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ELEP – European Local Electricity Production

**WORK PACKAGE 5
CERTIFICATION AND AUTHORISATION OF DG AND RES**

Deliverable 5.2

***Proposals for a generic suite of certification and authorisation
protocols applicable across EU***

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1 INTRODUCTION

Building on previous DG-FER (Distributed Generation – Future Energy Resources) work, this activity will provide specific proposals for the standardisation of DG and RES (Renewable Energy Systems) certification and authorisation procedures across the EU. It will also consider the mechanisms for the introduction of an independent DG and RES certification authority to oversee “type” certification of DG schemes such that repeat testing and other authorisation requirements can be minimised.

This report is related to the Task 2 of WP5.

For more detailed information about WP5 see deliverable WP5.1 chapter 1: “WP5 Objectives & expected outcomes”.

Description of Task 2

Using best practice derived from Task 1, a generic set of DG and RES certification and authorisation protocols will be developed for implementation across all EU Member States such that compliance with these protocols will validate a new DG or RES system design for application at a wide range of host sites without the need for extensive system redesign and site testing. The purpose of the protocols is therefore to remove a significant amount of unnecessary cost and installation delay from DG and RES schemes prior to commercial operation, thus enabling these technologies to compete on a level playing field with alternative sources.

2 SUMMARY

Deliverable D5.1 is the source for this report. The certification and especially authorization practices used in the EU and also within member states show a wide variety on procedures, regulations, support systems etc.. For the same (kind of) DG or RES installation mostly a very specific knowledge of the different local, regional and national ways of working and protocols is needed to be able to install and to operate an installation within an acceptable timeframe. An important bottle-neck in authorization procedures sometimes is the (very) long time that is needed for it and during which period potential investors have to deal with uncertainties. This is not favourable for the market development of these technologies and is in fact against the general EU aims of an open and free market.

Regarding certification the CE-mark sometimes contains not enough information for authorities. Therefore it is recommended to upgrade the CE-mark to avoid these shortcomings.

Although not all practices in use across the EU could be investigated some good (maybe best) practices have been found, e.g.:

- Define a convention between involved authorities with clear commitments regarding e.g. procedure time (like for windenergy in the Netherlands)
- The creation of a pool of experts to help authorities in case questions
- Setting clear deadlines for procedures
- “Permis unique”(single permission) in Belgium: combinations of different permits into one
- “Conferenza dei servizi” (conference of issuing bodies) in Italy; all relevant issuing bodies meet and deal with an application resulting in a much more effective procedure (parallel vs. subsequent);
- “Sportella unico” (single window) in Italy: an applicant has only to deal with one post-address from where the “single window assigned person” can share documentation among qualified authorities. This contributes a lot to a much more effective procedure;
- (*The case of Germany*).

Maybe the overall best practice is from outside the EU. It is the California approach which probably has the most advanced legislation in the field of DG and RES application with the California Energy Commission as the main organization. Via a public-friendly website, all the rules, procedures, documents and if necessary more detailed information regarding interconnection, standardization, certification, environmental review and permits can be found. It leads applicants through procedures and (simplified) steps which are as much as possible mutually streamlined. The State Permit Streamlining Act is a regulatory base to support this method by e.g. clear deadlines for procedures.

It is recommended to make a deep investigation on the legal and regulatory barriers in certification and authorization procedures in use across the EU that prevent the full deployment of DG and RES systems in many parts and see how these barriers can be solved.

In the short term additional EU-regulations could help to make procedures more simple and effective thereby reducing uncertainties for potential investors and make information on good practices broad available

Further it is recommended to investigate the California approach to see how such an attractive, simple and meanwhile sophisticated and transparent method could be implemented in the EU.

The alarming climate change has increased the attention of the politics for this issue at every level from municipality to the EU level. There are many initiatives to change the law, regulations and procedures to implement sustainable energy in a more efficient way. Besides this issue is a relative young part of the law and regulation.

3 PROPOSALS FOR A GENERIC SUITE OF CERTIFICATION PROTOCOLS

The purpose of this chapter is to define a generic suite of certification protocols, based on the results of the previous deliverable WP5.1.

If distributed energy resources must become common in our electric power system, they must first be tested, characterized and certified. Testing and certification will ensure that these systems perform safely and reliably. Certification protocols can play an important role in this mechanism.

All EU-15 countries are full-members of the European Committee of Electrotechnical Standardization (CENELEC) and of the International Electrotechnical Commission (IEC). So the CE mark is fully implemented in all EU-15 countries.

An “upgraded” CE mark should combine different compliances. This is already the role of CE mark certification, even if the compliance to CE protocols sometimes is not enough to put in operation the equipment. An authority must impose the acceptance of CE mark all over EU.

To allow for this to happen, the CE mark should be constituted by these parts:

- CE mark itself as label of a package/equipment
- CE paper reporting references of all the directives the CE mark is in compliance with, together with references of the certifying bodies that have certified equipment compliance with the directives
- CE book with in detail the description of tests performed by the certifying bodies

By means of these detailed certified documents it should be possible to easily obtain authorization among the EU countries. Every defined data which an authority could require, will then be presented in the CE book.

4 PROPOSALS FOR A GENERIC SUITE OF AUTHORISATION PROCEDURES

The purpose of this chapter is to define a generic suite of autorisation procedures, based on the results of the previous deliverable WP5.1.

Proceeding from the problems described in deliverable WP5.1, it is difficult to propose a generic suite of autorisation procedures. This in spite of the great effort during WP5.1 to collect the maximum quantity of data, heavily relied on external experts' help.

The main reason we can not propose a generic suite of autorisation procedures is the complex and different situation in each country.

There are many laws in every country concerning implementation DG. The legislation in most countries is complex. The different laws are protecting different interests and the laws are not mutually aligned.

Besides, DG is a relative young topic in the legislation. In most countries there are currently many new initiatives to create the legislation relative to DG.

In EU there are common problems concerning environmental topics (also energy saving) and it seems a good opportunity to present to the community (more and more involved in energy matters) the difficulty of installing new DG systems, due to very complicated authorization procedures and methods to overcome them.

The considerations emerging from this deliverable could help to remove barriers to DG installations, in terms of minimising cost and waste of time concerning authorization process.

Because it was not possible to propose a generic suite of autorisation procedures, we have chosen to define a set of “best practices”. Each country can adopt his own set of best practices which is best suitable for that country.

In each next chapter we describe one best practice.

4.1.1 Best practice: Define a convention

The time required to obtain the whole authorization process is usually long. There are some instruments to reduce the time required.

Define a convention between the involved authorities (departments, provinces, union of municipalities and other institutions) in which each authority is held to act conform this convention. The main purpose is to reduce the total time required for the whole authorization process. (For example: the BLOW-convention in The Netherlands).

Those conventions are common in The Netherlands. Each participant has the same goal and knows that they need each other to reach that goal in an efficient way.

For example the BLOW-convention in The Netherlands can be considered.. This is an important administrative-legal instrument for realization of wind energy projects between five departments, the provinces represented by the Interprovincial Deliberation (= Interprovinciaal Overleg, IPO), the municipalities represented by the Union of Dutch Municipalities (=Vereniging van Nederlandse Gemeenten, VNG).

The BLOW-convention provides for an increasing of the national goal for at least 1500 MW wind power windpowerenergy in 2010. They commit themselves to take away barriers where possible and necessary and provides for an active, coordinating and stimulating role to the market party's.

4.1.2 Best practice: Create a pool of experts and consultants

The administrations frequently are not competent. They are not able to transfer information to the applicant. DG is not a common issue for a municipality or a province to correspond a DG request. Besides, DG is passing through a strong development and is a relative young topic in the legislation.

Create a pool of experts and consultants. Authorities can contact these experts when necessary. A defined amount of consulting hours is for free and payed by the Government.

For example: the Expertpool in The Netherlands. This expertpool consists of consultancies with relevant expertise in development of windenergy projects. An authority can contact, via SenterNovem, these consultants for free during a defined number of hours. The minimal size of the concrete initiative for the windenergy project must be at least 5 MW. SenterNovem takes care for the contracting of the experts and looks after the quality of the experts and the satisfaction of the applicant authority.

SenterNovem is an agency of the Dutch Ministry of Economic Affairs. They promote sustainable development and innovation, both within the Netherlands and abroad. They aim to achieve tangible results that have a positive effect on the economy and on society as a whole.

4.1.3 Best practice: Define a work of simplification to create “unique” tests

There is a certain degree of difficulty in finding information, but above all the relevant documents are numerous and massive. As said, the AP topic is really new for DG, so the procedures are in a developing phase, as is the relevant legislation. For these reasons norms, decrees, regulations, directives, etc. refer to each other. There is no organic legislation.

Define a work of simplification to create “unique” tests. These unique tests must be free accessible on the Internet. There must be defined unique tests for each type of DG and scale of largeness. Within each unique test there must be defined all actual relevant information about the norms, decrees, regulations, directives, etc.. These unique tests must be valid for all EU members.

In this way it becomes easy for an authority to get further detailed information of a DG installation without asking for it. The proceduretime can be decreased.

4.1.4 Best practice: Easy acces of information on the Internet in a common language

The importance to fix an ***easy acces of information on the Internet in a common language***. English is the most common language.

In most countries of the EU members, the information on the internet is in the native language and a small part of it in English. It is important that all information on the internet, concerning DG, is also available in English.

4.1.5 Best practice: Define an independent authority

The legislator is not always supported by the executive power: various permitting bodies (i.e. municipalities, authorities, etc.) have difficulties to retain an authorization process. Often the interest of an applicant crashes against the bureaucracy.

Define an independent authority (“super partes”) as a guarantor of equity (this topic will be analyzed in depth inside WP5 task 3).

4.1.6 Best practice: Avoid unnecessary delays and costs

The time required to obtain all the authorizations and the economical impact of the costs of these procedures are strictly connected. The time to obtain an authorization has an economic impact on cost of DG system. In fact generally the time of the whole authorization process is usually long (in many cases also small DG systems need more than 1 year). Due to this loss of time the cost of the AP increase.

Avoid unnecessary delays and costs. The time to obtain an authorization must be not incongruous with the size of the DG system in order to avoid unreasonable extra costs . The economical cost must be output based. The certification bodies must respect a strict time to complete their authorization or certification action, defined in norms.

4.1.7 Best practice: Identify a system certification for generation systems

The status of certification protocols (level of certification in each country) is not yet well applied in Europe. There is a different level of maturity for CP and a different level of application among EU countries:

- wind turbines and PV modules have dedicated certification procedures, specially adopted in some EU countries (i.e. Denmark);
 - some equipments, such as packages, are provided of CE label;
 - also many components have dedicated certification procedures (mainly regarding safety aspects).
- Among them it has been identified only for wind installation a system certification.

Identify a system certification for generation systems, similar to a system certification for wind installations.

4.1.8 Best practice: Stimulate a higher level of standardization

Across the EU the level of standardization of AP is not yet well developed.

Stimulate a higher level of standardization of AP in the country.

4.1.9 Best practice: “*Permis Unique*”

“*Permis unique*” (Single permission) as in Belgium, where environmental and urbanism permit are combined. Due to this concept the decision time is very short.

4.1.10 Best practice: “*Conferenza dei servizi*”

“*Conferenza dei servizi*” (Conference of issuing bodies) as in Italy. Some advantages can be identified in this procedure, the most important is that the issuing bodies (authorities that can deliver permissions) can directly be in contact with the applicant and debate on problems concerning installation face to face among them and with the applicant.

4.1.11 Best practice: “Sportella unico”

“*Sportello unico*” (single window); in Italy, administrations are deciding to introduce this concept to make the AP easy for the applicant, specially for RES installations:

- the applicant can easily find the competent structure in the field of AP (it could be organized directly inside an office of the municipality);
- the “single window assigned person” can share documentation, brought to him by the applicant, among the qualified authorities that can issue the permissions;
- it becomes possible to define exactly the time scheduled for an authorization process (i.e. when documentation is delivered, the AP single window could have 90 days to circulate it and to collect the permissions).

4.1.12 Best practice: Facilitate a sustainable development of energy supply

The Renewable Energy Sources Act (EEG: Eneuerbare Energie Gesetz) of 21 July 2004 entered into force on 1 August 2004 in Germany. The purpose of this act is to facilitate a sustainable development of energy supply, to reduce the costs of energy supply to the national economy, also by incorporating long-term external effects, to contribute to avoiding conflicts over fossil fuels and to promote the further development of technologies for the generation of electricity from renewable energy sources.

This act regulates:

1. priority connections to the grid systems for general electricity supply of plants generating electricity from renewable energy sources and from mine gas,
2. the priority purchase and transmission of, and payment for, such electricity by the grid system operators and
3. the nation-wide equalisation scheme for the quantity of electricity purchased and paid for.

-The grid system operators shall pay fees for electricity generated in plants exclusively using renewable energy sources or mine gas. The obligation shall only apply to plants with a capacity of over 500 kilowatts where the capacity is measured and recorded.

-The upstream transmission system operator shall pay for the quantity of energy which the grid system operator has purchased and paid for. Any avoided charges for use of the grid system, calculated in accordance with good professional practice, shall be deducted from the fees.

4.1.13 Best practice: The Danish Certification Scheme for Wind Turbines

The main content of the Danish Certification Scheme for Wind Turbines are:

- A. The certification scheme is build on the IEC technical specification in IEC WT01 and the IEC standards IEC 61400-1 and -2.
- B. The certification scheme consists of the main elements (mandatories):
 - *Type Certification*: design evaluation; type testing; manufacturing evaluation; foundation design evaluation; type characteristic measurements (acoustic noise and electricity measurements)
 - *Project Certification*: the type certificate; site assessment; foundation design evaluation; installation evaluation (partly mandatory); O&M surveillance (not mandatory).
- C. The certification scheme includes certification of major modification and relocation of exiting turbines.

Main requirements: a technical report and a function and safety test.

- The technical report shall contain an evaluation of the turbine's safety condition, a review of available technical documentation for the turbine specifying the proposed modifications, an evaluation of the defensibility of changes.
 - A report on the function and safety testing carried out, when the wind turbine is commissioned.
 - A certificate approving modification, relocation or continued installation shall contain: References to the documentation used; A certification code identifying the certification body, and a serial number; Location for installation of the wind turbine and name and address of the owner shall be stated; Date of certificate issue.
- D. The certification scheme is laid down in an executive order valid from 1 January 2005 (Order no:1268, December 12, 2004).

Criteria for certifying companies:

- the accreditation documentation shall state that the Danish scheme is included;
- on shore wind project can be certifies by non accredited certification bodies;
- all certification bodies must be registered at the secretariat of the Danish wind turbine certification scheme and report annually;
- certification bodies is required to withdraw existing type certificate in case of serious safety related defects or in caseof failed conditions.

Administration an control:

- The Scheme is managed and maintained by the Secretariat for the Danish Wind Turbine Certification Scheme, Risø.
- The administration is funded by the Danish Energy Authority;
- Direct certification expenses are paid by manufactures and ownerof turbines;
- More information can be found on the web site www.wt-certification.dk.

4.1.14 Best practice: the California method

California (USA) is probably the state in the world with the most advanced legislation in the field of DG application.

The main organization that oversees rules and regulation for installation and use of Distributed Generation equipment in California is California Energy Commission. Their website has an area that contains all information related to distributed generation in general, as well as more detailed information about installation and use (www.energy.ca.gov/distgen).

The Californian method is probably the best overall procedure for Europe in the long term.

The Californian method describes DG as small-scale power generation technologies in the range of 3 to 10.000 kW, located close to where the electricity is used: in homes or businesses.

The website “The California Distributed Energy Resources Guide” is a public benefit site containing a lot of information regarding distributed energy resources (DER).

The lack of common standards in the United States for interconnecting DER devices into the utility system is considered a prevent to the wide acceptance and installation of DER technologies.

The California Energy Commission tries to encourage DER by streamlining complicated regulations and the processes involving interconnection, standardization, certification, environmental review, and permits. This method wants to allow developers and customers to build more of these small plants: lessening the load on the state power grid and consequently the requests for larger power plants.

The goals achieved with the Investor-Owned Utilities (IOUs) should now be extended to include municipalities, co-operatives, irrigation districts, and others. Both for technology and market demands, the Energy Commission continues to explore the world of distributed energy.

The Energy Commission released a report in December 2000 titled “Distributed Generation: CEQA Review and Permit Streamlining”. This report describes the permitting processes conducted by city and county governments and air districts for small-scale electric generating facilities.

California has already instituted a number of guidelines and programs to streamline the permitting process in order to encourage distributed generation. For example, the State Permit Streamlining Act imposes the following time limits, once a permit application is accepted as complete:

- One year for Environmental Impact Reports;
- Six months for Negative Declarations of Mitigated Negative Declarations:

Developers of distributed generation facilities may apply for all required permits at the same time, but the sequence of permit application usually follows this order:

- 1- Air permits
- 2- Land-use approvals, such as conditional use permits
- 3- Building permits
- 4- Interconnection (refer to the Interconnection section for more details)

5 CONCLUSIONS

1. The protocols for DG and RES certification and especially for DG and RES authorization across the EU are far from being harmonized. For the same (kind of) DG or RES installation mostly very specific knowledge of the different local, regional and national ways of working and protocols is needed to be able to install and to operate an installation within an acceptable timeframe.
2. Although implemented in all member-states the CE-mark as it is known now sometimes seems not to be enough; additional information is then to be provided.
3. An important bottle-neck in authorization procedures sometimes is the (very) long time that is needed for it and during which period potential investors have to deal with uncertainties which is not beneficial to the development of DG and RES.
4. Procedures and regulations across the EU are multiple and very multilateral. Within the framework of this workpackage it is not possible to find all the best practices. Nevertheless several good (best?) practices have been found:
 1. the creation of a pool of experts to help authorities in case of questions;
 2. setting clear deadlines for procedure-time;
 3. “permis unique” (single permission) in Belgium: the combination of different permits into one;
 4. “conferenza dei servizi” (conference of issuing bodies) in Italy; all relevant issuing bodies meet and deal with an application resulting in a much more effective procedure (parallel vs. Subsequent);
 5. “sportello unico” (single window) in Italy: an applicant has only to deal with one post-address from where the “single window assigned person” can share documentation among qualified authorities. This contributes a lot to a much more effective procedure;
 6. facilitate a sustainable development of energy supply (*The Renewable Energy Sources Act of Germany.*)
5. Maybe the overall best practice is from outside the EU. It is the California Methode which probably has the most advanced legislation in the field of DG and RES application with the California Energy Commission (CEC) as the main organization. Via one public-friendly website all the rules, procedures, documents and if necessary more detailed information regarding interconnection, standardization, certification, environmental review and permits can be found. It leads applicants through procedures and (simplified) steps which are as much as possible mutually streamlined. The State Permit Streamlining Act is a regulatory base to support this method by e.g. setting time limits for procedures.

6 POLICY RECOMMENDATIONS

1. Make a deep investigation on the legal and regulatory barriers in certification and authorization procedures in use across the EU that prevent the full deployment of DG and RES systems in many parts of the EU and see how these barriers can be solved.
2. In the short term try to develop additional EU-regulations to make procedures simpler and more effective thereby reducing uncertainties for potential investors and make information on good practices broad available.
3. Investigate the California Method to see how such an attractive, simple and meanwhile sophisticated method could be implemented in the EU.
4. “upgrade” the CE-mark to prevent authorities to ask for additional information. It should constitute by three parts:
 - a. the CE-mark itself as label of a package/equipment;
 - b. the CE-paper reporting references to all the directives the CE-mark is in compliance with together with references to the certifying bodies;
 - c. the CE-book with in detail the description of tests performed by certifying bodies.