

EIE/04/175/S07.38664

ELEP – EUROPEAN LOCAL ELECTRICITY PRODUCTION

DELIVERABLE 1.3, ISSUE 1

INTERCONNECTION OF DECENTRALISED
ELECTRICITY GENERATION

EUROPEAN POLICY RECOMMENDATIONS

MARCH 2006

*Report compiled by:
Thomas Bouquet (COGEN Europe)
With the assistance of:
Richard Knight (Rolls-Royce)*



Supported by the
European Commission under the
Intelligent Energy - Europe
Programme

The sole responsibility for the content of this report lies with the authors. It does not represent the opinion of the Community. The European Commission is not responsible for any use that may be made of the information contained therein.

CONTENTS

SUMMARY	3
1 Increasing the Consistency of Interconnection Standards for RES and DG Across the EU	4
2 Ensuring the Independence of Rules Setting Bodies	5
3 Creating better-defined, non-discriminatory procedures for DG/RES interconnection with increased transparency	6
4 Conclusions & Summary of Recommendations	8

SUMMARY

Interconnecting decentralised generation into the electricity grid network has been repeatedly identified as being a major barrier to the deployment of decentralised generation plant in the European Union (and elsewhere).

A clear goal of the ELEP¹ project is to develop practical recommendations that create a more non-discriminatory environment for decentralised power plants within the liberalised energy markets of the EU. In order to address this issue, the ELEP project team has reviewed current interconnection approaches within the European Union and has developed policy proposals to progress the issue of interconnection standardisation for decentralised power plant in the EU.

Preceding ELEP work² has provided a detailed review of the standards, technical requirements and procedures in the EU relating to the interconnection of decentralised power plant. This document takes this previous work a stage further by making a series of policy proposals for consideration by the European Commission and other European policy-making bodies.

The aim of this report is to complement existing research and recommendations covering the technical aspects of decentralised generation interconnection³ with recommendations focussing on institutional policy, regulatory and procedural issues. Taken together these elements form the interconnection “approaches” that have been documented and assessed for each Member State.

The recommendations that are proposed later in this document have been divided according to the main summary points and conclusions reached in the ELEP D1.2 Consistency and Inconsistency Analysis².

Three areas have been identified as needing to be addressed by policy makers if decentralised generation is to develop unhindered in Europe, namely:

- The lack of consistency between interconnection standards and technical requirements for decentralised generation across and within Member States.
- The lack of fair representation of all stakeholder groups on, and the apparent lack of independence of, drafting parties for interconnection standards and rules.
- Poorly defined and discriminatory interconnection procedures with low levels of transparency and visibility.

For each area the ELEP team has prepared a summary of the issues, together with recommendations for policy makers to consider and administer.

¹ <http://www.elep.net>

² http://www.elep.net/files/ELEP052212_D1_1_D1_2_Final_Deliverable.pdf

³ For example DISPOWER WP2 recommendations, CIGRE recommendations prepared under the leadership of Prof. N. Hatziargyriou in Task Force C 06.04.01

1 Increasing the Consistency of Interconnection Standards for RES and DG Across the EU

Summary of Issues

Achieving greater consistency with regards to interconnection standards for decentralised generators is one of the most important recommendations of the ELEP project.

Interconnection standards vary significantly depending upon which Member State is being considered. It appears more and more pressing to harmonise the technical requirements for interconnection in the Internal Energy Market in order to create a consistent and level playing field for all market players, and in particular for equipment manufacturers. Hence there is a need for:

- Convergence between Member States' approaches (i.e. the rules) to decentralised generation interconnection.
- Eliminating or substantially reducing the differences in the standards between Member States and also within individual Member States.

The ELEP project recognises that electricity networks have their peculiarities and hence cannot be operated in exactly the same way throughout Europe. However, the prejudices that decentralised generators face, even with the legislative requirements of the Internal Energy Market, warrant that work towards a European Grid Code is necessary and should be undertaken without delay. Small-scale generation technologies need a consistent European technical framework, or else will continue to be hampered in their deployment. A European approach is needed, as whilst in some Member States there is already a significant amount of interconnection standardisation being undertaken, this is the exception rather than the rule.

Table 1 **Different approaches to technical requirements in EU-15 Member States**

Approach	Member States
Generic	P
Technology-specific	DK; F; D; A; S
Size-specific	F; S; I; GR; NL; UK
Network-specific	F; GR; UK

Recommendations

European-wide initiatives such as CENELEC standardisation are fully supported by the ELEP Consortium, and should be given higher priority as they are driving the closer integration of the European electricity market with respect to the treatment of RES and DG interconnection.

The development and implementation of a European Grid Code would clarify the technical requirements both for interconnection and operation and would include provisions on safety issues and power quality. The proposed

European Grid Code must deal not only with transmission network-level issues such as trans-border capacity but also with distribution network-level issues, as these are the most relevant to decentralised generators.

Requirements and parameters should be set according to a consistent and clear approach (e.g. technology-specific, size-specific or network-specific set of rules) and energy regulators need to closely assess the impact on RES and DG schemes as under some national frameworks certain requirements can adversely affect the economics of RES and DG (e.g. in the case of network-level specific feed-in tariffs).

2 Ensuring the Independence of Rules Setting Bodies

Summary of Issues

The ELEP project has highlighted the often unbalanced composition of the interconnection rules drafting parties as an issue that would need to be addressed if policy makers want faster, greater and ultimately more efficient development of RES and DG. The ELEP project has shown that the role of national standards authorities is often very limited and varies significantly from country to country.

While the technical prowess of the national bodies responsible for setting the technical standards and requirements is in no way put into question, these bodies do not always represent fully the diversity of the generation field, and therefore tend to carry forward long proven methods that were designed for very different electricity systems dominated by large-scale generators and interconnected grid networks. By not opening participation to RES and DG representatives, both the urgency of the situation and the full array of suitable and acceptable options have sometimes been lost, hindering the development of the sector.

The issue of lack of proper representation can be compounded by the dominance of some market players, as is the case in several national rules setting bodies. While their leading role may be explained on the grounds of sheer market size or distribution of responsibilities (e.g. network and/or system operation), these attributes should not entail outright control over the work, deliberations and decisions of rules setting bodies.

It is important to recognize the importance that national rules setting bodies hold in creating national framework conditions. If the political objective is to increase the share of RES and DG in Europe, then policy makers must address the issues of the composition and independence of the drafting parties. Vested interests result in framework distortions that are direct impediments to new RES and DG entrants. Greater political control over such bodies is warranted as RES and DG are a political priority and there is a political will to accommodate a greater share of small-scale dispersed generation in Europe.

Table 2 **Typology of key organisations involved in the setting of rules⁴ in EU-15 Member States**

Type of organisation	Drafting role	Effective responsibility
National standardisation organisation	I	I
Network operators association	UK; D; A	
Electrotechnical association or research organisation	DK	(DK)
Electricity producers association	B	B
Regulator	S	A; UK; IR (approval)
Ministry	F; P; (D soon)	P; B; S; P; F
DNO/company	I; IR; DK; GR; F	I; DK; GR; IR

Recommendations

A general simplification of the institutional interconnection standards development architecture is warranted. The composition of rules drafting committees should be made public, if not nominally at least by organisation.

The ELEP Consortium recommends that **independent authorities (e.g. national electrotechnical associations) “own” and maintain the standards and rules**. In addition, good governance requires the **inclusion and participation of RES and DG stakeholders on an equal footing with other actors in such bodies**. This is especially true with respect to network operators.

Energy regulators should approve any changes to the grid code and a diversified body could propose revisions of the grid code to the regulator, thus allowing for technological evolutions to be better taken into account.

3 Creating better-defined, non-discriminatory procedures for DG/RES interconnection with increased transparency

Summary of Issues

The third high-level recommendation deals with the need for fair, non-discriminatory, and transparent interconnection procedures.

Evidence collected by the ELEP project has shown that technical requirements are not the only impediment to the easy and speedy implementation of RES and DG. Project developers have voiced many complaints over the complexity and lack of transparency of interconnection procedures and how this situation is detrimental to RES and DG projects as it results in increased financial risk. This situation is all the more troubling that RES and DG in many cases rely on public support

⁴ This table acknowledges the possibility of two organisations enjoying responsibility for the technical rules

mechanisms. However, these public incentives do not necessarily enable projects to go ahead as they can be insufficient to overcome the extra costs and risk associated with interconnection procedures.

Table 3 **Transparency of interconnection procedures in the EU-15**

Item	Member States
Detailed procedures	
Yes	B; S; F; P; IR; UK; GR; DK
No	A; D; I
Interconnection guide	
Yes	UK; IR; P; F
No	All other Member States
Extensive bilateral negotiations	
Yes	I; A; D
No	B; F

Recommendations

Interconnection procedures in Europe can be very different and the ELEM project has highlighted a number of best practices already implemented in several Member States⁵. The procedure's visibility can be increased by creating a specific and comprehensive information point that project developers and other interested parties can easily access (e.g. an internet page hosted on the electricity regulator's website). The implementation of such an information platform, acting as a **"one-stop shop"**, ought to be prioritised. It is recommended that **all relevant rules, including interconnection standards, are published and made freely available for public scrutiny**. The issue of the centralisation of information is important given that currently rules in each Member States are extremely difficult to come by, a clear barrier to trans-national business development. **Consolidated texts** should be made available in Member States where standards and technical requirements are the matter of legislation.

Whilst procedural transparency is enhanced by making information public and easily accessible, central to this issue is the distribution of responsibilities and powers between the various actors. The most prejudice to RES and DG arises in countries where the interconnection procedure is not defined step by step and where project developers have to enter into lengthy bilateral negotiations with the local grid operator. Several countries have addressed this problem and have defined **strict step-by-step procedures as well as firm control over associated costs and have imposed binding timescales**. This type of solution is applicable in all Member States and offers all the benefits of streamlined procedures, which is especially important for the smaller installations. These procedures should be developed by cross-industry groups, based on

⁵ For a complete overview see the ELEM deliverable D1.1/D1.2 report http://www.elem.net/files/ELEM052212_D1_1_D1_2_Final_Deliverable.pdf

identified best practice and should be independently assessed and validated by the regulator.

The interconnection procedures should be supported by **guidance documents** that summarise the steps that new generators have to follow to obtain their connection. These documents should be **regularly reviewed and re-issued** (e.g. every three years).

Finally, consideration should be given to the introduction of **standard interconnection contracts**, based on size or technology. Such standardised contracts should at least be available for micro-scale installations.

4 Conclusions & Summary of Recommendations

Just as determining consistent technical settings across the EU will help lower the costs of RES and DG equipment, minimising the uncertainty over administrative procedures for RES and DG interconnection will positively influence the development of these clean generation technologies.

The ELEP project Consortium hopes that its contributions on standardisation issues will help policy makers recognise the importance of the topic for European energy policy and will lead to better frameworks for RES and DG.

Main ELEP Recommendations on DG Interconnection	
Objective(s)	Ways and means
Harmonisation of technical interconnection requirements	<ul style="list-style-type: none"> • European-wide initiatives such as CENELEC standardisation • European Grid Code
Creation of an adequate governance framework	<ul style="list-style-type: none"> • Granting independent authorities the responsibility for drafting, “owning” and maintaining the rules and standards • Imposing representation of all stakeholders on equal footing • Energy regulators to approve changes to grid code • Diversified body to propose revisions
Transparent, non-discriminatory interconnection procedures	<ul style="list-style-type: none"> • Publication and free access to all rules relevant to interconnection • Creation of a “one-stop” information platform (on regulator’s website) • Definition of strict step-by-step procedures, including binding timescales • Publication and regular update of national guidance documents for interconnection (by size or technology) • Introduction of standard interconnection contracts, based on size or technology