Grid Edge Technologies: Changing Paradigms to Promote the 3D Concept

Decentralization, Decarbonization, and Digitalization

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A Agência Nacional de Energia Elétrica tem a honra de convidar os funcionários dessa Distribuidora para o evento Ciclo de Debates: Futuro dos sistemas de distribuição.

As palestras serão ministradas pelo professor titular da UNICAMP Doutor Walmir Freitas, virtualmente, pelo aplicativo Microsoft Teams (Clique para ingressar na reunião), entre agosto e dezembro de 2022, conforme cronograma a seguir.

Uma excelente oportunidade de compartilharmos conhecimentos sobre os rumos da distribuição de energia elétrica no Brasil e no mundo.

Participe. É gratuito e sem necessidade de inscrição.
CRONOGRAMA DO CICLO DE PALESTRAS

29 DE AGOSTO | 14h às 16h
Tema: Gestão de perdas técnicas: modelos e ferramentas (DSS Extensions)

26 DE SETEMBRO | 14h às 16h

17 DE OUTUBRO | 14h às 16h
Tema: Controle de tensão e compensação de potência reativa em redes com elevada penetração de microgeração.

21 DE NOVEMBRO | 14h às 16h
Tema: Grid-edge technologies: changing the paradigms to promote the 3D concept.

5 DE DEZEMBRO | 14h às 16h
Grid-edge technologies: definitions and contextualization

**Greentech Media:** The grid edge comprises the **technologies**, **solutions** and **business models** advancing the transition toward a **decentralized** and **distributed** grid structure.

**World Economic Forum:** Three trends of the grid edge transformation: **electrification**, **decentralization** and **digitalization**.

**ABB:** An ecosystem of **distributed energy capabilities**, **digital solution** and **services** to maximize customer value and retention.

**Siemens:** Grid edge is where the **consumer**, **prosumer** and the **intelligent grid** interact. This transition is driven by **digitalization**, **decentralization** and a global call for **decarbonization**.

**IEEE:** Grid edge is one of the **most exciting emerging technology transitions**... It will connect utilities, technology providers, policymakers, and key stakeholders worldwide to advance a **clean energy** future while preserving the grid's **reliability** and **affordability**...
Key technologies/solutions:
✓ Smart meter
✓ Communication/computing (IoT)
✓ Automation, supervision, protection, and control
✓ Energy market

Key players:
✓ Third-party integrators/service suppliers
✓ Software and solution developers

Business model: from SERVICES to MULTIPLATFORM

New regulatory framework

Decentralization

Key technologies/solutions:
✓ Distributed energy resources
✓ Demand response
✓ Microgrids
✓ Transactive energy

Key players:
✓ Adaptive prosumers (active customers)
✓ Third-party integrators/service suppliers (nonregulated)

Digitalization

Key technologies/solutions:
✓ Electric mobility
✓ Electric heating/cooling systems
✓ Energy efficiency
✓ Renewable generators

Key players:
✓ Third-party integrators/service suppliers
✓ Independent Producers
✓ Utilities

Decarbonization (Electrification)

3D Concept

Tendencies: Grid-edge technologies (3D concept)
Tendencies: Grid-edge technologies – distribution systems

Active, supervised distribution systems (grid-edge technologies)

Potential data sources
- AMI (smart meters)/SCADA
- PQ and waveform measurement units
- GIS database
- Commercial database
- Weather stations
- Demographic/economic database

Potential applications
- Active risk-based asset management
- Proactive protection and control
- Active system/equipment condition monitoring
- New services, business, and market models
R&D: Sustainability – from research to commercialization

Development of ideas, concepts and methods (Research):

Teamwork:
- Universities
- Research Centers
- High tech consulting company (start-up company)
- Utility Technological Depart.

Development and application of products (Development):

Teamwork:
- High tech consulting company (start-up company)
- Utility Technological Depart.

Commercialization and maintenance of products (Commercialization - Sustainability):

Teamwork:
- High tech consulting company (start-up company)
- Utility Technological Depart.
Thank you

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