ELEP: European Local Electricity production

WORKPACKAGE 2 – COMMERCIAL & MARKET POLICY ISSUES

Deliverable 2.3

Stranded Cost

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ELEP Work Package 2.3 - Stranded Cost

Content

ELEP - European Local Electricity Production

ELEP´s- European Local Electricity Production- mission is to support to use of Distributed Power Generation (DG) in Europe by working towards removal of policy, commercial and regulatory barriers currently restricting the use of DG in Europe. It is a project partly funded by EU as part of Intelligent Energy for Europe.

DG is defined as power generation equipment and systems used generally at distribution voltages and where the power is mainly used locally on site.

The work is based upon the findings in the DG-FER project where the most important obstacles to a wide spread use of DG were identified. These had to do with

- Interconnection standardisation
- Commercial and policy issues
- Building Directive issues
- Certification and Authorisation

ELEP will focus its work on accomplish practical improvement in these areas.

1. Summary

When formulating the work for the ELEP project it was decided to look deeper into questions related to Stranded Cost as part of Work Package 2, which covers Policy issues related to installation and use of DG. The following present the result of that study, which is ELEP Work package 2.3.

The recommendation is that neither a generating company nor a grid operator shall be allowed to charge any fees for stranded cost. Important reasons for this are

- DG will only gradually become a large part of the total electricity capacity and the utilities will have time to adjust
- Installation of DG can often be considered as an energy saving measure. As such is should be treated the same way as other methods for energy saving.
- Charges to recover Stranded Cost are a barrier to introduction of new more efficient, reliable and sustainable energy solutions.

2. Findings in DG-FER

In the project DG-FER (Distributed Generation- Future Energy Resources, www.dgfer.org), which is the forerunner to ELEP, a number of issues regarding introduction of DG on large scale in EU was investigated. A suggestion for a Road Map for DG within EU was suggested. That road map contains a number of policy issues that needs to be changed or made clearer. One of those areas was how to handle Stranded Cost in connection with introduction of Distributed Generation (DG) in a large scale.

The recommendation that was arrived at in the DG-FER project was that that there should no special charges related to stranded cost for someone who installs a DG system. It was also suggested that a stranded cost that may result from deployment of a DG system should be recovered through the general utility rate Two important arguments for this recommendation was that

It is very unlikely that there will be any actual stranded cost since the growth of power will most likely be larger than the amount of DG that will be installed

The level of DG will be very low relative to the total capacity

In the DG-FER report it was further noted that the exemption of the DG scheme from stranded cost charges must be performed by an independent third party.

3. Definition of DG

Within ELEP the definition of Distributed Generations is DG is defined as power generation equipment and systems used generally at distribution voltages and where the power is mainly used locally on site.

The key is thus that it shall be installed closed to where the power is used and that it is connected to the low or medium voltage grid. It is thus independent of what DG technology is used and whether it is categorised as renewable, like wind or solar or uses fossil fuel like a natural gas fired internal combustion engine or a gas turbine.

This then implies that installations of DG on a large scale will lead to not only to less need of central power generation capacity but also less need for the electrical grid system.

On the other hand each DG plant often very small related to total installed power production capacity and thus does normally affect neither the power capacity nor grid system to any notable degree.

4. Stranded cost

Stranded cost is defined as any cost incurred by a power generating utility/company or network utility/company in the “pre-deregulated” market environment that cannot be recovered via the market when the market is opened up for competition.

A typical example of this is the cost for a utility of building a new power plant to supply power to a certain group of customers and where then that group of customers in the deregulated market choose to buy power from another supplier. Another example is when a grid operator invests in the grid infrastructure associated with the connection of a new generator, and then that generator is be closed after a few years' operation because it is no longer commercially viable following market liberalisation.

In a non-liberalised environment the above costs would normally be recovered over the book lifetime of the generator, and therefore the early closure of the generator results in a significant recovery shortfall.

From the above it can be concluded that the possible stranded cost related to DG will be perhaps more of an issue for a local grid operator than for a generating company. For example, if a large industrial customer with a 10 MW electrical supply installs a 5 MW on-site generator, it potentially halves the demand requirement from the main grid. The income the utility receives consequently diminishes, but the costs of the connection to the site have already been paid. Hence the utility has an asset investment recovery shortfall.

It should be emphasized that possible charges for stranded cost must be kept separate from charges for back up power service or for the use of the grid for export of power from a DG installation.

5. Stranded Cost and DG in EU

European Parliament and Council Directive 96/92/EC of December 1996 laid down the principles for opening up the European electricity industry to competition. Directive 2003/54/EC of May 2003 is a further clarification of certain matters the first mentioned Directive. Important statements in these directives regarding installation and use of DG are among other things that the customers shall have a free choice of from whom to buy the power, requirements to unbundle generation activity from grid operation activities and third party access to the transmission and distribution grids on fair and transparent terms. The directive assumes that stranded cost if any during the transition from a regulated system to a market driven system shall be managed by the utilities themselves. In a Commission Document dealing with the possibility to give state aid to recover stranded cost there is a definition of what is eligible as stranded cost. It is also noted that any commitment or guaranty that could give rise to stranded cost must predate 19 February 1997, the date of entry into force of Directive 96/92/EC.

A review on the EU situation as part of the ELEP projects confirms that any stranded cost that may have occurred has been covered through the general pricing structure of the electricity and not been charged directly to the DG installer. It has thus so far not been a direct barrier in EU for the installation and use and use of DG equipment.

6. Stranded Cost and DG in the USA

In the US the utilities have been allowed to use exit fees and special transaction charges (competitive transition charges - CTC) to compensate for stranded cost in connection with customers installation of DG.
The CTCs are normally limited in time and are levied on all the customers of the utility. Thus its influence on a specific planned DG installation is very limited. The exit fees on the other hand are charged directly on the DG installer and can thus be a major barrier for installation and thus growth of DG. The idea behind the exit fee is that the utility will compensate itself for the investments it has made on behalf of a specific customer and which becomes obsolete when that customer installs a DG system since then at least part of that electrify power is then taken of the grid. In some parts of the US exit fees will only be allowed when DG reaches a certain percentage of the total load in an area, typically 10 %. Since this will take a long time before this happens it will not be a barrier for DG because the utility will have adequate time to adjust. Thus eligible stranded cost will occur.

Two very complicated issues related to the se of exit fees are

- How to calculate it and how to keep it apart from other interconnection charges such as stand by fees.
- How to differentiate it from a case when the customer reduces its need for power by saving measures. Because the effect for the utility will be the same and the customer that uses the savings measure will not be charged any exit fees.

7. Influence of DG on he use of the grid and on need of utility power.

As a further background for the discussion on how stranded cost should be handled related to DG five examples on how DG will influence the load on the grid and the need for utility power are given below. In all cases it is assumed that the alternative to getting power from a local DG system is power from a utility owne dcentral power station through a transmission and distribution grid system. This is of course a simplification since the grid may already include a number of DG plants that also is supplying power to different parts of the grid. These DG plants may be owned by third party or by utilities. This does however not change the principles that are discussed here.

Example 1. A 1 MW wind power system that supplies part of the power to a small village is installed. The remaining power that is needed in the village as well as the stand by power that is needed when the wind power plant cannot be operated at full load is taken form the grid. The system is designed in such away that power cannot be exported outside the village. In this example the the average load on the grid leading to the village will be reduced as well as the power from the utility generator.

Example 2. A 20 MW gas turbine based CHP (Combined Heat and Power) plant that supplies all the electrical load, in this example 10 MW, that is needed in an industrial process as well as part of the heat load of the process is installed. The excess electrical power is exported to the grid. The power on the grid will be reduced by ca 10 MW and the power from the utility will be reduced by 20 MW.

Example 3. A 5 MW gas fired internal combustion generator set is installed in a business park and is designed to operate as a standby unit but also for peak shaving. The latter occurs when there is a peak demand of electricity on the grid and thus prices are high. This reduces the power on the grid and from the utility generator with up to 5 MW at peak times of the day.

Example 4. A farm installs a 500 kW bio fuel powered power plan, which is operated 4000 hours per year. The number of operating hours depends on access to the fuel, which is based on fermentation of waste products from the farm. The electricity produced is exported to the grid. Power flow on the grid is affected and energy from the utility generator is reduced by 2 MWh.

Example 5. A single-family house installs PV modules on the roof that produces power corresponding to the average need of electricity in the building. The difference between the actual need at any time and what can be produced by the solar cells at that time is balanced by the grid, export or import. The net electricity balance of the building affects power on the grid and so is the power from the utility generator.

From the above examples it is clear that the power on the grid (or part of the grid) will be reduced in most cases and power from central station in all cases.

8. The Stranded Cost Debate

The debate between the proponents for DG, who wants to see more DG installed and some of the utilities, which thinks that installation of DG as affect their business in a negative way can be summarised as follows

For possibility to recover stranded cost.

- Investments have been made that now will become obsolete and cannot be recovered. This argument applies both to generating and grid investments
- If these costs cannot by charging the DG installer all customers have to carry the cost. This is not fair, since the other customers have no value from the DG installation

*Against possibility to recover stranded co*st

- It is questionable whether there will be any stranded cost related to DG, since the amount of DG installed is not likely to outpace demand growth.

- DG will be introduced gradually and this will allow time for utilities to plan ahead
- The utilities have already have time to adjust since deregulation of the electricity market is 10 years old and thus the only part that in any case could be considered as eligible for stranded cost fees are investments in the grid and not in the generating capacity.
- Installation of DG is done to save cost of energy and/or increase availability of energy and thus should be treated the same way as other measures that are used for these purposes. Such as energy savings or load shedding.
- Possibility to recover Stranded Cost is a barrier to introduction of new more efficient, reliable and sustainable energy solutions.

It is ELEP´s opinion that the arguments against by far outweighs the arguments for.

ELEP´s conclusion thus supports the conclusion from DG-FER refer to in paragraph 2 above and goes one step further by given the following recommendation to EU - "*it shall not be allowed by a generating or grid utility to charge a customer that plans to install a DG any extra cost that is motivated by that it will recover cost of investments that has been done for that customer at an earlier occasion and which is at a risk to become a stranded cost due to he installation of the DG system.*".

9. Conclusions and Recommendations

As noted above ELEP recommend that neither generating company nor a grid operator shall be allowed to charge any fees for stranded cost. In addition to this, it is very important that both positive and negative factors that a grid operator may have from a DG systems that is planned to be installed on the grid is treated in a fair way through the tariff structure which the grid operator is allowed to use by decision of the regulatory authorities. DG shall thus be a natural part of the building and operating process of the electricity system.

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