National and Regional perspectives on energy market cooperation in the post Covid world with special regards to the SEE region
IV International Conference

"RISK MANAGEMENT IN ENERGY – 2021"
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Plenary Session

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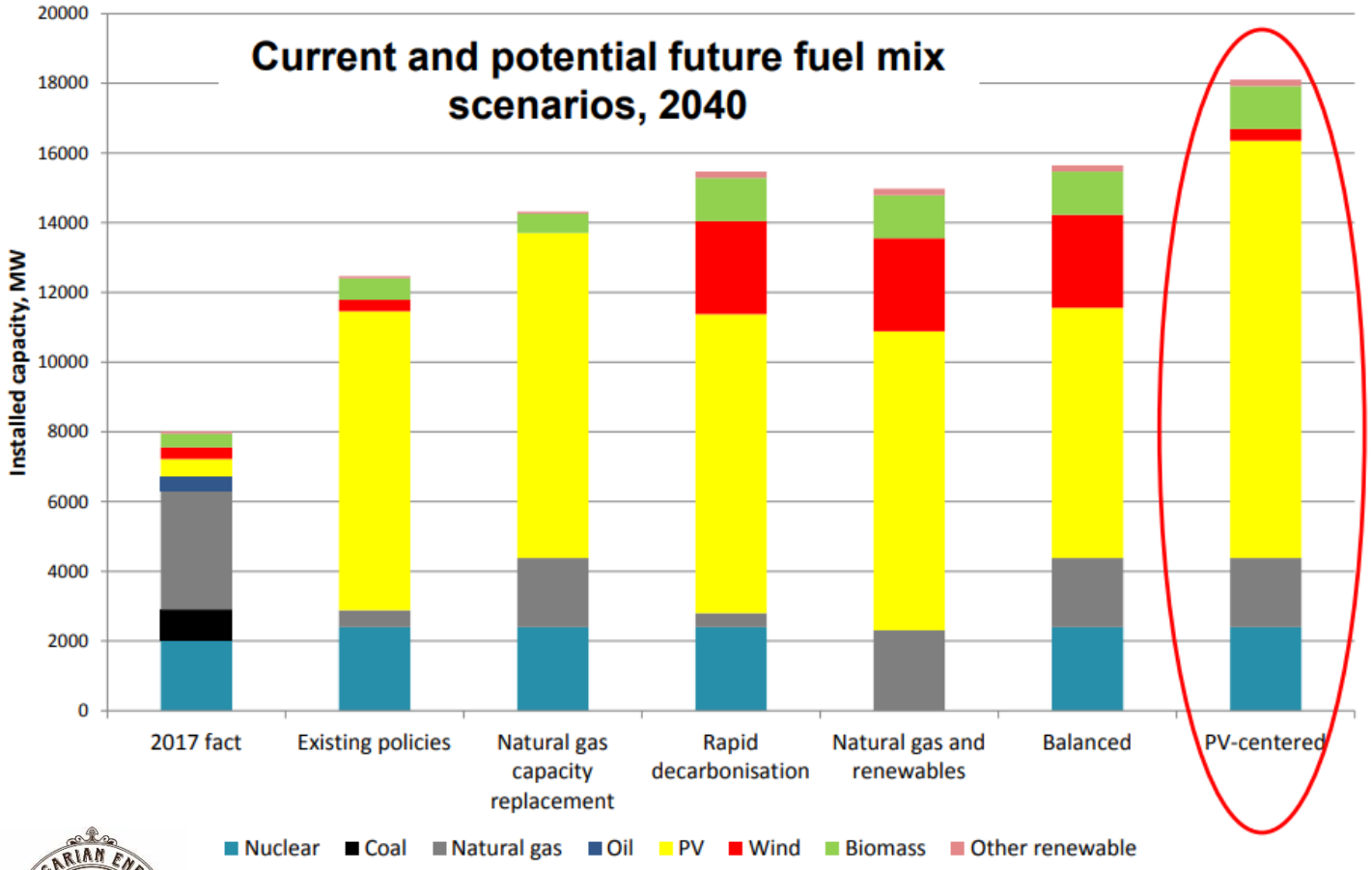
SECURITY OF SUPPLY • AFFORDABILITY • QUALITY OF LIFE

At the beginning of 2020 – just before the Covid-19 pandemic arrived – the Hungarian Government adopted the new Hungarian Energy Strategy



- ✓ **Decarbonising the power sector**
  - 90% in 2030 vs 60% in 2020
- ✓ **Maintain nuclear capacity**
- ✓ **Phase out lignite**
- ✓ **Solar-heavy RES-E portfolio:** 6.6 GW by 2030; 12 GW by 2040
- ✓ **Gas based generation as primary backup**
- ✓ **Network development**
- ✓ **Flexibility market**
- ✓ **1 million smart meters**
- ✓ **Import ratio: 20% in 2040**

The energy mix with rapidly increasing intermittent RES (PV) predestines the need for flexibility

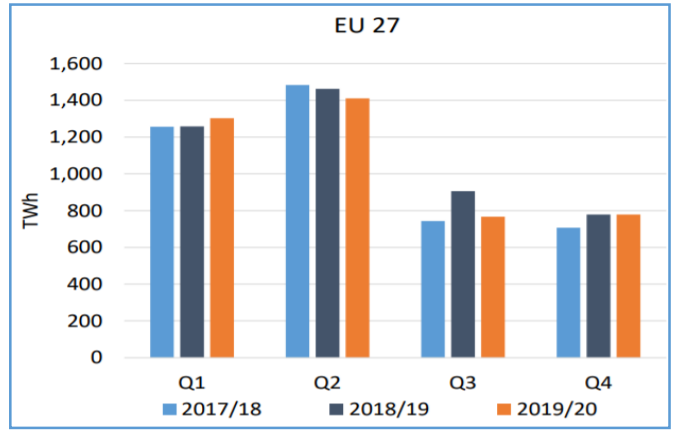
Source (2020): https://rekk.hu/downloads/events/Energy__Climate_Strategy_Summary_EN.pdf

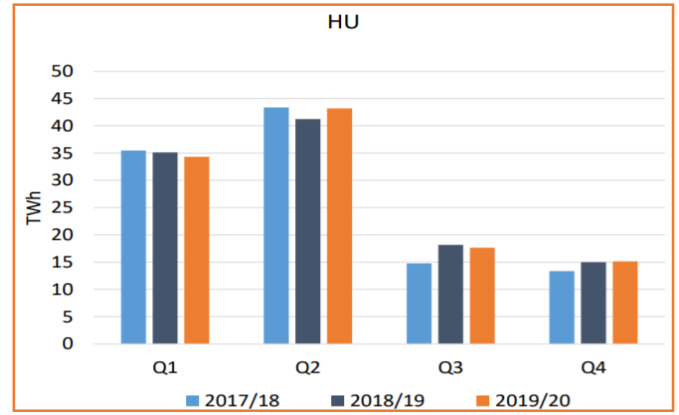
Impact of Covid-19 in the Hungarian Energy Sector – an overview

Due to quick and strict measures (e.g. Pandemic plans) the energy sector in Hungary remained resilient against challenges brought by the Covid-19 Pandemic

No extraordinary commercial events have taken place in the Hungarian electricity market last year, despite the decline in demand observed from mid-March till September. Market participants organized their production in response to changes in prices and the availability of cross-border capacities.

In the CEE region, natural gas consumption did not decrease as in Western Europe, in some periods in Hungary, it was even higher than the average of the last three years in the same period.





Natural gas consumption EU27 vs HU, TWh

Source: mekh.hu

	2020												2021
	Jan	Feb	Marc	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan
Europe	-5,5%	0,6%	-3,4%	-11,7%	-10,2%	-7,4%	-5,0%	-1,8%	-1,1%	0,3%	-3,6%	0,9%	2,8%
Hungary	1,0%	3,4%	1,3%	-10,2%	-11,6%	-9,0%	-1,9%	-3,3%	0,3%	3,2%	5,2%	2,6%	-2,4%

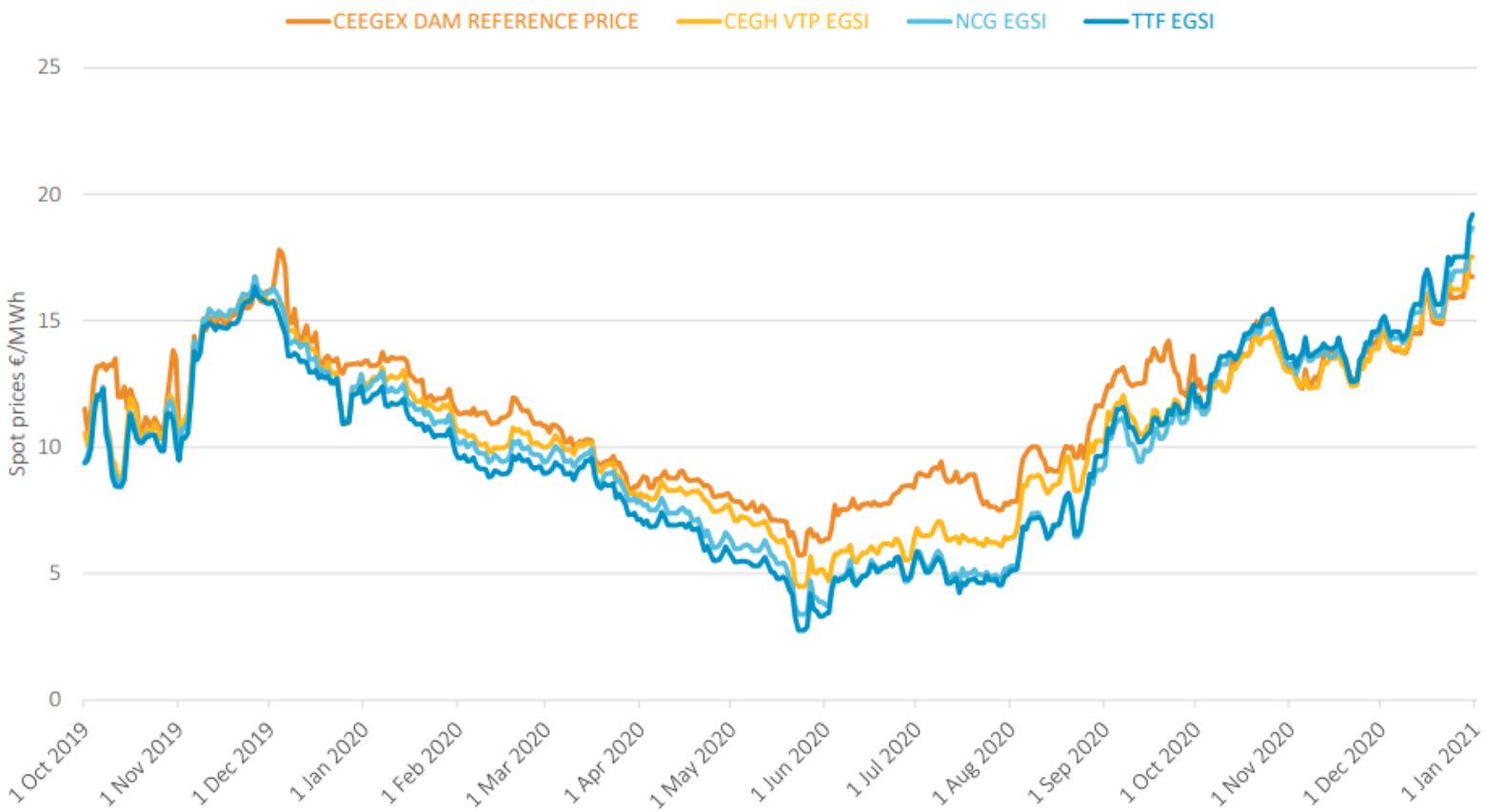
aggregate net electricity consumption of Hungary and EU compared to the same period last year
(source: mekh.hu)

Impact of Covid-19 in the Hungarian Energy Sector – gas prices

In 2020 the level of wholesale prices on CEEGEX mainly moved in line with the prices of Western and Central European gas hubs.

In Q2 and Q3 the lower wholesale prices in Western and Central Europe resulted in higher utilization of the interconnector between Austria and Hungary, and temporarily increased the spread between CEGH and CEEGEX.

In Q4 CEGH and CEEGEX prices were lower than in Western Europe, and the region's relative abundance of supply remained. In December 2020 **the Hungarian market had the lowest prices for most of the month.**



SPOT GAS PRICES ON CEEGEX AND RELEVANT EUROPEAN MARKETS
Source: mekh.hu

Impact of Covid-19 in the Hungarian Energy Sector – electricity prices

Compared to the multi-year lows of Q2 pandemic hit power prices, September and Q4 brought yearly peaks all across Europe.

	HUPX (HU)	OPCOM (RO)	OTE (CZ)	OKTE (SK)	EPEX (GER)	BSP (SI)	EPEX (FR)	CROPEX (HR)	HENEX2 (GR)
2020_1	52,96	52,80	41,81	44,37	35,03	50,25	38,01	51,32	48,18
2020_2	39,85	40,52	30,59	30,77	21,92	39,29	26,25	39,62	38,17
2020_3	29,76	29,66	25,69	25,78	22,46	29,38	23,81	29,41	32,50
2020_4	25,33	25,51	19,28	19,37	17,09	23,75	13,45	23,68	25,17
2020_5	23,59	24,86	18,09	18,27	17,60	21,24	14,86	22,47	22,33
2020_6	29,97	30,32	26,29	26,29	26,18	27,91	25,79	28,77	28,97
2020_7	36,68	37,08	32,76	32,76	30,06	35,23	33,41	35,43	39,29
2020_8	37,60	37,88	34,55	35,15	34,86	37,59	36,75	38,13	40,48
2020_9	45,74	45,85	44,91	45,01	43,69	45,86	47,20	45,86	46,70
2020_10	39,35	41,77	36,40	36,41	34,00	38,72	37,91	38,59	44,90
2020_11	48,88	48,63	41,64	42,42	38,79	46,91	40,11	47,21	49,91
2020_12	58,18	58,88	51,69	51,76	43,52	54,50	48,39	55,80	51,36
2020	38,99	39,48	33,64	34,03	30,43	37,55	32,16	38,02	39,00

Monthly averages of regional day ahead Base Load prices (EUR/MWh) in 2020

Source: hupx.hu

Even under Covid-19, remarkable milestones have been achieved in infrastructure connections

Increased physical reverse gas flow at the Hungary-Romania interconnection point
- December 2020
- bidirectional firm capacities 1.75 bcm per year

Hungary gains access to the global LNG market through the new Croatian terminal
- January 2021
- 2.6 bcm per year
- Improved security of supply of Hungary
- Beneficial for the whole region

Hungary-Slovakia cross-border electricity transmission line starts operation
- April 2021: allocation of cross-border transfer capacities started
- 400 kV lines in the locations of Gabčíkovo (SK) – Gönyű (HU) – Veľký Ďur (SK) and Rimavská Sobota (SK) – Sajóivánka (HU)
- Improved security of supply in Hungary and beneficial for the whole region

Hungary-Serbia gas interconnection

Hungary-Serbia Interconnector upgrade for receiving 6 bcma from Serbia progressing according to schedule. Start of commercial operations: 1 October 2021.

Hungary will diversify and share the supply route risk between Ukraine and the Balkans/Turkey

The project is of significant importance in terms of security of supply and is financed as part of the Regulatory Asset Base.

Moreover, HEA allocated 2.5 billion HUF this year and another 1.5 billion HUF last year from the auction premia revenue.

PROJECT DESCRIPTION

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

- The project ensures transmission of natural gas from Serbia.
- Project:
  - SRB-HU border - Kiskundorozsma 15 km DN1200, PN75 pipeline,
  - New metering station at Kiskundorozsma,
  - Pipe connections at Városföld,
  - Modification of Városföld node (moved from the project Security of supply of North-Eastern Hungary)
- Expected commissioning date: 01/10/2021

PROJECT

Source: fgsz.hu

MVM Paks II Nuclear Power Plant

- Number of (new) blocks: 2
- Type: VVER-1200 units/V-527
- Capacity: 2×1262 MW

Licensing Procedure of Nuclear Power Plants in Hungary

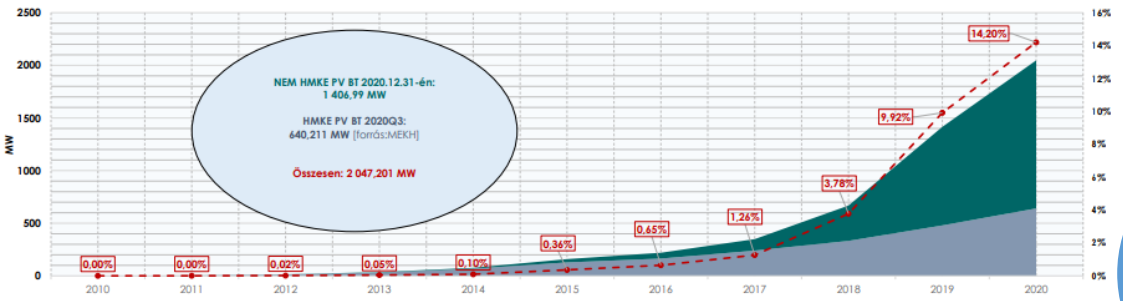
- **Parliament Resolution (25/2009) granting preliminary consent**
- **Preliminary establishment license (above 500 MW/unit)**
  - Hungarian Energy Authority (HEA/MEKH)
- **Regional area usage license**
  - Integration in the National and Regional Area Settlement Plan
  - Application to be handed in to the competent chief public architect
- **Environmental license and water usage license**
  - competent regional Environmental, Nature Conservation and Water Authority
- **Licenses of the Hungarian Atomic Energy Authority (HAEA)**
  - The issuance of different licenses of HAEA (site, establishment, operation) should be harmonized within the whole licensing procedure
- **Building license**
  - Hungarian Atomic Energy Authority (HAEA)
- **Power plant establishment license**
  - Hungarian Energy Authority (HEA/MEKH)
- **Network connection contract (Not a license!)**
  - Contracting party: competent electricity supplier / TSO (MAVIR) in case of connection to a 120 kV or higher network
- **Power plant operation license**
  - Hungarian Energy Authority (HEA/MEKH)

Sources: MEKH, MVM Paks II

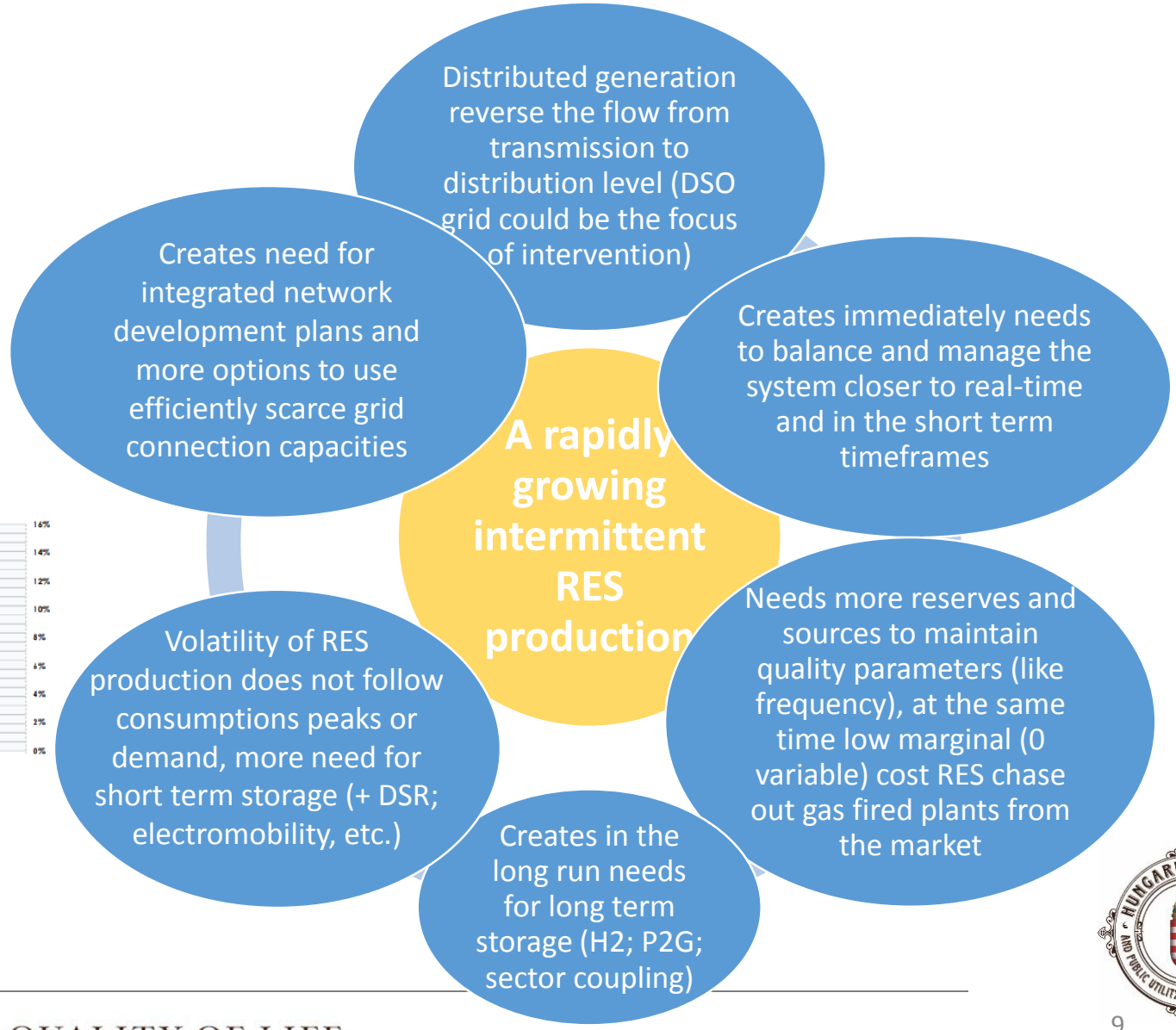
- **Licencing: approx. 6500 licences in total are needed.**
- **HEA has issued power plant establishment license in its Decision No. H 2413/2020 on 19 November 2020.**
- **FIGA has been recently modified (end of April 2021**
- **HAEA Decision (building license) is due by autumn 2021**
- **Planned start of the operation: end of 2029/30**
- **Important aspects for HEA:**
  - **Security of supply (low adequacy reserve margin/remaining capacity in HU without import)**
  - **Need to increase the system operation reserve (e.g. balancing capacities –FRR&RR)**
  - **Grid connection/integration/system and grid stability**
  - **Operational security**
  - **Technical capabilities of the PGM**

Challenges in a post-covid-19 world: the flexibility issue

Significant increase of solar capacity
During the last five years, installed capacity of solar power plants increased tenfold. National Energy Strategy: to reach 90% carbon-neutrality in domestic electricity generation (12 GW solar by 2040)



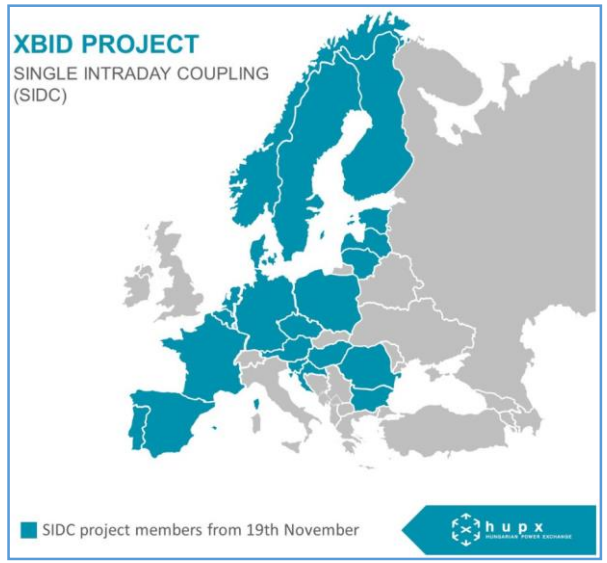
Yearly increase of household size, non-household size and cummulated installed capacity of PV generators. Source: MAVIR

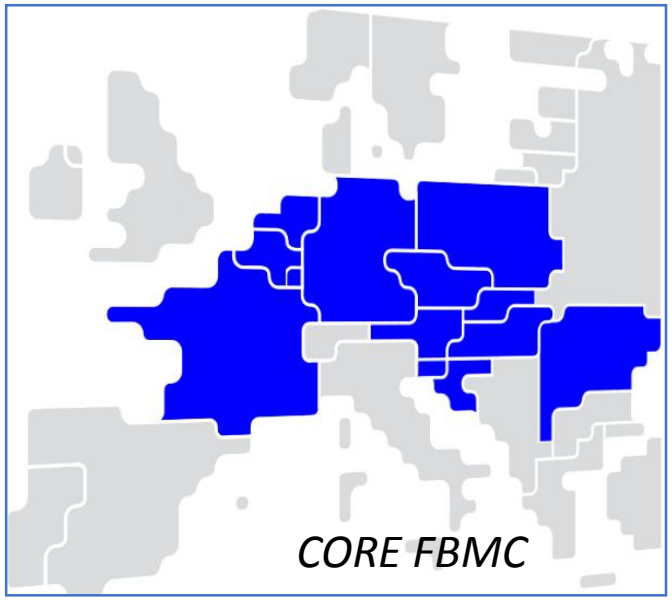


Solution to the flexibility issue (I.): ST market integration

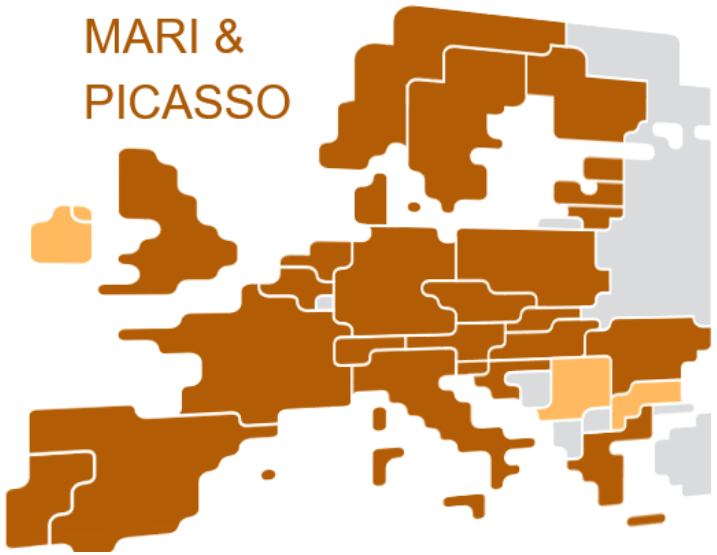
A rapidly growing intermittent RES production

Needs more cross-border market integration and closer regional TSO (system operational) cooperation





Solution to the flexibility issue (II.): Balancing market integration



EU balancing energy exchange and netting platforms (source: ENTSO-E)

Summary: cross-border wholesale market integration and TSO security cooperation is well advancing

More room to improve the frameworks might be identified and addressed on the local level to provide more felxibility

By implementing the (new) EU Directive 2019/944 of 5 June 2019 on common rules for the internal market for electricity

Solution to the flexibility issue (III.): More active customers, more flexible retail markets

In Hungary, the transposition of the Electricity Directive (part of the Clean Energy for all Europeans Package) was accomplished within the official deadline.

After the entry into force of the new legislation some new market players – aggregators – have already initiated their registration by HEA according to the rules.

HEA to monitor electricity production and consumption of active customers, energy communities, also to monitor the trend in the evolution of energy communities and aggregation and to propose further developments to the Minister if gaps or barriers are identified

New definitions and actors:

- Aggregator
- Data management
- Active customer
- Flexibility markets
- DSO flexibility service
- Non-frequency ancillary service
- Energy community
- Electricity sharing
- TSO-DSO cooperation

EU Recovery and Resilience Facility (RRF) can help to solve the flexibility issue

By offering large-scale financial support for investment and reforms, the Facility will better prepare Member States for a sustainable recovery.

The RRF entered into force on 19 February 2021.

(source: ec.europa.eu)

Hungary's share of the total RRF is EUR 16.83 billion, of which EUR 7.17 billion is a grant and EUR 9.66 billion is a loan.

HUNGARY'S RECOVERY AND RESILIENCE PLAN

Source: palyazat.gov.hu

Component F - Energy (green transition)

Component G - Transition to a circular economy

Component E - Sustainable Green Transport

3 main reform areas

- **increasing the flexibility** of the electricity system and promoting the integration of weather-dependent renewable electricity production;
- introducing **energy efficiency measures**
- promoting **residential renewable energy investments**

Areas of intervention also cover the classical and intelligent **network developments of TSOs and DSOs**, and also the spread of **smart metering**, which improve network resilience.

Thank you for your kind attention!

We wish you a fruitful conference and discussion!

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