

REFUND + project

Minutes from Regional Conference in Warsaw, Poland 13/03/09

List of participants:

No.	Name	Organisation
1	Joanna Wróbel	The Polish Chamber of Biomass
2	Iwona Gawłowska	Ministry of Economy
3	Uros Radovic	The Energy Market Agency
4	Cwik Michał	The Polish Economic Chamber of Renewable Energy
5	Stachowiak Małgorzata	Energy Regulatory Office
6	Gogacz Iwona	The Energy Market Agency
7	Szydlik Ewa	Energy Institute
8	Hanna Bartosiewicz – Burczy	Energy Institute
9	Grzegorz Kunikowski	Institute for Fuels and Renewable Energy
10	Stanisław Gołębiowski	Institute for Fuels and Renewable Energy
11	Aleksandra Filip	Institute for Fuels and Renewable Energy

Participants from project team:

No.	Name	Organisation
1.	Frederic Tuille	Observ'ER
2.	Łukasz Kowalski	Institute for Fuels and Renewable Energy
3.	Lekavicius Vidas	Lithuanian Energy Institute

Agenda

10:00-10:15	Registration
10:15-10:20	Welcome, Hanna Bartosiewicz – Burczy
10:20-11:00	Project presentation & Economic cross country results, Frederic Tuille
11:00-11:40	Qualitative cross country analysis. Conclusions & recommendations, Frederic Tuille
11:40-12:00	Coffee break
12:00-12:40	Results of modelling of direct tax measures for investments into RES heating systems in private households in Lithuania, Vidas Lekavicius
12:40-13:20	Results of modelling of direct tax measures for investments into RES heating systems in private households in Poland, Łukasz Kowalski
13:20-14:00	Discussions
14:00-15:00	Lunch

Welcome

Hanna Bartosiewicz- Burczy (HBB), member of the REFUND+ Advisory Committee welcomed the participants and introduced the purpose of the session. She spoke of the importance of the RES heat market and the REFUND+ project for UE countries. She also introduced all the session's speakers.

1. Introduction to the project and presentation of results from economic cross country analysis

(see ppt Cross country economic analysis)

Frederic Tuille (FT) presented the project's background, objectives and expected results, as well as the project team. He mentioned that 1/3 of the energy consumed in the EU is heat oriented and that a lot of this heat is consumed for space and water heating in households. He briefly described the different measures studied in the research.

He gave a comparative analysis of the tax measures implemented in analyzed countries. He explained that final consumers do not always get higher benefit in cases when their investments are higher because of the determined cost recovering ceilings. Then he explained the analysis that was made of from the five countries' experiences on direct fiscal measures. FT presented Austrian's market evolution curve and explained that although tax allowance was implemented in 1979, solar market had started to grow until 1990 when regional subsidies were introduced. The growth of Belgian market was quite low until tax reduction implementation in 2003. After implementation of this tax, along with a combination of regional subsidies, market evolution got a stronger positive trend compared with market growth until 2003. The impact of the Belgium tax reduction was medium on solar thermal and low on biomass appliances and ground heat pumps. Whereas the Austrian tax allowance and the Portuguese tax reduction did not have any impact on the market, the French tax credit importantly spurred the development of the solar thermal, the biomass and ground heat pumps appliances. Italy implemented a successful tax reduction for solar thermal and wood appliances to a lesser extent. At the end of presentation FT mentioned the failure factors: tax measure is not the main policy (it is an additional promotional tool), financial support is low, it works even worse when measure is complex.

Uros Radovic (UR) wanted to know, if graphs for solar collector in France are presenting the annual market or the total capacity installed. He also wanted to know the impact that tax measures have on all the RES markets in long period of time. FT answered that the figures for Solar thermal are only focused on the annual market of individual applications. Concerning the tax measure impact in long term, since the beginning of its implementation in 2005 the tax credit has really initiated a new growth trend in each RES sectors targeted. Moreover the sales growths in solar, wood application and heat pumps were also combined with improvement of the efficiency level of the material.

2. Presentation of qualitative cross country analysis

(see ppt Cross country qualitative analysis)

During his second presentation, FT identified 3 similar profiles of investors and consumers (ecologist, cautious and technoDYI) that had bought the appliances and briefly gave their characteristics. He mentioned that not all profiles are found in all 5 analyzed countries. For example, technoDYI are found only in Belgium, France and Portugal. These analyses provide information on why people invest in RES equipment, and ecological issues are not the only problems concerning different consumers. After the introduction of consumer profiles, FT's presentation included an overview of the role played by the fiscal measure in each of the countries:

- Triggering role – it means that consumer is triggered to make this investment because there is such a tax measure.
- Facilitator or maximizator role – means that consumers were thinking about such an investment and thanks to this measure they can make the investment earlier or they can make a more important investment.
- Good surprise – consumer knows about such a tax measure only during purchasing time, but as it was explained, such a role doesn't stimulate investments.

All three roles were only identified in France and Belgium. In contrast, in Austria and Portugal subsidies were actually not really much used, so tax measures never play a trigger role.

After presentation of the role played by the fiscal measure, failure (economic factors, communication with consumers and RES target) and success factors were identified and commented. At the end of presentation FT gave recommendations for the system's improvement.

3. Conclusion and recommendations

see ppt Conclusions and recommendations

FT presented operational recommendations directed to policy makers that would intend to set up a direct fiscal measure in their country. FT presented the steps of tax measure policy. Later FT explained the characteristics for good RES support policy. He mentioned that the measure should be as simple as possible; it should allow people an easy calculation of how they benefit from this measure. If a country decides to support different aims (for example energy efficiency and RES), the support ceiling should be quite high to enable people to do both investments. The scheme shouldn't discriminate different technologies. The measure should be based on significant financial support and this support could be based on levelized costs. It would be more useful if financial support could cover both equipment and installation costs (for example in France only material cost is covered).

UR wanted to know the way how to compare real life cost to the theoretical model. FT answered by telling that we used a tool based on data about investment cost, O& M expenditures and technology life time which allows to simulate the evolution of the energy production cost in relation with a load factor. Of course this tool is just a

simplified approach of the global cost matter but it is a quite reliable way to identify the competitiveness level of each technology (including the standard energy applications) and to see the impact of the financial support on it.

4. Presentation of the results of simulation for Lithuania

(see ppt Results of modelling of direct tax measures for investments into RES heating systems in private households in Lithuania)

VL presented the results of the MESSAGE simulation obtained from the consequences of introducing a tax measure for Lithuania. At the beginning of his intervention VL distinguished the factors having an impact on the use of various heating appliances: economic attractiveness, comfort level, impact on environment, reliability of fuel supply.

He said that this research was mainly based on economic attractiveness because Lithuanian people do not agree on paying more for energy independently if it's RES generated or not. He pointed out the specific situation of the country in which wood energy already represents ~70% for heating purposes in individual households. Then VL added that Lithuania has limited wood resources that are used not only in the household sector. Wood consumption is growing in the district heating sector. He explained that there are some boilers that can use either coal or biomass. In the model, these don't get support, they are called "solid fuel boilers". Other boilers which are only to be used with biomass are called "RES boilers". VL noticed that although investment costs in Lithuania varied when compared to Western European countries depending on technology employed, these costs are more or less similar between countries.

Because heat demand changes during a year and a month, depending on outside air temperature, in Lithuanian analyses they used for space heating T_{max} equal to 2175 h (this is Kaunas region data) and T_{max} equal to 524 h for solar collectors. T_{max} shows how much the selected technology should work at the highest capacity during the year, in order to produce all energy required. VL in his presentation gave comparison of heat production costs for existing boilers and the heating systems that could replace existing ones. This comparison was made for different house sizes and types of existing technology. Speaker mentioned that in general people will not choose to heat their houses with pellet boiler or heat pumps without the support, because the production costs are too high.

Later, similarly to heating cost, VL presented comparison of water heating costs using different technologies without support schemes. It was clear that the cheapest way to heat water is using existing boilers whereas water heating with solar collectors can reach 43.9 euro cents per kWh. This difference occurs because of a short utilization time of solar collectors. Nevertheless it is not always convenient to use existing boilers for water heating during summer period. Therefore people use electric water heaters that are cheaper in comparison with solar collectors. In the study 72 cases were analyzed. The difference between them lies on fuel price, demand, discount rate, tax deduction and deduction rate. VL showed several slides on differences in fuel balances, installed capacities when support scheme is used and when it is not used. When there wouldn't be any support to RES technologies, heat production would mainly come from "solid fuel boilers". When support scheme came to place, the penetration level of "RES boilers" both in rural and urban areas would be much higher. VL showed that coal consumption would have reduced and it would be substituted by wood in the case where the support scheme would be implemented. However total increase of wood consumption in calculated cases reached only 6% because of current high level of wood use (70%) and that there is a possibility to use wood by "solid fuel boilers" that are not under support schemes. AG stressed that the effect will be also on CO2 emissions. Without support scheme CO2 emissions from household heating sector would grow, but after implementation of support they would have the opposite trend.

Later VL was focusing on estimation of rational support levels. The rational support level which comes from modelling results is 20-30% from total installation cost or 40-50%

from equipment cost. In order to implement support schemes the expenses from state budget should be 10-12 mln. euro every year. The results of the model show that heat pumps are not a solution in Lithuania: they become competitive only when 100% of investment costs are covered by tax measure. Solar becomes competitive with electricity when there is a 40% support. When support reaches 85% solar becomes competitive with gas water heaters. It was also noted that solar water heaters should be analysed as complementary systems only because when the sun is not shining or its radiation is low, an additional source for water heating should be in place.

UR wanted to know which were the typical boilers in Lithuania. VL answered, that typical Lithuanian solution are "candle" boilers.

Next UR wanted to know how district heating modelled in comparison with other technologies. VL answered that in Lithuanian there exist only 3,300 houses with district heating. Some participants asked about the high level of support needed to develop Heat pumps. VL answered, that in this case heat pumps are not develop at all in the country and a hypothesis of high electricity prices was used in the scenarios. GHP need electricity and in Lithuania all future scenario for electricity consumption prices are based on high level due to the fact that the country will have to import its electricity or produced it from old fossil energy plants.

5. Presentation of the results of simulation for Poland

(see ppt Results of modelling of direct tax measures for investments into RES heating systems in private households in Poland)

At the beginning Łukasz Kowalski (LK) said some words about data collection done for Poland about the groups and size of dwellings, final energy consumption for each kind of households, the parameters of existing technologies for heating and hot water, as well as weather conditions in Poland.

Next LK gave comparison of cost of heat production between various technologies. This comparison was made for different house sizes and types of existing technology. In Polish model we used for space heating T_{max} equal to 2000 h and T_{max} equal to 550 h for solar collectors. T_{max} shows how much the selected technology during the year should work at the highest capacity in order to produce all energy required. In the speaker's opinion, generally people will not choose to heat the houses with pellet boiler or heat pumps without financial support because the production costs are too high. Later, LK presented the analyzed scenarios. In the study, 56 cases were analyzed. The difference between them lies on the discount rate factor and the financial support level. LK showed several slides on the results presenting how the market capacities evolved regarding the different support schemes tested in the simulation runs.

In analyzed scenario LK showed that an increase of RES capacity without support will not be able to exist. Polish energy market is based on wood and coal. The cheapest new heat technology for houses is a boiler that uses a mix of the two fuels. With a support part of RES, the market will take wood boilers (RES technology). A very important factor for support level is the budget outcome. For scenario of total installed cost and for equipment cost the best support is a 40% level. But in this case budget outcomes will be too high. So, a rational support is on a 20-30% level.

The results of the model show that heat pumps are not a solution in Poland: they become competitive only when 100% of investment costs are covered by tax measure. Solar becomes competitive with electricity when there is a support of 40%. When support reaches 85% solar becomes competitive with gas water heaters. It was also noted that solar water heaters should be analysed as complementary systems only because when sun is not shining or its radiation is low additional source for water heating should be in place. Next LK took about CO2 emission and fuel Consumption. CO2 emission will be decreased in all scenarios. But the number of reduction depends on the support of RES heating technologies. Fuel consumption will be on a stable level. Wood production in

Poland is on stable level and probably it will not be changed. Main fuel in Poland is and will be coal. At the end LK said some conclusions regarding simulation for Poland.

After LK presentation all participants discussed about results for polish model. During the discussion it was established, that in Polish model will be created new prices category for wood to implement in real Polish market, and will be done more support scenario (between 30 and 40% levels) to determine the best support level. After all representative of Polish Ministry of Economy said, that results of Polish model can be use to create Polish support mechanism.