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Intelligent Energy Europe

REALISE FORUM

Ljubljana, May 16th 2006

REPORT: INTERNATIONAL WORKSHOP OF THE REALISE-FORUM PROJECT

**»THE EXPERIENCES WITH FEED IN TARRIFS:
THE LESSONS FROM THE GERMAN AND THE SPANISH MODEL
FOR THE NEW MEMBER STATES«**

Date: 10th to 11th of May 2006
Place: University of Maribor, Faculty of Power Engineering, Computer Engineering and Informatics (Maribor, Slovenia)
In co-cooperation with: 15th International conference Power Engineering
Participation: 58 experts from the field of production of electricity from RES from European Union, Croatia and Bosnia and Herzegovina
Organizer: Slovenski E – forum (SE-F) and the partner organisations of the REALISE Forum project

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Wednesday, 10th of May 2006

OPENING OF THE WORKSHOP

The workshop was opened by **Andrej Hanžič,** the president of SE-F, who stressed that the idea for Intelligent Energy Europe supported project REALISE Forum was born three years ago on the international conference on energy markets which was organized by SE-F on the occasion of its decennial. On behalf of the organizer of the conference, Andrej Hanžič, M. Sc., wished the participants successful work and a nice stay in Maribor.

Participants were addressed by **Janez Lipec,** the deputy director of TE TO Ljubljana, the general sponsor of the workshop. He stressed the efforts of his company for the improvement of environmental parameters in the production of energy and thanked SE-F for a fruitful cooperation in the field of promoting "green energy" and awareness raising activities of youth about energy and environment.

PRESENTATION OF THE REALISE FORUM PROJECT

In the first session titled **"The General Framework",** the coordinator of the project **Lutz Mez**, Environmental Policy Research Centre, Freie Universität Berlin presented goals, activities and partners of the project. The aim of REALISE-Forum is an expert dialogue about experiences with different measures for stimulating production of the electricity from RES among different stakeholders in different states. Second aim is search for possibilities for coordination and harmonization of policy instruments for stimulating production of the electricity from RES.

In his presentation **Interaction of Green Certificates with Green Pricing and Emission Trading Hans Joachim Ziesing**- the chairman of the REALISE Forum Steering Group - from German Institute for Economic Research (DIW), pointed out that green certificates and CO_2 emission quotas aim to mitigate the impact of electricity production on climate change. But in today's circumstances the production of electricity from RES is usually not competitive to other measures for reduction of CO_2 emissions. Member states of the European Union (EU) have distributed emission permits very generously, because they wanted to protect the competitive position of their industry. The correlation between green certificates and emission trading is weak and indirect. But it can be enhanced if demand for reduction of greenhouse gases will go up. As a consequence, costs for new capacities would decrease and companies would try to fulfil their obligations for decreasing CO_2 emissions with the use of RES-E certificates.

Reinhard Haas, Technical University Vienna, in his presentation **Optimal Promotion Strategies for Increasing the Share of RES-E – Lessons from the OPTRES Project** reminded the ambitious targetof the EU to increase the share of RES-E from 12 % to 22 % in the year 2010. That raises different questions about policy in this field, which tends to be efficient, transparent and compatible with other (environmental) goals: How should be dispersed costs of support of RES-E? Who should gain the most benefits? Should only the most efficient technologies be stimulated or a broad range of technologies? Should the system be unified at the EU level or should take into consideration the differences (positions, interests) among member states? Should the system of RES-E support be compatible with the system of greenhouse gases emissions trade? Should different consumers carry the burden because of the fulfilment of international obligations? Should they be exposed to those burdens at all? So the main issue of RES-E policy is: effective and (financial) efficient stimulation of investors (transaction costs mustn't be high).
There are two different policy strategies: first, how to plan supply approach and second, price oriented approach. In either case they can be voluntary or obligatory, and they can be oriented in broad range of (new) technologies or stimulating the development of existent capacities of RES-E. Quota and certificates systems and feed-in tariff system produce distorted markets and are thus causing transaction costs. Regulators must care for fairness, transparency and control, in a way that is not causing too high transaction costs (which will be passed on to final consumers). We can assume that lower costs will increase acceptability of RES-E in public and vice versa. R. Haas also presented a simulation tool called GREEN X, which was developed at his university. It simulates different policy strategies of promotion of RES-E in dynamic national or international environment. According to this tool the best approach (cost-efficient and stimulating RES-E capacities) is the feed-in tariff system - if planned and managed properly. Other mechanisms of stimulation of RES-E show some serious deficiencies: too small liquidity of markets (especially in smaller states/schemes), short-term planning (GB), mild penalties (GB) or too high profits for certain technologies, especially for wind power plants (BE, SE).

In the beginning of the second session titled **"Diffusion of Feed-In Tariffs" , Maria Rosaria di Nucci** and **Danyel Reiche,** Environmental Policy Research Centre, Free University of Berlin, in their presentation **The diffusion of support schemes for green electricity in the enlarged EU** presented a comprehensive review of instruments of stimulation of RES-E in the EU: feed-in tariffs, green certificates, investment incentives, taxes on energy and CO_2 and fiscal measures. The main reasons for the introduction of the system of quota and certificates (SQC) were illustrated. These are: the preference of the previous EU-Commissioners; a pending lawsuit of the European Court of Justice; the liberal orientation of some national economic policies (esp. UK); the expectation that such a system would soon apply across the EU, so that first-comers would enjoy an advantage and avoid costly adjustments to European legislation; the fact that quota & obligations were considered

to be more compatible with market criteria and liberalisation of the energy markets and expected to be more cost-effective. They presented in detail British, Italian, Swedish, Belgian (Flemish) SQC.
As main reasons for feed-in tariffs and premiums systems (FIT/FIP system) they indicated: development of those systems in DK, D and ESP (pioneers in new RES-E technology); not successful attempt in the year 2001 to declare the German system as discordant with the rules of competition and lack of definition of the instruments in the EU Renewables Directive. They emphasized the impact of different factors on support system choice: natural conditions, political and economical environment, technological, development policies and cognitive frameworks of efforts to increase the portion of RES-E in different states. Although natural conditions are important, they can not explain the differences in RES-E support policies. They can be explained only with analysis of all factors and their interactions. The fact that today the best results are achieved by countries with FIT/FIP systems does not prove some sort of natural superiority of this system. It only shows that it might be the best under certain circumstances.

In the contribution titled **The Renewable Energy Sources Act & The Feed-In Cooperation Sylvia Hemke** from the German Ministry of Environment, Nature Protection and Nuclear Safety presented the characteristics of electricity supply in Germany, goals of RES-E and the law (legal regulation) on RES. This law gives priority access to the grid for RES-E, it binds grid operators to purchase RES-E and ensures feed-in tariffs. She emphasized the need for the differentiation of tariffs for different sources (technologies) with different costs and for digressions which stimulate innovations and cost reduction. On the basis of studies and calculations Germany tried to accomplish optimal profitability. In the years 1999–2006 Germany increased share of RES-E from 4.6 % to around 10 % and created 170.000 new jobs. In the year 2005 succeeded to invest € 8.3 billion and to reduce CO2 emissions for 38 million tons while at the same time price for electricity went up only for 3 %. She also presented the international cooperation initiative between Germany and Spain.

Jan Vorrink , CertiQ, presented **How to Design a Feed in without Market Distortions.** On the beginning he presented his organization CERTIQ and the system of certification, which suppliers of electricity use for demonstration of adequate share of RES-E and for trading in the framework of the system RECS. The company is daughter of TenneT, Dutch operator of transmission grid, and is partially in the hand of the Dutch finance ministry. Its purpose is implementation of certain laws: issuing of certificates (for RES-E and for cogeneration) for trading in RECS system and control over those certificates. Then he presented in detail the system of e-certification which is based on attestation (in the Netherlands this system is obligatory). He also presented the system RECS which is voluntary and enables international trading with certificates. Mr. Vorrink emphasized the significance of control over this trading to prevent abuses and to enable compatibility of both systems. In his conclusion he presented systems of RES-E supports in the Netherlands. This system enables exemption of paying environmental tax for consumers and it is believed that it will gradually substitute investment subsidies. This would solve some problems with social acceptability that stems from inappropriate allocation of resources and negligence for consumer's preferences.

Atle Middtun, BI-Norwegian School of Management presented **Feed in, Certificates or investment subsidies: What games are the actors playing?** He asked whether different types of RES-E support instruments can coexist even when they appear to be exclusive. His starting point was two IEA scenarios of transformation of electricity supply: first, main resources are still fossil and nuclear, and second, main resources are RES and hydrogen ("green" scenario).

Those scenarios are equal terms of costs. Derived from the theory of evolutional cycles and from dynamic and static phase of innovatory cycle he stressed out that different technologies in different stages of development need different environment and support instruments. This is particularly true for very heterogeneous technologies of RES-E. He indicated the Airbus as an example of successful project at European level. With this project the EU overtook the leading role of the USA in civil aviation. Then he rhetorically asked which projects will be so successful in the field of RES-E when we still have to deal with great number of national policies and governments favour their own national champions. He called for better coordinated European approach but not harmonized with single (market) rules (because technologies are in different stages of development). He substantiated his statement with the advantages of international division of labour and free market for all participants in the market (here he referred to David Ricardo, English political economist from 19th century). He however stressed out the fundamental differences between the economy in 19th century and today. Today there are more actors and interactions among them, and innovation processes are more complex. Innovative approaches are needed for coalition building among heterogeneous actors and, consequently, innovative potentials to develop.

In the last presentation of the first day titled **Opportunities for Small RES-E Producers on the Market**, **Dejan Paravan** from IG – Electricity Sells Ltd., spoke about advantages of pooling of small RES-E producers. The organizer of the pool is contracting different small producers of "green electricity" but it also assures management of the risks related to prompt supply of contracted deliveries of electricity to the final customers as well as deliveries of requested system services for different products ("base load", "peak load", "peak hours", "of peak hours") Due to growing electricity prices, RES-E producers might prefer premiums to feed-in tariffs and are interested in direct selling on the market. As a rule, however, small and dispersed producers are not capable to contract obligations and risks by themselves. Therefore specialized organizations with adequate knowledge emerge. Company IG took this role and developed the product "purchase of electricity from qualified producers" which is now successfully being sold in Slovenia and abroad.

Presentations were followed by lively discussion by Lutz Mez, Maria Rosaria Di Nucci, Marten Arentsen, Jos Vorrink, Atle Middtun, Reinhard Haas, Daniel Reiche, Mischa Bechberger, Andrej Klemenc and others.

At the end of the day participants had dinner and wine tasting in wine cellar of company VINAG. Sponsors of this event were the companies IG, d. o. o. and Elektro Ljubljana, d. d.

Thursday, 11th of May 2006

The introduction in the third session titled **"Feed-In Tariffs in the Central Eastern European Countries"** was made by **Mr. Mischa Bechberger,** private consultant from Barcelona. He presented in his paper **Diffusion of the Spanish Support Scheme to the Czech Republic** characteristics of electricity sector and development of RES-E policy in the Czech Republic. His main topics were national and international obligations, former RES-E support schemes, policy process of current policy, criteria for tariffs and premiums, level of the tariff and "green bonuses". He also pointed out the main differences with Spanish RES-E support scheme and expected trends. He emphasized that the scheme in the Czech Republic is based on the good Spanish experience and adjusted to domestic circumstances rather than on direct cooperation of experts and governmental services of both states. In the Czech Republic biomass is widely used for energy purposes (for heat, electricity and fuels) and thus there is strong competition for this energy source. Therefore, it is not clear yet if there will be new investments in decentralized systems for electricity and heat production from

biomass. In the case of wind energy the best locations for wind power plants are either in densely populated or protected (Natura 2000) areas and thus potentials are available on limited scale (although feed-in tariffs and premiums are favourable). Furthermore, the national monopolistic electricity supplier (CZE) is not in favour of RES-E development, at least not on the basis of decentralised schemes. Another obstacle is abundance of cheap domestic coal to be used for electricity generation.

In the presentation titled **Promotion of RES-E in the new EU Member States – the example of Poland, Artur Wyrwa,** University of Krakow, presented the Polish experience. This country decided to support RES-E by the introduction of a national quotas and green certificates system. In the beginning he presented context and history of RES-E support in the country. Then he focused on the changes occurred after 2001, when the obligatory redemption of RES-E was introduced. In the year 2004 decree on certification of electricity origin came into force, but some difficulties occurred. Rules were vague and thus registers were not clear; penalties for non-compliance were mild and market with certificates did not exist. As a consequence, fundamental changes and completion of the system in 2005 were introduced. It is however too early for evaluation analysis of the recent changes.

The session was followed by round table titled ***Could the Spanish and/or the German system present a model for Europe? Possible paths for a co-ordinated approach***. Introductory contributions were made by **S. Hemke, A. Wyrwa, D. Paravan, M. Bechberger, M. Arentsen** and **H. Šolinc.** In a lively discussion, some experts – at very first the members of Realise Forum - pointed out that there is no ideal RES-E support instrument. Choice should be made with regard to natural potentials and industry structure as well as to political and administrative culture in every country. The Airbus project as a good example for RES-E technology development was put under polemical question mark since RES-E in opinion of some participants presents a paradigm that differs from classical industrial economy of scale and international division of labour. The "Airbus" thus might be a good example for the development pattern of the nuclear fusion technology, but is not in accordance with a paradigm of distributed (RES-E) generation. However in the discussion the participants agreed that the national borders should be become less significant- though not in a way that is denying specificity of each country and which is taking into account the peculiarities of different RES-E technologies, respectively their stage of development.

Final session titled **»The Case of Slovenia«** was devoted to presentation of potentials and policy of RES-E support in Slovenia. In his paper **Hinko Šolinc,** Ministry of the Economy of RS, presented the system of feed-in tariffs for electricity from qualified production in Slovenia that since 1999 gradually improved conditions for RES-E. He pointed out that the Slovenian RES-E support instrument is currently under scrutiny of the European Commission. Because of dominant public ownership of electricity distribution companies in Slovenia, the Commission suspects the feed in tariffs charged from the grid fee of being a not allowed state aid. Government and Ministry of Economy are deliberating the possibility of increasing feed-in tariffs and premiums because higher prices of some sources (e. g. wood biomass) in neighbouring countries are threats to RES-E production in Slovenia. He pointed out the serious problem of rapid growth of electricity consumption exceeding the growth of GDP. Thus the goal of 34.6 % share of RES-E by 2010 will be extremely hard to achieve. Additionally it will be difficult to achieve the goal of decreasing greenhouse gas emissions. The growth of electricity consumption has to be reduced first in order to meet both goals.

Uroš Stritih, Faculty of Mechanical Engineering of the University of Ljubljana in his paper **Technical Possibilities for Increase of RES-E in Slovenia** presented in detail theoretical potentials of all relevant RES for electricity production in Slovenia.

Andreja Urbančič, Energy Efficiency Centre, Jožef Stefan Institute, presented the main obstacles for cogeneration in Slovenia. According to a studym, main obstacles are: high prices of fuels (feed-in tariffs do not adequately reflect prices of gas and biomass); price of CO_2 emission permits; assurance of back up and reactive power as well as doubts about the possibilities consuming the generated heat in a useful way. The Slovenian system can be in general assessed as suitable; however tariffs should be diversified while administrative procedures should be simplified and "one stop shop" practices introduced. It is worrying that the Government has been neglecting for three years the Resolution on National energy program by harshly under-budgeting instruments and measures for support to RES in general.

Andrej Klemenc, Slovenian E-Forum presented the **national activities of REALISE Forum in Slovenia**. He stated that in Slovenia there are dispersed stakeholders which as a rule have conflicting positions about RES projects. Not enough actors take part in the processes of defining social problems and public policies. There is a lack of advocacy of interest in general but especially in consumer, environmental and nature protection organizations and small producers of RES-E. The national activities of REALISE Forum did not overcome these obstacles, but they succeed in initiating a valuable discussion on wood biomass, gas and integrated system of RES. Preliminary findings of questionnaires and interviews show significant discrepancies of short-term interests of NGOs and their weak potentials for development of common views. Therefore they can not take a critical stand on RES policies and projects. It is difficult for them to participate in policy making process. On the other hand, investors and state administration cannot provide adequate communication channels on RES-E projects. Therefore the lack of social capital remains the main obstacle in RES-E development in Slovenia.

Aleš Šaver, in his presentation **Economics of Wood Biomas Electricity Generation in Slovenia** presented first the dynamics of prices of oil as referential energy carrier on the global stock exchanges in recent years. He explained the distribution of support to electricity generation in Slovenia from the grid fee. He stressed that around 75% of the total amount are distributed to low efficiency and uncompetitive coal power plant in Trbovje (TET) under EU provision of allowed support to uncompetitive domestic electricity generation (that however should not exceed 15% of total electricity generation) and to CHP of Ljubljana (TE-TO) while (only) some 25% are distributed to RES-E producers whereas more then 90% is distributed by feed in tariff system to small hydro power plants. He stressed the need for higher feed in tariffs at very first for wood biomass. At present - from the investor perspective - it is hardly possible to generate electricity from wood biomass on a profitable manner. Due to the much higher tariffs paid in Austria (and Germany), the country is at risk to miss the opportunity to increase added value by generating electricity from its most abundant natural resource and by exporting raw biomass to the neighbouring provinces of Austria. In the light of even higher oil prices, considerable amounts of wood biomass from forestry will be economically viable in Slovenia. Thus the increased demand for wood biomass would not lead to a linear increase of its price.

The average technology specific cost of generation of electricity from biogas was presented by **Dušan Jug,** in his contribution under the title **Biogas in Slovenia – A Need for Differentiated Tariff?** Further Mr. Jug presented potential of biogas production in Slovenia as well as operating and planned biogas plants and the ones under construction. He focused on peculiarities of agricultural structure and production in Slovenia that are partially explaining slow dynamics of growth in installed capacities despite quite favourable feed in tariff. In order to increase investment, at very first administrative barriers should be removed and the uncertainties about adjustments of the feed in with inflation rate as well as costs of

certification of RES-E should be abolished. In addition, more differentiated feed in tariff could be – when properly designed – an additional incentive to keep alive a part of agricultural activities in the country that are not capable to cope with the EU competition in producing food. This could also contribute to maintenance of the landscape and improved conditions for agricultural and tourist use of rural spaces.

The director of private Energy Restructuring Agency (APE) **Franko Nemac** in his contribution **Slovene Feed In and the Barriers for Photovoltaic** presented in detail the specific annual electricity "yield" and generation costs of electricity from photovoltaic power generation in Slovenia. His criticism was in particular focused on too low feed in tariff for installations exceeding 36 kW and on time consuming and thus costly administrative procedures for obtaining numerous different permits. In addition the guaranteed purchase for the maximum period of 10 year does not reflect the reality of the stage of development of the photovoltaic where at present the pay back period under normal circumstances exceeds the period of guaranteed purchase.

Peter Kralj, the director of Gejzir Ltd. presented in detail **Potentials and Barriers for the Use of Geothermal Energy in Slovenia**. He stated that the geological conditions has created very favourable situation for the use of geothermal energy in Slovenia, especially in its SE part. Contrary to the potential - that in theory exceeds demand for energy in Slovenia by factor 70 - the authorities have demonstrated few support especially to endeavours of private entrepreneurs in the field. Further he presented legislation from different relevant fields and concluded by illustrating a project proposal of multi-purpose use of geo-thermal energy in Ljutomeru.

The president of the Association of Small HPP owners, **Marko Gospodjinački** at the beginning put forward basic facts on hydro potential in Slovenia and its present exploitation. His contribution, **Small Hydro PP – Early Birds on the Electricity Market** also illustrated past and present obstacles in the development of the first private generators of electric power after nationalisation in post World War II period as well as actual networking of similar association on the EU level. He concluded with a presentation of the challenges for small RES-E on the liberalised electricity market.

Within the final presentation on the workshop, **Andrej Hanžič**, Faculty of Power Engineering, Computer Engineering and Informatics of the University under the title **Wind Energy in Slovenia – a Need for a Fresh Wind?** introduced basic facts on wind potential in Slovenia and pointed up the dilemma of balancing nature protection with the benefits of wind exploitation in a country characterised by a large but fragile biodiversity.

Author: **Andrej Klemenc**

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