DRAFT
NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 4.0

Comments Submitted by
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Orange Button Collaboration Group Recommendations for
DRAFT NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 4.0

Orange Button Collaboration Group Statement

Building the Smart Grid better, faster, cheaper requires unleashing the power of standardized data. The transition to digital communications, smart contracts and electronic transactions will enable data analytics and next generation products and services. Federal and State agencies, Capital and Financial Markets and the Construction industry should implement standardized frameworks that support ecosystem data interoperability based on machine-readable data standards for common data exchange.

Overview

The DOE Orange Button established the framework and roadmap for data interoperability with key common data elements for data exchange between the capital and financial markets, the construction industry tailored for the Smart Grid and should be included in the NIST framework and roadmap.

Finance and construction entities are referenced within the pool of "Service Providers", which is not commensurate with their significant role in the Smart Grid ecosystem and the positive impact they will contribute when provided the roadmap that aligns with the NIST framework for data interoperability.

Recommendation is to include the DOE Orange Button by expanding the ecosystem or "domains" to have distinct categories for Capital/Financial Markets and "Construction, Permitting and O&M" because of their significant and critical roles, they leverage data in the performance of those roles, and the data they generate and consume is integral to efficient and cost effective building and operating the Smart Grid.

Recommendations

Table 1 – Domains and roles/services in the smart grid conceptual model, Page 14

Change "Markets" to Energy Markets - No change to description
Add - "Capital and Financial Markets" and "Construction and O&M Software Systems"

Table 2 – Domain descriptions and graphical color representation, Page 16

Change "Markets" to Energy Markets - No change to description
Add - "Capital and Financial Markets" and "Construction and O&M Software Systems"
Change "finance" to "miscellaneous finance" in Service Providers domain

Add Appendix's

Appendix K - Orange Button Data Element Reference
Appendix L - Orange Button Taxonomy Guide
Appendix M - XBRL Application Programming Interface (API)

Add Figure

Figure 34 - DOE Orange Button - Ecosystem

Additional Acronyms

API	Application Programming Interface
XBRL	Extended Business Reporting Language
FIBO	Financial Industry Business Oncology
SolarApp	Solar Automated Permit Processing platform

Table 1 – Domains and roles/services in the smart grid conceptual model

	Domain	Roles/Services in the Domain
1	**Customer**	The end users of electricity. May also generate, store, and manage the use of energy. Traditionally, three customer types are discussed, each with its own sub-domain: residential, commercial, and industrial.
2	**Energy Markets**	The facilitators and participants in electricity markets and other economic mechanisms used to drive action and optimize system outcomes
3	**Service Provider**	The organizations providing services to electrical customers and to utilities.
4	**Operations**	The managers of the movement of electricity.
5	**Generation Including DER**	The producers of electricity. May also store energy for later distribution. This domain includes traditional generation sources and distributed energy resources (DER). At a logical level, "generation" includes those traditional larger scale technologies usually attached to the transmission system, such as conventional thermal generation, large-scale hydro generation, and utility-scale renewable installations usually attached to transmission. DER is associated with generation, storage, and demand response provided in the customer and distribution domains, and with service provider-aggregated energy resources.
6	**Transmission**	The carriers of high voltage electricity over long distances. May also store and generate electricity.
7	**Distribution**	The distributors of electricity to and from customers. May also store and generate electricity.
8	**Capital and Financial Markets**	Providers of financing, insurance and surety and other products and services so their respective systems support the data interoperability in compliance with NIST and recognized data standards.
9	**Construction, Permitting and O&M Software Systems**	Providers of software to stakeholders engaged in the construction, permitting and operations of energy facilities so their respective systems support data interoperability in compliance with NIST and recognized data standards.

Change

New

Table 2 – Domain descriptions and graphical color representation

	Domain	Domain Role/Service	Color Code
	Operations	The managers of the movement of electricity.	Blue
Change	Energy Markets	The operators and participants in electricity markets i.e. Independent System Operators (ISOs), Regional Transmission Organizations (RTOs), and Distribution System Operators (DSOs).	Purple
	Distribution	The distributors of electricity to and from customers.	Light Brown
	Transmission	The carriers of bulk electricity over long distances.	Maroon
	Generation	Generators of electricity. Includes older generation sources such as coal and other carbon-based fuels, nuclear, hydro as well as distributed energy resources (DERs) such as wind and solar.	Plum
	Customer	Residential, commercial, and industrial entities that use, produce, or store energy and interact with utilities, aggregators, and markets.	Orange
	Service Providers	Billing, Information Technology (IT), *miscellaneous* finance, procurement, regulatory and aggregation functions performed for electric grid stakeholders.	Green
New	Capital and Financial Markets	Providers of financing, insurance and surety and other products and services for building and operating energy facilities	New Color
	Construction, Permitting and O&M Software Systems	Providers of software to stakeholders engaged in the construction, permitting and operations of energy facilities.	New Color