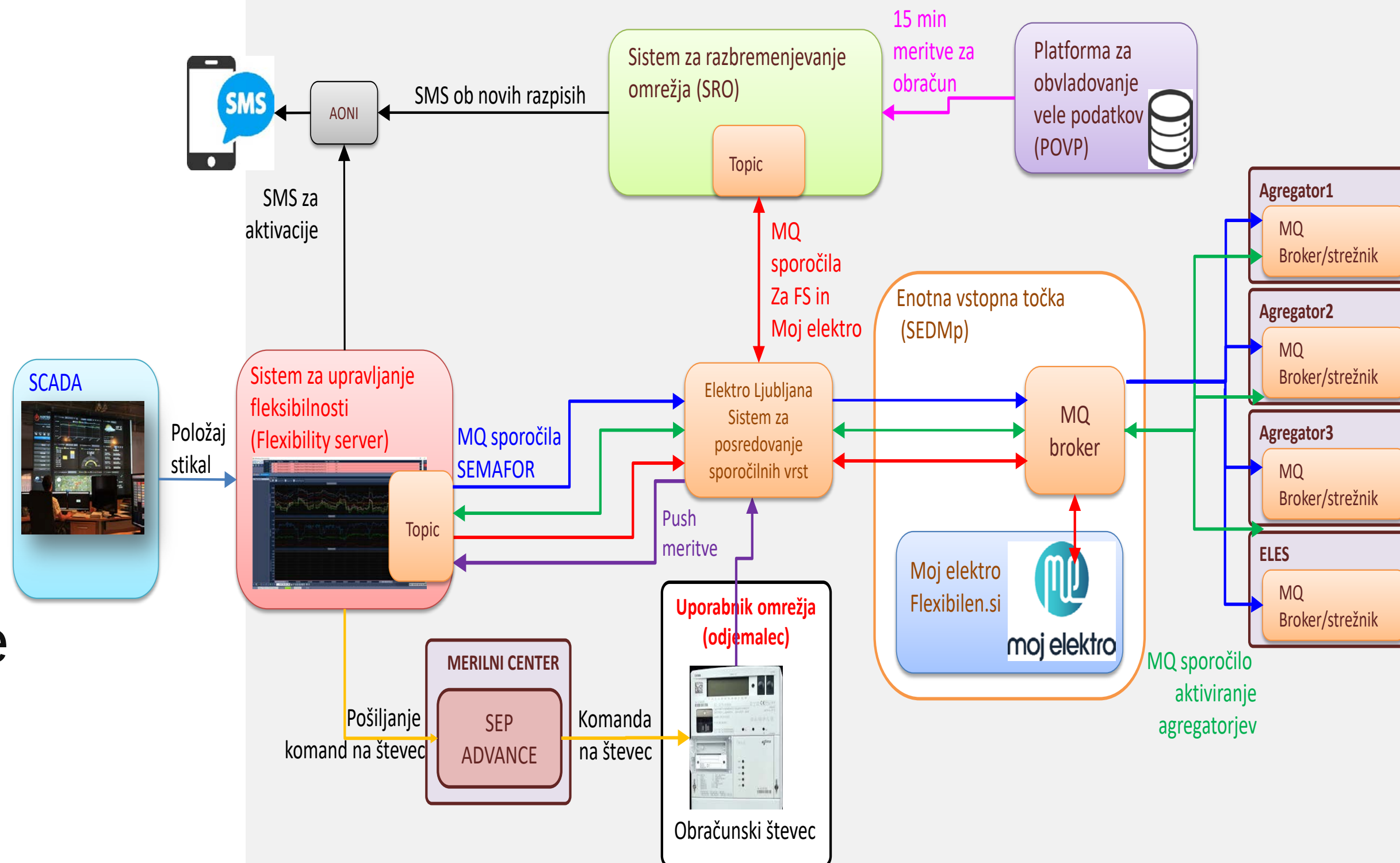
Information system design to support the use of flexibility in the Slovenian EES





Exchange of information

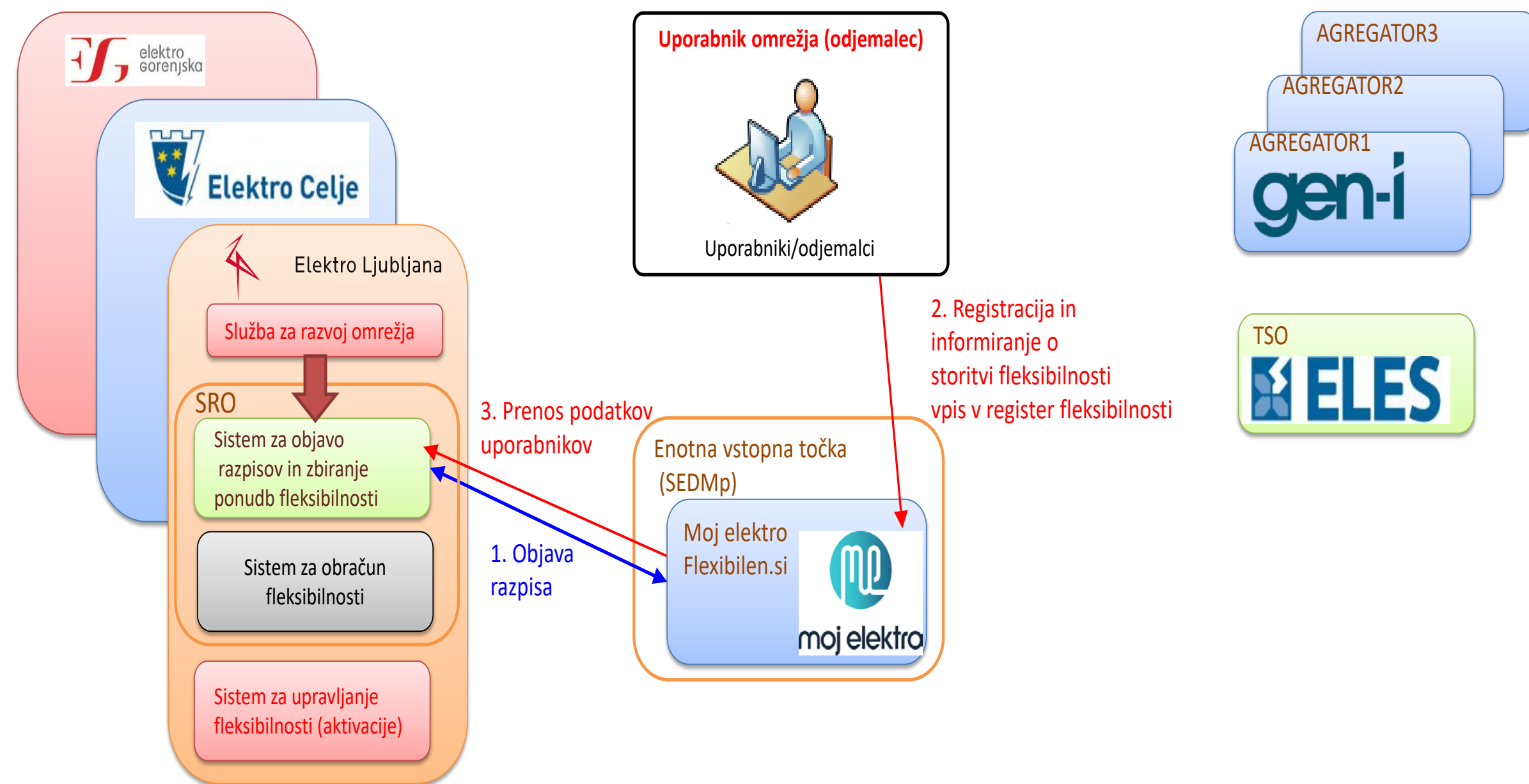
The main building blocks of the system





Registration

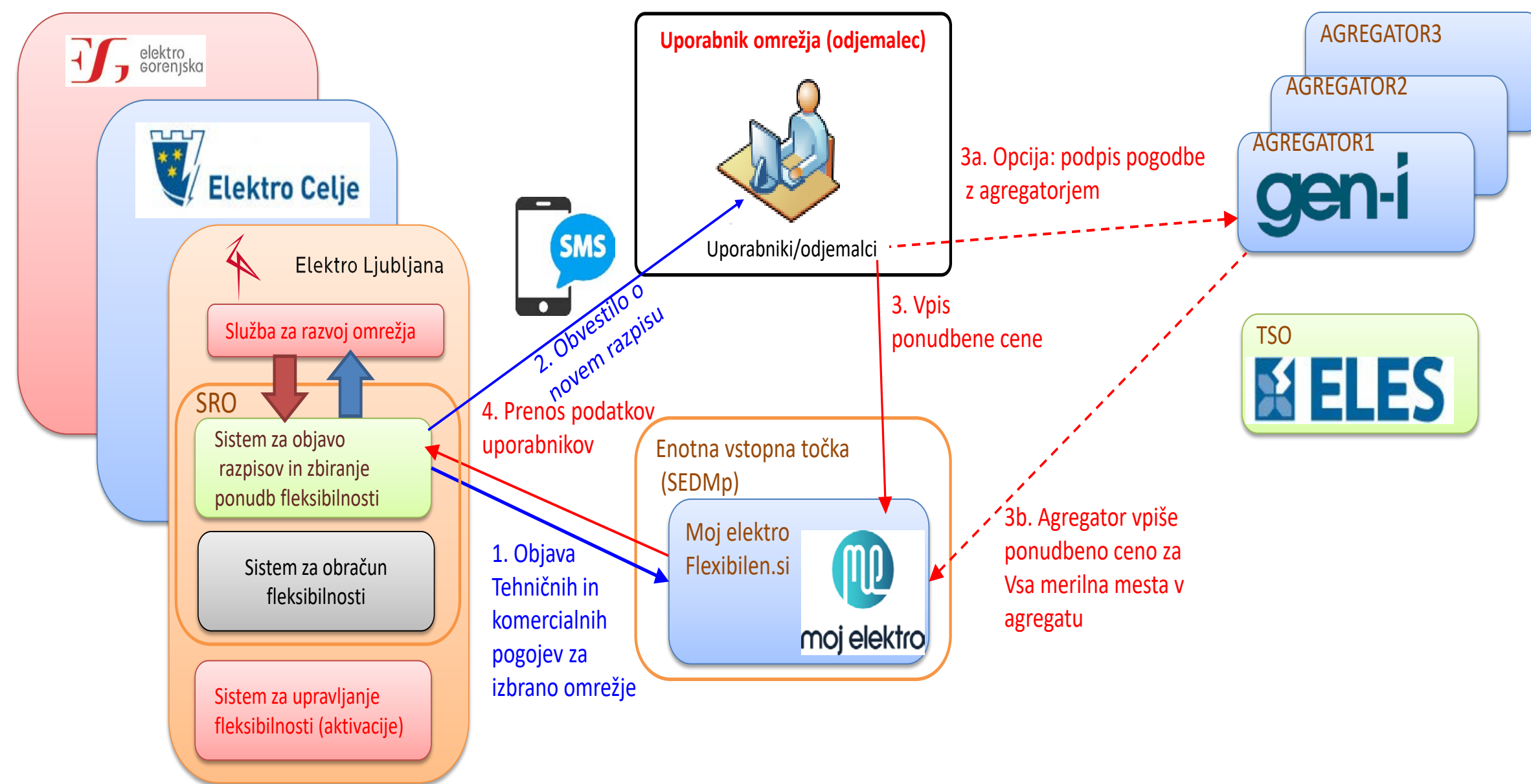
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It must be done by the owner for each MM, but he can authorize someone for further management





Tender

Bidders submit bids for tendered products. Each product has its own tender

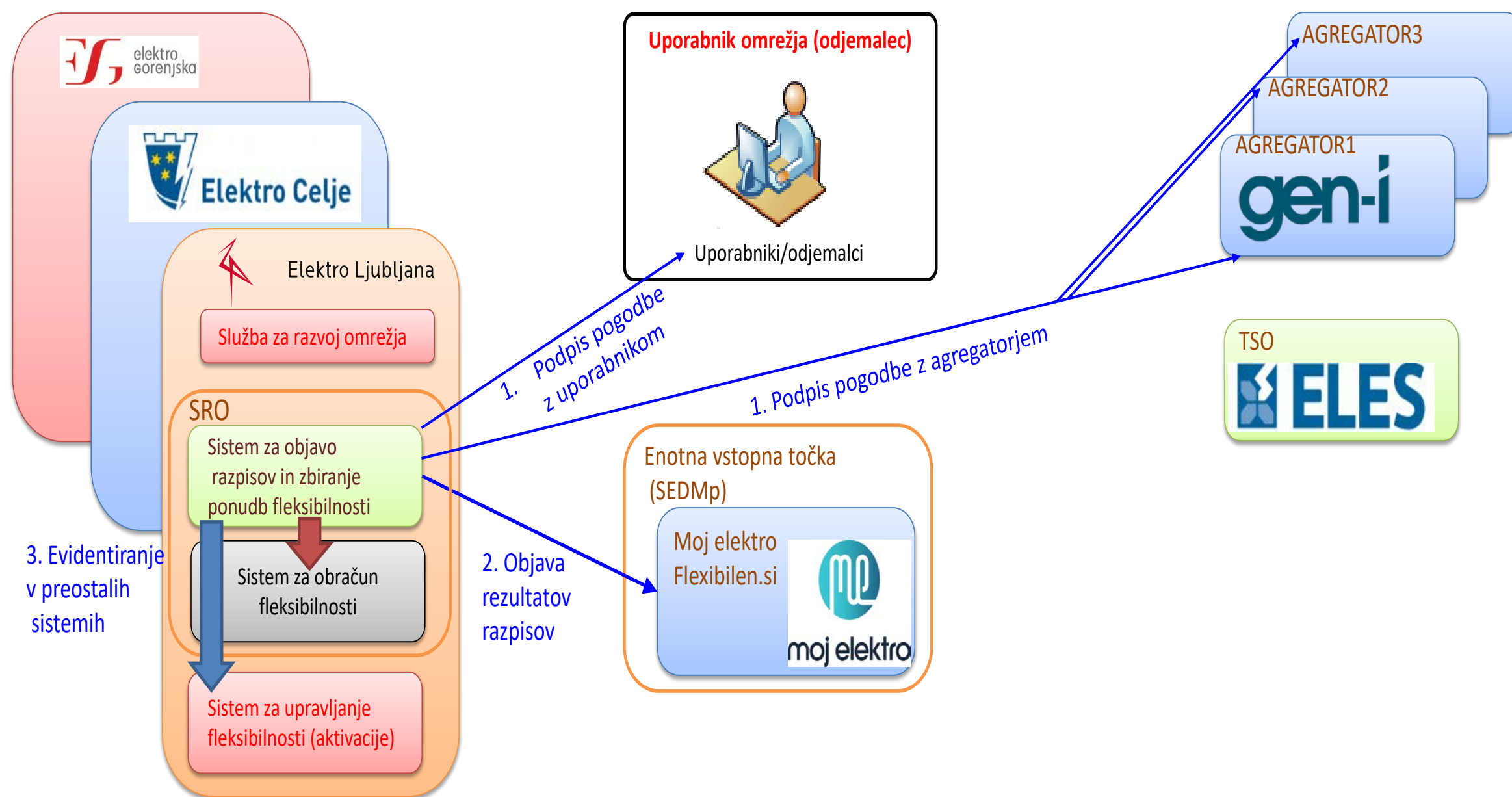




Contract sign

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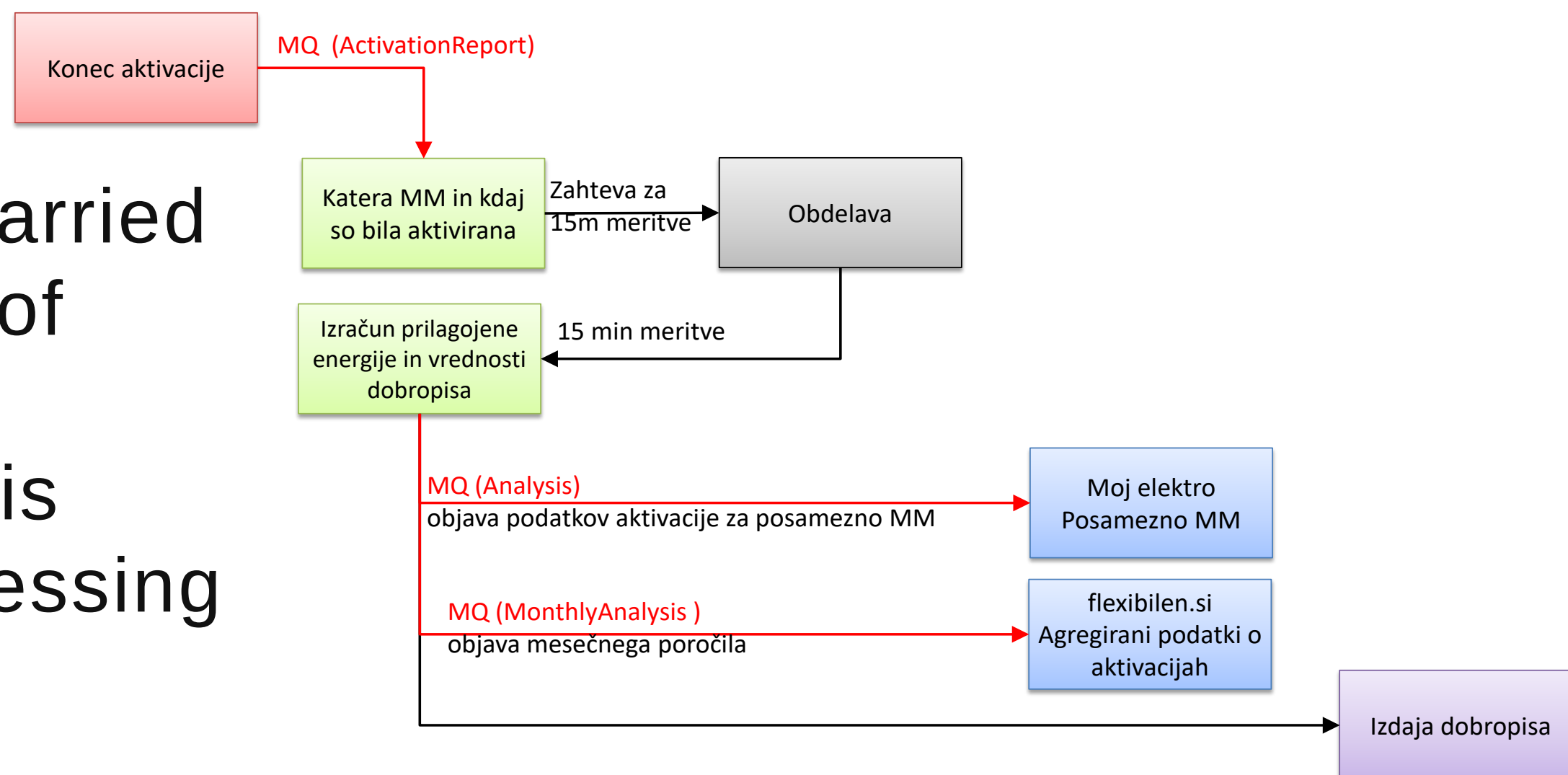
Contracts with providers are signed upon successful tendering





Activation

Activations are carried out on the basis of network status monitoring. This is followed by processing for billing

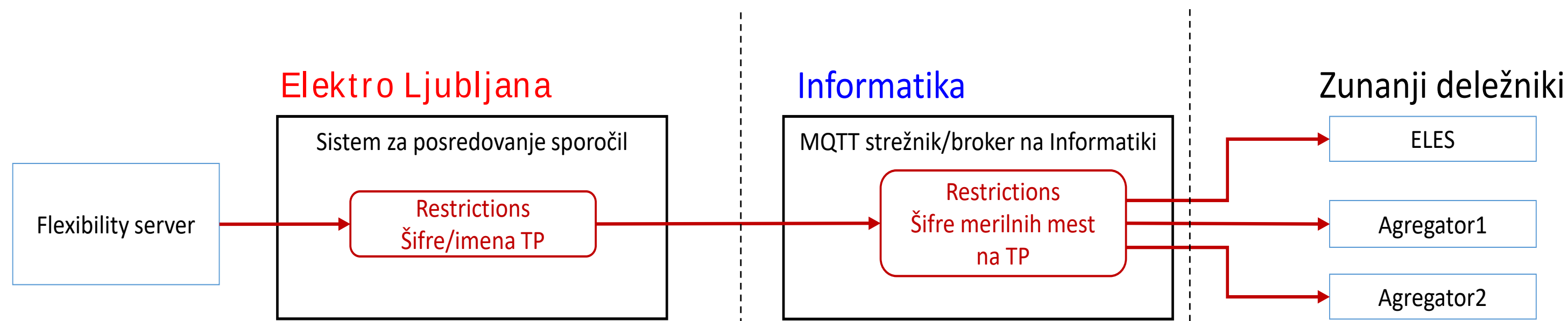




Semaphor

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Information on limitations of flexibility activations for other stakeholders





Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices

Demand Reduction 1/3

Article 3 Reduction of gross electricity consumption

- 1. Member States shall endeavour to implement measures to reduce their total monthly gross electricity consumption by 10 % compared to the average of gross electricity consumption in the corresponding months of the reference period.
- 2. When calculating the reduction of gross electricity consumption, Member States may take into account the increased gross electricity consumption that follows from reaching the gas demand reduction targets and general electrification efforts to phase out fossil fuels.

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Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices

Demand Reduction 2/3

Article 4 Reduction of gross electricity consumption during peak hours

- 1. Each Member State shall identify peak hours corresponding in total to a minimum of 10 % of all hours of the period between 1 December 2022 and 31 March 2023.
- 2. Each Member State shall reduce its gross electricity consumption during the identified peak hours. The reduction achieved over the identified peak hours shall reach at least 5 % on average per hour. The reduction target shall be calculated as the difference between the actual gross electricity consumption for the identified peak hours and the gross electricity consumption forecasted by the transmission system operators in cooperation with the regulatory authority where applicable, without taking into account the effect of the measures put in place to reach the target set in this Article. Transmission system operators' forecasts may include historical data of the reference period.
- 3. Member State may decide to target a percentage of peak hours different from the one set in paragraph 1, as long as at least 3 % of peak hours are covered, and as long as the energy saved during those peak hours is at least equal to the one that would have been saved with the parameters set out in paragraphs 1 and 2.



Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices

Demand Reduction 3/3

- Article 5 Measures to achieve the demand reduction
- Member States shall be free to choose the appropriate measures to reduce gross electricity consumption to meet the targets set in Articles 3 and 4, including extending national measures already in place. The measures shall be clearly defined, transparent, proportionate, targeted, non-discriminatory and verifiable, and shall in particular fulfil all of the following conditions:
 - (a) where financial compensation is paid in addition to market revenues, the amount of that compensation shall be established through an open competitive process;
 - (b) only involve financial compensation when such compensation is paid for additional electricity not consumed compared to the expected consumption in the hour concerned without the tender;
 - (c) not unduly distort competition or the proper functioning of the internal market in electricity;
 - (d) not be unduly limited to specific customers or customer groups, including independent aggregators, in accordance with Article 17 of Directive (EU) 2019/944; and
 - (e) not unduly prevent the process of replacing fossil fuel technologies with technologies using electricity.



Elektro Ljubljana

www.elektro-ljubljana.si

Networking for a bright future.