ENTSO-E in the Energy Union and Beyond

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Overview

- ENTSO-E: Mandate and Role in the IEM
- Cooperation with Med-TSO and MEDELEC
- ENTSO-E within the Energy Union
- The Energy Union: Benefits for All

ENTSO-E’s Mandate and Role in the IEM

ENTSO-E: the European Network for Transmission System Operators for Electricity

- 41 TSOs from 34 countries
- 532 million citizens served
- 529 GW highest load
- 305 Thousand km of transmission lines
- 1004 GW net generation capacity

Key outputs:
- Ten-Year Network Development Plans
- Adequacy forecasts
- R&D plans
- Tools for Market Integration
- Network Codes

in close cooperation with the EC, ACER and all stakeholders
ENTSO-E’s Role in the Third IEM Package and Subsequent EU Legislation

Major responsibilities in the 2009 3rd IEM Package:

• All TSOs shall cooperate through ENTSO-E
• Draft network codes
• Adopt Ten-Year Network Development Plans and Adequacy Outlooks
• Adopt common network operation tools and research plans

Additional legal mandates:

• 2010 Inter-TSO Compensation Mechanism (Regulation 838/2010)
• 2013 Transparency Regulation (Regulation 543/2013)
• 2013 Infrastructure Regulation: CBA for PCIs (347/2013)
• Implementation of 10 network codes, including market integration tools

Cooperation with Med-TSO and MEDELEC

Energy Cooperation & Coordination: Priorities for the Euro-Mediterranean Partnership

Med-TSO and ENTSO-E: Towards a Mediterranean Electricity Regional Market

Med-TSO and ENTSO-E: Benefits for All Partners
Energy Cooperation & Coordination: Priorities for the Euro-Mediterranean Partnership

- **Power demand in the MENA region:** 7% annual growth until 2020
- **Challenges to the current power system:** population growth, economic development and industrialisation, rising demand for electricity, renewable energy integration
- **Grid connections between Tunisia, Algeria, Morocco and Spain but need for further expansion, modernization and more interconnections of the electricity grids**
- **Expectations for the next decade:**
  - 150 GW increase in generation capacity
    - 15% coming from RES
  - 90 GW increase in electricity demand
    - 220 - 250 billion € in investments needed
  - 33,000 km of high voltage lines & 3,000 MW of North-South Interconnections
    - 20 billion € in investments needed

- **Med-TSO’s “Master Plan of the Mediterranean Electricity Interconnections”**

The Master Plan of the Mediterranean Electricity Interconnections

- **Developed between January and June 2013** with the aim to address:
  - the need to coordinate the interconnection projects at a regional level and the interconnected grids operation
  - the goal to develop international electricity exchanges in the Mediterranean region
- **Deliverables:**
  - National Electricity Development Plans (NDPs) of the Mediterranean Countries up to 2022: interconnections and grid reinforcements
  - Master Plan of the Mediterranean Interconnections
  - Mediterranean Reference Grid at short term (on rolling base)
  - Guidelines for coordinated planning
Med-TSO, MEDREG & ENTSO-E: Towards a Mediterranean Electricity Regional Market

- **Development & planning** in synergy with ENTSO-E: coordinated national development plans, harmonization of planning criteria
- **Operation**: coordination on shared common criteria and technical rules for designing, implementing and operating interconnected grids
- **Market procedures** to manage international exchanges
- **Homogeneous criteria of cost-sharing and cost-allocation analysis** & identification of financial schemes
- **Business models** for international energy exchanges

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Med-TSO & ENTSO-E: Mutual Benefits for All Partners
The Example of TEIAS

TEIAS signed a Long-Term Agreement with ENTSO-E on the permanent synchronous operations of the Turkish power system with the Continental Europe synchronous area on 15 April 2015

**Mutual benefits:**

- reduced need for frequency containment reserves to be kept by single TSOs
- a new step in the development of the cooperation between the EU and the Mediterranean countries
ENTSO-E within the Energy Union

Towards an Energy Union

- A Communication setting out a vision for a global climate agreement in Paris
- An Interconnection Communication
- A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy

measures to achieve the 10% electricity interconnection target by 2020

for a transparent, dynamic and legally binding global agreement with fair and ambitious commitments from all parties

Energy security, solidarity and trust, a fully integrated European energy market, Energy efficiency, Decarbonising the economy, Research, Innovation and Competitiveness
The Energy Union - Introduction

- Energy security, solidarity and trust
- A fully integrated European energy market
- Energy efficiency contributing to moderation of demand
- Decarbonising the economy
- Research, Innovation and Competitiveness

for greater energy security, sustainability and competitiveness

Interconnections as Vital Parts of the Energy Union

Variable generation

Thousands of small units

High concentration and huge flows all over Europe

Challenges

Well-Functioning Electricity Markets Require:

- Liquid, efficient and complete marketplaces
- Demand and supply responsiveness to price
- Equal access to essential facilities (transmission/distribution network)
- Transparency & equal access to market information
- Level-playing field for all market participants

But: the IEM cannot be achieved by market forces alone: framework guidelines and network codes must ensure the IEM!

Network Codes: Foundations of the IEM

Internal Electricity Market

3 Connection Network Codes set requirements for:
- Generators
- Demand-side
- HVDC connections

...paving the way for demand response, RES and offshore wind...

3 Market Network Codes set market rules for:
- Day ahead/intraday & Capacity calculation
- Long-term timeframes
- System balancing

... day-ahead market coupling...

4 Operational Network Codes set common rules for:
- Assessing adequacy
- Planning outages
- System security
- Emergency situations

...regional security coordination initiatives...
A Complex, Interlinked, and Strong Regulatory Environment

Bottom-up collaborative process

Stakeholders
- Industry associations
- Market participants
- Consumers
- Power exchanges
- Regulators

Implementation Ahead

Codes near to completion...
Now harmonization and implementation on the agenda

- Network Codes need to be adopted
- Early implementation projects need to be supported
- Further consistency and harmonization between national and EU legislation needed

TSOs are the central and neutral party to evaluate developments and assess costs and benefits of changes to the electricity markets

...and thus to prepare the IEM for future challenges
The Regional Security Coordination Initiatives (RSCIs)

- pioneered and developed pro-actively by TSOs
- offer regional coordination services and provide TSOs with an overview of electricity flows at European regional level
- enable TSOs to identify and manage potential threats to secure system operations arising from large-scale, regional power flows
- enable TSOs to implement and enforce a higher level of coordination between themselves for operating the European transmission system

- An all-TSOs Multilateral Agreement will be developed in 2015, making participation in RSCIs mandatory for interconnected TSOs
  - network codes will create a Europe-wide harmonised power system operation framework with cross-regional and pan-European geographical coverage, setting up the fastest, most efficient, secure and reliable way to ensure the highest security of electricity supply standards in Europe

Towards a Genuine Energy Union

- Full application of the existing legislation through swift adoption and implementation of the ten electricity network codes which are in the basis of the Internal Energy Market
- Facilitation of investments into transmission infrastructure through the launch of a pan-European communication plan to support publicly critical EU infrastructure projects
- Stronger coordination between Member States’ energy-mix and security of supply policies at both regional and European level - ENTSO-E’s regionally coordinated system adequacy reports
- Stronger regional coordination to prevent and manage any energy scarcity situations
- Upgrade the current market design with a view to integrating renewables into the market, empowering end-consumers and improving market incentives
- Fostering innovation and new technologies in power systems, including storage and demand side response
The Energy Union: Benefits for All

- An Integrated Mediterranean Electricity System along with the European IEM
- Security of Power Supply and Efficient Operation of the Regional Electric System in the Mediterranean
- Multilateral Cooperation for Regional Development & Investment and for strengthening energy security & promoting competitiveness and growth
- Dialogue and Partnership between the EU and the Mediterranean countries and extension of the benefits of the EU Internal Energy Market to the EU partners in the region for stability and shared prosperity in the Mediterranean region

Thank you for your attention!

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