REKK REGIONAL CENTRE FOR ENERGY POLICY RESEARCH

RENEWABLE ENERGY AND ENERGY EFFICIENCY QUARTERLY

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FOCUS

THE STATE OF THE SOLAR AND THE SOLAR OF THE STATE: MVM HUNGAROWIND WINS INVESTMENT SUBSIDY TO BUILD A SOLAR PARK IN PECS

Direct allocation of EU funds available but unused in the 2007-2013 period now goes to a PV project that can be realized in a short period of time and serves multiple goals: make use of funds otherwise lost, decrease the fossil energy use of governmental institutions and help the state-owned MVM in gaining a foothold in the solar industry.

The share of solar electricity in the gross final consumption of Hungary – although increasing exponentially in the last couple of years - only reached approximately 0.2 percent in 2014. So far the support system did not bring about a considerable capacity increase and the majority of investments relied on available investment subsidies. With the continuous decrease in technology costs, larger systems are now being built by private investors (usually in the size category below 500 kW) and companies operating in the solar industry are monitoring related tender calls. Those are, however, quite rare (except for tenders offering a subsidy for the installation of renewable systems in association with other energy efficiency measures), and most recently in 2013 accompanied by scandal which led to its cancellation.[1]

In early September the government issued a new call for tender, related to the „construction and operation of solar systems to reduce the electricity costs of budgetary institutions and government agencies" within the Environmental and Energy Operative Program (KEOP-2015-4.11.0). However, the eligibility criteria specified in the tender considerably limited the number of possible winners, making it clear that only the bids of state owned MVM Electricity Ltd. or any of its fully owned subsidiaries would be accepted. A formerly issued Government Decree (232/2015 of 8 August 2015), appointed the MVM Hungarowind Ltd. as the operator of the „photovoltaic power plant financed from EU funding with the purpose of reducing the fossil energy use of budgetary institutions", evidently referring to the same project, despite having no experience in constructing and operating solar installations. The non-refundable 100% investment backed subsidy of up to HUF 3.5 billion was ensured by a government decree adopted in March and reallocated to the Environmental and Energy Operative Program between 2011 and 2013. Hungary was allowed to make use of EU money not spent in other programs as long as the construction is completed by the end of year 2015.

According to the provisions of the decree released in August, the company is obliged to operate a solar installation at its own expense, providing electricity to budgetary institutions located outside of Budapest or Pest County, at a discount. The possible beneficiaries, who will be selected in a competitive procedure, can avoid

[1] *http://budapesttimes.hu/2013/11/17/fra%C2%ADud-claims-eclipse-solar-tenders/*

half of the electricity fee appearing in their bills but will not be exempted from the value added tax corresponding to that amount (calculated on the basis of universal service prices) and other price components (e.g. system charges, fee of ancillary services, taxes, etc.). Only institutions with a yearly consumption of more than 100 MWh can apply, and they must also carry out energy efficiency measures with an investment value reaching at least the amount of the saved electricity fee. This way the project will contribute to meeting the energy efficiency requirements established by the relevant EU directives.[2]

MVM Hungarowind is obliged to operate the solar park in the so called "minimum period of maintaining the investment project" (usually 5 years) as regulated by the related EU directive on EU funds.[3] After that period, it has to grant the right of operating the plant and selling the electricity to another company. If the rental fee paid by the new operator exceeds the operation costs occurred during the maintenance period, the difference has to be paid into the government budget. These provisions are necessary to make the investment grant compatible with EU state aid rules, ensuring that the beneficiary does not drive economic profit from the investment.

Shortly after announcing the winner of the „tender," the mayor of Pécs announced in an interview that the 7 MW solar park will be established on a 20 ha site on a municipal area near the power station Pannonpower, formerly used as a tailings of the previously coal-fired plant. He said that the good cooperation between the municipality, the biomass-fired power plant of Pécs and MVM Ltd. has contributed to the establishment of the PV plant. He also said that the municipality aims to establish similar plants in the future on its own. There will be great interest in the results of the forthcoming PV tenders expected to appear in late autumn.

REKK OPINION

The price outcome of the 'tender' is HUF 500/Wp (calculated with the planned 7 MWp capacity). According to the price data received from the Hungarian PV Association (MANAP) in the spring, the price of an assembled 50 kWp roof-top PV system ranges between 350 and 380 HUF/Wp (including installation costs, additional charges and safety costs, and excluding VAT). As larger scale ground mounted systems are usually installed at a lower unit cost due to economies of scale, a tender involving a larger number of bidders would have likely resulted in considerably lower costs, or – given that the available sum of money was intended to be spent - maybe a larger system could have been constructed. Other European tenders organized recently turned out to be quite successful, resulting in unexpectedly lower prices. (See our summaries in the next section.)

[2] *Energy Efficiency Directive, 2012/27/EU and Energy Performance of Buildings Directive, 2010/31/EU*
[3] *Regulation (Eu) No 1303/2013 Of The European Parliament And Of The Council*

DEVELOPMENT OF TECHNOLOGY PRICES

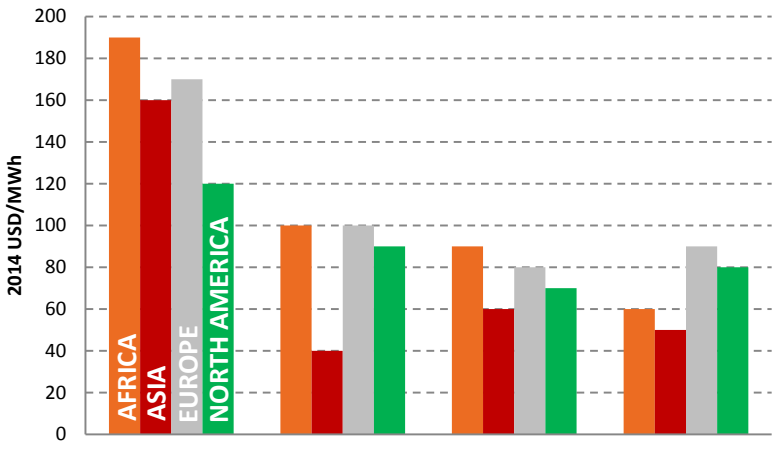
EVOLUTION OF THE LEVELIZED COST OF ELECTRICITY

US levelized costs continue to drop, with, the largest reduction rate of about 10% observed in on-shore wind installations.

In our 2014/Q4 issue we showed the evolution of levelized costs of electricity (LCOE) for renewable technologies based on data presented in the Annual Energy Outlook (AEO) of the U.S. Energy Information Agency (EIA). The EIA updates its national LCOE estimations yearly, relying on technology cost reviews carried out every few years, expert views, and other well-founded assumptions related to calculation inputs. The levelized cost of electricity is the present value of the total cost of building and operating an electricity generating installation over its economic lifetime, expressed in an amount per unit of electricity generated. It can be interpreted as a constant level of per unit revenue (price) that has to be realized each year to recover all the expenses over the lifetime of a power plant (including the expected return by investors), therefore it can be a useful tool for comparing costs of different technologies entering into service at different dates. The 2015 issue of the AEO contains levelized costs for generation resources to be brought online in 2020. The next table compares the average U.S. LCOE values for 6 RES-E technologies with last year's values. A reduction in total system levelized cost can be observed in all technologies, which is around 3 percent for hydroelectric, solar thermal and biomass-fired installations, slightly below 5 percent for offshore wind and solar PV systems, and nearly 10 percent for onshore wind technology, mainly due to reduced capital expenses. Capacity factors also improved (except for solar and biomass) compared to the previous year.

To see how levelized electricity costs differ globally, we also present LCOE for renewable technologies estimated by the International Renewable Energy Agency (IRENA) based on its ReSource database, last updated in April 2015. The next chart shows the weighted average levelized costs for selected global regions. Although the numbers cannot be compared directly to the EIA because of different assumptions used for the calculations, the EIA and IRENA figures do not deviate considerably, except in biomass technology. While North America is the leader in solar photovoltaic technology, Asian renewable projects are the cheapest from among these regions.

Figure 1: Levelized cost of electricity in some global regions



Source: Irena, ReSource database: http://resourceirena.irena.org/gateway/dashboard/

Table 1: U.S. average levelized cost estimates (2014 USD/MWh) for plants entering service in 2019 and 2020*

	Capacity Factor (%)		*Levelized Capital Cost*		*Fixed O&M*		*Variable O&M (including fuel)*		*Transmission Investment*		*Total System Levelized Cost*		*Yearly Change*
Year	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	
Wind Onshore	35	36	66.0	58.6	13.4	13.0	0.0	0.0	3.3	3.1	82.7	74.8	**-9.63%**
Wind Offshore	37	38	180.7	171.3	23.5	22.9	0.0	0.0	6.0	5.9	210.3	200.0	**-4.88%**
Solar PV	25	25	118.0	111.5	11.7	11.6	0.0	0.0	4.2	4.2	134.0	127.3	**-4.97%**
Solar Thermal	20	20	200.9	194.7	43.4	42.8	0.0	0.0	6.2	6.1	250.5	243.5	**-2.78%**
Hydro-electric	53	54	74.2	71.8	4.2	4.0	6.6	7.1	2.1	2.0	87.1	84.8	**-2.57%**
Biomass	83	83	48.8	47.9	14.9	14.7	40.7	38.2	1.2	1.2	105.7	102.1	**-3.42%**

**Source: AEO 2014 (figures for 2019) and 2015 (figures for 2020), U.S. Energy Information Agency. Values are expressed in 2014 USD using the GDP Chain-type price index: http://www.eia.gov/forecasts/aeo/assumptions/pdf/electricity.pdf.*

RECENT RES-E TENDERS IN EUROPE

European large-scale PV prices approach U.S. levels as a result of competition in tenders significantly oversubscribed.

In our last issue we reported the results of the first German pilot tender launched for ground mounted PV installations in the 100 kW-10 MW range, resulting in a price range of 84.8-94.3 EUR/MWh. While in the first round the pay-as-bid method was used for price determination, the second tender round that closed in August was organized as a uniform price tender in order to evaluate the outcomes of different tender designs. The second round was also deemed successful, as 136 bidders competed with 558 MW capacity for the 150 MW eligible for support. 33 bids accounting for a total 159.7 MW were accepted, resulting in a price of 84.9 EUR/MWh, nearly equalling the lower end of prices in the previous round. Due to the uniform price methodology, unrealistic bids as low as 10 EUR/MWh were also submitted, demonstrating that investors were more interested in securing a winning position and counting on a final clearing price that would ensure adequate EUR/MWh compensation for their projects. The same strategy led to the selection of two unrealistically discounted PV projects in the latest UK RES-E auction.[4] The third round of tender pilots was also launched for the remaining 200 MW of the initial 500 MW to be offered. The deadline to submit the bids is 1 December 2015, and the uniform price method will be applied again.

France has organized PV tenders since 2011 according to different size and system categories. The latest tender for solar installations with at least 250 kWp capacity issued last November attracted a large number of applications. The tender closed in July and resulted in an average price of 87.10 EUR/MWh, while the minimum price offer was 70 EUR/MWh. Results in earlier tenders were 213 EUR/MWh in 2011 and 142 EUR/MWh in 2013,[5] showing a significant price decrease in the last 5 years. The promising outcome prompted the government to offer subsidy for another 400 MW in this tendering phase. The official 2020 target for PV capacity was also increased to 8 GW from the original 5.4 GW. This announcement is in line with France's new energy bill adopted on 22 July 2015 that seeks to reduce the share of nuclear power in the energy mix from 75 to 50 percent by 2025.

To see how the results of the German and the French tenders compare to the LCOE estimates of the EIA and IRENA above, we used the minimum cost ranges published by the two agencies. The minimum LCOE value IRENA reported is 125 USD/MWh (around 110 EUR/MWh) for the European and 76 USD/MWh (67 EUR/MWh) for the North American region, while the minimum levelized cost estimate of the EIA is 89.3 USD/MWh (around 78.3 EUR/MWh) for the U.S.[6] This shows that the European tenders are beginning to yield prices approaching those achieved in the generally cheaper North American regions. However, final conclusions can only be made with the completion of the winning projects.

[4] *See our last issue for more information.*
[5] *National Survey Report of PV Power Applications in France, 2014, IEA, 2015 September*
[6] *Using USD/EUR conversion rate of 1,14.*

HUNGARIAN RES-E REGULATORY AND MARKET PANORAMA

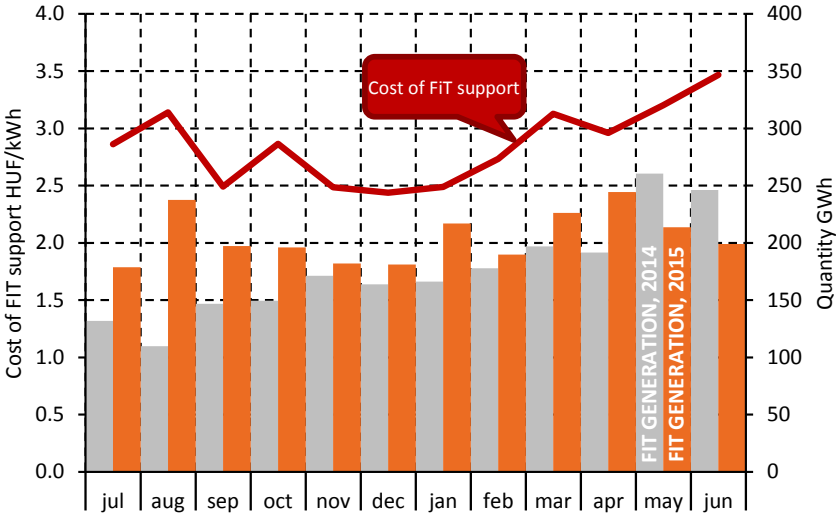
MONTHLY DEVELOPMENT OF RES-E GENERATION IN HUNGARY

The total FIT generation increased by 17% from the first observed period (2013 Q3-2014 Q2) to the second (2014 Q3-2015 Q2), mainly due to higher biomass production.

Total FIT generation was 17% higher from 2014 July to 2015 June compared to the same period a year before. A constant year-on-year increase is visible as more and more RES capacity is being installed. In the first half of 2015, 48% of RES-E production came from biomass, 32% from wind energy, 11% from hydro, 7.5% from biogas (including landfill gas), and the rest from waste (1%) and PV (0.5%). While from February a rapid growth is visible, a significant decrease characterizes the second quarter of 2015. The main driver behind these changes is the volatile wind production in the observed period.

The monthly average unit cost (total cost of FIT / obliged consumption), usually follows the level of generation, as generation is more volatile than obliged consumption. However in the last quarter of the examined period (2015 Q2), the unit cost went in the opposite direction of FIT production. A few reasons are mentioned in the MAVIR quarterly report, mostly connected to the difficulties of forecasting: planned and actual production did not match and HUPX prices and exchange rates are hard to forecast. Due to these challenges the cost of correction was higher in this period and the average unit cost increased despite decreasing production and the nearly constant level of obliged consumption.

Figure 2: Monthly FIT generation (2013 July-2014 June) and cost of FIT support (2014 July-2015 June)



Source: MAVIR

CHANGES IN RENEWABLE CAPACITIES BASED ON MEKH RESOLUTIONS

Unbroken PV expansion, failed biomass ambitions

In the 2015 April-September period, MEKH resolutions showed additional 6 MW of PV capacities connecting to the grid and PV producers were granted 25 years of feed-in tariffs. Some PV producers still divided their investments to units under 500 kW, allowing for an easier licensing procedure. Beside PV units, 3.2 MW of biogas and sewage gas units and a small run-of-river hydro of 283 kW is due to connect to the grid in late 2015 and 2016.

Three biomass producers totalling 80 MW withdrew their licenses, including a 49.9 MW unit in Pannonpower, Pécs (a biomass-fired unit of the same size is operating, but a planned second unit was never commissioned). A 16.5 MW unit was to be constructed at Tatabánya, but switching to biomass from coal and gas tightened the local market and made the investment unfeasible. Construction of a 12 MW unit at Hódmezővásárhely was abandoned for similar reasons. Grid connection for all of these units had been planned in 2012. Withdrawal of the licenses does not affect the Hungarian grid and security of supply.

THE FIRST BIOMASS-FIRED UNIT OF TATABÁNYA POWER PLANT STARTS OPERATION

In spite of the low carbon price it can pay off to switch from natural gas to biomass-based heating if cheap, sustainable feedstock supply and investment support are available.

The construction of a new 20 MW wood chip fired boiler was completed in mid-September in the Tatabánya Power Plant, together with a storage and conveyor system ensuring continuous fuel supply. The more than110 year-old power plant was originally coal-fired and switched to gas in 2004, the year of Hungary's accession to the European Union,

due to the moratorium of old power generating units that could not comply with the obligatory emission limits set in the LPC Directive.[7] The establishment of the new boiler is the first stage of a larger investment project which will continue with the instalment of two additional 37 MW wood chip-fired boilers to be finished by the end of 2015. The three boilers will be able to ensure almost the entire hot water and heat supply of the 23,000 households and institutions connected to the district heating system of the city. As a result of the investment, the input share of natural gas will decrease from 100 percent to 14 percent. The required amount of wood chips, approximately 102,000 tons yearly, will be ensured through a wood-chip supply contract with the Vértesi Erdő Ltd., a state owned forestry, which will provide ready-to-fire wood sourced from several forestries in an environmentally sustainable way. The investment was realized with HUF 6.2 billion of funding, of which 1.5 billion was provided by EU grants and government budget support. The municipality owns 51% and the remainder is owned by ELMIB Ltd. The plant was the first in Hungary to install a heat storage system in 2014, in order to increase the flexibility of electricity and heat supply to optimize plant operation. Although electricity generation might be reduced as a result of the fuel conversion, it is possible to store enough heat in the system to meet two days of hot-water demand, making it possible to halt the operation of the plant over summer weekends. According to the company, the conversion of their boilers to biomass heating will save expenses for the power plant and also for customers.

EU REGULATION

RENEWABLE ENERGY: THE 'GOOD CAUSE' FOR A NEW ELECTRICITY MARKET DESIGN

Increasing the share of renewable energy generation calls for a redesign of the EU electricity system, which the EU intends to achieve without sustained political intervention.

Increasing intermittent renewable electricity production poses challenges for the operators of an electricity system designed originally to transmit electricity from large, centralized, more or less controllable power plants to customers. Decentralized renewable electricity generating plants disrupt the conventional way of system balancing; while they raise the need for system flexibility, they push out gas- and coal-fired power stations able to adjust their power output as demand fluctuates, as they cannot compete at the lower prices brought about by the increased share of renewable generation. The two communications launched by the European Commission as part of its summer energy package aims to collect views on how to reform wholesale and retail markets in order to tackle this problem.[8] The communications suggest that in order to ensure security of supply the EC is partial to automatic, market driven solutions and capacity mechanisms which suggests political interventions and state aid. The solutions involve increased cross-border electricity trade through the development of interconnections, the enhanced role of integrated intraday and balancing markets, and linkage between wholesale and retail markets to facilitate demand-side response, enabled by the access of consumers to price signals. This requires the use of interoperable smart technologies. Consumers' flexibility can also be advanced by enabling their market participation through intermediaries and collective schemes.

Drawing on the experience gained through operating renewable energy self-consumption schemes in Europe, an accompanying document to the retail market communication was also released to provide recommendations on how to design and operate self-consumption schemes related to smaller energy systems (below 500 kW). The guidance fits into the efforts of the EU to increase the flexibility of both electricity consumption and production, as self-consumption combined with smart technologies can facilitate demand-side response, while also contributing to grid stability and the system integration of renewable electricity.

REKK OPINION

The European Commission makes a risky movement to preserve the energy-only market model in the context of rapidly growing renewable production. Instead of embracing capacity mechanisms the Commission relies heavily on flexible market arrangements: spurring demand side management, setting up liquid intraday markets, boosting interconnection capacities, integrating national balancing markets. If these actions / arrangements fail to meet the expectations, while the power plant capacities providing flexibility are not constructed either, the EU will have to pay a heavy price for its mistake.

[7] *2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants*
[8] *COM(2015) 339 final and COM(2015) 340 final.*

RENEWABLE ENERGY DIRECTIVE EVALUATION STUDY

The mid-term evaluation of the Renewable Energy Directive (RED) that came into force in 2009 has been commissioned by DG Energy, and carried out by a consortium of CE Delft, Ricardo-AEA, Ecologic Institute, E-Bridge and REKK. The evaluation assesses the relevance, effectiveness, efficiency and added value of the RED as a whole and of the various individual provisions laid down in the Directive, in view of achieving the desired outcomes. Each article of RED has been assessed based on available literature and data and some stakeholder interviews. In addition, six country case studies (Bulgaria, Estonia, Germany, Poland, Spain and Sweden) were carried out to gather more detailed information and stakeholder views on the effectiveness, efficiency and added value of the RED as well as recommendations to improve the RED.

The main contribution of RED and the key issues related to the effectiveness of the most important provisions/articles of the Directive are:

Article 3: Targets and measures

POSITIVE CONTRIBUTIONS	KEY ISSUES AND BARRIERS
Mandatory targets backed by indicative interim targets seem to be effective, especially in MS with low renewable energy sources (RES) shares and investments. They have also enhanced investor security and contributed to drive RES technology cost down. The indicative interim targets help ensure that measures to aimed at national targets are timely, and allow a continuing assessment whether MS are on track.	*10% target for transport is still controversial, especially due to environmental concerns. Efficiency benefits are mainly related to the overall RES-target, the transport target is affected by uncertainty about the EU level indirect land use change (ILUC) decision and is expected to have limited innovation benefits. Progress monitoring towards targets and timely intervention are hampered by non-linear growth paths of many MS.*

Article 4: National Renewable Energy Action Plans (NREAPs)

POSITIVE CONTRIBUTIONS	KEY ISSUES AND BARRIERS
EU-wide transparency of plans and policy measures has significantly improved, administrative burden seems reasonable. Indicative trajectories enable progress monitoring.	*NREAPs become outdated over time.*

Articles 6 to 12: Cooperation mechanisms

POSITIVE CONTRIBUTIONS	KEY ISSUES AND BARRIERS
Potential benefits may be significant on EU and MS level, in particular for RES importing countries. Various MS are starting to explore possibilities.	*Very limited use and effects so far. Various barriers to cooperation may exist: national preferences, uncertainties about longer term framework, insufficient interconnector capacities, etc. Mechanisms are rather considered as a complementary means to securing target achievement than as means to enhance cost-efficiency.*

Article 16: Grid access and operation

POSITIVE CONTRIBUTIONS	KEY ISSUES AND BARRIERS
These provisions are generally seen to ensure a transparent and legitimate integration of RES into the grid. Priority grid access is considered to be a key provision that supports RES deployment.	*A public national investment schedule is not yet available in many cases, the level of coordination is uncertain. Grid capacity issues not yet resolved in all MS. Article implementation highlights burdens and challenges which slow down the connection of RES. Benefits of smart grids may be significant, but not yet assessed on EU level and in many MS. Data on administrative burden lacking.*

Articles 17, 18,19, 21: RES in transport, biofuels and bioliquid sustainability

POSITIVE CONTRIBUTIONS	KEY ISSUES AND BARRIERS
Direct environmental impacts of biofuels production have been limited. Harmonisation of voluntary certification systems and certification of a much larger volume of biofuels have been achieved, the mass balance approach seems to be effective and efficient. Administrative burdens have been high for all actors in the first years to set up the system, but efforts of economic operators to prove compliance are seen as reasonable and proportional.	*Indirect effects not yet included and not all direct environmental impacts are covered, limiting the benefits of these provisions. The delay in ILUC decision making may provide a barrier to meet the transport target of Article 3.* *Double counting (Art. 21(2)) not yet implemented in several MS, definition of waste differs between MS which increases cost to fuel suppliers. Limited incentive for more advanced biofuels production processes or exceeding the minimum sustainability criteria, resulting in limited innovation so far.*

The Energy Union confirmed the target of at least 27% renewable energy by 2030, as set out in the 2030 Communication. To this end the new renewable energy package will include legislation that ensures that at least 27% renewable energy target is met. The starting point for meeting the 2030 target will be the national energy plans prepared by Member States and a new governance system. The mid-term evaluation of the 2009 RED serves as an important document for the updating/deleting/amending of the various provisions.

MONITORING OF INVESTMENT SUPPORT OPTIONS

The Hungarian NEEAP gets published: how will residential building modernisation be supported?

Fourteen months after the deadline set by the Energy Efficiency Directive (EED), the Hungarian Government has published its National Energy Efficiency Action Plan (NEEAP) dated August 2015.[9] The NEEAP describes the horizontal and sectoral planned energy efficiency policies, their legislative basis and the additional governmental actions (and responsible organisations) required in the context of the various requirements set by the Directive.

The NEEAP defines a new energy savings target for 2020 compared to the one submitted in 2013 April to the European Commission according to the requirement of Art 3. The 1113 PJ primary energy consumption envisaged in 2013 for 2020 was based on the Energy Strategy using energy consumption data until 2008. Due to the much lower realised economic growth compared to the assumed trajectory then and based on data until 2012, a new primary energy consumption forecast for 2020 has been defined in the Governmental Order 1160/2015. As Table 2 shows the 992 PJ primary energy consumption in 2012 means a 12% reduction from 2008. The new primary energy consumption forecast for 2020 is 1009 PJ, translating into a 603 PJ gross final energy consumption. This forecast is the policy scenario[10] that assumes the implementation of energy efficiency goals resulting in lower energy use in the residential sector, lower growth rate of energy use in the industrial, transport and service sectors, and an annual 1% increase of electricity consumption.

Table 2 Primary and gross final energy consumption data and forecast for Hungary (2008, 2012, 2020)

PJ	***2008***	***2012***	***2020***
Primary energy consumption	1120	992	1009
Gross final energy consumption	704	600	603
Industry	139	96	114
Transport	192	157	147
Residential	233	215	207
Service	117	116	118
Agriculture	22	17	17

The 73 PJ savings target to be achieved between 2012 and 2020 (compared to the BAU scenario[11]) is distributed among the end user sectors.

As far as the implementation of Article 7 of the EED is concerned, the NEEAP reinforces the recently adopted EE Law that no energy efficiency obligation scheme (EEOS) will be introduced in Hungary. Hungary will achieve the required new annual end use savings (equalling 1.5% of energy sales) with alternative measures. Hungary intends to reduce the baseline with the energy used in the transport sector and use the exemptions fully to reduce the cumulative target by the maximum allowable 25%. The alternative measure proposed in the NEEAP is a financial package that would provide support for the energy savings actions of households and companies. The package would consist of the following elements:

Table 3 Distribution of savings among sectors

PJ	***Savings target (2012-2020)***
Industry	10
Transport	14
Residential	40
Service, agriculture and public buildings	9
Total	**73**

- energy audit mentor service: consultancy to prepare the energy audit of companies and to develop cost efficient energy savings interventions,
- "green loan" program and/or other financial tools to finance residential energy efficiency actions, and
- preferential loans for the energy companies serving households to support their ESCO activities.

Even though the Operational Program for Environment and Energy (KEHOP) for 2013-2020 dedicates resources for non-refundable support for households and the Ministry of National Development has announced a 150 bn HUF budget to this aim (40% support intensity in the form of grants), János Lázár recently declared that households will not be eligible for grants to refurbish their flats and buildings but will be supported by loans only. In a press conference he claimed that the establishment of financial intermediaries for the allocation of EU funds to households would be too complex as these funds cannot directly support natural persons with grants. In addition, the allocation of scarce public resources cannot be executed in a fair manner. The government intends to provide interest free loans of up to 66% of the investment, while the rest needs to be financed by the households themselves.[12]

[9] *Available in Hungarian at: https://ec.europa.eu/energy/sites/ener/files/documents/HU_Annual%20Report%202015_hu.pdf*
[10] *"közös erőfeszítés" in the terminology of the National Energy Strategy*
[11] *„ölbe tett kéz" in the terminology of the National Energy Strategy*
[12] *http://www.portfolio.hu/unios_forrasok/gazdasagfejlesztes/itt_a_bejelentes_ingyenhitelt_kapnak_a_csaladok_eu-penz_helyett.4.221765.html*

ERRA-REKK TRAINING COURSE: RENEWABLE ENERGY REGULATION

The objective of this 5-day training course is to provide the participants with an overview of those aspects of environmental regulation that affect the life of energy companies and of those regulating them in the most significant way. The emphasis of the training is put on the discussion of three specific areas: the promotion and regulation of renewable energies, the operation of emerging greenhouse gas markets and the regulatory tools of controlling local pollutions caused by energy companies.

One of the major challenges energy companies (the most prominent contributors to local, regional and global environmental degradation) face today is related to develop and operate energy facilities in an environmentally sustainable way. The efforts required from the energy sector to meet regulations related to climate change, local environmental clean-up and energy security are tremendous and have far reaching implications for the costs, prices and technological developments on energy markets. These developments shape the future of energy markets and will most probably have lasting impacts on investments, technology choices and the way transmission and distribution networks are operated in the electricity and gas sectors.

These developments also reshape the job of energy regulators. While the authority of implementing environmental regulations remains mostly the job of environmental regulators, energy regulators also have to understand their impacts and the new regulatory challenges they are to face. Energy sector regulators are also expected to be active in designing tariffs, network access related regulations and developing certification regimes for RES producers in order to promote the dispersion of renewable energy technologies.

Venue: February 22-26. 2016, Budapest

For further information visit erranet.org

Day 1: Renewable Energy Regulation: The Policy and Business Context

After introducing the policy and business content of renewable energy policies, the session takes stock of the growing market expansion opportunities of RES in ERRA member countries focusing on national RES policies, support systems and levels, the general investment and economic environment and of the appropriate regulatory background.

Renewable energy support policies in the ERRA countries. The day concludes with a presentation on the techno-economic background of RES technologies.

Day 2: Technology and Grid Integration

The day starts with a general presentation on regulatory tasks of RES-E grid integration related regulatory tasks followed by case studies on how to integrate massive intermittent RES into energy networks and RES-E queue management. The day features a group simulation exercise on creating the regulatory environment for wind development in “Wonderland”.

Day 3: Support Scheme Design

The program continues with presenting regulatory tools to support renewable energy and provides an evaluation of different policy schemes. The introductory presentation is backed by case studies on feed-in tariffs and green bonuses/green certificates. The day is closed with a group exercise on designing feed-in tariff.

Day 4: Other In-Depth Regulatory Issues

The session starts with outlining RES-E licensing activities and regulatory monitoring of RES-E performance. A presentation on regulatory failures in the RES-E sector (Investment bubbles and regulatory responses) makes the session more practical and hands-on.

Day 5: A Need for Reforming Electricity Grid Regulation

The session provides an overview of possible ways how to re-thinking grid regulation and gives insight into some innovative investments into distribution networks that assist to utilize existing assets in times of high RES penetration.