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# EC funding opportunities

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# Key R&D&D needs

- ✓ Large-scale **demonstration** of smart grids implementations, particularly for distribution networks
  - ✓ Integration of variable distributed energy resources
  - ✓ Active distribution networks
- ✓ **Research** on European-level integration of the high-voltage transmission networks
  - ✓ Planning
  - ✓ Technology demonstrations
  - ✓ Control
  - ✓ Markets
- ✓ Supporting technologies, e.g. **ICT infrastructure, storage, smart meters**



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# Strategic reflections, Energy WP 2012

## Smart energy networks

- ✓ Implementation plan for the SET plan European Electricity Grid Initiative (EEGI)
- ✓ Existing portfolio of RTD projects and expected results
- ✓ Availability of budget



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## Specific implementation modalities

### Concept of “Family of projects”:

- ✓ Strong links with R&D and large-scale pilot/demonstration projects in Europe,
- ✓ Addresses a functional project of the EEGI
- ✓ Can be implemented as collaborative project or co-ordination action.
- ✓ If applicable links to projects supported by NER300 scheme

NB Topics and contents are indicative. Final WP will be published in July 2011



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## Topics called

### **Integration of variable distributed resources in distribution networks:**

- ✓ Provide recommendations as well as scalable and replicable solutions for technical, regulatory and economic challenges.
- ✓ Address issues such as network design rules, optimised connection and protection schemes, real-time supervision and operation, and remedies for harmonics and other disturbances
- ✓ Transmission level system operation and market operation should be considered
- ✓ Collaborative project



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## Topics called

### Enhancing electricity networks through use of distributed intelligence:

- ✓ Provide recommendations as well as scalable and replicable solutions for application of advanced distributed sensors
- ✓ solutions may cover the assessment and monitoring of the components of the electricity system (condition monitoring), as well as the enhancement and optimization of the real-time operation of networks in real time at all voltage levels,
- ✓ special focus on the distribution network.
- ✓ solutions should enable the dynamic loading of the components and the continuous assessment of their progressive ageing.
- ✓ Reliability and security issues should be considered.
- ✓ Compatibility with network supervision systems (SCADA) and with existing equipment should be demonstrated



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## Topics called

### **Empowering smart customers to participate in active demand and energy system efficiency:**

- ✓ investigate barriers, opportunities and solutions for the active participation of users in active demand and in energy efficiency of the overall electricity system.
- ✓ investigate customer behaviour for different classes of users such as residential and small commercial/industrial users
- ✓ analyse and compare different technical and user interaction solutions and customer awareness initiatives being tested in Europe
- ✓ Collaborative project



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## Topics called

### **Planning for European Electricity Highways to ensure the reliable delivery of renewable electricity and pan-European market integration:**

- ✓ develop methods and tools to support the planning of these highways, based on various future power system scenarios, including for back-up and balancing generation and storage capacities.
- ✓ consider a wide range of drivers and potential barriers e.g. technology bottlenecks, technical planning, operation and management, supply chain gaps, environmental and public acceptance
- ✓ address transition planning between now, 2020, 2030, 2040 and 2050
- ✓ Significant Transmission System Operator (TSO) involvement is crucial
- ✓ Collaborative project





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## Topics called

### **Networking of national R&D and demonstration projects on smart metering infrastructure and data processing:**

- ✓ support the interaction among national projects preparing the deployment of smart meters in the context of the 3rd internal energy market package,
- ✓ elaborate an in-depth comparison among different solutions for smart metering infrastructure and smart meter data processing being tested in demonstration projects in Europe
- ✓ standardised solutions that enable future smart grid functionalities, information exchange between stakeholders as enabler for new businesses, and measures taken to respect consumer privacy and to ensure "cyber-security".
- ✓ Coordination action



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# Topics called

## **Facilitating the deployment of safe stationary batteries:**

- ✓ Research on safety aspects of Li-ion batteries with a cell size larger than 10 Ah and in a system larger than 1 MWh.
- ✓ research should propose improved methodologies and protocols for safety testing
- ✓ Twinning with projects in Japan
- ✓ “Families of project” is not applicable
- ✓ Collaborative project