**P825 Transactive Energy Workgroup**

**Proposed Guide Outline Dec. 11th, 2017**

P825 – Guide for Interoperability of Transactive Energy Systems with Electric Power Infrastructure

The purpose of the standard is to provide guidance on treatment of matters in which the dominant factors are the **application, design, deployment and operation of consumer and prosumer energy services behind the meter, and the technology and standards to support the functions of these consumer and prosumer interests,** including processes and business models that expand and clarify the relationship between the grid and energy resources and services behind the meter, called transactive energy systems. Leveraging the widely adopted IEEE1547 interconnection standard as well as the multiple communications protocols, this standard will provide the guidance for efficient development of Smart Grid interoperability features needed by Transactive Energy systems. This guide will permit common transactive grid services to be exercised by connected Distributed Energy Resource assets behind the meter. The guide brings together a **broad set of grid interoperability standards** that will utilize the underlying IEEE1547 Interconnection conformity as an integration platform while leveraging multiple communications protocols.

The workgroup is tasked with producing a Standards Guide that will compile structured information that may be used by multiple stakeholder communities toward developing a common connected Transactive Energy platform.

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| P825 Guide – Intended User Community | This section identifies the primary stakeholder segments and explains the impact and opportunity for adopting Transactive Energy methods within this Guide. |

* 1. Regulators
  2. Electric Power Utilities
  3. Transmission/Distribution Grid Operators
  4. Community Microgrid/Utility Operators
  5. DER Project Developers
  6. Facilities Managers (Building Energy Managers)

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| Transactive Energy Introduction/Background | This section defines the TE domain and describes the context for the evolution of Transactive Energy relative to emerging interoperability standards. |

* 1. Working Definition for Transactive Energy
  2. Summary of recent grid-edge technology evolution (post-2000)
  3. Adoption trends and emerging capabilities for DER at grid-edge
  4. Current barriers and gaps to adoption of TE

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| Transactive Energy Platform Segments - Operational Standards Inventory | This section identifies and compiles the primary individual standards that relate to a developing Transactive Energy platform. Oriented toward primary physical and logical grid segments. (Device Type subsets?) |

* 1. Generation (Production?) (Energy Resources)
  2. Transmission/Distribution (Energy Delivery?)
  3. Retail / Aggregator (Retail Market, Load)
  4. Customer Premise
  5. Communication Network
  6. Data Management
  7. Service Provider
  8. Markets

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| Current Transactive Energy Initiatives and Deployed Solution Inventory | This section takes an inventory and provides reference links to major initiatives that are being evaluated in world regions. |

Better structure: Real factor is **Regulatory** structure, utility models, economics, resources, Avi G. has strong background here. Include key success metrics (could incidentally support regional factor)

* 1. Asia Pacific Region
  2. Europe (
  3. North America (heterogeneous)
  4. South America
  5. Africa

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| TE Application Alternatives | This section summarizes and presents the leading architectural approaches to implementing Transactive Energy – dependent on specific Use Case, Market Restrictions, etc.. |

Related to findings of Section #2. Diagrams.

* 1. Peer to Peer Energy Sales
  2. Aggregator Model
  3. Etc…

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| Key Technology Element **Potential** for TE Application |  |

* 1. IoT / Blockchain
  2. Energy Storage (incl. EV)
  3. Building Energy Management
  4. Microcontroller/Microgrid
  5. SiC Power Electronics
  6. Smart Inverters
  7. Artificial Intelligence
  8. Multi Agent Platforms
  9. Security and Privacy
  10. Communications Systems / Protocols
  11. SCADA
  12. Other Emerging Tech

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| Recommended Practices for Implementing Transactive Energy |  |

* 1. Approach for Pilot Evaluations
  2. Incorporating Modeling and Simulation
  3. Establishing the Transaction Domain
  4. Etc..