



ENARD:- the IEA Implementing Agreement on Electricity Networks Analysis, Research and Development

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Presentation Structure

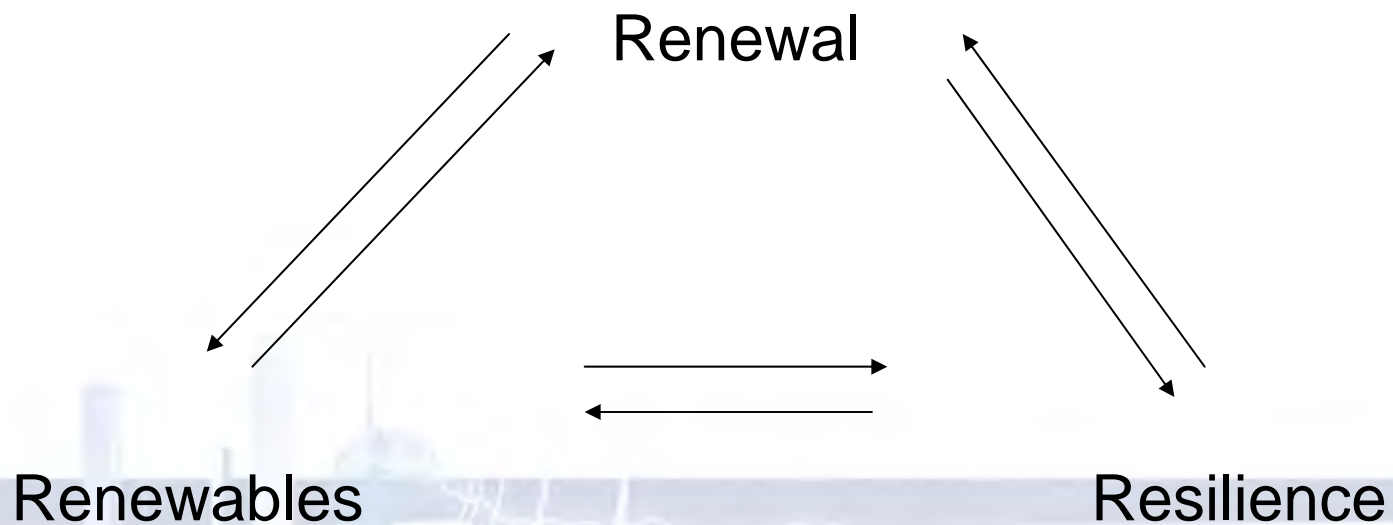
- ENARD, context, mission, objectives and structure
- Participation
- Annex I
- Workshops
- Information and Data Collation
- Supporting Activities
- Current Status
- Annexes II, III and IV
- Complementarities and Linkages
- Advantages and Benefits
- Further information
- ENARD web-site: www.iea-enard.org



The IEA Implementing Agreement on Electricity Networks Analysis, Research and Development (ENARD)

- ENARD:- an IEA Implementing Agreement addressing a variety of electricity T&D network issues
- Annex I work programme initiated September 2006

Context: The Three Rs of Power Systems Development





Mission:

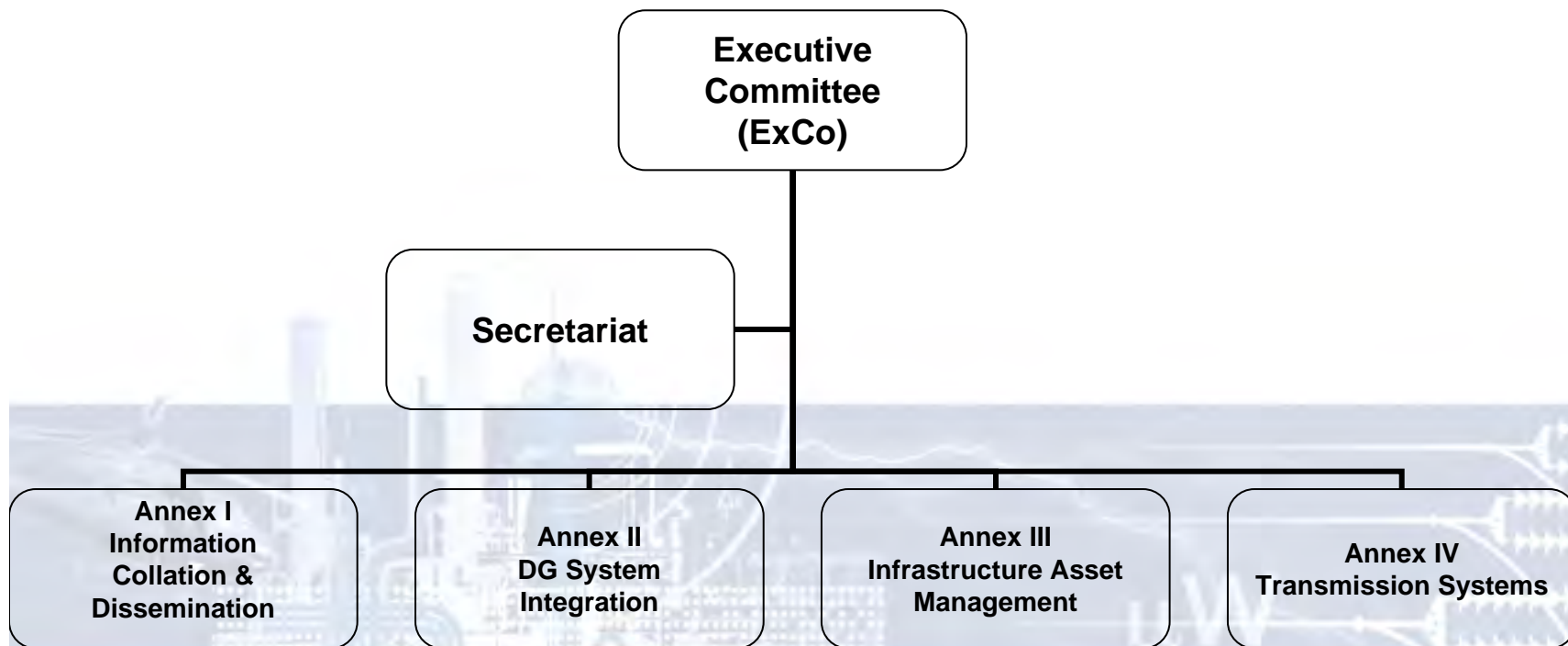
“To provide a major international forum for information exchange, in-depth research and analysis and collaborative R&D in relation to electricity T&D networks”



Core Objectives

- The collation, exchange and dissemination of information and data
- The in-depth review and analysis of a range of key issues relating to the R&D, design, operation and management of T&D networks
- The complementary review and analysis of prevalent and anticipated regulatory frameworks and their impact on the economic evaluation and optimisation of network asset portfolios

Organisational and Management Structure



Participation



Austria



Belgium



Denmark



Finland



France



Italy



Netherlands



Norway



South Africa



Spain



Sweden



Switzerland



UK



USA

Annex I (Information Collation and Dissemination)

- Combination of collation and dissemination of pertinent T&D network related information and data, complemented by organisation and delivery of series of topical workshops
- Operating Agent and national co-ordinator (expert) roles defined
- Further role as the springboard for the development of future (R&D) Annexes

Annex I Workshops (delivered)

Date	Venue	Theme
September 2006	Milan, Italy	Distribution Systems and Association End User Issues
March 2007	Vienna, Austria	Integration of Distributed Energy Sources and New Business Models
May 2007	CIREN, Vienna	Managing an Ageing Infra-structure
June 2007	Leuven, Belgium	Economic & Regulatory Issues
September 2007	Trondheim, Norway	Transmission Systems Issues
April 2008	Chester, UK	Intelligent Networks
May 2009	Gotland, Sweden	Communications & Control
October 2009	Fredericia, Denmark	Balancing the Variability in Renewable Electricity Supplies



Grid Policy Workshop 28th April 2010, Paris

- Title:- “Electricity Grids – a key enabler in the delivery of a sustainable energy policy”
- Communication of key message from ENARD, some 4 years into present 5 year Term
- Identification of priority areas for future attention
- Watch website, for further details

Workshop Objectives

In general terms, workshops aim to identify:

- key challenges
- information requirements
- opportunities for future collaborative R&D
- complementarities with other initiatives and programmes
- associated opportunities to develop structured follow-on (R&D) Annexes

Supporting Information and Data Collation Activities

- addressed on a collaborative basis with the network of National Co-ordinators
- Phase One (Sept 2006 to Sept 2008)
 - addressed via a series of detailed questionnaires
 - collation of national returns allowed for compilation of authoritative digest of T&D developments
 - digest delivered to National Participants, Sept 2008
- Phase Two (Oct 2008 on)
 - further specific topics being addressed via a small series of focussed studies

Annex I Associated Activities

- Information Dissemination
 - Confidential information and data, within context of Annex I and further Annexes
 - Public dissemination via overview reports, outputs and events
- Web-site development and maintenance

Current Status

- Annex I: Operational and ongoing activities
- Annex II: “DG System Integration”; adopted by September 2007 ExCo Meeting and started work, May 2008
- Annex III: “Infrastructure Asset Management”; adopted by September 2007 ExCo Meeting and started work, April 2008
- Annex IV: “Transmission Systems”; adopted by September 2008 ExCo Meeting and started work, April 2009



Annex II: “DG System Integration”



Annex II: “DG System Integration”

- formally adopted by ENARD ExCo, September 2007
- Operating Agent: AIT, Austria
- 24 month initial work programme, May 2008 on
- 11 countries participating



Annex II – Overall Objectives

- to build up and **exchange knowledge** on DG system integration aspects and existing active network approaches **amongst the global players** in distribution networks
- to **promote implementation possibilities** for active distribution networks as an overall goal of Annex II
- to develop **guideline(s)** for network operators and political decision makers on how to manage and implement the **transition from passive to active distribution networks**

Annex II: Deliverables and Outputs

The Annex II deliverables will include:-

- Detailed in-country surveys of current state-of-the-art, lessons learnt, limitations, future developments
- Complementary foresighting activities and abstraction of visions/goals for the future (eg growth of future fully integrated active networks)
- Compilation of an international overview report drawing out key messages
- Formulation of guidelines document to assist DNOs and Governments to progress from passive to active networks
- Identification of requirements and needs for future work



Annex III: “Infrastructure Asset Management”





Annex III: “Infrastructure Asset Management”

- formally adopted by ENARD ExCo, September 2007
- Operating Agent: EA Technology, United Kingdom
- 21 month Phase One work programme, addressing the distribution asset base, April 2008 on
- 6 countries participating

Annex III “Infrastructure Asset Management”

Aim: To address the challenges associated with the management of increasingly ageing T&D asset bases within the participating countries and beyond, via the exchange of information and data in relation to the ageing, degradation, failure and end-of-life characteristics of the T&D asset base and the complementary development of new asset management techniques and methodologies

Annex III “Infrastructure Asset Management”

Objectives (Phase 1; related to the distribution asset base)

- development of a robust international information base
- development of detailed understanding of risk based definitions and methodologies
- to source, collate and analyse relevant case study material
- to cross-reference above with that for transmission systems
- to compile a comprehensive information base and digest

Annex III: Principal Deliverables and Outputs

The principal deliverables and outputs associated with Annex III include information/data bases, experts' meetings and reports addressing:-

- ageing, degradation, failure and EoL characteristics
- existing and proposed methods of quantifying asset related risk
- international case study experience
- lessons learnt and implications/recommendations for successful asset management



Annex IV “Transmission Systems”



Annex IV “Transmission Systems”

- formally adopted by ENARD ExCo, September 2008
- Operating Agent: SINTEF Energy Research (Norway) and ERSE SpA (Italy)
- 24 month initial work programme
- start-of-work, via Inaugural Experts meeting, Milano, Italy, 28th-29th April 2009
- 7 countries participating

Annex IV “Transmission Systems”

Aim:

- To develop a long term vision for transmission systems, beyond 2020

Objectives:

- To address the main barriers towards the development of transmission capacity
- To identify the most promising solutions and challenges in terms of expansion planning and market analysis, and secure operation of transmission networks
- To identify the need for new transmission technologies

Annex IV: “Principal Deliverables and Outputs”

The principal deliverables and outputs associated with Annex IV will comprise a small series of experts’ meetings and workshops and two detailed reports, addressing, respectively:

- Availability and application of planning tools, market and network models and the identification of the need for new tools
- Availability and application of advanced operational tools and on the need for new operational monitoring and control tools

Complementarities and Linkages and Other Work Programmes

- current IEA framework addresses discrete aspects of electricity networks, DG, renewables, communications, DSM, network technologies
- ENARD actively pursuing the development of exchange mechanisms within the above framework and with other international programme activities, including:-
 - CIRED
 - CIGRE
 - Eurelectric
 - European Commission



Key Advantages and Benefits of Participation in ENARD:-

- timely ability to address a series of inter-related technological and policy related issues
- highly cost effective platform for international collaboration and peer group information exchange
- provision of high level advice to Governments, G8 and associated policy makers
- essential role in stimulating new initiatives and actions
- common challenges/shared solution mechanisms!



For further information...

Further information on ENARD, including participation in the Implementing Agreement and its activities, may be obtained from the ENARD website, at www.iea-enard.org or from the ENARD Secretariat at EA Technology:-

e:mail: enquiries@iea-enard.org

Or

Tel. +44-(0) 151-347-2425



ENARD Web-site

www.iea-enard.org



Innovators in Power Engineering