

IEA ENARD ANNEX II

DG System Integration in Distribution Networks

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Task XVII Workshop on Integration of DSM, DG, RES and ES

Petten, 9th July, 2008

Contents

1. Vision
2. ENARD and DG
3. Motivation and Objectives
4. Approach
5. Tasks
6. Participating Countries

ENARD

Vision

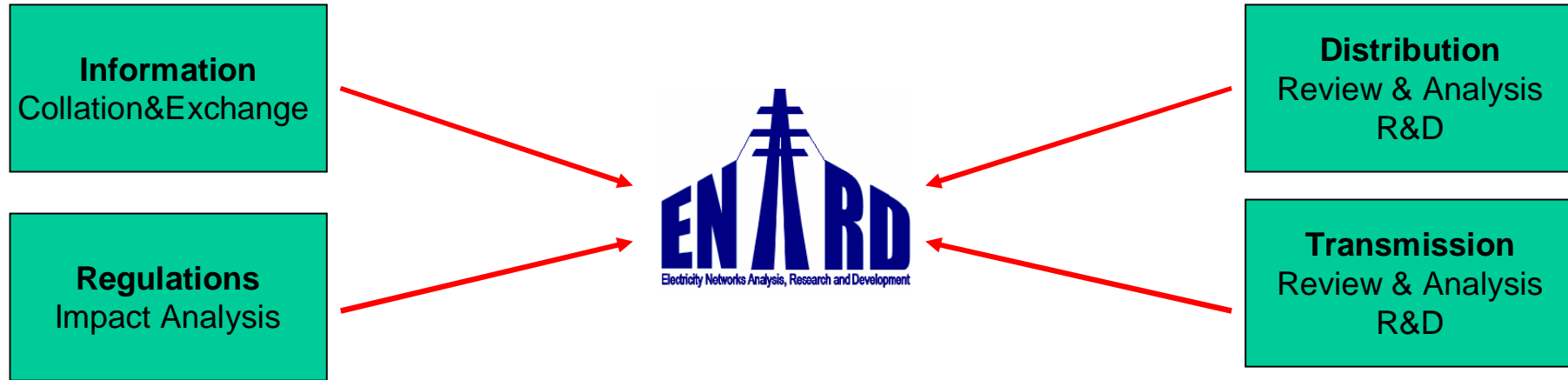


- ENARD – Electricity Networks Analysis, Research and Development
www.iea-enard.org
- Vision: “To facilitate the uptake of new operating procedures, architectures, methodologies and technologies in electricity T&D networks, such as to enhance their overall performance in relation to the developing challenges of network renewal, renewables integration and network resilience”



ENARD

Benefits



What ENARD does for you

- Experts networking and joint research platform – **world wide**
- ENARD is listened by the member governments and G8 – **political role**
- Peer group information exchange – **first hand**



Annex I - Information Collation and Dissemination (U.K)

- Central control & coordination (Ex-Co Meetings)
- Essential definition platform

Annex II – DG System Integration in Distribution Networks (Austria, arsenal research)

Annex III - Infrastructure Asset Management (U.K)

- Asses ageing, degradation, failure and EoL (End-of-Life) characteristics
- Case study of examples on how asset information is used
- Cross reference with available information transmission system

Annex IV - Transmission (Norway)

- Long term vision for developments in transmission systems

ENARD Annex II

Status

- Annex II is officially approved by the IEA ENARD ExCo
- Draft working program was worked out within Annex I Workshop “DG System Integration and New Business Models” in Vienna, March 20th-21st, 2007
- Operational since September 24th, 2007 (ExCo Meeting in Trondheim, Norway)
- Kick-off Meeting in Vienna, May 13th-14th, 2008 :
 - to make a commitment for a final working program
 - to define responsibilities

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ENARD Vision

- “To facilitate the uptake of new operating procedures, architectures, methodologies and technologies in electricity T&D networks, such as to enhance their overall performance in relation to the developing challenges of network renewal, renewables integration and network resilience”



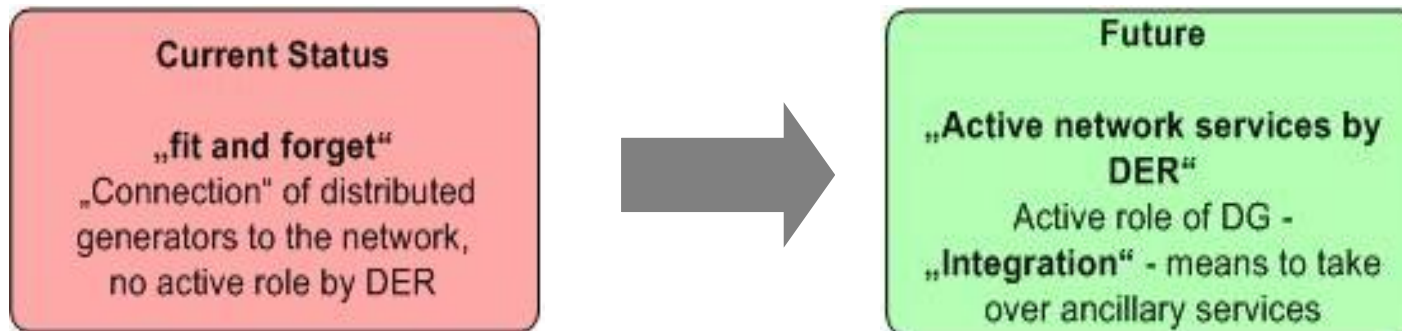
distribution networks

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Motivation

- The penetration of Distributed Generation (DG) **increases** continuously
- **new challenges** for distribution network operation
- **energy- and load management** is becoming increasingly important



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Objectives

- to build up an **knowledge exchange** 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 this Annex II.
- to develop **guideline(s)** for network operators and political decision makers on how to manage and implement the **transition from a passive to an active distribution network**

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Approach

- to **identify** existing active networks as well as **benchmark** knowledge and experience compile international comparable information about integration
- to **define concepts** for active network approaches taking into account local factors and to **provide recommendations** on individual designs (mix of technologies, architecture, network planning)
- to compile and disseminate **best practice examples** and **guideline(s)** on implementing the transition from a passive to an active distribution network,

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Scope and Tasks

- The scope of Annex II deals with **system integration into low and medium voltage networks** including technical, economical, organizational and regulatory aspects and related active distribution network operations.

- The work program is divided into three tasks (draft):

Task 1: Aspects for Activation of Distribution Networks

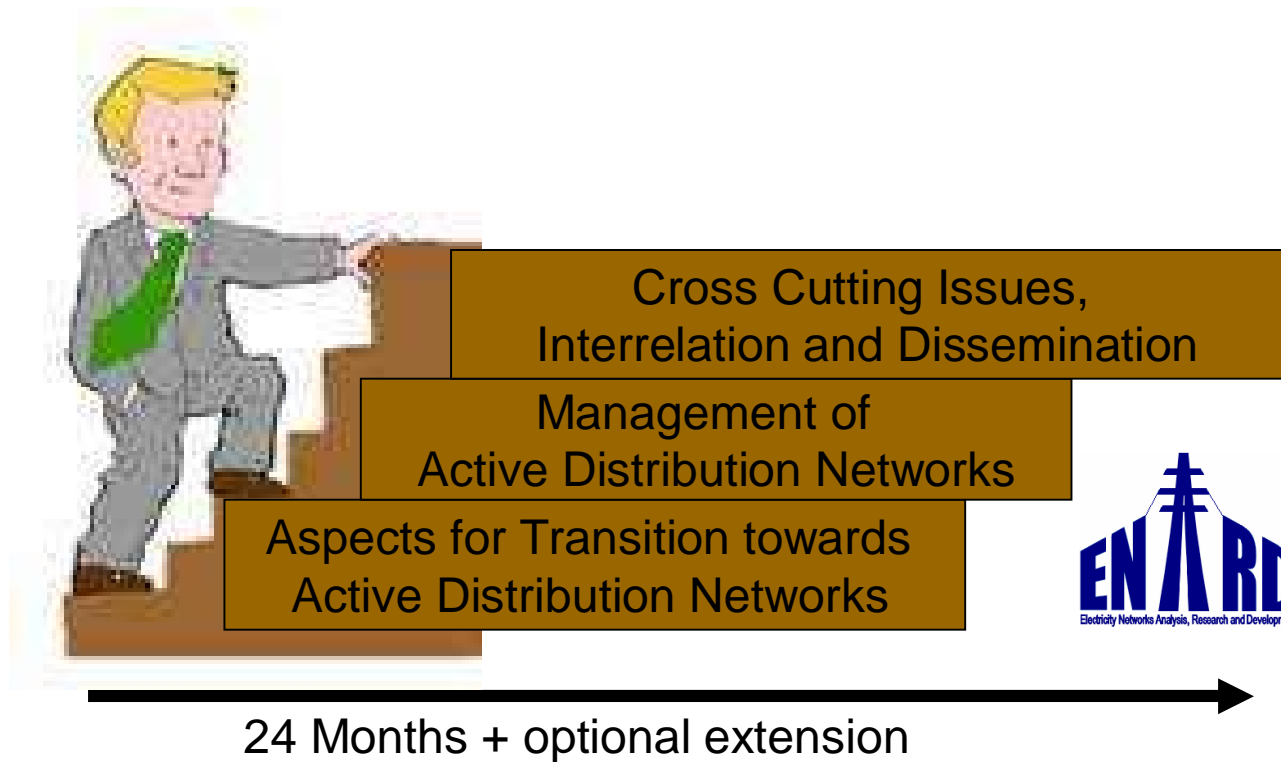
**Task 2: Management of Active Distribution Networks
(technical, economical, organisational)**

**Task 3: Cross Cutting Issues, Interrelation and
Dissemination**

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Tasks

DG System Integration in Distribution Networks



Task 1: **Aspects for the transition towards active distribution networks**

- To review, analyze and document existing architectures and planning approaches of active distribution networks including barriers and models
- Output: State of the art, trends, barriers and recommendations for active distribution networks **architectures and planning approaches**

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Task 1 - Activities

- Activity 1.0: IEA ENARD Annex II Definitions
- Activity 1.1: Survey of Existing Active Networks
- Activity 1.2. Benchmarking and Identification of Needs

Task 2: **Management of Active Distribution Networks**

- To foster the development of control and operational strategies that can be utilised to improve the reliability, operation and performance of active distribution grids
 - Surveying technical, economical and organisational operation and control approaches
 - Organisational framework and business models
 - Guidelines and recommendations
- Output: Current state of the art, trends, barriers and recommendations for **control and operation** of active distribution networks.

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Task 2 - Activities

- Activity 2.1: Surveying Technical, Economical and Organisational Operation and Control Approaches
- Activity 2.2: Commercial Market Regulatory
- Activity 2,3: Guideline and Recommendations

Task 3: **Cross Cutting Issues, Interrelation and Dissemination**

- To develop a clear vision of active distribution networks and evaluate the micro and macroeconomic benefit; to perform dissemination activities for active distribution networks
 - Workshops and dissemination
 - Vision and value analysis
- Output: Reports on interrelation and dissemination activities, guidelines for stakeholders to assist DNO's to progress from passive to active approach, vision and value report.

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Task 3 - Activities

- Activity 3.1: Workshops and Dissemination
- Activity 3.2: Vision and Value Analysis

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ENARD

Participating Countries

Austria



Switzerland



Italy



Denmark



Belgium



Finland



Sweden



Spain



United Kingdom



United States



France (t.b.c.)



Norway (t.b.c.)



Canada (t.b.c.)



Japan (t.b.c.)



- any other country is invited to participate and welcome in Annex II

Thank You

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