# NATIONAL TEN-YEAR NETWORK DEVELOPMENT PROPOSAL PUBLIC CONSULTATION 2022

May 2022

FGSZ

A MOL-CSOPORT TAGJA

# REGULATORY BACKGROUND



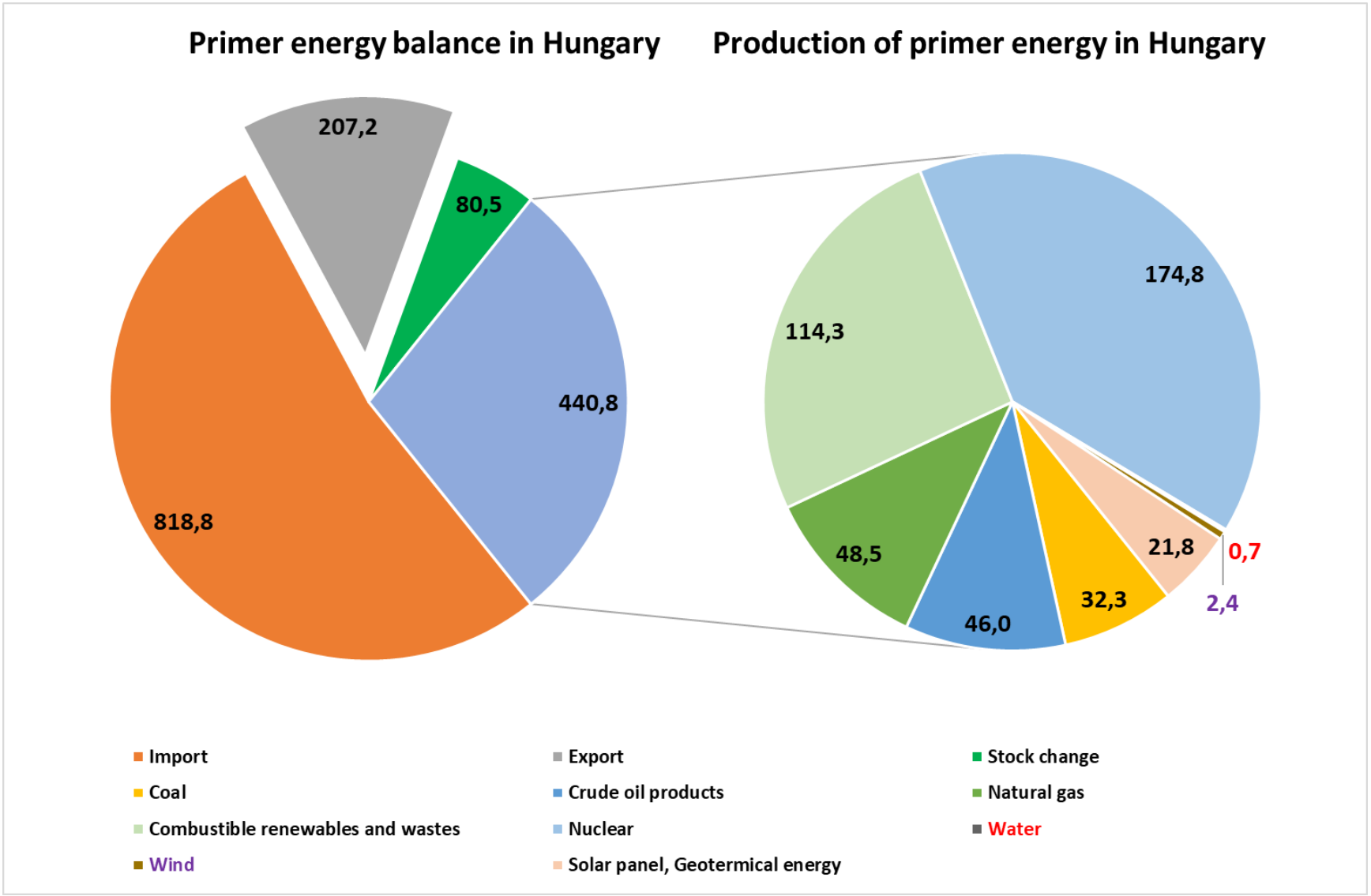
Business and Commercial Code

- It regulates the data provision of network users and system operators in detail.
- Point 3.3.6.: "As regards to the preparation and approval of the 10-year development proposal of the interconnected natural gas system, the relevant provisions of the Gas Supply Act and the Implementation Decree shall be applied."

Implementation Decree of Act XL of 2008 on natural gas supply (Gas Supply Act)

- Article 96 (5): "The transmission system operator shall send the results of the coordinated capacity review pursuant to Article 82 (2) of the Gas Supply Act and the 10-year development plan to the Office **by 31st May** each year."

# DOMESTIC PRIMER ENERGY CONSUMPTION AND ELECTRICITY GENERATION PRODUCTION IN HUNGARY (PJ)

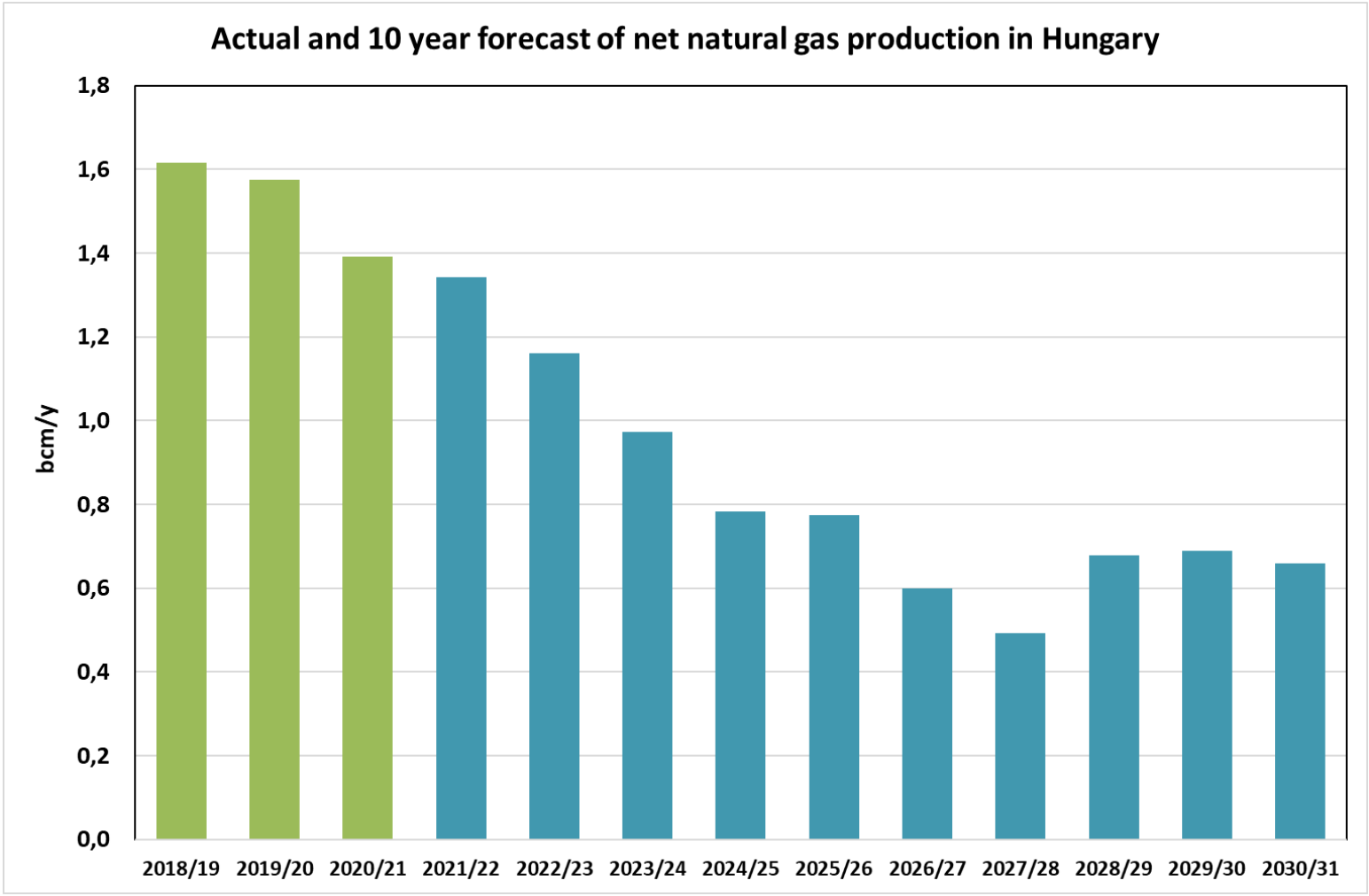



Source: Hungarian Central Statistical Office (ksh.hu)

Nuclear power and fossil fuels dominate the domestic power production.

# DECREASING GAS PRODUCTION AND FIELD DEVELOPMENTS BY INDIGENOUS E&P COMPANIES DESCRIBE DOMESTIC PRODUCTION





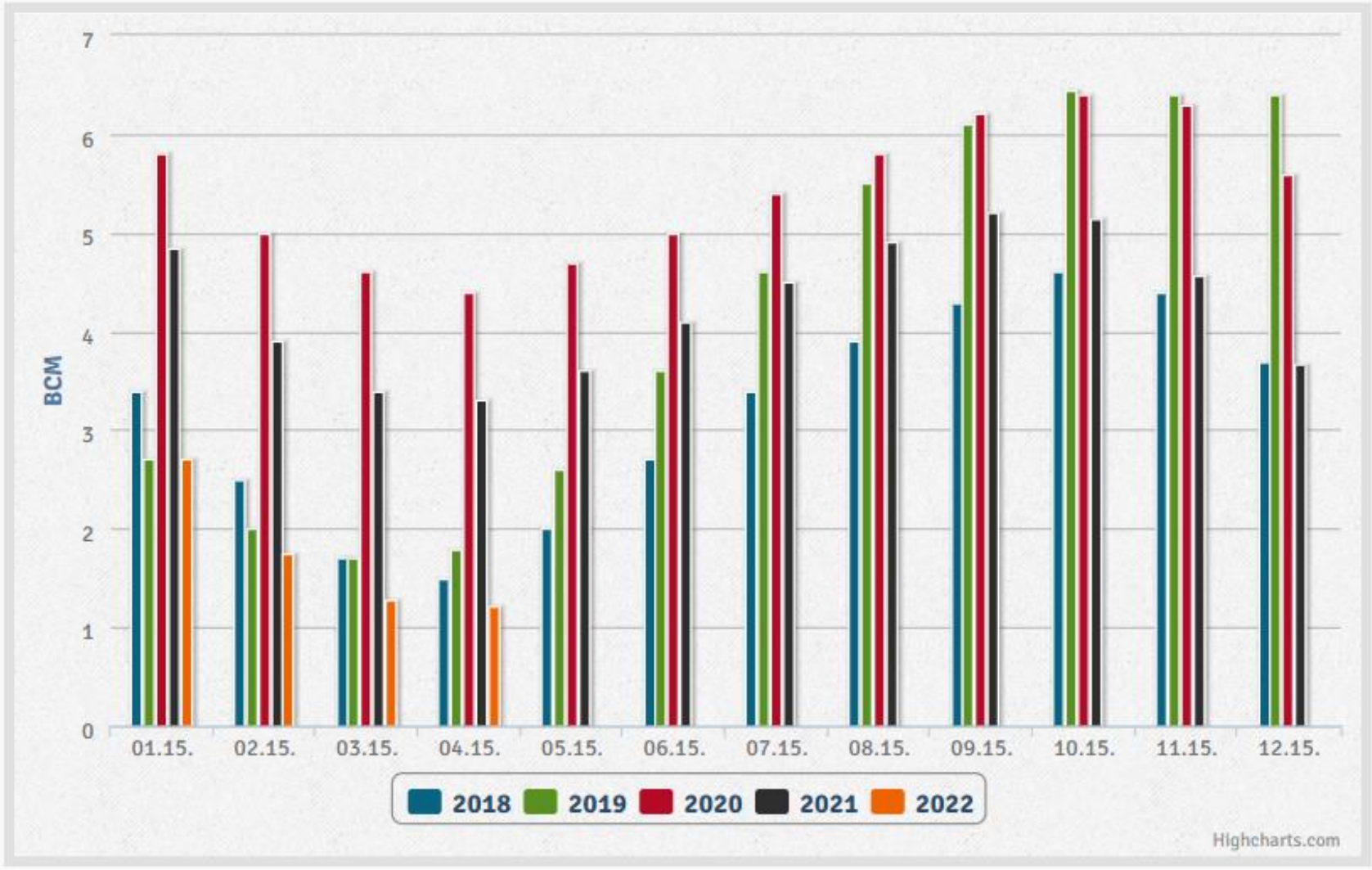

Legend:

- actual
- forecast

*Source: Ten Years Development Proposal 2022*

# DOMESTIC USAGE OF NATURAL GAS STORAGE

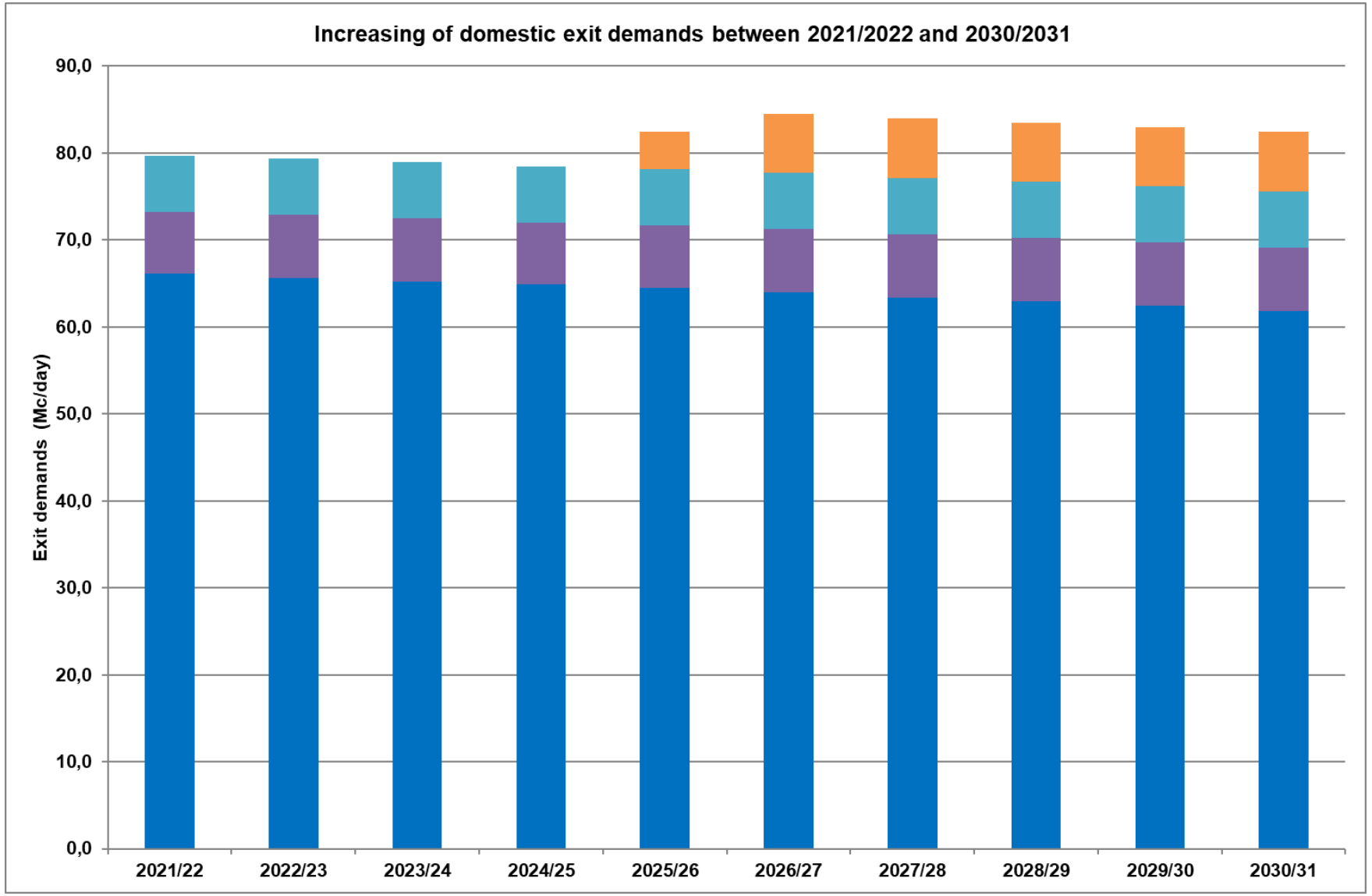





Source: www.mekh.hu/trend-of-stock-levels-in-hungarian-natural-gas-storage-facilities

# DEMAND OF DOMESTIC EXIT POINTS





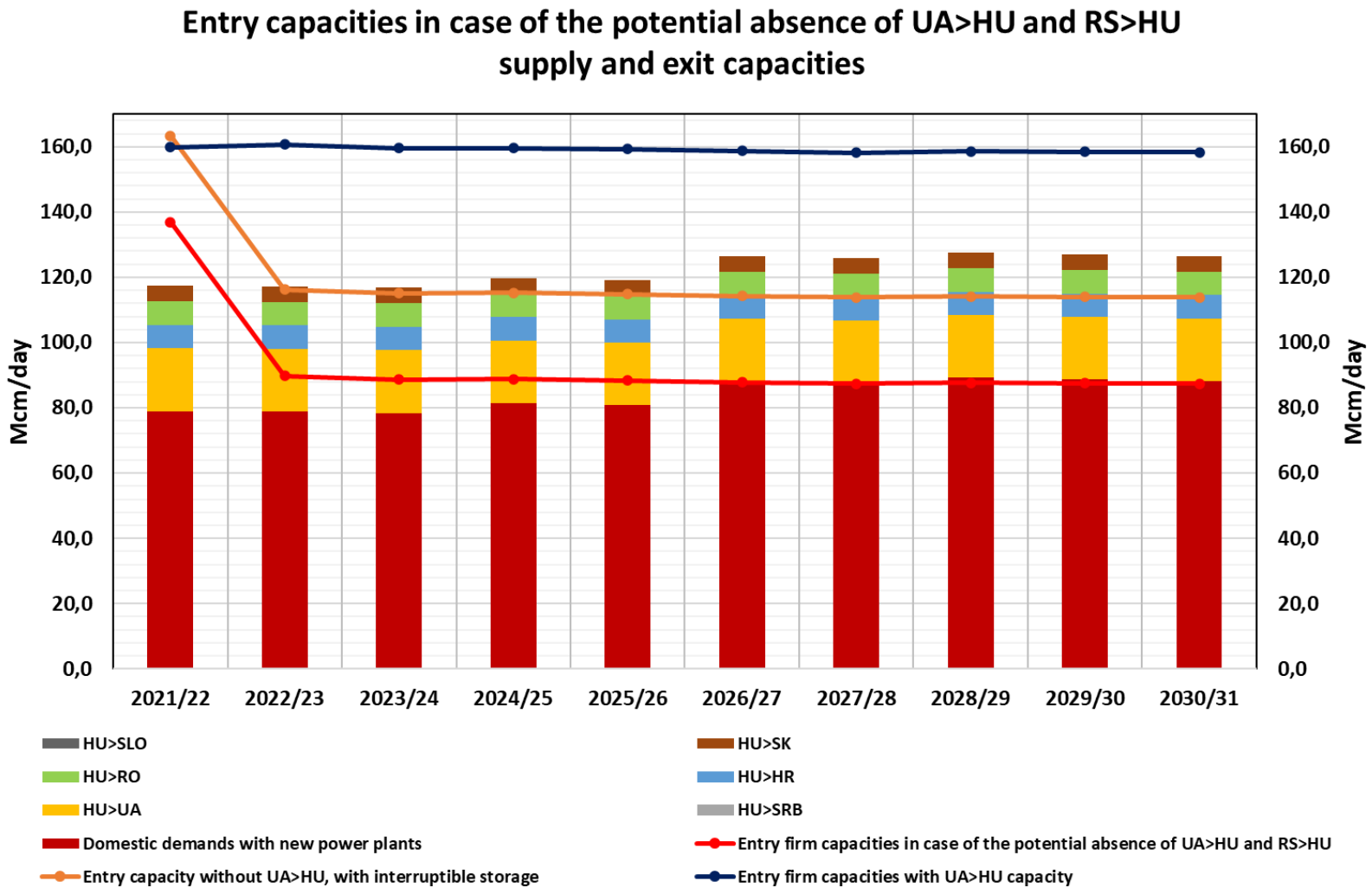

*Source: Ten Years Development Proposal 2022*

Legend:

- Distributors
- Industry
- Power Plant
- New power plants

# HUNGARIAN ENTRY AND EXIT CAPACITIES WITH APPROVED DEVELOPMENTS



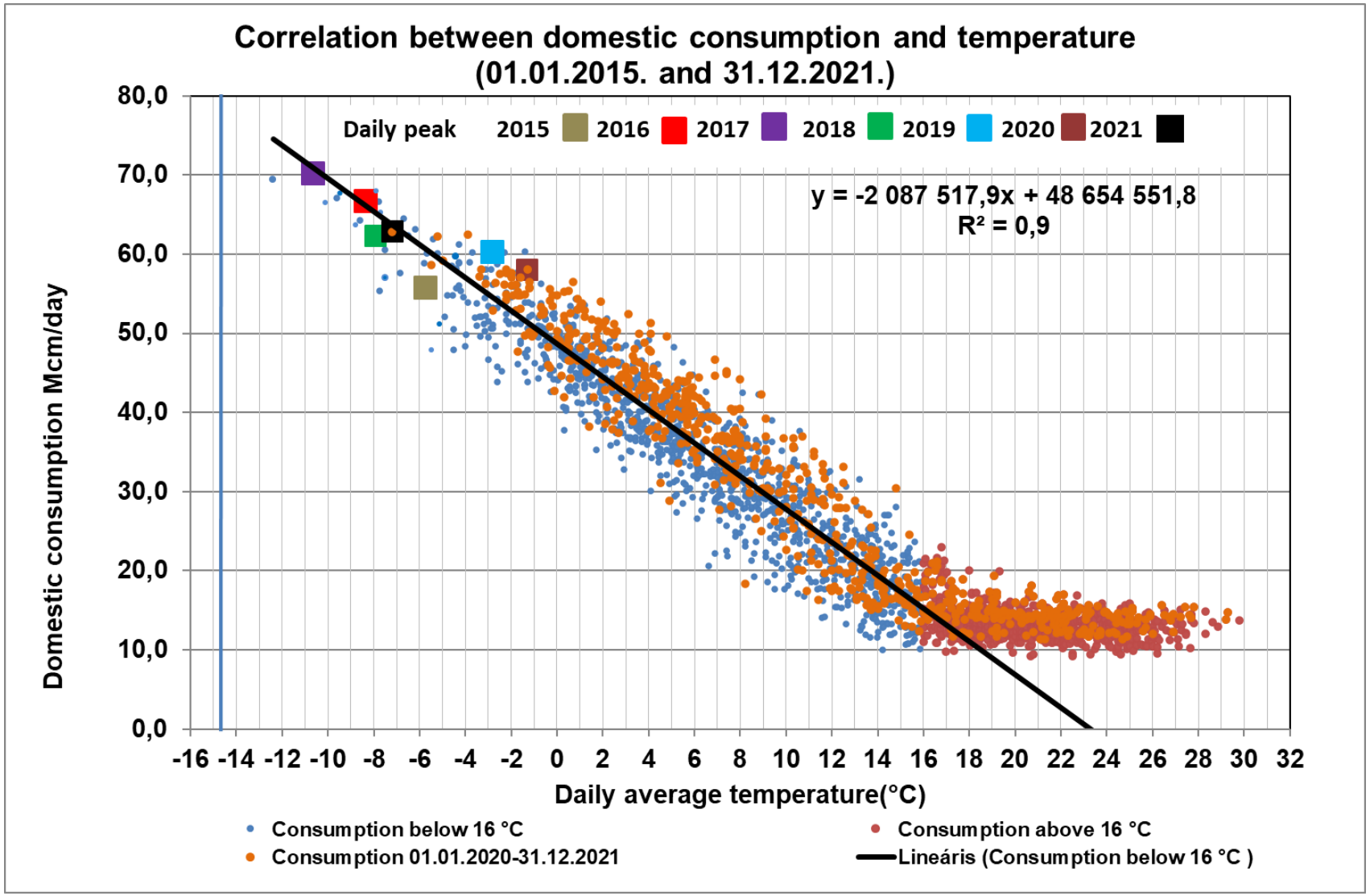



In the case of the highest transit demand, the maximum output demand cannot be ensured even with the uninterruptible storage, lack of potencial capacities of UA> HU and RS>HU.

*Source: Ten Years Development Proposal 2022*

# CORRELATION BETWEEN DOMESTIC CONSUMPTION AND TEMPERATURE I.

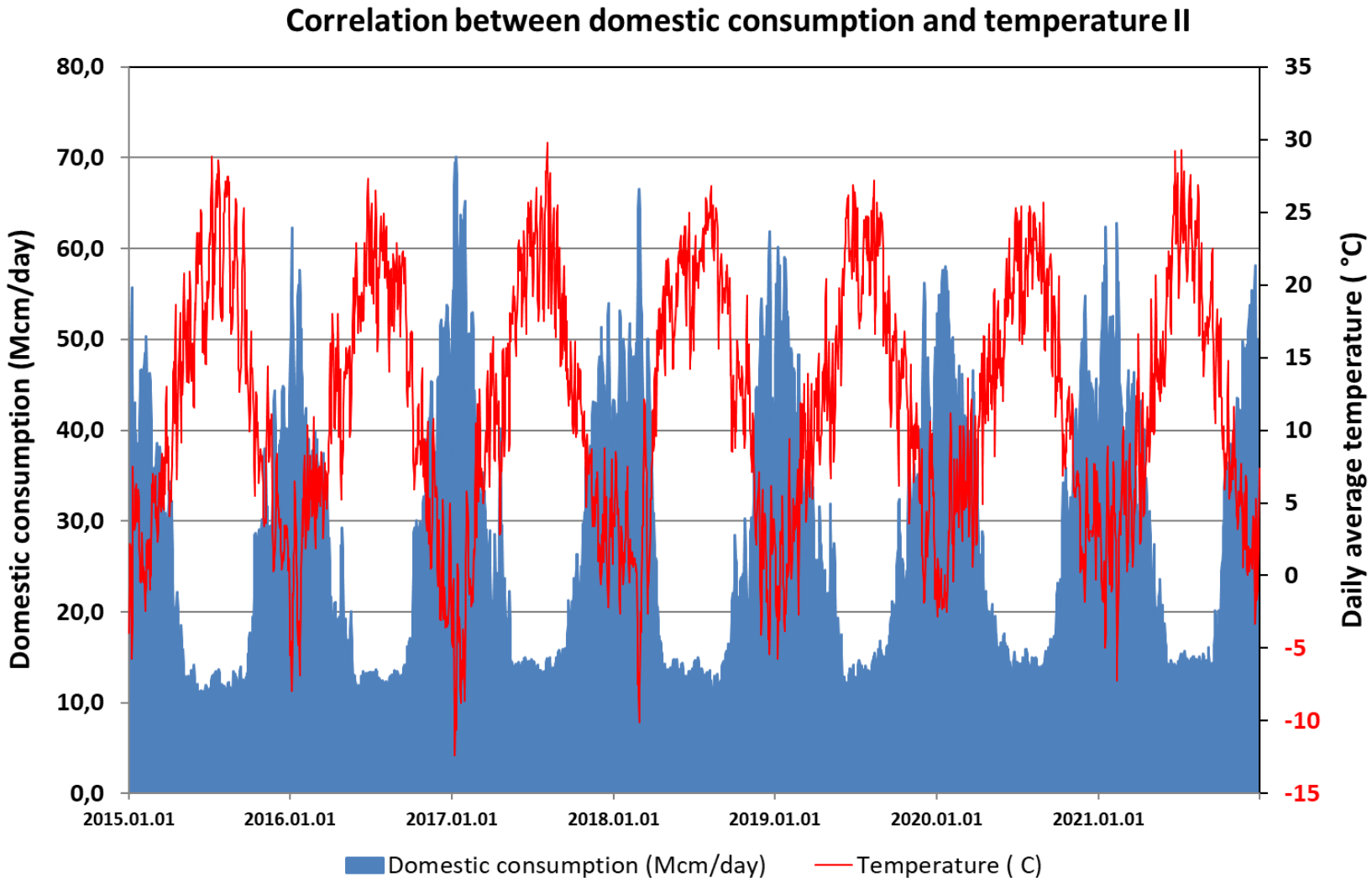





*Source: Ten Years Development Proposal 2022*

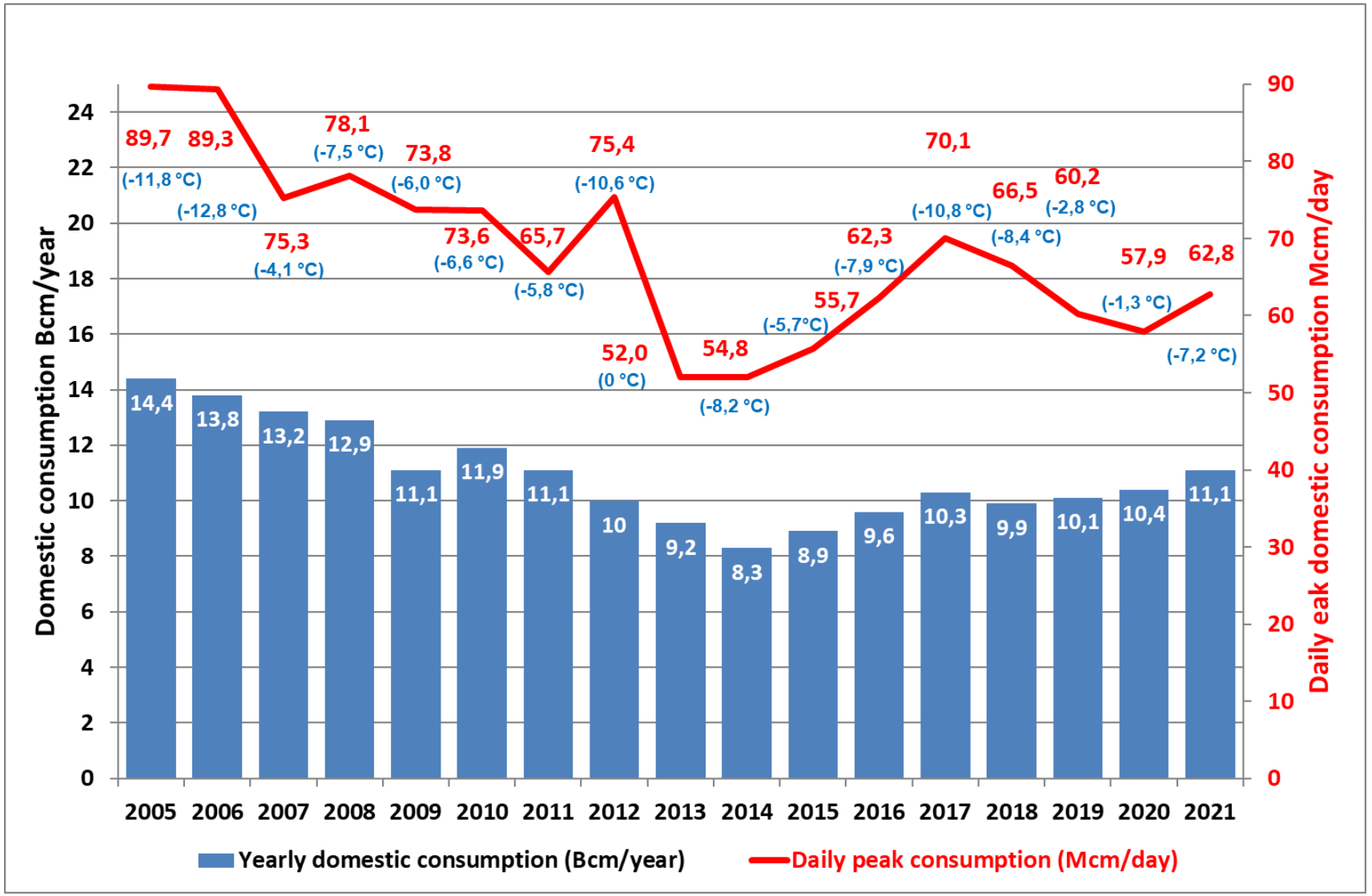
# CORRELATION BETWEEN DOMESTIC CONSUMPTION AND TEMPERATURE II.






*Source: Ten Years Development Proposal 2022*

# YEARLY AND DAILY PEAK CONSUMPTION




*Source: Ten Years Development Proposal 2022*

# CAPACITY DEMAND SURVEY AT INTERCONNECTION POINTS



No capacity expansion process was initiated from the non-binding capacity demand assessment procedure announced by FGSZ Ltd. In July 2021 based on the provisions of the CAM NC.

- At the Hungarian-Austrian interconnection point, no project was launched to create incremental capacity based on the evaluation of the non-mandatory capacity demand surveys of 2021. The procedure for creating the next incremental capacity, with the option of non-binding demand marking, could start after the 2023 annual capacity auctions. As the market participants did not submit non-binding capacity requests in 2021, in accordance with the agreement between FGSZ Zrt. and Gas Connect Austria, the transmission system operators prepared new technical solutions and submitted the project proposal for the capacity requirements determined on the basis of the 2019 non-binding capacity demand surveys for the regulatory authorities.
- At the Hungarian-Slovak interconnection point, a project aimed at creating incremental capacity based on the evaluation of the non-mandatory capacity demand surveys in 2021 has not been launched. The procedure for creating the next incremental capacity, with the option of non-binding demand marking, could start after the 2023 annual capacity auctions.

# CAPACITY DEMAND SURVEY AT INTERCONNECTION POINTS



- At the Hungarian-Slovenian interconnection point in 2021, there was no non-binding demand request was received from the transmission system operators during the extended capacity procedure. The procedure for creating the next incremental capacity, with the option of non-binding demand marking, could start after the 2023 annual capacity auctions.
- Taking into account the non-binding requests sent to the two TSOs at the Hungarian-Romanian interconnection point, the TSO's made the following decision in their market demand assessment report:
  - the demand survey concluded with the result that the firm capacity requested at the Csanádpalota interconnection point in the Romanian-Hungarian (RO>HU) direction is a maximum of 1,065,000 kWh/h/year (from 2023/24 to 2037/38);
  - there was no demand in the Hungarian-Romanian (HU> RO) direction;
  - the booked capacity and the new non-binding indicative demand from the gas year 2023/24 to the gas year 2037/38 can be met under the existing technological conditions, so it is not necessary to initiate an expanded capacity procedure.
- The result of the assessment of non-binding demand needs at the Hungarian-Croatian interconnection point is that based on the assessment of past capacity utilization and recent annual auctions, there is no need to develop incremental capacities, therefore no capacity incremental project will be initiated.

# PROJECTS IN THE DEVELOPMENT PROPOSAL 2022



**Ongoing developments**

- Establishment of Serbian Hungarian entry capacity with 6 bcma/year (20 °C) max. capacity

**New projects proposed for implementation in the next 3 years**

- Development of compressor station and measuring system at Csanádpalota

**Conditional projects to be developed in the following 3 years**

- Ensuring firm capacity from Hungary to Ukraine

**Conditional project to be developed in the 4$^{th}$-10$^{th}$ years**

- Ensuring capacity demands in the direction of HU>AT
- Slovenian-Hungarian interconnector with 20,000, or 190,000 cm/h capacity
- Development of Szada compressor station
- Hydrogen Corridors
- Replacement of FGSZ's gas turbine driven compressors with electric driven compressors

# PROJECTS IN THE DEVELOPMENT PROPOSAL 2022



**Project analysed, but proposed not to be developed**

- Capacity increase in SK>HU direction up to 800,000 cm/h and development of Gödöllő junction point with technological measuring
- Kiskundorozsma – Városföld pipeline
- Eastring

**Projects to increase the operational safety of the cooperating natural gas system**

- Increasing Serbian-Hungarian entry capacity up to 8.5 bcm /year (at 20 $^{o}$ C) without pipeline development

**Projects related to climate protection**

# ONGOING DEVELOPMENTS



## PROJECT DESCRIPTION

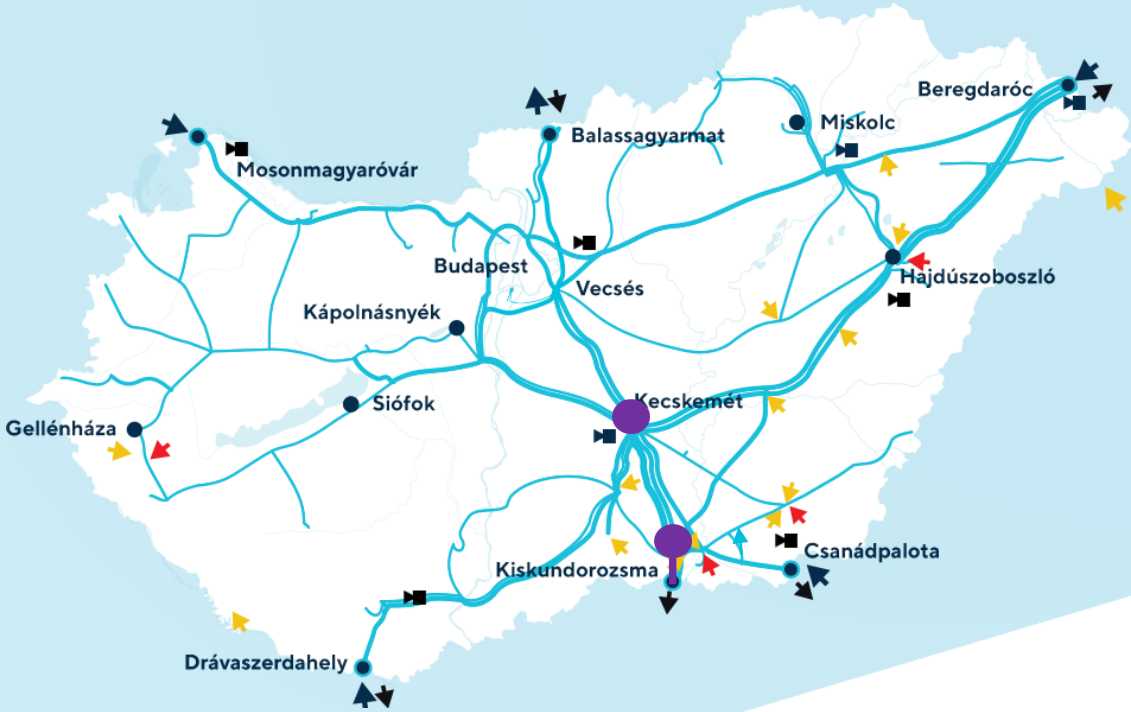
**Establishment of Serbian Hungarian entry capacity with 6 bcma/year (20 °C) max. capacity**

The project ensures transmission of natural gas from Serbia up to 6 bcm/year.

- The project:
  - SRB/HU border-Kiskundorozsma pipeline, DN1200, PN75, 15 km;
  - New metering station at Kiskundorozsma + new connection in the node;
  - New connection possibilities at Városföld node,
  - Modification Városföld node.

- Projects „SRB/HU border-Kiskundorozsma pipeline, DN1200, PN75, 15 km" and „New metering station at Kiskundorozsma + new connection in the node" have been implemented until 01/10/2021, the expected commissioning date of the projects „New connection possibilities at Városföld node" „Modification Városföld node" is 31/03/2023.

## PROJECT



# NEW PROJECTS PROPOSED FOR IMPLEMENTATION IN THE NEXT 3 YEARS



## PROJECT DESCRIPTION

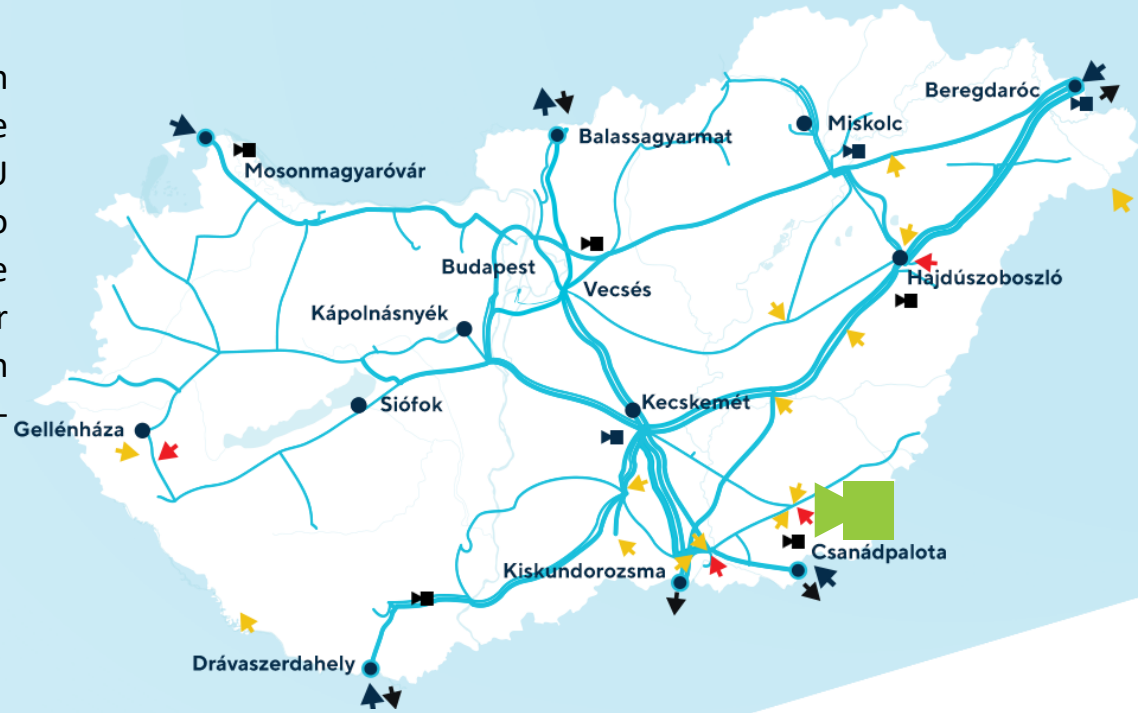
**Development of compressor station and measuring system at Csanádpalota**

Based on our negotiations with the Romanian transmission system operator, Transgaz, it is possible to increase the capacity of the Romanian-Hungarian interconnection point in the direction of RO>HU from the current 200,000 cm/h to 380,000 cm/h, as according to Transgaz' calculations, this quantity can be transported through the Romanian natural gas transmission system without its further development. The source of the additional quantity could be gases from Azerbaijan or Turkish LNG terminals on the Turkey-Bulgaria-Romania-Hungary route.

Project:

- Expansion of compressor station Csanádpalota 1 x 4,5 MW;
- Modification at Measuring Station Csanádpalota

## PROJECT



# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE FOLLOWING 3 YEARS

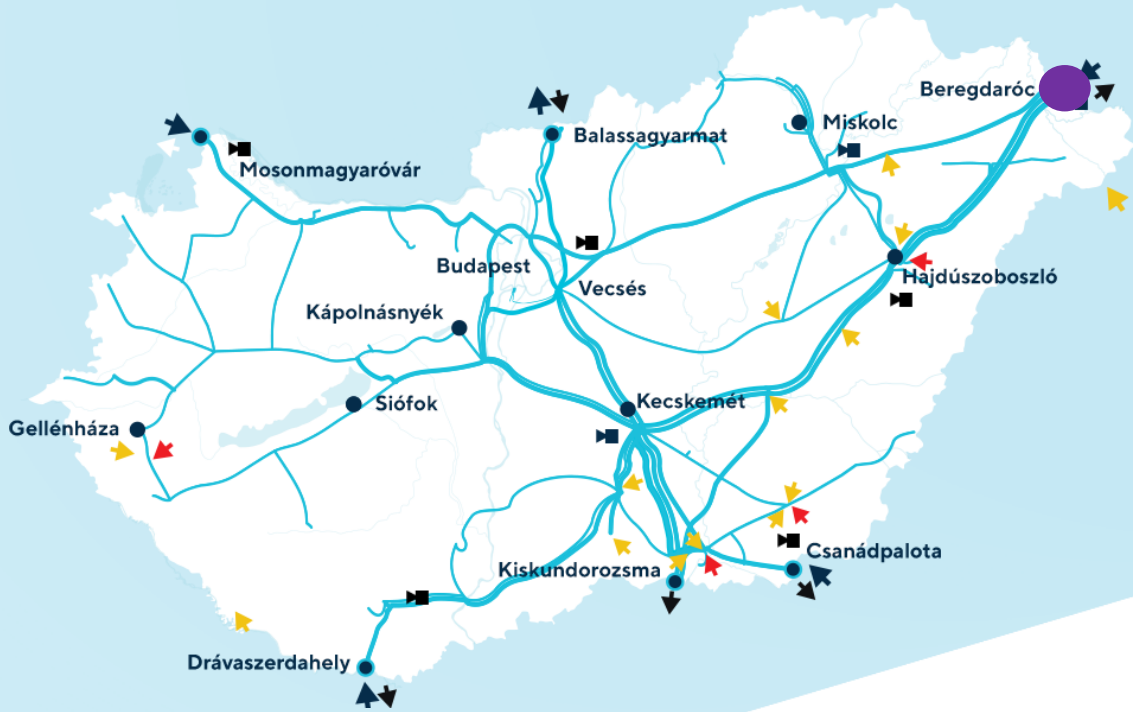


## PROJECT DESCRIPTION

**Ensuring firm capacity from Hungary to Ukraine**

- As a result of negotiations between FGSZ and the Ukrainian transmission system operator, Gas TSO of Ukraine (GTSOU) during 2021, 327,000 cm/h of firm capacity at the Hungarian-Ukrainian interconnection point was offered for a pilot period between 01/01/2022 and 30/09/2022.
- During the year 2021 and in the first months of 2022, continuous negotiations took place between FGSZ and GTSOU on the long-term development opportunities ensuring the firm capacities in the direction of HU>UA, which were interrupted due to the Russian-Ukrainian war.
- Technical solutions discussed, but not finalized:
  - Establishment of an international measuring station in Beregdaróc, on the Hungarian side of the interconnection point;
  - Modification of Beregszász measuring station for bi-directional measurement on the Ukrainian side of the interconnection point;
  - The shut-off valves currently installed at the Beregdaróc node will be inspected and replaced as necessary, either the measurement would be on the Hungarian or the Ukrainian side of the interconnection point.

## PROJECT



# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE 4th - 10th YEARS I.

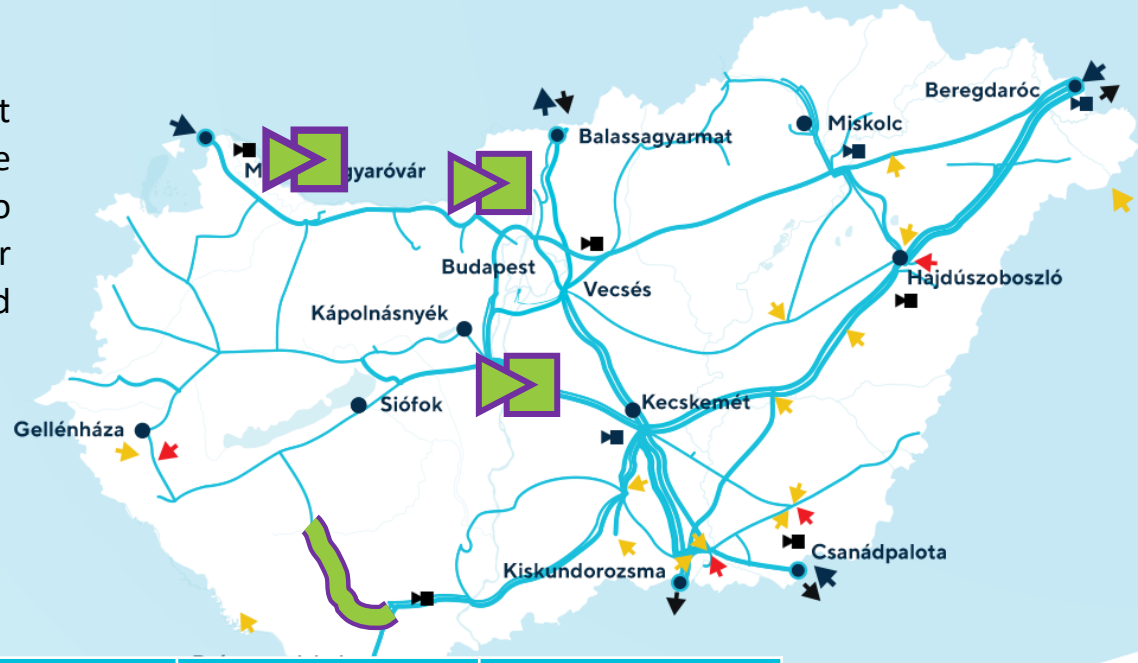


## PROJECT DESCRIPTION

**Ensuring capacity demands in direction HU>AT**

- The project ensures transmission in the direction of HU>AT.
- Non-binding capacity demand were not submitted by the market participants during the demand survey in 2021, therefore, in accordance with the agreement between FGSZ Ltd. and Gas Connect Austria, the two companies prepared new technical solutions and project proposals for capacity requirements based on the 2019 non-binding capacity demand surveys (100,000 and 120,000 cm/h firm capacity to Austria):
- Projects:
  - Variant 1: 0,9 Mrdm$^3$/év (100,000 cm/h):
  - Variant 2: 1,1 Mrdm$^3$/év (120 000 cm/h):
  - the project is closely linked to the transport to HU> SK

## PROJECT




| Development | HU>AT 100,000 cm/h HU>SK 200,000 cm/h | HU>AT 120,000 cm/h HU>SK 200,000 cm/h | HU>AT 100,000 cm/h HU>SK 600,000 cm/h | HU>AT 120,000 cm/h HU>SK 600,000 cm/h |
|---|---|---|---|---|
| Bi-directional development of Mosonmagyaróvár node | x | x | x | x |
| Establishment of Dorog compressor station | x | x | x | x |
| Kozármisleny-Kaposvár DN600, PN75, 80 km pipeline | x | x | x | x |
| Establishment of compressor station Adony | | x | x | x |
| Development of compressor station Szada | | | x | x |

# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE 4th - 10th YEARS I.

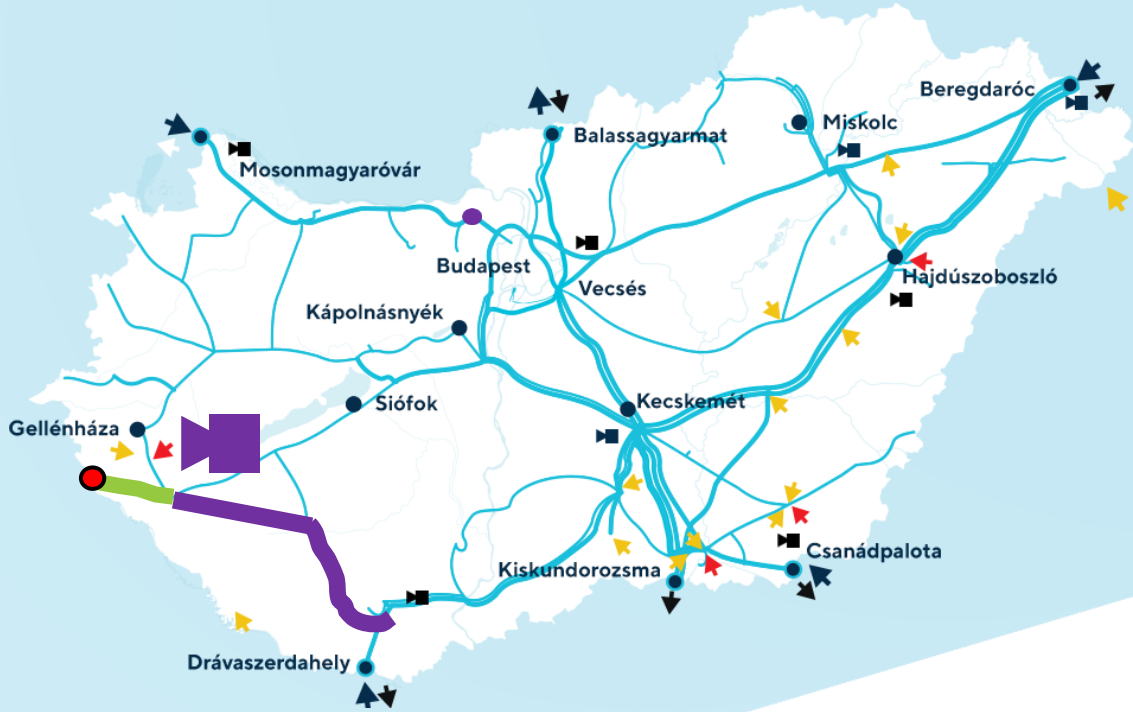


## PROJECT DESCRIPTION

**Slovenian-Hungarian interconnector**

- The project ensures Hungarian-Slovenian bidirectional deliveries.
- Projects (*the commonly agreed technical content is currently being consulted with the related TSO, so the required projects may change)*:
  - Variant 1: capacity HU>SI and SI>HU direction 20,000 cm/h; border pressure HU>SI 28 bar SI>HU 35 bar: SI/HU border-Tornyiszentmiklós-Nagykanizsa 41 km, DN600, PN75; Tornyiszentmiklós measuring station;
  - Variant 2: capacity HU>SI direction 190,000 cm/h, SI>HU direction 50,000 cm/h; border pressure HU>SI 64 bar SI>HU 35 bar: Variant 1. + new Nagykanizsa C.S. + Nagykanizsa-Kaposvár-Kozármisleny 150km, DN600, PN75 ,
  - Expected date of commissioning to be defined later

## PROJECT



# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE 4th - 10th YEARS III.



## PROJECT DESCRIPTION

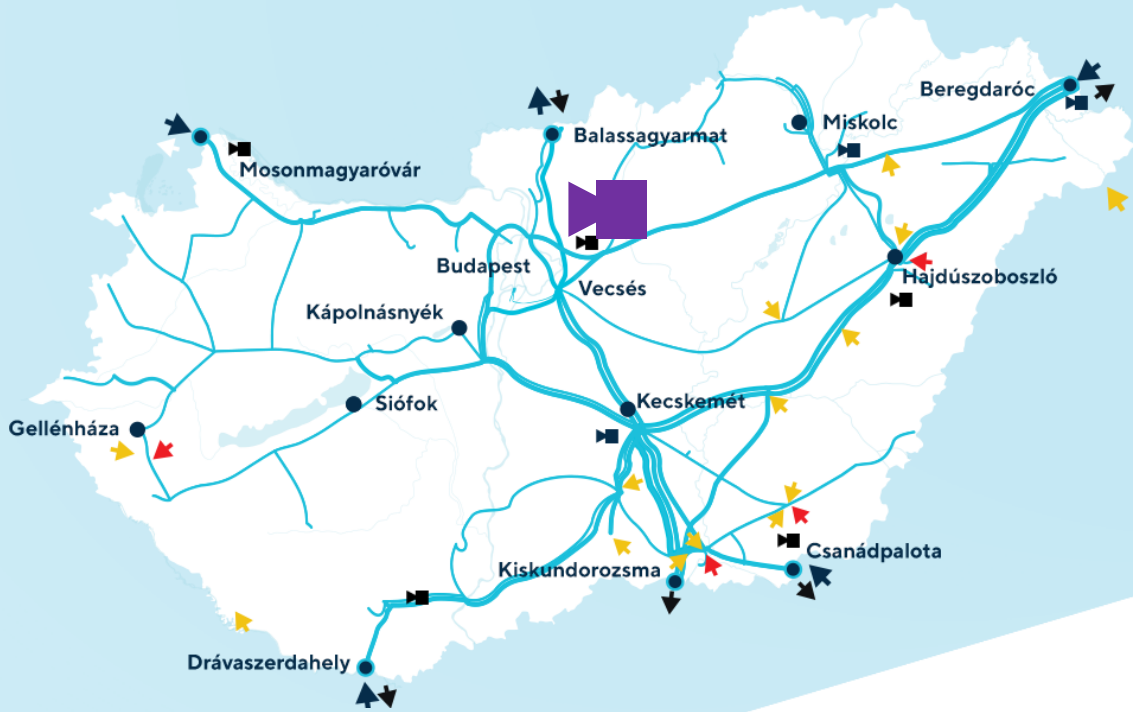
**Expansion of Szada compressor station**

If in the framework of a capacity demand survey, there will be a need to increase the capacity of the HUSK interconnection point again then the following developments are needed in order to ensure the compression needs at Szada compressor station.

With the development of the project the capacity of the interconnection point can be increased from 200,000 cm/h to 600,000 cm/h in the direction of HU>SK, and from 500,000 cm/h to 800,000 cm/h in the direction of SK>HU.

- Project:
  - Expansion of CS Szada with a 2 x 7,5 MW compressor
  - modification of existing units.
- Expected date of commissioning to be determined later

## PROJECT



# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE 4th - 10th YEARS IV.



## PROJECT DESCRIPTION

**Hydrogen corridors**

According to the hydrogen strategy, first the presence of natural gas and hydrogen mixtures can be forecasted on the existing natural gas transmission system, then the presence of pure hydrogen transmission lines can be expected by modifying the existing pipelines and building new ones according to the domestic and transit (import/export) hydrogen consumption needs and the development of the injection needs of hydrogen producers.

Project: examination of the conversion of the following pipelines and compressor stations:

- HU/UA hydrogen corridor
- HU/HR hydrogen corridor
- HU/SK hydrogen corridor
- HU/RO hydrogen corridor
- HU/AT hydrogen corridor
- HU/SI hydrogen corridor

## PROJECT

# CONDITIONAL PROJECTS TO BE DEVELOPED IN THE 4th - 10th YEARS V.



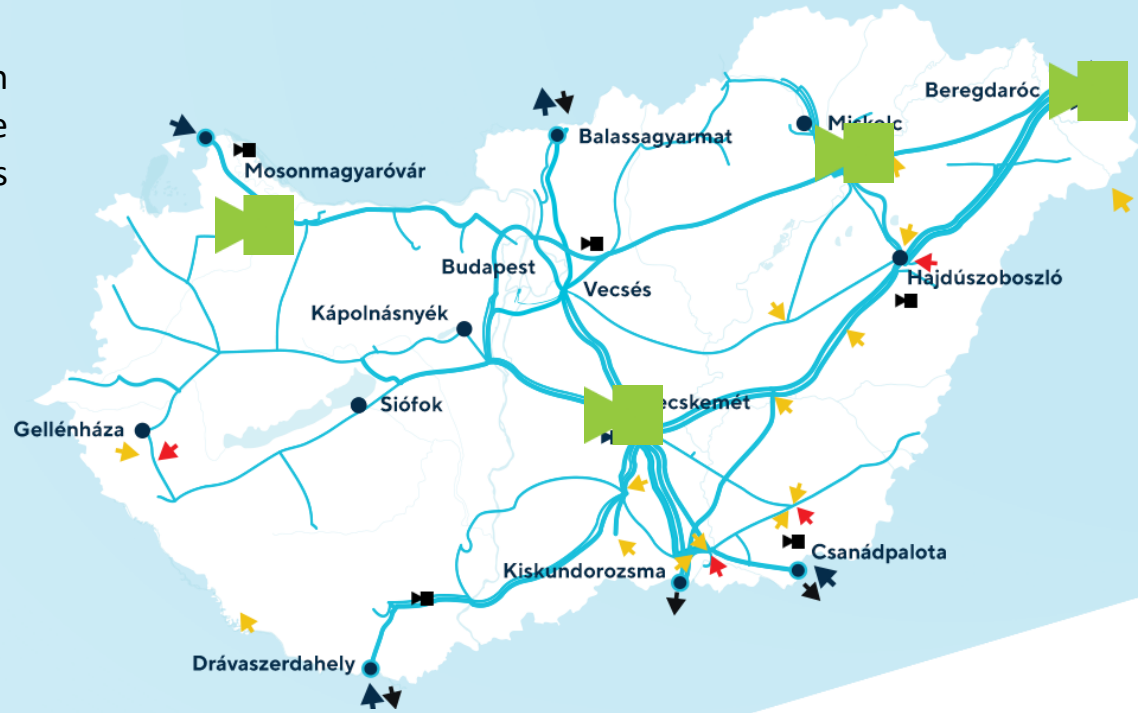
## PROJECT DESCRIPTION

**Replacement of FGSZ gas turbine driven compressors with electric driven compressors**

In the framework of this project, FGSZ is currently investigating for which gas turbine powered compressors the development could be implemented some of the units of the following compressor stations have emerged as opportunities.

- Mosonmagyaróvár
- Városföld
- Nemesbikk
- Beregdaróc

## PROJECT



# PROJECTS ANALYSED, BUT PROPOSED NOT TO BE DEVELOPED I.

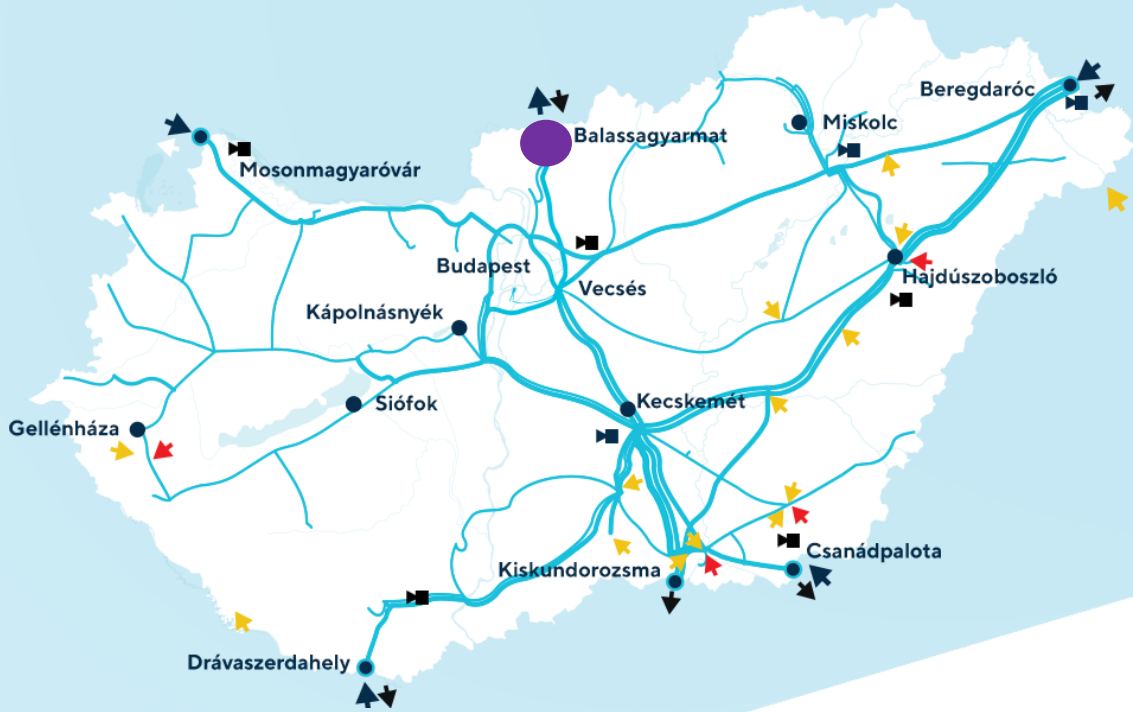


## PROJECT DESCRIPTION

**Increasing HU/SK capacity up to 800,000 cm/h and development of Gödöllő junction point with technological measuring**

- Transits through Ukraine did not cease completely after 1 January 2020 as Ukrainian and Russian parties signed a new 5-year agreement at the end of 2019
- The projects are currently not recommended for implementation
  - As a result of the reconstruction of the measuring equipment currently installed at the Balassagyarmat measuring station, after the installation of the new metering equipment, the measuring station can measure the delivered quantity up to 800 000 cm/h in the direction SK>HU, thus the deliverability of this quantity is ensured from the side of measurement.
  - The delivery of 800 000 cm/h can be ensured without the development of „Gödöllő junction point with technological measuring".

## PROJECT



# PROJECTS ANALYSED BUT PROPOSED NOT TO BE DEVELOPED II.



## PROJECT DESCRIPTION

**Kiskundorozsma-Városföld pipeline**

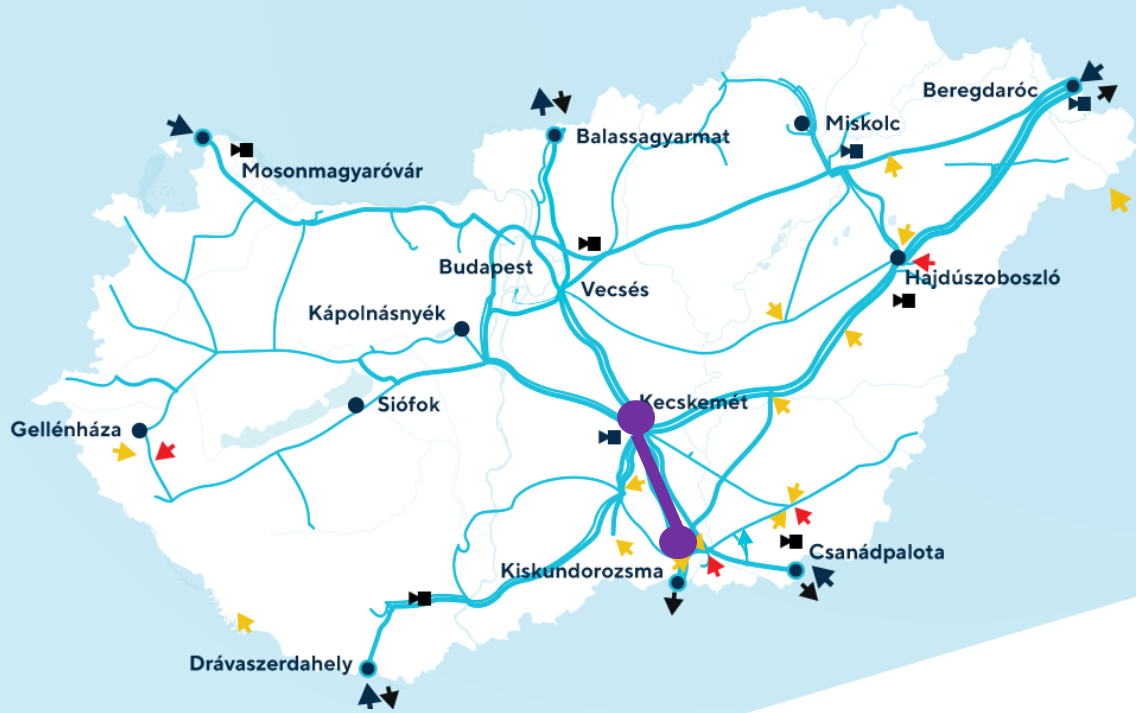
With the implementation of the project, the withdrawal capacity of the commercial and strategic storage of the Szőreg underground gas storage facility (1,041,000 cm/h in total) and the supply of 500,000 cm/h at the Romanian-Hungarian interconnection point in the RO>HU direction can be fully ensured without optimization of the cooperating natural gas system.

Project:

- Kiskundorozsma-Városföld pipeline, 67 km, DN1000, PN75
- New pipeline connection at Városföld;

- Expected commissioning date to be defined later

## PROJECT



# PROJECTS ANALYSED BUT PROPOSED NOT TO BE DEVELOPED III.



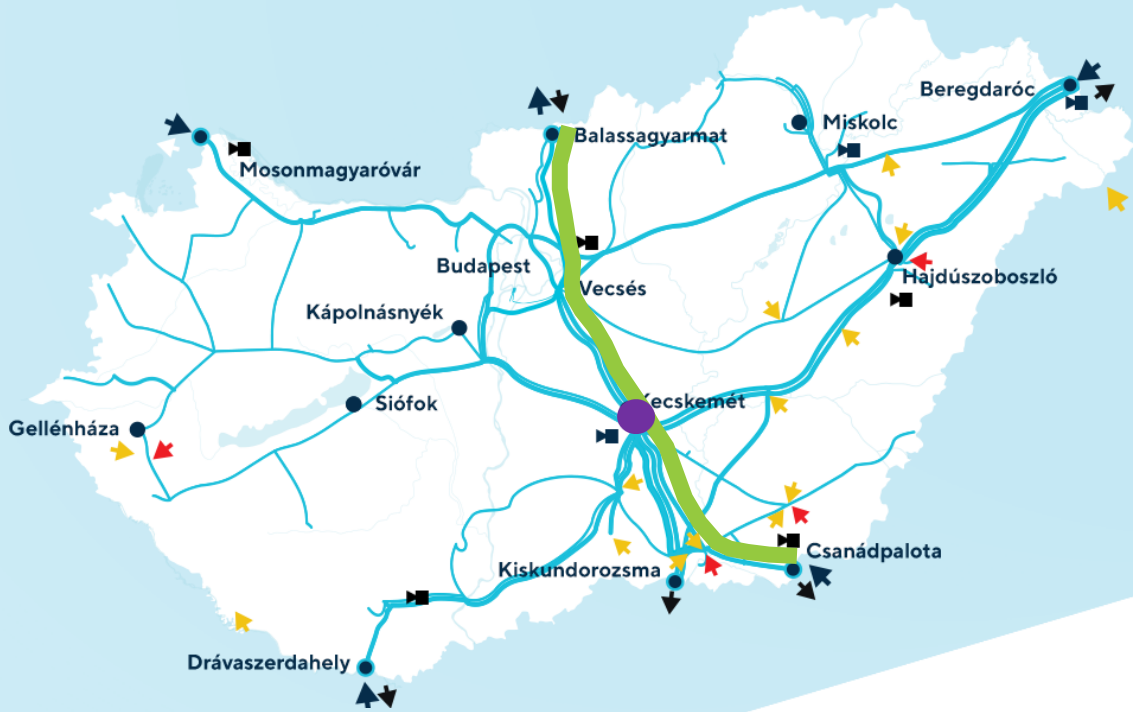
## PROJECT DESCRIPTION

**EASTRING**

The project enables the transmission in the direction of RO>HU>SK with a capacity up to 10-20-40 bcm/y.

- Projects:
  - RO/HU border - Csanádpalota - Városföld - Vecsés - HU/SK border 282 km, DN1400, PN100 pipeline.
  - Exit capacity at Városföld: 5.0 bcma, 600 000 cm/h.
- Expected commissioning date based on the market demand could be defined later.

## PROJECT



# PROJECTS TO INCREASE SAFETY OF THE COOPERATING NATURAL GAS SYSTEM

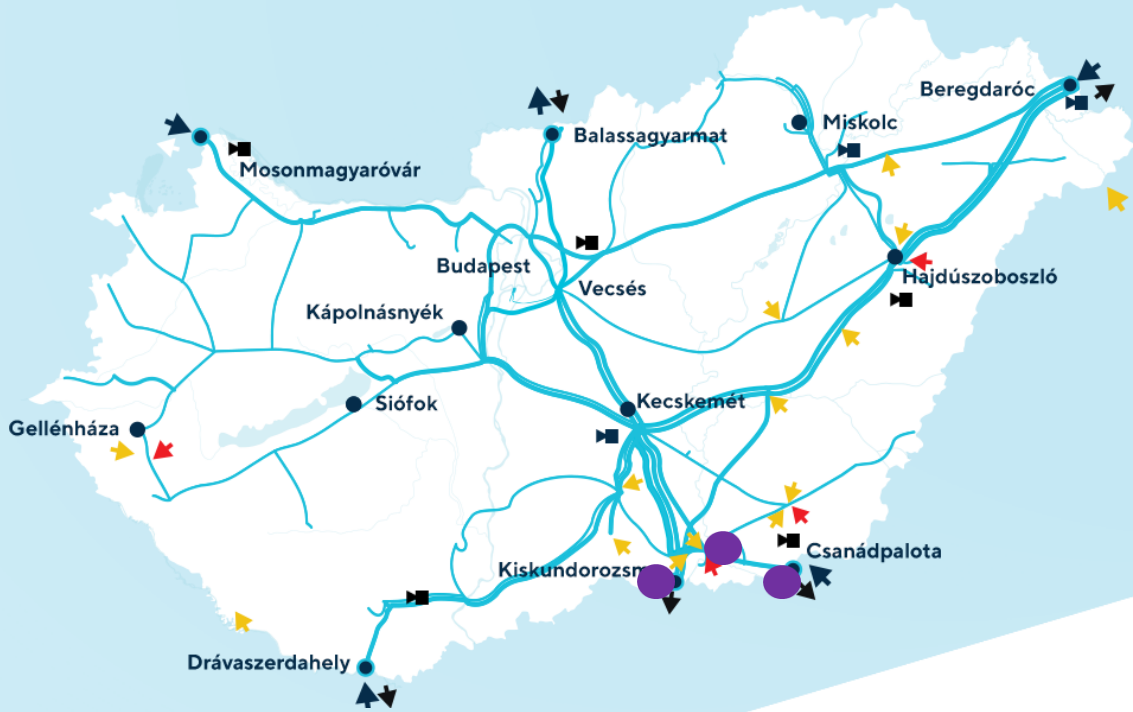


## PROJECT DESCRIPTION

**Increasing Serbian Hungarian entry capacity up to 8.5 bcm/y (at 20 $^{o}$ C) max capacity without pipeline development**

- The interconnection agreement signed in October 2021 between FGSZ Ltd., the affected storage system operator and production company ensures the possibility of injection to the transmission system up to 650,000 cm/h at UGS-2-SZOREG (UGS>TSO) point in a firm manner.
- In case of the approval of the Hungarian Energy Office, according to the provisions of the interconnection agreement to be signed between FGSZ Ltd. and the affected storage system operators, injection above 650,000 cm/h at UGS-2-SZOREG (UGS>TSO) point would be ensured, up to a maximum of 1,041,600 cm/h.

## PROJECT



# PROJECTS RELATED TO CLIMATE PROTECTION



## PROJECT DESCRIPTION

At the request of Hungarian Energy Office, the transmission system operator has collected the planned projects of the Hungarian system operators related to climate protection, which are expected at the following locations:

FGSZ Zrt.

Magyar Földgáztároló Zrt.

E.ON Dél-Dunántúli Gázhálózati Zrt.

E.ON Közép-Dunántúli Gázhálózat Zrt.

MVM Égáz-Dégáz Földgázhálózati Zrt.

MVM Földgázhálózati Kft.

## PROJECT