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## SLOVENIAN *REALISE FORUM* NATIONAL DESK MEETING **THE PERSPECTIVES OF GENERATING ELECTRICITY FROM WOOD BIOMASS IN SLOVENIA**

*Slovenian Forestry Institute*, Ljubljana, December 22, 2005

On **December 22, 2005** *Slovenian E-Forum* in cooperation with *Slovenian Forestry Institute* organized a **national desk meeting** on the perspectives of generating electricity from the wood biomass in Slovenia.

The event took place at the *Slovenian Forestry Institute* in Ljubljana and was attended by 22 representatives coming from the forestry, the wood processing industry, the forestry and wood processing institutes, the wood stock exchange, the holding of Slovenian electricity producers, the Ministry of the Economy and the wood based CHP generators. The experts' introduction presentations provided an insight into the potential of wood biomass sources and the social impacts of the energy use of wood biomass in Slovenia, the technologies for generating electricity from wood and their environmental characteristics, the legal and policy framework, the feed in tariffs for the support to generating electricity from wood biomass and present economics of investments. In addition, two project studies were presented. Within one and a half hour long dynamic and vivid moderated discussion that followed the introduction, 16 experts presented their views on the issues of present and future support mechanisms and schemes in order to increase the share of electricity generated from the wood biomass. Positioning of the interest fronts between two competing industries for wood biomass - namely the wood processing industry and energy industry - provided an opportunity for both, precise definition of the present situation as well as for drafting some future win-win options. At the end of the meeting, the participants proposed a toast to the forthcoming New Year of 2006.

The event was sponsored by the company TE-TO Ljubljana.

### **KEY FINDINGS FROM THE DISCUSSION:**

- 1) The wood is next to the water the most important Slovenian natural resource, also in terms of renewable energy but has been in spite and partially because of sustainable forestry management practice in Slovenia in recent decades neglected as basis for sustainable development. It has been substituted with less sustainable resources due to diverse factors, evidently by the unfair market prices without internalised social and environmental externalities.
- 2) Increased prices of oil in recent period have been stimulating increased demand of wood for energy in the county that is resulting in growing prices. According to the

market simulations however the increase of prices will be counterbalanced with additional supply thus in case of referential minimal oil price around 50 USD/barrel a relative price stability of wood biomass ranging from 8 to 10 Euro cents per cubic meter can be expected. Nevertheless, recent turbulences on the market are not yet offering possibilities for the supply of large amounts of wood biomass for electricity generation based on long-term contracts.

- 3) The above given fact is the main barrier for the first large investment in wood biomass co-firing in Slovenia that is planned at the TE-TO Ljubljana, country's largest combined heat and power CHP. Since the major owner of the facility with 120 MW<sub>e</sub> output is the state, no fast and easy decision can be expected in spite of the project has been well prepared and the test gas proved both technological as well as environmental feasibility of the project. The decision might be influenced by turbulences within the political arena as well as with turbulences resulting from recently initiated privatisation process of the power sector in Slovenia. In addition, some fears might be identified since long-term contracts for huge amount of wood biomass for a large co-firing unit can negatively influence future options of smaller decentralised wood biomass based CHP units that have in theory better potential for the penetration of advanced wood to electricity technologies.
- 4) Restrained accessibility to wood due to geographical characteristics of terrain and sustainable forestry practices is however at present hindering larger exploitation of wood biomass energy stocks that have been increasing in the last decades. Some 50 % of the annual increase of wood stock remains thus unexploited and in spite of subsidized ongoing activities to prevent re-forestation of abandoned agricultural land, the forests in Slovenia are expanding.
- 5) Economically viable energy wood is at large scale used for heating by the wood processing industry and by households. Some 30% of the households in Slovenia are using wood as the only or primary source for space heating. Most of the wood biomass for heating in household sector is however used in traditional, low efficient boilers, stoves and ovens that cannot meet EU pollution standards. Thus in theory there is considerable reserve of wood biomass that can be exploited if the users would be forced (by implementation of pollution standards) and stimulated (by subsidies, soft loans etc.) to switch to modern, far more efficient (and less polluting) heat from wood technologies. For more than a decade in Slovenia, the state subsidies for stimulation to switch to efficient energy from wood appliances have been in place, however on quite limited scale. Since the use of wood biomass for heating is in large overlapping with the energy supply of low income, rural and semi-rural households with limited integration to the modern market economy, any forced implementation of pollution standards without large scale subsidies and other support measures would face social and political resistance extensively.
- 6) Most of the wood industry is using wood residuals from wood processing as fuel for producing steam and heat for its own industrial processes and space heating. Most of the energy generating capacities in industry are outdated and need to be modernised or replaced in order to meet EU pollution standards. The industry is however lacking the capacities to switch to the modern CHP installations that demand substantial capital investments. Present feed in tariff at the level of 7 Euro cents per kWh is not stimulating new investments in a wood biomass based CHP.

- 7) No general agreement, however, has been reached on the issue of attractiveness of the present feed in tariff for wood biomass generated electrical power since a case study based calculation for wood biomass based district heating CHP is providing arguments that - at least on good locations and not taking into account the costs of grid connection - new investments in CHP can generate profit and demonstrate even under conservative presumptions far better economic parameters (rate of return, pay back period) than non-CHP district heating investments. It might also be that the owners and the managers of wood processing industry are too focused to explore economic opportunities elsewhere and are not aware of the economic opportunities of generating electric power from wood biomass or are not willing to deal with hardly predictable transaction costs of those kinds of investments like power generation permits and access to the grid.
- 8) Both the price of wood biomass on the domestic market as well as the feed in tariff for electricity generated from the wood biomass in Slovenia are far lower than the prices in neighbouring Austria and Italy, respectively the feed in tariff for electricity in Austria. Slovenian wood biomass stock exchange is demonstrating low liquidity. In 2004 only some 3000 m<sup>3</sup> of wood biomass were traded on the stock exchange. Large amounts of wood biomass are traded directly to Italy and to some less extent to Austria. After EU accession no evidences of export are needed thus, it is hard to estimate the volume and assortments of the exported wood biomass.
- 9) Aspirations for an increased generation of electricity from wood biomass as one of the important measures to meet national RES-E targets as designed in draft versions of the National Energy Programme in 2003 provoked a part of wood processing industry to joint and organised opposition in order to increase the volume of wood biomass, at very first from residuals of wood processing industry. The industry is arguing that giving priority to energy use of the wood it is not in accordance to the principle of sustainable use of resources thus the national policy should shift from supporting the energy use of wood residuals to supporting the expansion of wood processing and wood based products industry, respectively to increased use of wood products as one of the major strategic sustainable development objectives and development opportunities of Slovenia. According to the claims of the representatives of the industry, the increase of the share of RES-E should be achieved by the process of restructuring from energy intensive industries that are electricity intensive toward less energy/electricity intensive industries with better sustainability performances like wood industry and to promotion of wood products in general. The industry is not seeing opportunities in generating energy/electricity from wood biomass, at least not from wood industrial residuals. Thus in the field of energy policy next to the increased energy efficiency and energy conservation measures the support should be given to other RES and to the increased production of “energy” wood biomass from the forests on the one side and to the increased collection and energy utilisation of the wood products on the other. Present feed in the scheme is however not reflecting the important differences in sustainability of energy use of different assortments of wood biomass.
- 10) Contrary to the dominant positioning of wood processing industry to energy/electricity generation from wood residuals the experts for RES-E, trades with wood biomass and generators of wood biomass based electricity are opposing any earmarked use of the

wood residuals. According to their argumentation, the added value in the Slovenian wood processing industry is low; its environmental performances might be in several cases put into question and due to its low added value and large labour intensity, its survival chances are threatened by globalisation. Direct (heat and electricity generation) or indirect (wood chips and pellets production) might have better added value that is generated from low priced wood non-energy products. In their opinion it is unique and ridiculous that Resolution on National Energy Programme is giving precise definition of sorts of forestry and wood residual assortments that are allowed for energy generation. Because of this Slovenia is at risk that a part of wood residuals will be exported and used for energy/electricity generation in neighbouring EU countries.

- 11) Experts for environmental issues of the wood biomass based energy process pointed out that the national waste policy and legislation are not in accordance with corresponding EU directives for the use of (wood) wastes. This is hindering the use of considerable amounts of wood for energy generation. In order to stream the use of different categories of wood wastes to appropriate processes respectively technologies of energy generation, the system of evidences, monitoring and control of wood wastes needs to be significantly improved.
- 12) Current feed in the scheme for RES-E in Slovenia is currently investigated by DG Competition under suspicion of non-allowed state aids. The Ministry of the Economy however believes that additional explanations of the scheme will deny the suspicion, however it cannot exclude the option that the scheme will be under demand of substantial changes in design. At present, all modifications of the scheme need to be reported to and approved by DG Competition. This however does not apply to the changes of the tariffs. Next to the increase of the feed in tariff for solid biomass, the Ministry is also considering introducing differentiated tariff on the basic of the origin of the biomass. However, this is not possible until the current investigation on the state aids is not concluded. In addition, this would need closer cooperation with the Ministry of Agriculture, Forestry and Food as well as some basic consensus among actually opposing stakeholders in the field.
- 13) There is an evident lack of a consensus building and new win-win solution design capacities. At the level of the actors and the dynamics of their interplay, this might be one of the largest obstacles for future development of the wood to electricity generating capacities. Nevertheless, at the event the new win-win options have been identified. Wood biomass planting and harvesting out of forestry sector have been found eligible both for subsidies and for meeting Kyoto requirements but their potential has not yet been assessed by a scientific approach.

Recorded by Andrej Klemenc on December 23, 2005