



Project Organisation System on Internet
Project Management System consisting of document server, web server and email administration utility.
realised by ISET



Wind Power Prediction Tool successfully adapted
Improved accuracy and calculation of energy bids for wind farms in the UK
realised by ISET, ITPower, and MetOffice



Laboratory Grid for Distributed Generation
Easy configurable local grids with rotating and inverter based generators up to 100 kW
realised by ISET, and Kassel University



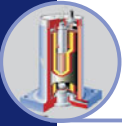
The Distributed Power Generation Test Facility in CESI
Flexible low voltage grid structures for short- and long term experiments.
realised by CESI



Wind Turbine Generator Models for simulation of Power System Dynamics with the EUROSTAG software
New dynamics models for different wind turbine generators
realised by EdF



SUMITOMO Vanadium Redox Flow Battery (VRB)
Energy Storage for Distributed Generation:
realised by CESI



Energy Storage for Distributed Generation URENCO (UPT) High Speed Flywheel
Flywheel integrated in a power quality system
realised by CESI



CESI EuroDish solar generator
A new and alternative way to produce solar electricity at reduced scale
realised by CESI



Operator Training for Distributed Generation
A comprehensive environment for training the impacts of distributed generation on power system operation.
realised by DUTrain, and Duisburg University

until december 2003



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In order to achieve the challenging objectives, a competent consortium from eleven countries has been set up covering all major key actors in the energy sector such as electrical utilities (DSO and TSO), power industry, consultants and research institutions. This broad consortium will ensure a streamlined technological development at the European level making use of various national resources and of the co-operation with international networks.

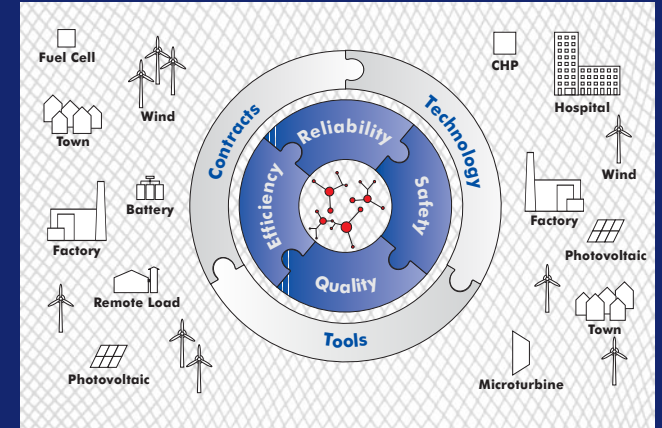


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Consortium:

- D Institut für Solare Energieversorgungstechnik ISET e.V.
- D Fraunhofer-Institut für Solare Energiesysteme ISE
- F ALSTOM's T&D Sector
- NL Amsterdam Power Exchange
- F ARMINES
- A Österreichisches Forschungs- und Prüfzentrum Arsenal GmbH
- EL Centre of Renewable Energy Sources
- I Centro Elettrotecnico Sperimentale Italiano
- B COGEN Europe
- NL Energieonderzoek Centrum Nederland
- F Ecole Nationale Supérieure des Mines de Paris
- UK Econnect Ltd.
- F Electricite de France
- E Energía Hidroeléctrica de Navarra, S.A.
- DK EMD
- D Dutrain GmbH
- D Gerhard-Mercator Universität Duisburg
- EL Germanos S.A.
- D Universität Kassel
- E IBERINCO
- E Iberdrola Redes, S.A.
- UK Imperial College
- D MWV Energie AG
- EL Institute of communication & computer systems of the National Technical University of Athens
- UK IT Power
- B KU Leuven / ESAT-ELECTRA
- D Kirsch GmbH
- E Fundacion LABEIN
- D SMA
- D Stadtwerke Karlsruhe
- PL Technical University of Lodz
- UK The Met. Office
- I Università di Genova
- UK UMIST
- UK University of Strathclyde
- F Vergnet S.A.
- A Verbundplan GmbH

Distributed Generation



with High Penetration of Renewable Energy Sources

Consortium

DISPOWER

Background

Due to the ongoing process of liberalisation of the European energy market, the unbundled energy sector is now in transition to more competition in electricity generation, distribution and trading. With open access to the electricity distribution grids and suitable energy wheeling conditions, new players will arrive in the competitive market. They will further support the already existing trend towards more distributed generation (DG) of power, which until now has mainly been induced by the increasing integration of Renewable Energy Sources (RES) and cogeneration. This development will lead to technological challenges as well as challenges concerning the regulatory and legal framework. For maintaining a reliable and cost effective electricity supply, new efforts will have to be undertaken for the management of electricity networks, integration of RES and other DG units in the distribution networks, for load management and load shaping etc. Furthermore, energy markets will be strongly affected in respect to technical and socio-economic aspects.

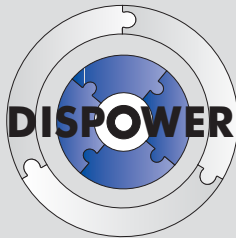
The DISPOWER project intends to support the transition process mentioned above towards a more decentralised and market oriented supply structure. New concepts, strategies and tools will be developed and implemented in order to improve the production and distribution of electricity and heat and to support the opening of new market opportunities for renewable energies and distributed generators. Thus, the DISPOWER project will help to prepare the safe, reliable and high quality implementation of distributed generation into European grids, focussing on the efficient integration of renewable energy sources.

Duration: 01.01.2002 - 31.12.2005

Budget: EUR 17 Mio

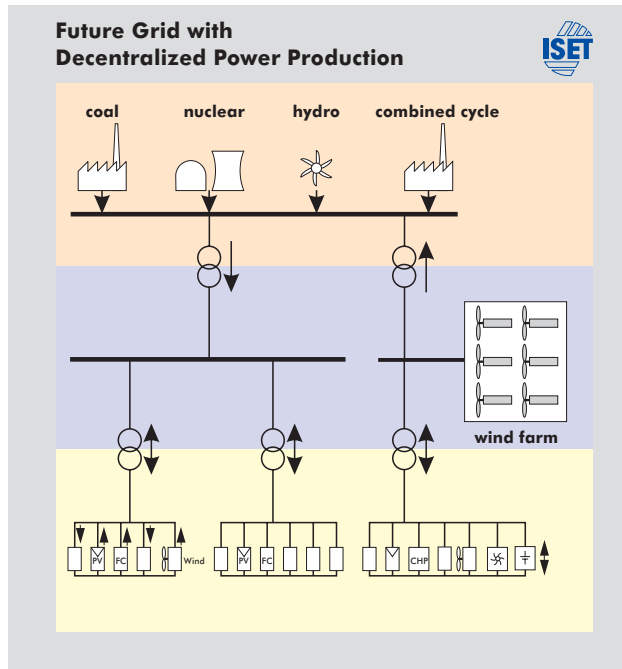


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Work Packages

- 1 Grid stability and control
- 2 Power quality and safety
- 3 Socio-economic Issues
- 4 Planning, training and operation tools for regional supply systems
- 5 Information, communication and electricity trading
- 6 Test facilities for grid stability and control
- 7 Implementation of RE technology for regional supply systems
- 8 Test facilities for power quality in DG grids
- 9 Operation and quality management tools in low voltage grids
- 10 Pilot installations and monitoring of distributed power generators in low voltage grids
- 11 Overall assessment of DG in local power supply systems



Main objectives

- Development of strategies and concepts for grid stability and system control in DG networks
- Preparation of safety and quality standards in DG networks
- Investigations on power quality improvements and requirements for decentralised inverters and generation systems
- Development of management systems for local grids with high penetration of DG units
- Assessments of impacts to consumers by ICTs, energy trading and load management
- Development of planning tools to insure reliable and cost effective integration of DG components in regional and local grids
- Creation of Internet based information systems for communication, energy management and trading
- Investigations on contract and tariff issues regarding energy trading and wheeling and ancillary services
- Improvement and adaptation of test facilities, experiments for further development of DG components, control systems and design tools
- Dissemination and implementation of concepts and systems for an improved integration of DG technologies in different European electrical network environments

- Studies, simulations and hardware implementations of control algorithms for distributed generation
- Technical requirements for standards
- Studies on the socio-economic factors affecting distributed generation
- Hardware implementations of power quality management devices
- DG grid planning and operation tools; training facilities and a training programme for grid operator personnel
- Implementation of RES prediction systems
- Set-up of a DG related database for information services
- Test centres for DG technology
- Implementation of DG technologies for regional and local grids.

Expected Results