INTRODUCTION OF THE HUNGARIAN ENERGY AND PUBLIC UTILITY REGULATORY AUTHORITY

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- KÁT: Feed-in-tariff system for renewable power plants
- METÁR system

I. HEA’s main competences and tasks

LEGAL STATUS

Act XXII of 2013

on HEA significantly transformed the legal status of the Authority:

- Abolished government or ministerial supervision
- Subject only to law
- Separate and independent budget (fees, fines, other charges)
- Annual report to the National Assembly
- Competence to issue decrees

MANAGEMENT

HEA is directed and represented by the President: Dr. Lajos Dorkota.

The president is assisted by 4 vice presidents.

Nomination

- The president shall be appointed by the Prime Minister,
- The term of office is 7 years which may be extended once for a further period of 7 years,
- The president cannot be dismissed before the expiration of the appointment, except of special cases such as incapacity or serious misconduct,
- The vice-president shall be appointed and dismissed by the President.

Supervised industries

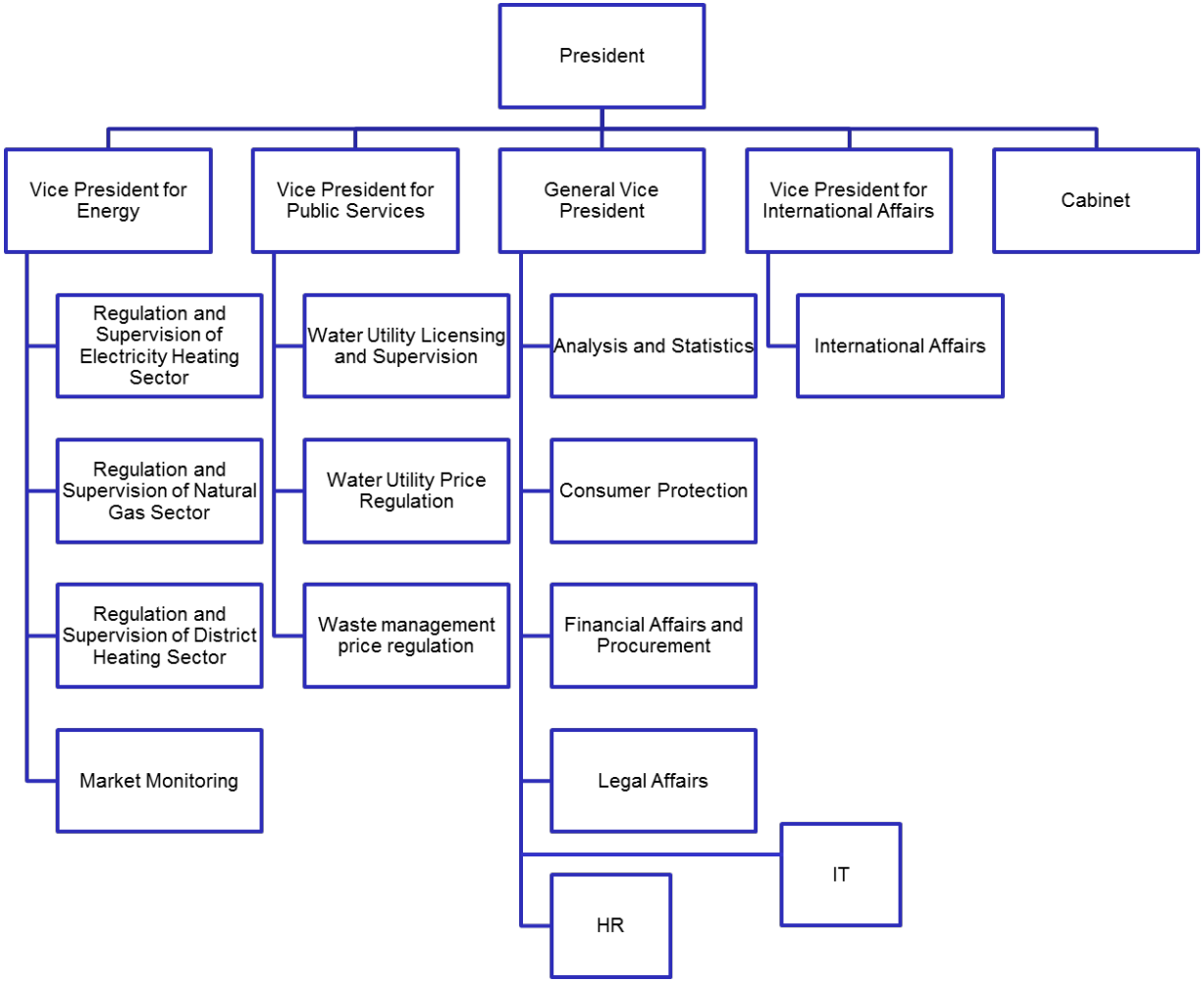
Hungarian Energy and Public Utility Regulatory Authority

„Traditional” tasks of the regulator
Supervise regulated sectors: electricity, gas, district heating, water utility, solid waste
Promote enforcement of energy policies
Promote efficient and sustainable market competition, support market integration
Enforce the principle of efficiency
Maintain security of supply
Protect end-users
Approve electricity and gas supply codes
Issue licenses, supervise compliance with license conditions
Set system usage fees, define minimum quality requirement
Approve corporate actions of licensees (e.g. mergers)

Hungarian Energy and Public Utility Regulatory Authority

New tasks of HEA in the field of EE
Monitor the realization of national EE target
Participate in designing and implementing EE and RES policy measures
Energy audit
Metering, billing - consumer protection and information New provisions in sectoral acts (electricity and natural gas) ensure that new meters will be installed and consumers receive accurate information
Work out methodology of the installation CBA: carry out comprehensive assessment on the potential for the application of high-efficiency cogeneration and efficient district heating and cooling
Assess the EE potential of the gas and electricity infrastructure
Creation of a website to inform stakeholders on various EE issues (e.g. legal and financial framework, energy efficiency contract templates)

Organigram of HEA



II. Hot topics

Green-lights to Paks II nuclear power plant

The European Commission has granted its approval to the Paks II nuclear power plant project with the conclusion that it involves state aid.

To avoid overcompensation and market distortions:

- Any potential profits will be used to pay back to the state for its investment or to cover operational costs.
- Paks II will be **functionally and legally separated from** Paks I (the incumbent MVM Group), or other **state-owned energy companies**.
- Paks II will **sell at least 30% of its total electricity output on the open power exchange**, the rest will be sold on objective, transparent and non-discriminatory auctions.

European cold wave in January 2017 – Hungarian power plant outages

Very high electrical power demand occured in January 2017 (300 MW higher compared to January 2016).

Record high peak demand was reached (6780 MW) in January 2017.

Some of the Hungarian power plants could not produce electricity because of extreme weather conditions. Highest power plant outages (1186 MW) were on 10th January.

Thanks to the behavior of some crutial power producers , the Hungarian TSO could avoid consumer restriction in this extreme situation.

On 16th January the electricity prices in Europe were at their highest since 2008 as a result of power outages and increased demand due to cold weather and some other related issues.

Rush for feed-in tariff support

The Hungarian FIT (KÁT) system has supported renewable electricity generation since 2007. This support scheme was phased out at the end of year 2016. Applications for support might not be submitted after 31st December 2016.

In the last month of 2016 a vast number of applications were submitted to HEA for FIT support. (Ca. 2400 applications for about 2000 MW capacity altogether.)

The new premium support system METÁR was introduced in 2017. It has different conditions for generators than the phased-out KÁT-system.

Authorization of electric vehicle recharging activity

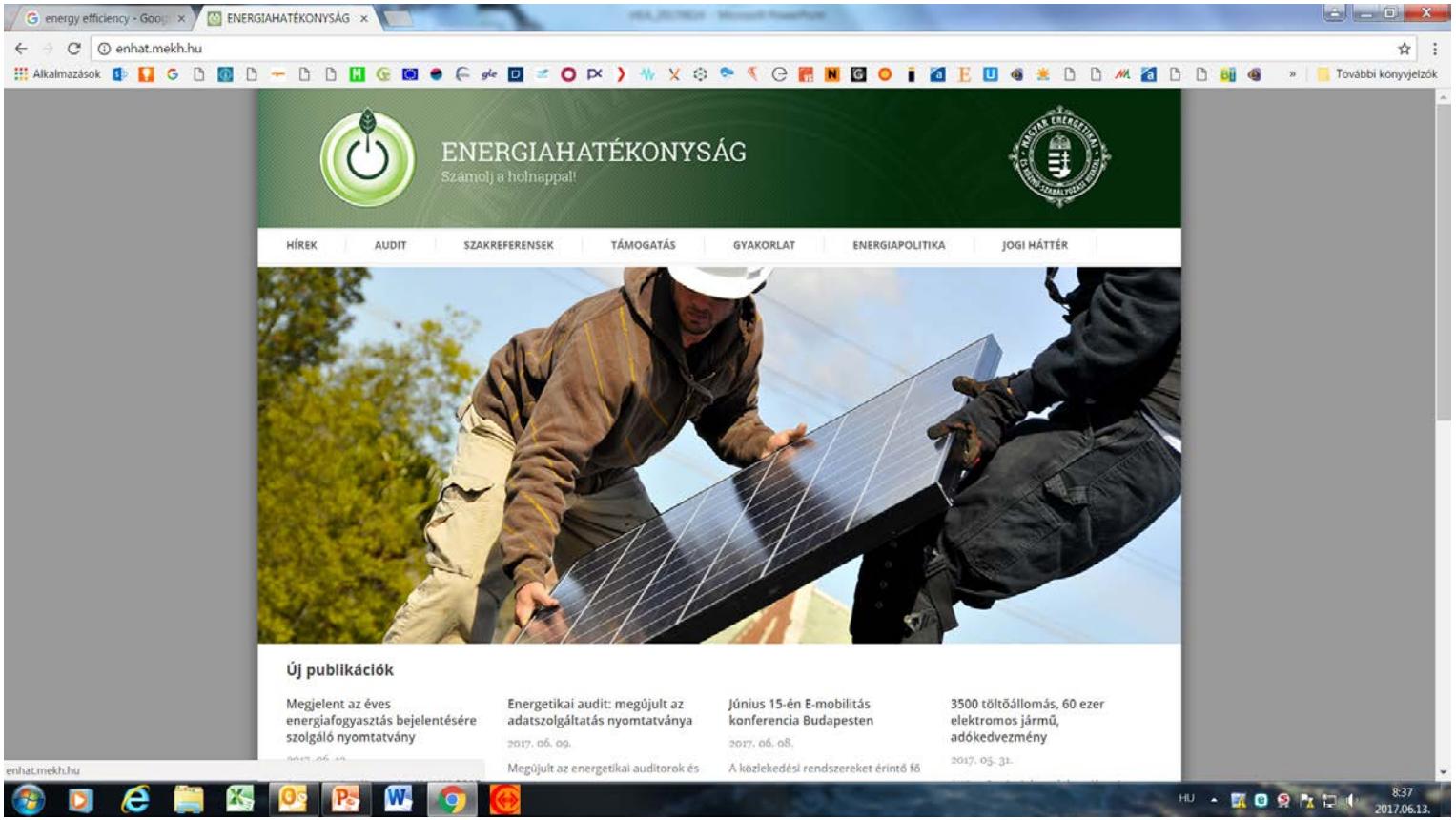
From 1 January 2016 recharging activity is subject to authorization which is made by HEA.

As far 4 licensees were granted (for all together 24 recharging stations)

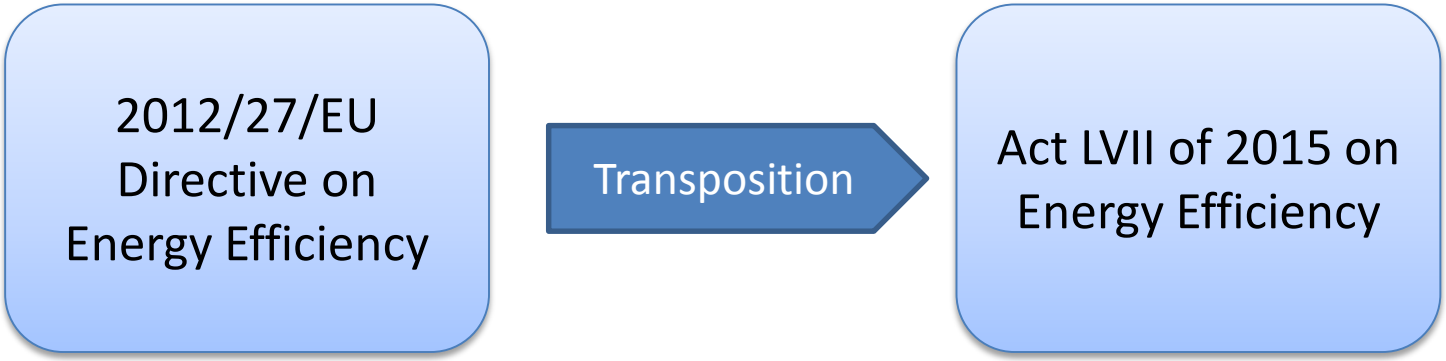
Recent questions: Market participants and their roles, activities that will be subject of authorization.

- Charging station owner (technical and safety aspects of construction)
- Charging station operator (technical and operational responsibilities)
- E-mobility service provider (electricity, time reservation, parking, financial settlements)
- Clearing house (if needed for data collection and financial clearing functions)

III. Energy Efficiency



EED and EE Act of 2015 of Hungary



- 2020 EU 20% EE target translates into 154 PJ cumulative final energy saving for HUN
- Art 7. - 1,5% new savings are expected in the annual energy sales to final customers, every year from 2014 to 2020, newly up to 2030
- HUN decided not to introduce EE obligatory scheme but to **implement alternative policy measures** to achieve the target
- EE Act defines new tasks of the regulator

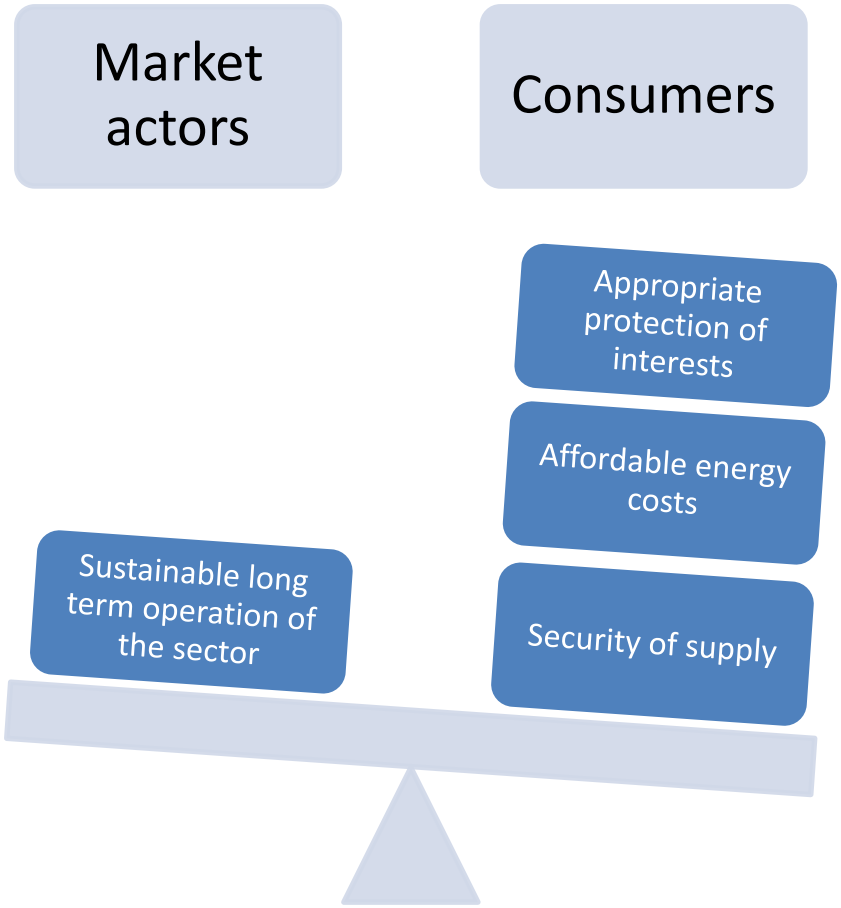
Role of the Hungarian Regulator

- ✓ Contribute to the implementation of national energy goals as defined in the National Energy Strategy of Hungary 2030
- ✓ Balance security of supply, sustainability, interests of regulated sectors and consumer

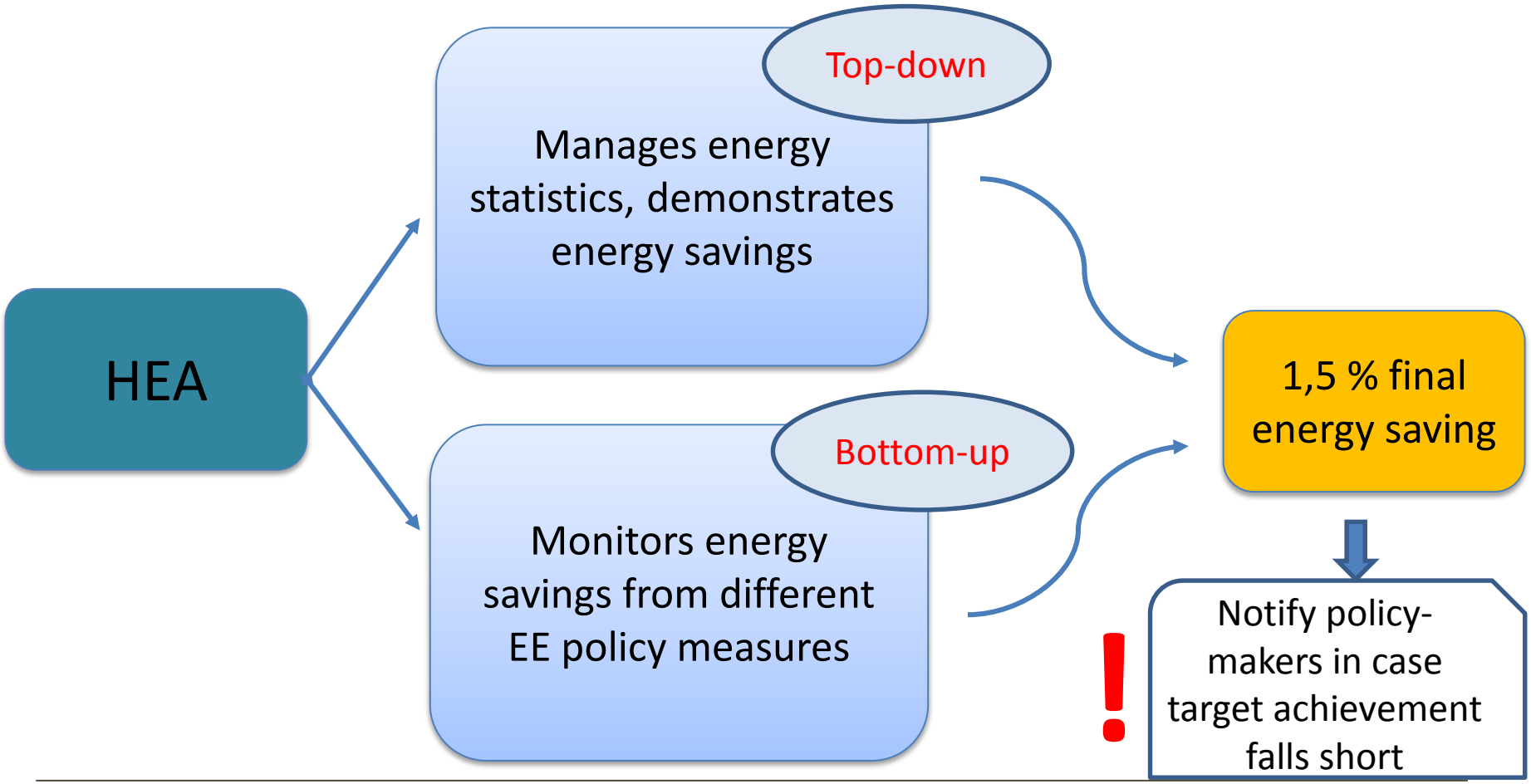
How to reach the goals in a sustainable and cost efficient way?

✓ Energy efficiency measures

✓ Promotion of the increased utilization of renewable energy



HEA monitors the realization of national EE target



HEA assists to EE policy measures and implements regulations

Existing

- EE subsidies for public and local governmental buildings (EU Funds)
- Subsidies for residential EE projects (EU structural funds, state revenues form ETS)
- Smart Cities Program financed from state budget
- .....

New

- Tax allowance
- National network of energy councilors
- Energy experts at large enterprises
- Obligatory energy audit

Total 18 different policy measures

Tax allowance for corporations

Goal of measure	Promote EE investments by tax allowance
Target group	Small, medium, large enterprises – corporate tax payers
Support intensity	• 30% - large • 40%- medium • 50%- small } enterprises, max 15 mill euro
Eligibility	Expected energy savings stemming from EE investment need to be presented by a registered auditor at HEA
Key issues	How can energy efficiency investments be identified and be separated from „everyday" investments that result in lower energy consumption due to maintence, modernization, innovation…
Role of HEA	Collect energy saving data from enterprises, verify energy savings stemming from investment through quality control of energy audit

National network of energy counselors

Goal of measure	Free counselling of local governments and institutions, SMEs, households to help exploiting EE potential
Target group	Public institutions, local governments, SMEs, households
Managing authority	Regional government offices
Key issues	Local staff –energy experts preparedness
Role of HEA	Collect energy saving data from Regional Government Offices, verify energy savings according to EED Art 7. methodology

Energy experts at large enterprises

Goal of measure	Support of EE behavior, planning and investments
Target group	Large enterprises (as of EE Act of 2015) if consumption exceeds a) 400 000 kWh electricity or b) 100 000 m3 natural gas or c) 3 400 GJ heat
Key issues	Energy audit, introduce and maintain EMS
Role of HEA	Collect energy saving data from enterprises, verify energy savings due to specific measures according to EED Art 7. methodology

Energy audit obligation

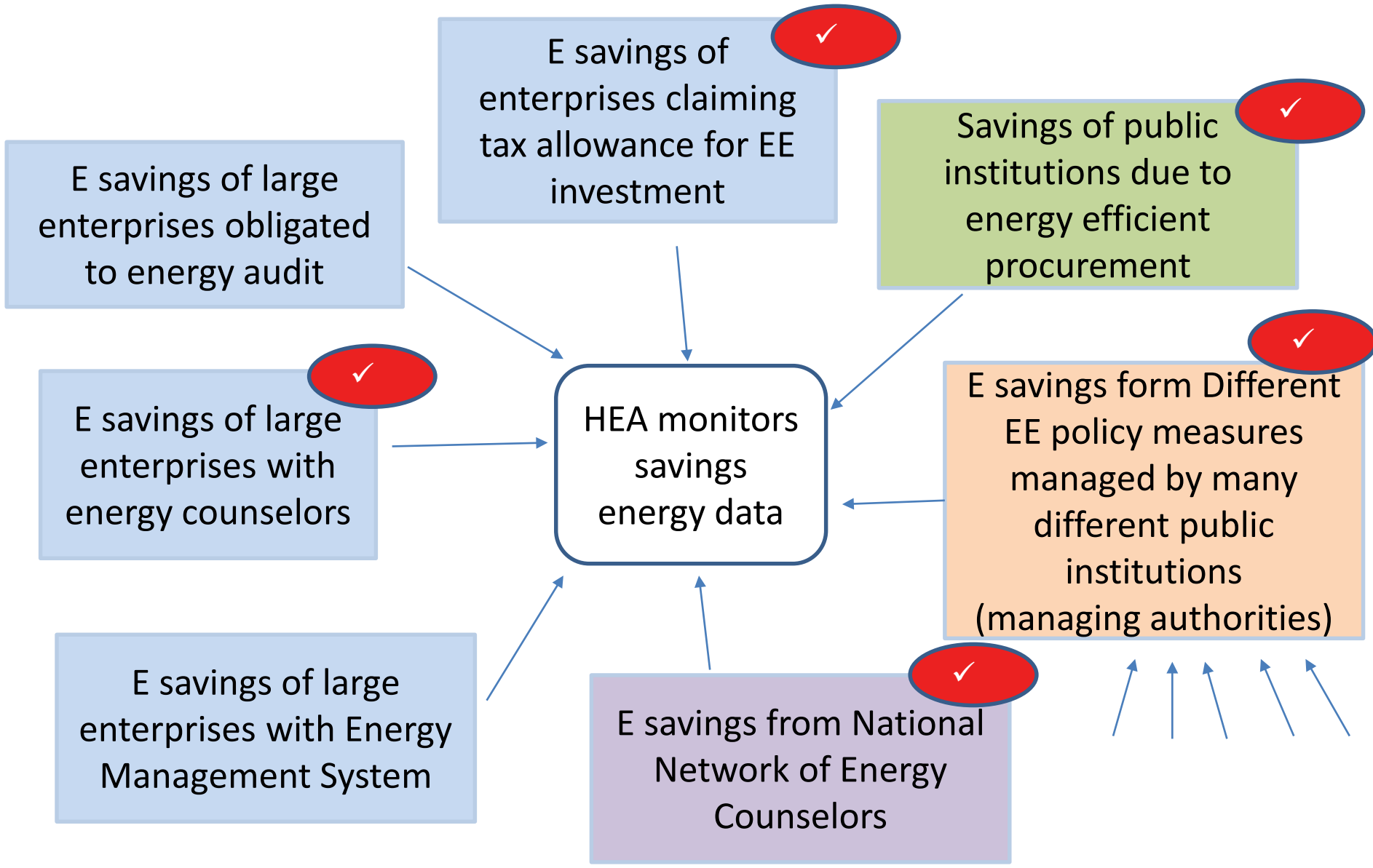
Goal of measure	Exploit industrial EE potential, promote E savings Obligation to carry out an audit, but no obligation to perform audit recommendations!
Target group	Large enterprises = non „SMEs” - number of employees (≥ 250), - annual turnover (> 50 M EUR), - and/or balance sheet total (> 43 M EUR)
Exemption	Energy Management System (ISO) or 5% rule
Deadline	Deadline of the first energy audit was 5 December 2015, next is due every 4 year thereafter
Obligations of enterprises	• Every year there is a new registration obligation • Yearly data provision on energy savings
Role of HEA	Collect energy saving data from enterprises, Quality control of energy audits

Responsibilities of HEA with energy audits

- Supervise audit obligation;
- Conduct registry of large enterprises, implement online registration and data collection:
  - for large corporations online registration is mandatory,
  - large corporations are to provide information on energy consumption and savings,
  - auditors are to send proof of audits performed;
- Conduct registry of authorized auditors;
- Control quality of audits, by taking statistically significant sample;
- Impose sanctions in case of non-compliance
- Supervise intermediary bodies which organize auditors' professional examinations and trainings

Key issues of energy audits

- There is no official national list of large companies (could be estimated from voluntary declarations or representative surveys) – 1700 companies registered as large enterprises in 2016
- Content of audits – how can minimum reliability/quality be ensured and enforced
- Vast administrative challenge for the Authority


E savings of enterprises claiming tax allowance for EE investment
✓
Savings of public institutions due to energy efficient procurement
✓
E savings of large enterprises obligated to energy audit
E savings of large enterprises with energy counselors
✓
HEA monitors savings energy data
E savings form Different EE policy measures managed by many different public institutions (managing authorities)
✓
E savings of large enterprises with Energy Management System
E savings from National Network of Energy Counselors
✓

✓ EED Art 7.

Smart metering

- Smart metering pilot project - joint project of DSOs involving 20,000 consumers (electricity, gas, some water and heat), with new tariff options
- Pilot should provide information on technical, behavioral and economic aspects of potential smart-metering roll-out
- Expected result were reduced electricity consumption and demand shift
- Reduced household energy prices by Government from 2013 neutralized potential benefits, project concluded that due to households' low electricity consumption smart metering is not economical

Obligatory cost-benefit analysis at installation level

Base scenario	Alternative cases
New (or substantially refurbished) thermal electricity generation installation with a total thermal input exceeding 20 MW	High-efficiency cogeneration installation
Industrial installations with a total thermal input exceeding 20 MW generating waste heat at a useful temperature level	Utilize waste heat and connection to a district heating and cooling network
New energy installation with a total thermal input exceeding 20 MW is planned to the existing district heating and cooling network	Utilize the waste heat from nearby industrial installations
New district heating and cooling network	Utilize the waste heat from nearby industrial installations

HEA will publish a decree on the methodology of the cost-benefit analysis

Assessment of the energy efficiency potential of the gas and electricity infrastructure

Electricity	Natural gas
transmission network	transmission network
distribution network	distribution network
transmission system operator	transmission system operator
connection to energy generating installations	natural gas generators
micro energy generators	natural gas storage facilities

Concrete measures shall be identified based on the results of the assessment

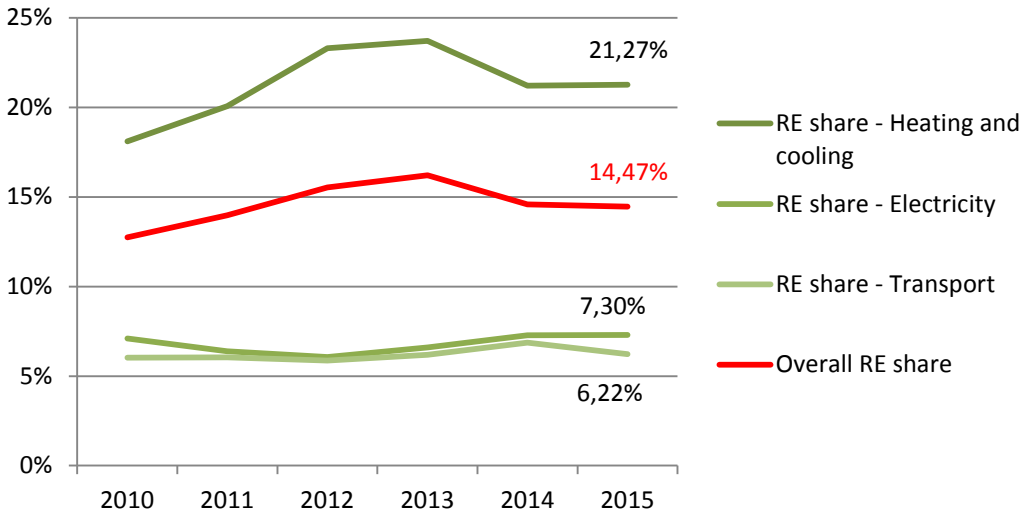
Some conclusions

- Traditional regulatory roles complemented with new responsibilities related to sustainability
- New tasks of HEA related to EE, many of them administrative type
- Hungary is challenged by EU policy requirements (EE and RES targets)
  - No mature market of energy conservation + affordability and behavioral issues of consumers
  - Outdated infrastructure, equipment
  - EE policy implementation is fragmented
  - HEA does not have long experience with EE

IV. Renewable energy

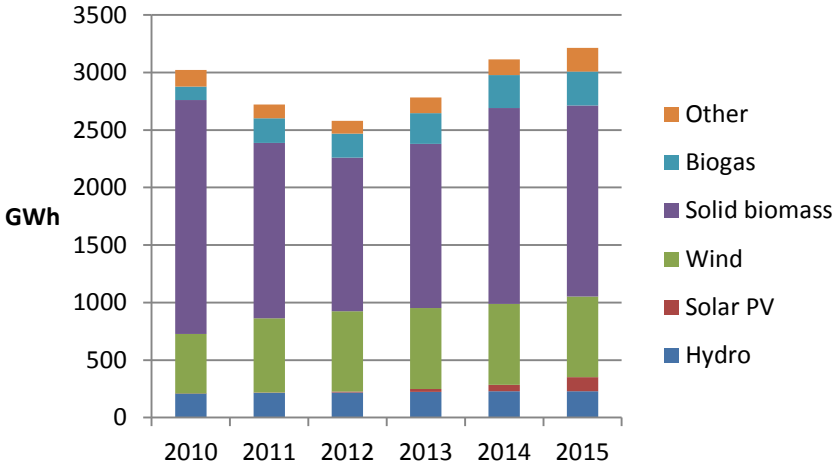
Renewable energy targets

- Overall target for 2020 almost reached (14,65% set in the NREAP)
- Action still needed in the transport sector (to reach the 10% RE share)

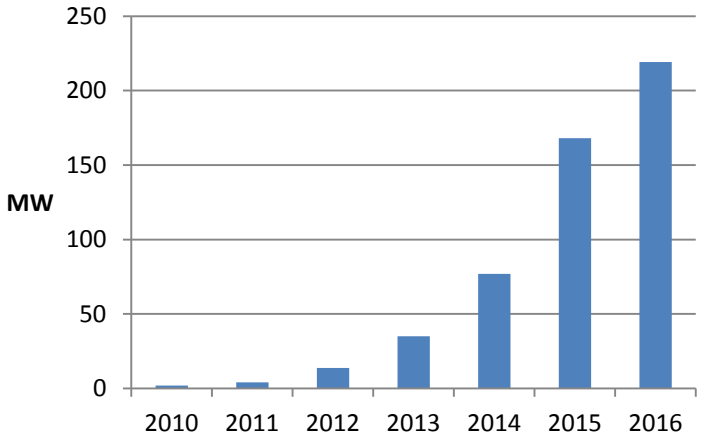


Renewable electricity

- 3200 GWh renewable electricity production in 2015
- Mainly solid biomass and wind
- Growing production of solar PV and renewable solid municiple waste



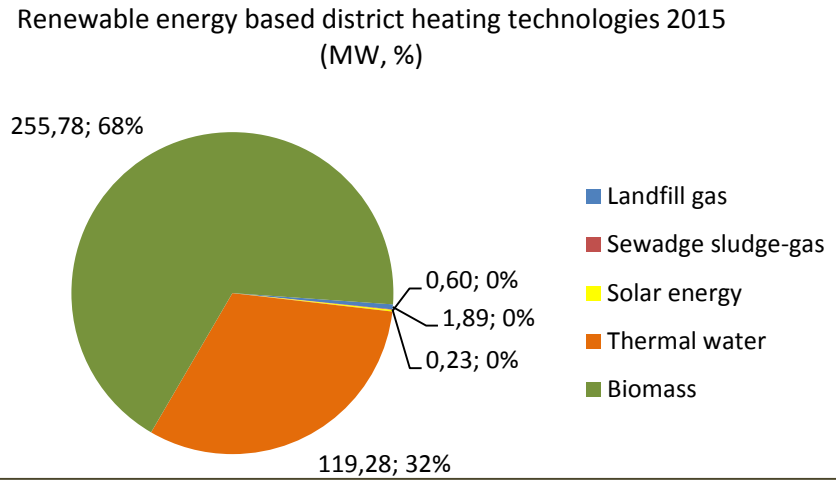
Renewable electricity generation (2010-2015)



Solar PV installed capacity (2010-2016)

Renewables in district heating

- District heating: ~ 15% of Hungary's heat consumption
- ~100 settlements supplied with DH, ~ 650 000 households
- 378 MW renewable DH capacity in 2015 (mainly biomass and thermal water based)
- ~ 10% renewable share in DH production (5 PJ in 2015)



Stable legislative environment for renewables

National Energy Strategy
(Gov Decision 77/2011)

National renewable energy action plan

Act on District Heating (18/2005)

Act on Electricity (86/2007)

Act on Energy Efficiency (57/2015)

Feed-in tariff system „KÁT”

For operating RE plants with support decisions in place (and support applications handed in till the end of 2016)

Premium and feed-in system „METÁR”

For new entrants as of 1 January, 2017

Support scheme for renewable electricity

In June 2016, the Parliament of Hungary enacted the Renewable Energy Support System (in Hungarian: “Megújuló energia támogatási rendszer”) (**“METÁR”**)

- Modification of the Act on Electricity (86/2007), and the Gov. Decree 389/2007
- New Gov. Decrees (165/2016) – new premium system
- Ministry Decrees (62/2016 and 63/2016) – rules of the auction scheme, limits of entitelment for support
- HEA Decree (17/2016) – calculation of premium support not determined by auctions

METÁR entered into force as of 1 Jan, 2017

METÁR is expected to boost further investment in RE-E technologies in a **cost-efficient way**

The new support scheme is **in line with the EU State Aid Guideline 2014/C 200/01**

Details of the premium system

- Floating premium system with monthly reference prices
- „Supported price” = reference market price + premium
- Obligatory auctions for
  - Wind (independent of size)
  - RE plants with at least 1 MWe capacity (except demo projects)
- Optional auction for
  - RE plants between 50-500 kW (primarily entitled to FiT)
  - RE plants between 0,5-1 MW (primarily entitled to administratively set premium)
- The maximum yearly support budget is set by the minister responsible for energy

Auction design /1

Main features are regulated in the Ministry Decree 62/2016 and the call for tenders

- Technology neutral auctions by default
- Pay as bid system
- Evaluation: price only
  - Price is indexed yearly with CPI-1%
- Early phase auction with **financial requirements** (bid bond, completion bond)
- 3-5 months between the call and submission
- The auctions will be issued by the Hungarian Energy Regulatory Authority (HEA)

Auction design /2

Design details to be defined **by the Call**

- Actual auction values
- Length of support (max. 20 years, to be shortened proportionally in case of other support - i.e. investment support)
- Possible constraints (made possible by the Ministry Decree)
  - Maximum prices (general or by technology, if applied)
  - Min /max quantities by technology
  - Constraints by region for intermittent generation
- Benchmark production values by technology (bidders set MWe values for their plants)
- Time for completion

District heating legislation

- Cost-based regulated prices on the DH market (production and supply)
  - Based on reasonable costs (related to predicted heat sales) and gross asset value
  - Prices set *annually* by the Minister based on recommendations of HEA
  - Profit limitation: 4,5% of gross asset value for renewable and high efficiency CHP DH production (2% otherwise)
  - further profit has to be spent on energy efficiency or cost reduction investments
- Support for renewable DH
  - Investment grants (based on EU structural funds KEOP and KEHOP)
  - Preferential VAT for DH consumers (5% instead of 27% VAT)
  - Support for DH suppliers (beared by electricity consumers to compensate for regulated prices lower than reasonable costs)

(based on 50/2011 and 51/2011 NFM Ministry Decrees)

Thank you for your kind attention!

László Szabó