Introduction by European Copper Institute

October 13, 2016
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Your hosts today

The Role of DSM to Provide Flexibility in Electricity Systems

October 13, 2016
Renaissance Brussels Hotel

Register at http://j.mp/IEADSM2016
2014 EU copper demand by product
+/- 3.8 million tonnes

- Alloy semis: 23%
- Copper semis: 8%
- Tubes: 10%
- Wire: 59%
The strong link between copper use and energy sustainability

- Energy conservation
- Energy efficiency, renewables, electrification
- Low efficiency, conventional generation
- Reliability, safety
Project
Copper in renewable electricity systems

Lithium batteries:
+ 0.6 kg Cu / kWh

Building automation:
+10%
Home automation:
+43%
Electric vehicles:
+28 kg
Heat pumps:
+8 kg

Wind & PV: up to 12 times more copper intensive

Efficient grids; interconnectors; subsea grid; …
(370 – 450 ktons Cu over next decade)
Project
DSM for RE integration - IndustRe

2012 ECI
Idea for wind powered industrial processes

April 2014 IFIEC & CEFIC
Workshop on DSM avenues in industry

May 2014 ECI
H2020 Project application on DSM for further RE integration

October 2014 ECI
Wins H2020 Project application for execution 2015-2018

January 2015
Kickoff of the IndustRe project
www.industre.eu
Since 2001, 70+ application notes in 10 themes
Tools for engineers to manage the energy transition
[www.leonardo-energy.org/GPG](http://www.leonardo-energy.org/GPG)
Update every 3 years
Power Quality & Energy Efficiency handbooks
Since 2005, 400+ webinars
Training for professionals to manage the energy transition
www.leonardo-energy.org/WEBINARS
150 webinars archived as 24/7 education library
Basis of e-learning program
http://j.mp/leonardotube
Overview of e-learning initiatives

DSM University

EU Energy & Climate Policy

Copper Academy

Transformer Academy

ISGAN Academy

Cable Academy

Power Quality Academy

Low Carbon Economy
ANNEX 8- ISGAN Academy

Update to
12th ISGAN Executive Committee Meeting
Paris, France          October 12-14, 2016
Objectives

- The objectives of the ISGAN academy are to offer the ISGAN community of high level engineers and decision makers a means of rational and efficient continuous technical skills complement and update in the field of smart grids.

- Channel: e-learning platform
  - Topics: power system fundamentals to more specialised courses on breakthrough smart grids solutions
  - Structure information (public material) about recent developments, best practices, interesting methodologies, etc. on smart grids theory, application, deployment, events, etc.

- Program Committee:
  - draft the core structure of the e-learning platform
  - learning trajectory, existence and relation between modules, extent of the learning modules of the fundamentals, structure of the additional reading material etc.

- Leonardo Energy will provide the e-learning campus, will structure the e-learning architecture and will produce the webcasts based on material (ppt presentations) generated by ISGAN

- The e-learning units:
  - Recorded lectures: voice over a PPT slides
  - Lecturer will be provided by ISGAN (task share).
  - No direct teacher-student interaction is foreseen.
  - Blogs and communities can be implemented.
Theme 1. Fundamentals
- The structure of power systems: transmission and distribution
- The structure of power systems: generation and supply
- Regulatory economics, monopolistic activities: network businesses
- Regulatory economics, competitive activities: generation and retailing
- Introduction to smart grids
- Smart devices for smart grids
- Smart devices & technologies for distribution networks
- Communication systems in distribution networks: operation and control
- Communication systems in distribution networks: metering

Theme 2. Technical aspects: technologies, devices and system operation
- Integration of RES in power systems: transmission networks issues
- Integration of DER in distribution networks
- Electric mobility and the impact in power systems
- The role of storage in power systems and networks
- The active participation of demand: DSM
- Smart devices & technologies for transmission networks

Theme 3: Economics and regulation
- Tariff designs in the Smart grid context
- Cost and benefit analysis of smart grids functionalities
- Scalability and replicability of smart grids
- The use of reference network models
- Economics and business models
- Regulation of network activities
- Standards & interoperability
- Sustainability policies
- Social aspects and consumer involvement
- TSO-DSO coordination

Theme 4: International case studies and perspectives
- Jeju Island Smart Grid Project
- GRID4EU project, innovation for energy networks
- PRICE project, integrating Smart grids from two major distribution utilities in Spain
Today’s program

Session 1
Topics 1 & 2
Setting the scene

Session 2
Topics 3 & 4
Policy

Session 3
Topics 5-8
Demand response

Session 4
Topics 9-10
Integration

Session 5
Topics 11-12
Market design

Session 6
Topics 13
Conclusion
Thank you for your attention

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