

T&D Europe contribution to the setting up of
the 8th Framework Program of the European Union for Research, Technological
Development and Demonstration Activities (FP8)
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1. Introduction

1.1 Presentation of T&D Europe

T&D Europe (www.tdeurope.eu) is the European Association of the Electricity Transmission & Distribution Equipment and Services Industry, whose members are the European National Associations representing the interests of the electricity transmission and distribution equipments manufacturing and derived solutions industry. The companies represented by T&D Europe account for a production worth over € 25 billion EUR, and employ over 200,000 people in Europe.

Research, technological development and innovation are essential for maintaining the worldwide technological leadership that our industry has acquired in many areas. The European research policy plays a significant role in underpinning and strengthening this position.

Many companies can benefit from taking part in the European Research Framework Programmes. One of the programme's key strengths for the business community comes from the possibility to improve a company's own R&D by means of external resources, and by gaining a knowledge-based network across Europe.

1.2 Purpose of this contribution

Many companies represented in T&D Europe have participated in the current and previous Framework Programmes and thus collected valuable experience. Also, some boundary conditions have evolved creating the need to adapt the implementation of the Framework Programme.

T&D Europe would like to offer the following contribution which reflects the basic needs for R&D in the field of Electrical Networks, as identified by our Members.

2. T&D Europe's recommendations for the 8th Framework Programme

2.1 General considerations

The EU Targets 20/20/20 have been the drivers for the Smart Grids Technology Platform. The recently elaborated implementation plan of the European Electricity Grids Initiative (EEGI) and the R&D agenda of ENTSO-E provide a natural and logical framework for the definition of priorities within the current and upcoming Framework Programme. These agendas have been dominantly set by a handful of

transmission / distribution network operators. For this reason, T&D Europe, based on the core competences in products and systems of its members, would like to highlight a number of complementary topics that need to be covered by the work programme in section 2.3 of this document. Some of these topics will certainly be of relevance in the Smart Cities industrial initiative that is currently being discussed.

In line with the recently presented Innovation Union Flagship Initiative, T&D Europe underlines the necessity for sustained investments in R&D and for more co-ordination of the money invested. T&D Europe represents the industry *that will generate value out of the networks related R&D*, and many of its Members have a global footprint ranging well beyond the boundaries of the EU.

More importantly, in order to ensure an adequate representation of all stakeholders, T&D Europe is committed to become a regular discussion and consultation partner for FP8 related issues as the implementation plans and priorities are periodically reviewed. This is essential because, unlike geographically anchored network operators, the industries represented by T&D Europe operate in a global market and need to reinforce their competitive position continuously, notably with respect to far eastern competition. *Furthermore, T&D Europe is committed to involve local communities and SMEs having interests in Smart Cities.*

2.2. Suggestions to facilitate participation

Generally speaking participation in European programmes would be facilitated if visibility of EU programmes was higher. For example, the results from R&D run by the Joint Research Centre (JRC) in the field of energy, and more specifically electricity, are neither clearly visible nor reported.

From the publication of the work programme to the start of a project, a considerable amount of time may lapse. This can harm the impact of a project by delaying the delivery and exploitation of results. T&D Europe would welcome a significant reduction of the time span from proposal submission to project start by applying the following principles:

- Applying only single-stage submission procedures to proposals in areas linked with short-term developments;
- Shortening the review time for proposals;
- Drastically reducing the negotiation period for successful proposals;
- Providing binding timelines for review, negotiation and project start along with the publication of the calls for proposals; this will also permit a much better preparation of applicants to deliver all required information on time to the EU and to streamline project launch.

During project execution, it has proven difficult for co-ordinators to effectively control the performance of their project partners. Giving more financial latitude to the co-ordinators in order to encourage better performance of their consortia could

be part of the solution. More latitude can include the possibility to internally re-allocate budget, withhold payments to underperforming partners, amongst others. All projects funded under the Framework Programme involve some risk by nature. In the current organisation, risky projects are insufficiently encouraged. It is therefore proposed to explore funding mechanisms that would increase the chances of meeting policy objectives by higher risk / higher impact projects. The EU funding could e.g. be split into two parts:

- A “conventional part” of the funding: as currently known, representing a pre-agreed share of the total project expenditure.
- A “risk attenuation part”: a part of the support that will normally remain unused (and thus not paid to promoters), but will only be used if the innovative part of the project fails to deliver. The risk attenuation part of the EU support will then be used to execute a “conventional” replacement for that risky portion of the project. This has the effect of encouraging and not penalising more ambitious projects.

This proposed concept of risk cancellation is in good alignment with the statement made by European TSOs in the EEGI Roadmap, wishing that the “first mover risk” be covered by the EU. It will allow alleviating the impact of a relatively risk-averse network owner community on T&D Europe members willing to invest into innovation. National funding bodies, e.g. ADEME in France, already implement risk-oriented funding, with the participation of the funding body to the success of projects.

2.3. Topics requiring increased attention within work programmes

As stated above, T&D Europe welcomes the effort to align work programmes in the different areas covered by the Framework Programme with research agendas developed within Technology Platforms and Industrial Initiatives. To complement this, T&D Europe would like to highlight a number of transverse or general topics covering products and systems that should be taken into account in the Energy Area (Area 5 in the current FP7):

1. Electricity storage (i.e. storage devices connected to the electrical system incl. storage of non-electrical energy): whilst represented at materials level, the system aspects have not yet received due attention

Motivation: this is a typical transverse technology with a high potential to facilitate quantum leaps in areas like renewable generation, electric mobility, etc.

Type of FP8 actions recommended: demonstration oriented activities (including regulatory and organisational aspects)

Key stakeholders: network operators, electrical component manufacturers

2. Power electronics: these have been viewed as a tool. The result has been a small number of rather incoherent developments

Motivation: power electronic converters are enablers of a wide range of functionalities. Their maturation (in terms of materials, components and topologies / controls) should ideally precede application. The impact of power electronic systems on network components should also be studied in more depth.

Type of FP8 actions recommended: future oriented research, incl. coordination and support activities

Key stakeholders: electrical equipment manufacturers, semiconductor industry, universities, research centres

3. Materials for electric energy technologies: numerous recent developments show T&D application potentials and thus deserve additional targeted R&D effort (incl. nano-structured insulation materials, superconducting materials, amorphous magnetic materials, wide-band-gap semiconductors, eco-friendly dielectric fluids)

Motivation: networks of the future will provide more functionality for less space resulting in higher stresses and performance demands on equipment. This in turn can only be achieved by improvements in the constituting materials.

Type of FP8 actions recommended: long-term oriented and transverse research

Key stakeholders: universities, research centres, equipment manufacturers

4. Real-time simulation of electrical network transient states:

Motivation: the European energy policy implies a higher share of long-distance electricity transmission (e.g. due to renewables and active consumers). In conjunction with other factors, the need for wide-scale and accurate real-time power system simulations has increased. Preventive action can be taken on-line.

Type of FP8 actions recommended: application oriented R&D, demonstration projects

Key stakeholders: Equipment manufacturers, transmission system operators

5. Environmental performance indicators related to electricity:

Motivation: environmental sustainability of the energy supply is one of the pillars of the European energy policy. Shared environmental performance indicators (including eco-design) for the whole supply chain including infrastructure still need to be generalised and harmonised. This will support decision making related to future energy supply strategies.

Type of FP8 actions recommended: co-ordination and support action

Key stakeholders: equipment manufacturers, universities, research centres, utilities and regulators

6. Direct Current (DC) systems:

Motivation: DC power systems may represent the solution of choice in off-shore power systems, long-distance transmission, etc. Current knowledge on DC specific ageing mechanisms, as well as equipment, has to be extended.

Type of FP8 actions recommended: co-ordination and support action, demonstrations, materials oriented R&D

Key stakeholders: equipment manufacturers, network operators

3. Concluding remarks

T&D Europe acknowledges the importance of R&D in achieving medium to long term policy objectives. The Framework Programmes have provided essential support to the European academic and industry sector. T&D Europe is convinced that by optimising the orientation and implementation of the 8th Framework Programme, notably with respect to implementation risks, its positive impact on the European industry can be further improved. T&D Europe will be pleased to contribute to this effort as appropriate.