

RES-e WP2: Grid Access and Authorization Procedures

1. Summary

The two decisive legal documents on grid access for “green” electricity in Germany are the corresponding paragraphs in the so-called EEG (Energy Source Act, updated in August 2004) and the new Energy Economy Act including the amendments from July 2005. They deliver the legal fundament to the mostly secure legal frame conditions for investors in Germany.

This condensed information package is especially based on sessions with a regional working group on grid access matters as well as interviews with relevant regional stakeholders for the realization of RES-e.

2. Public Opinion

In general there is a high public acceptance (more than 80%) for all renewable electricity technologies in the region of Saarland. The highest scores are given to PV and small hydro but also biogas and wood-chip fired cogeneration plants are very welcomed. Only big wind parks have to fight with some opposition. Further details can be found at <http://www.azes.de> under the icon “Downloads” as project results of an “Omnibus” (Title: “Wie stehen die Saarländerinnen und Saarländer zu regenerativen Energien?”).

3. Administrative Construction Barriers

The obligations for RES-e- technologies referring to construction can be summarized as follows:

PV:

According to the regional law on construction PV plants on roofs of small private households can be build without any further permission. PV plants on the roofs of public buildings and those higher than 3 floors need a normal static construction control and license. But this is due to pure security necessities without any special disadvantage or barrier for PV. So e.g. in special flat roof cases strong wind loads can lead to such static necessities to secure the plants on the roof that their weight will be too high for the construction below. But meanwhile there exist thin PV layers without any weight disadvantages so that this problem can be solved.

The same situation has to be considered for the big Megawatt plants. So there are several plants on industrial conversation areas where there can be expected favorable license conditions in the construction case. Yet there is a barrier in the case where former acres or grass shapes will be used by investors. The pre-condition for construction on areas outside a village are that first a general building permission for such area is decided by the municipal parliament. This decision of the corresponding parliament is therefore a political one and is mostly depending on the political assessment of the public opinion in favor or against the concrete plans for such type of a PV plant.

Small hydrowater

Every hydrowater plant has to undergo a special construction permission process. First a so-called using- license for public rivers has to be bought for 30 years. This is not so easy for new permissions but there exist a series of such licenses from ancient times. The most important restrictions are resulting from the environmental impact such plants can have on the fauna population. Normally a fish stairway has to be implemented as obligation to receive the building allowance. As this improves in most cases the environmental situation for fishes hydrowater buildings doesn't expect further barriers from the governmental side.

Wind

As wind energy can favorably be harvested on windy areas outside communities the relevant decision about the allowance to build such wind converters are made by the municipalities. Nevertheless there exist some frame conditions. So meanwhile wind energy plants are facing like all other renewable electricity producers in general by the German law a privileged status. On the other side the regional government has decided about a certain portion of the wind energy potential with the help of special regional priority wind areas. Only on these areas wind converters are generally allowed to be build.

In wind parks further general security conditions have to be secured. So e.g. it is of course necessary that the wind converters is mowing out of the wind zone in the case of heavy windy conditions. Or it has to be build red lights on the top of the wind tower to secure the flight of airplanes. But this is also a general condition for all buildings higher than 100 m.

Biomass plants (wood and biogas)

Such plants have also to follow only the general construction obligations as e.g. to build any other fossil power plant. Especially the rules to ensure low emission rates according to the German "TA Luft" have to be ensured and are pre-conditions to receive an operation allowance. This is also depending on the type of wood fuel used within such cogeneration plants. In the case of contaminated wood the whole plant has to go through a procedure of higher operation conditions. But this is not depending on a special renewable alternative but has also to be ensured in the case of a fossil variant. Sometimes the permission authority is requiring a special expertise on the chimney heights to ensure sufficient flew gas transport into the atmosphere and not to the floor.

An Environmental Impact Assessment (EIA) will be required for:

- Production of electricity where the plant area exceeds 0.5 ha (5000m²)
- Installations of more than 1 MW which carry gas, steam or hot water
- Hydro schemes over 0.5MW
- Wind farms where there are more than 2 turbines or the hub height of the turbine exceeds 15 m

4. Conditions of grid-access and related problems

In Germany a development has taken place from the first electricity feed-in law in 1991 over the first EEG (Energy Source Act) in 1999 up to its novel in August 2004. Whereas the first law has only a handful paragraphs with around ten pages, the last one needs more than 100 pages to precisely describe nearly all the conditions between electricity producer and obliged electricity buyer (= the net operator). So the German parliament has learned from the lessons and problems before and it could be said that the last version of EEG is now so sophisticated that 99% of all cases are meanwhile clarified. This is also true for the grid connection questions.

Therefore all participating stakeholders, utilities as well as project developers and planners are uniquely speaking of no problems referring to grid access. Of course the grid operators in the windy northern German territories are facing some problems with grid stability and this will lead into exception cases to deny further projects if not immense costs for a grid strengthening are invested. But these cases will be revealed only in the future and they are not reaching the inner part of Germany where the region of Saarland is belonging to.

In July the new Energy Economy Act including lots of amendments are clarifying now how extra costs to improve the grid stability can be included within the net tariffs to be accepted by the regulation authority. With this act some of the complaints of the big utilities are also answered to in a well balanced way for all actors.

And there exists a study of the German Energy Agency in which the expected length of new high voltage lines and cables are assessed together with the utilities and other neutral energy experts. So it could be showed that the costs are relatively moderate with 1800 km of new traces.

As a conclusion the grid access questions are cleared for the next years and especially no problem within the region of Saarland.

5. Analysis of Interviews

Interviews were held from May to September 2005. Many of the questions in the questionnaire are answered by the above information. Where information was able to be discerned about a question in separate research, it has been included in the answers, although it may be that no answer was established from the interviews. A summary of the responses to the questions follows.

1. What is your role with regard to RES-e?

The five interviewees included one local authority principal policy officer, two renewable energy consultants and two experts in grid connection from the electrical industry.

2. What is the role of your company/ organisation with regard to RES-e?

Two of the interviewees' organisations were involved with grid connection, two with RES-e installation and grid connection, and one with planning issues

3. Which company/organisation operates the grid/issues connection licenses in your region?

Beside the rural regional net operators Energis and Pfalzwerke, there are a series of smaller utilities in the region and responsible only for the area of villages or regional cities.

4. Have planning permission procedures been streamlined over the last 2 years?

In general the EEG and the new energy economy law can clarify lots of anterior open questions. Also the new responsibility of a German regulation office will help in the remaining juristic cases to quicker and easier find decisions on obligations in the planning procedure. Nevertheless the project developers are complaining the chosen wind plant areas. They are specially criticizing that there is no reason to enlarge the distance to buildings up to 1000 m instead of 500 in many other German regions.

5. What price do you get for your RES-e; what premium is there for your RES-e?

The price for renewably-generated electricity is fixed as minimum price to be paid by the grid operators. These prices are depending on the type of green electricity technology and the year of construction. The height of these fixed prices is decreasing every year by 5 % for PV, % for wind, 1.5% for biomass and 1% for hydropower and geothermal technologies to ensure an economical pressure on the producers. At the same time all plants accessing the grid in a special year (e.g. 2005) will receive the same fixed rate per kWh of electricity for the following 20 years. In most cases plants with a smaller power size receive a higher feed-in tariff to improve their economical viability.

So in 2005 PV plants on roofs lower than 30 kW receive 54,53 cts/ kWh, the partition lower than 100 kW is calculated with 51,87 cts/ kWh and above 100 kW with 51,3 cts/ kWh. On facades the same power sizes are better paid by 59,28, 56,62 and 56,05 cts/ kWh. The tariff for PV plants on acre land is fixed at 43,42 cts/ kWh. All prices are for 2005 and are decreasing in 2006 again by 5%.

Wind plants receive a fixed basis rate of 5,39 cts/ kWh but can under certain condition receive an increased rate of 8,53 cts/ kWh in 2005.

Hydropower plants can expect in the year 2005 7,59 cts/kWh for the first 500 kW and 6,58 for the partition of electricity production below 10 MW and 6,04 cts/ kWh below 20 MW, 4,51 cts/kWh below 50 MW and 3,66 cts/ kWh above that limit. For hydropower below 5 MW the price has to be paid for 30 years and it is fixed for only 15 years for the bigger ones.

Biomass plants will receive a basic price of around 10 cents but can gain also 6 cents for so-called energy crops, further 2 cents in the case of heat use in cogeneration and further 2 cents per kWh for special very innovative technologies. The concrete prices in 2005 are 11,33 cts/ kWh for a power size below 150 kW, 9,75 for those partition below 500 kW and 8,77 cts/ kWh for the operation time below 5 MW and 8,27 cts/ kWh for those running hours between 5 and 20 MW electrical power.

To estimate the surplus from that law the typical selling electricity price for private people is around 10 cents per kWh.

- 6. What are the conditions necessary for granting grid access for PV, biomass, biogas, wind, small hydro?**
There are no special conditions but an obligation for the grid operator to buy every kWh to the above mentioned fixed price.
- 7. What is the cost of connection?**
The investor and operator has only to pay the connection costs to the next net entry point i.e. the electricity cable to the nearest grid connection point. All other costs are due to the responsibility of the grid operator.
- 8. Who bears the costs of grid connection?**
These cable costs are paid by the operator of the new RES-e plant The grid operator has to pay any necessity to enhance the grid.
- 9. Are the costs shared between the producer and the grid operator, and if so how?**
All costs are borne by the operator.
- 10. What is(are) the major barrier(s) to connecting RES to the grid?**
There are no special barriers for grid connections as 99% of all cases are meanwhile clarified by the EEG and the new Energy Economy Law.
- 11. Do grid access and administrative procedures help or hinder access to project finance?**
As grid access is mostly clarified this helps in receiving money from banks easier than in former times. Of course construction allowances are pre-conditions for banks to finance projects.
- 12. Who issues the Guarantee of Origin (Renewable Obligation; ROC) certificates?**
There are different types of certificates for green electricity existing in Germany. But they have minor relevance for most of the green electricity producers as they do not need a certificate to introduce their energy into the grid.
- 13. How long do the certificates last?**
Certificates last for three years from date of issue.
- 14. Who are they issued to?**
They are issued to the producer to allow him to show his endeavor in the green electricity production for clients paying more for green electricity.
- 15. What is their value/kWh?**
There is no direct value certified but the utilities use them to receive between 4 and 6 cents more for green electricity.
- 16. Who maintains the register?**
There doesn't exist any register.
- 17. What is the procedure for transfer?**
There exists no transfer procedure.
- 18. What are presently the main problems for grid access in your region?**

There are no regional problems with grid access.

19. Which aspect in permission procedures causes most problems?

EEG and Energy Economy Law are relatively clear so that no concrete problems are encountered.

20. Who and what could/should be done to solve these problems?

There is no necessity given.

Research and interviews carried out for AZES, now IZES gGmbH by Dipl.-Ing. Nicola Saccà.