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DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

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Working Party No. 2 on Competition and Regulation

ELECTRICITY: RENEWABLES AND SMART GRIDS

-- Hungary --

15 February 2010

The attached document is submitted to Working Party No. 2 of the Competition Committee FOR DISCUSSION under item III of the agenda at its forthcoming meeting on 15 February 2010.

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1. 1The scope of this contribution is limited to renewable electricity since Hungary hardly has experience so far regarding smart grids.

1. Wholesale pricing

Prices offered for electricity generated by renewables are sometimes regulated. How often are the prices regulated? Are there different prices for small-scale production and large-scale production? How are the prices set for small-scale and large-scale producers? How large is the subsidy for different forms of renewable production, if there is any subsidy? Are there any competitive distortions that have been alleged as a result of renewable pricing policies? How common is flexible, time-of-day pricing to electricity customers? How do you induce customers to use more expensive energy sources? How do you change consumer incentives? Can types of meters and access to data change incentives?

2. Hungary has been promoting renewable based electricity (RES-E) investments and generation efficiency (combined heat and power generation (CHP)) since 2003 via a feed-in tariff scheme. The system is called Mandatory Power Purchase regime (MPP), which now basically consists of a guaranteed feed-in-tariff paid by the Transmission System Operator (TSO) to the eligible power plants for a certain period of time to cover the costs of their investments and an allocation mechanism, which distributes the MPP electricity among all consumers and fully covers the associated costs of the TSO.

3. The TSO is mandated to purchase any electricity produced by the eligible plants. The MPP encompasses not only renewable plants but waste combustion plants and cogeneration plants (CHPs) as well. The reasoning behind the participation of CHPs is based on their high efficiency rates. Those CHP plants that start commercial operation before 31 December 2010 are eligible to participate in the MPP regime.

4. The feed-in tariff is determined by a government decree, however the maximum price is set by the Electricity Act. The tariff is different according to production scale, resource type and time-of-day – however the differentiation is not really effective. The decree defines three time-zones: peak, off-peak and "deep off-peak". For the new power plants generating renewable electricity there are four price categories:

(a) All plants smaller than 20 MW and using renewable resources

- except:
  - wind energy
  - solar energy
  - water energy over 5 MW

(b) Solar energy below 20 MW (no time-zones, but the average price is about the same as in category (a))

(c) All plants between 20 – 50 MW and using renewable resources

- also
  - water energy between 5 – 20 MW

– plants with older parts (i.e. already running before starting to produce electricity from renewable resources)

- except wind energy

(d) New wind energy capacities (below 50 MW) can be attained on tenders, the price is based on the bids on the tenders

5. The TSO allocates the electricity traders, universal service providers and electricity importers the MPP electricity, proportionate to their traded quantities (which will be passed on to the final consumers). They pay for the MPP electricity via a separate fee (called MPP fee), while the consumers' payment for the MPP electricity is included in the retail price. Thus, there is neither need nor scope for consumer incentives to facilitate RES-E consumption because consumers do not have choice as MPP electricity – including RES-E production – is allocated by the TSO.

6. A renewable or a waste combustion plant or a CHP is eligible for the MPP tariff when the regulator accepts its request based on the fulfilment of a few conditions regarding efficiency and the utilization of the by-product heat (CHPs are encouraged to sell the heat for district heating). Then it determines the amount of electricity eligible for MPP and computes the time needed for the return of investment. So the participation in the MPP regime is limited in time.

7. The subsidy (a transfer from consumers to generators through the TSO) provided by the MPP regime is the difference between the feed-in tariff and the market price. Thus, the size of the subsidy also depends on the production scale and the resource type. Moreover, it is different in time (apart from the time-zones), as the guaranteed feed-in tariff does not reflect market price changes. For example, during the current recession demand and accordingly market prices fell significantly but the guaranteed price remained unchanged, so the size of the subsidy increased.[1] The total subsidy paid for MPP electricity in the first half of 2009 was app. 43 billion HUF (app. 148 million euros).[2]

8. As mentioned before, the MPP regime subsidizes not only real renewables but also certain CHPs which use natural gas as their primary energy source. This implies a two-fold problem. First, the guaranteed off-take obligation at higher prices withdraws these CHPs from the electricity wholesale market resulting in fewer market participants and in less competition. Second, the high volumes sold by these CHPs in the MPP regime at higher than market prices inevitably drive up electricity retail prices. The share of CHPs among power producers eligible for MPP accounted for around 70% in 2009, while in the same year the volume of electricity generated in the MPP regime altogether reached as much as 20% of Hungary's total production. This means that around 15% of the domestic electricity generation is produced by CHPs that are not operating under real market conditions. According to the view of some energy market experts the operation of many CHPs– mainly the larger ones – currently subsidized via the MPP regime could be viable by competing on the electricity market. If this was the case then one could not exclude the possibility that the participation of competitive CHPs in the MPP regime might constitute illegal state-aid under EC law.

9. The share of the different energy sources subsidized by the MPP regime is shown in the following figure.

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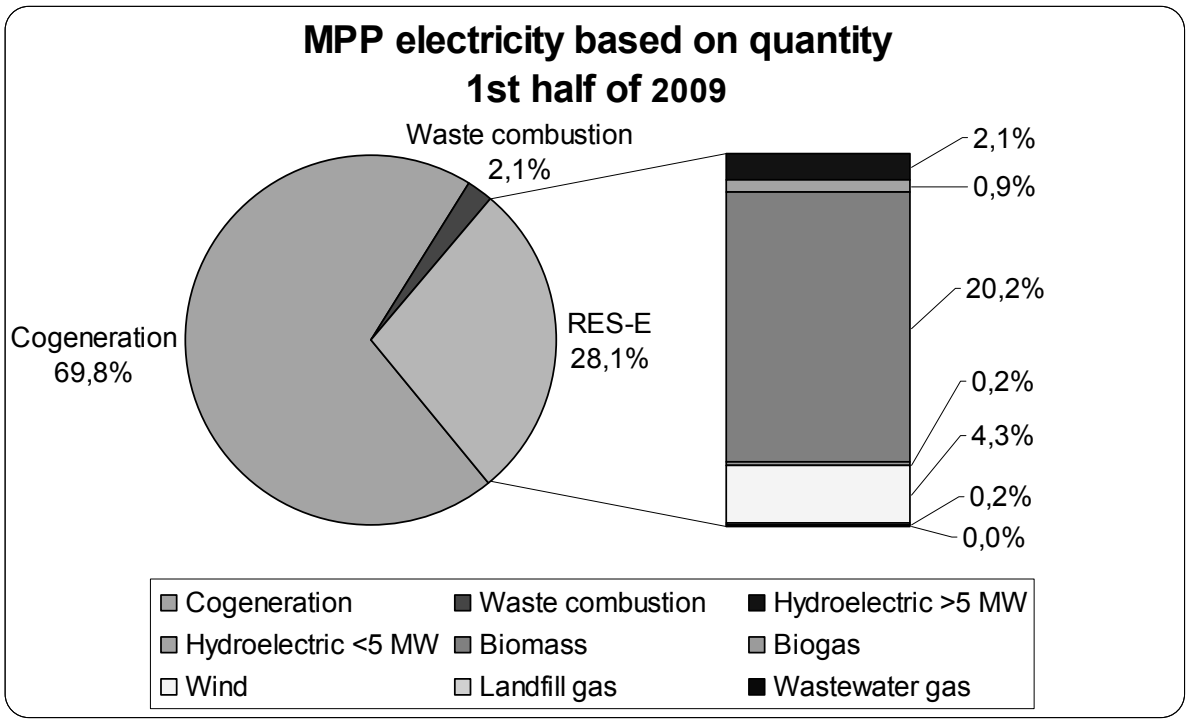
1 In the first half of 2009 the average subsidy was 11.87 HUF/kWh compared to the 10.59 HUF/kWh in the first half of 2008, which is a 12% increase. However, because of the depreciation of the HUF during the crisis it was 4,09 and 4,17 eurocents respectively.

2 More details can be found in the Appendix.



2. Investment

If wholesale prices for renewable energy yield an excessively high return on investment, they may lead to excessive investment in renewable technologies generally or distributed energy in particular. Is there any evidence of excessive investment and distortion in production arising from such investment? How do you encourage investment in renewable energy due to lack of assurance of transmission and, similarly, encourage investment in transmission absent renewable generators? Is investment to extend or build transmission mandated? Who pays for new transmission?

10. Feed-in tariffs for renewable energy do yield an extraordinary high return on investment for certain technologies (e.g. wind), whereas for other technologies investments do not pay back with the current feed-in level (e.g. geothermal). However, if excessive investment is defined by Hungary's commitment (as an EU member state) to raise the RES proportion to 13% by 2020 then it is far from excessive since in 2007 renewables (mainly biomass) accounted for 6% of total consumption.

11. Because of the apparent high intention for investments, there was some fear of excessive wind generation that could cause system stability problems, thus balancing market problems. The regulator tackled this fear by implementing a quota system maximizing (in 330 MW – app. 3,4% of Hungary's total production capacity) the wind generation capacity eligible for the MPP regime. This system triggered substantial speculation on the tender allocating the quotas, so in the end a significant part of the quotas was purchased by agents who did not intend to build any wind generation and planned to sell their quotas later.

12. The Hungarian Energy Office has carried out detailed studies and extended the wind generation quota with another 410 MW (app. 4,2% of Hungary's total production capacity). This will be allocated on a tender too.

13. Currently Hungary's main source of renewable energy is biomass: 70 percent of all renewables. The significant share of biomass is due to the fact that it is the cheapest renewable technology in Hungary,

and also to the dominant role of co-firing power plants (which operated on coal basis before). There are some studies showing that this might be excessive compared to sustainable input availability.

14. However, regarding geothermal energy investments (the geographical characteristics of Hungary are exceptionally favourable for this type of energy) it is quite the opposite. The viable technology using geothermal energy is cogeneration, so these investments would need to access district heating markets. However, each of these local markets has a single district heating provider (owned by the local government), which usually enters in long term purchasing agreements to cover all of its demand, which constitutes a significant obstacle for geothermal investors planning to enter the market. In result, although, geothermal energy has economic potential, there has not been significant investments taken place so far.

3. Output plans and minimum purchases

What are the current output requirements for renewable energy sources? What sources are classified as "renewable". Do government or operators have plans to increase renewable generation in the future? If so, what are these plans? Are there minimum purchase/output requirements for renewables? How are these put into operation? Who has the responsibility for adopting renewable sources (the system operator, independent distribution companies, etc.)? How do minimum purchase plans tie into transmission capacity? Is there a mechanism for trading renewable energy credits? If so, how does that function?

15. In Hungary the Electricity Act classifies all non-fossil and non-nuclear based energy as "renewable". Thus, the definition of "renewable" encompasses solar, wind, geothermal, hydro, biomass and any kind of biogas based energy. Nevertheless, as mentioned before, the MPP regime subsidizes not only renewable electricity production but cogeneration as well.

16. Since 2008 eligible power plants have been required to provide a schedule a month ahead (which can be altered one day earlier). There is a penalty fee if a plant deviated from its schedule. The allowed deviation from the schedule is set by the government decree (5% for all eligible plants except wind, for which it is 30%).

17. The government has to increase RES, according to the EC commitment. There are several forms of promotion of RES besides MPP, like tax exemption for biofuels, investment subsidies from EU funds. However, besides the MPP regime there is no scope for renewable energy credits.

18. MPP is different in the case of household power plants where not the TSO but the universal service providers are obliged to take off the produced electricity. Household power plants are mainly (99%) based on solar energy. Their number is increasing, however their share in the total electricity production is still negligible.

4. Connection to the grid

Are connection rules for renewable electricity suppliers clear and transparent? How long do renewable generators need to wait to get connected? On what basis are connection costs calculated and allocated? Do incumbent generators have incentives to limit transmission capacity of renewable generators? If so, how can these incentives be changed?

19. The Distribution Grid Code contains the detailed technical rules of the connection of renewables and household power plants to the distribution network (mainly these power plants connected to the distribution network). The Code is publicly available on the websites of the distribution companies. According to the legislation these power plants have to pay 50% of the connection fee, the remaining part is paid by the distribution company.

5. Dispatch in response to demand

A commonly cited challenge with renewable generation is that production often depends on external forces that cannot be controlled by the operator. For example, wind power depends on the presence of appropriate atmospheric conditions. What efforts are being made to increase the ability to dispatch renewable energy resources in response to demand? How common are contracts that allow the electricity network operator to temporarily "shut down" small-scale or large-scale electricity users at peak periods, helping it to adapt to the potentially limited ability of renewable generation to provide electricity? How common is flexible pricing that can change on a daily and hourly basis?

20. Currently there are no incentives to dispatch eligible plants in response to demand because the feed-in tariffs are always higher than the balancing market prices. However, the feed-in tariffs are different according to the time-zones, which is an incentive, although not that flexible. The TSO and the Hungarian Energy Office try to find new ways to include MPP plants in the balancing market. The TSO will be empowered to shut down wind energy capacities if needed. The compensation rules are not fully elaborated yet.

21. Regulations enable users to offer balancing energy to the market but it is rare in practice. Probably the rules of participation in the demand side management are too complex for the industrial customers, the technical conditions (capacity, gradient, duration, etc.) can be fulfilled only by a few of them; moreover the regulator feels that the customers lack information and interest in participation.

6. Vertical and horizontal issues

Do generating companies own both renewable and non-renewable plants? Can such generators create bundles of renewable and non-renewable plant output? Are some electricity companies able to exercise monopsony power in the purchase of renewable electricity? Can such purchasers foreclose new producers to the benefit of their own generation?

22. Some smaller scale acquisitions have taken place in the industry: conventional incumbents (earlier not involved in RES-E production in Hungary) have acquired some previously independent renewable based capacities. Nevertheless, it is not clear if these developments are indicative as for future market structure (e.g. whether RES-E production will represent a sort of new entry or rather it will be present through the diversified portfolio of conventional incumbents. These acquisitions were under the merger control threshold therefore the GVH did not deal with them in detail.

APPENDIX

MPP electricity and subsidies in the first half of 2008 and first half of 2009 in HUF

	Purchased electricity			Subsidy			Average subsidy	
	2008/I	*2009/I*	*Change*	*2008/I*	*2009/I*	*Change*	*2008/I*	*2009/I*
	GWh		*%*	*million HUF*		*%*	*HUF/kWh*	
Renewables total	808,2	1 013	25%	8 312	11 474	38%	10,28	11,33
Out of:								
Hydroelectric >5 MW	71	75,4	6%					
Hydroelectric <5 MW	24	33,2	38%	254	380	49%	10,61	11,44
Biomass	608,9	729,9	20%	6 861	8 958	31%	**11,27**	**12,27**
Biogas	9,4	8,9	-6%	102	103	1%	10,81	11,56
Wind	86,7	156,4	80%	1 003	1 926	92%	**11,57**	**12,31**
Landfill gas	7,4	7,6	4%	80	90	13%	10,88	11,83
Wastewater gas	0,9	1,5	65%	11	18	67%	**11,3**	11,43
Waste combustion	15,7	75,1	379%	110	538	390%	7	7,16
Cogeneration	2 264	2 520,30	11%	24 625	30 906	26%	10,88	**12,26**
Total	3 153,70	3 615,30	15%	33 408	42 918	28%	10,59	11,87

*The three largest average subsidies are emphasised

MPP electricity and subsidies in the first half of 2008 and first half of 2009 in Euros

	Purchased electricity			Subsidy			Average subsidy	
	2008/I	*2009/I*	*Change*	*2008/I*	*2009/I*	*Change*	*2008/I*	*2009/I*
	GWh		*%*	*thousand euros*		*%*	*eurocents/kWh*	
Renewables total	808,2	1 013	25%	32 762	39 532	21%	4,05	3,90
Out of:								
Hydroelectric >5 MW	71	75,4	6%					
Hydroelectric <5 MW	24	33,2	38%	1 001	1 309	31%	4,18	3,94
Biomass	608,9	729,9	20%	27 043	30 863	14%	4,44	4,23
Biogas	9,4	8,9	-6%	402	355	-12%	4,26	3,98
Wind	86,7	156,4	80%	3 953	6 636	68%	4,56	4,24
Landfill gas	7,4	7,6	4%	315	310	-2%	4,29	4,08
Wastewater gas	0,9	1,5	65%	43	62	43%	4,45	3,94
Waste combustion	15,7	75,1	379%	434	1 854	328%	2,76	2,47
Cogeneration	2 264	2 520,30	11%	97 060	106 481	10%	4,29	4,22
Total	3 153,70	3 615,30	15%	131 678	147 867	12%	4,17	4,09

* The apparent contradiction between the trends in the figures in HUF and in euro is due to the significant depreciation of the HUF.