

Standards and Test Procedures for Interconnection and Interoperability



Project Description

- **Accelerate** the development and validation of interconnection and interoperability standards
- Ensure **cross-technology compatibility** & harmonization of requirements for key grid services
- **Eliminate conflicting** requirements across technology domains
- **Streamline** conformance test procedures to the fullest extent possible

Expected Outcomes

- **Improve coordination** of advanced generation and storage assets
- **Enable expansion** of markets for key devices
- **Eliminate barriers** that may be addressed by improved standards

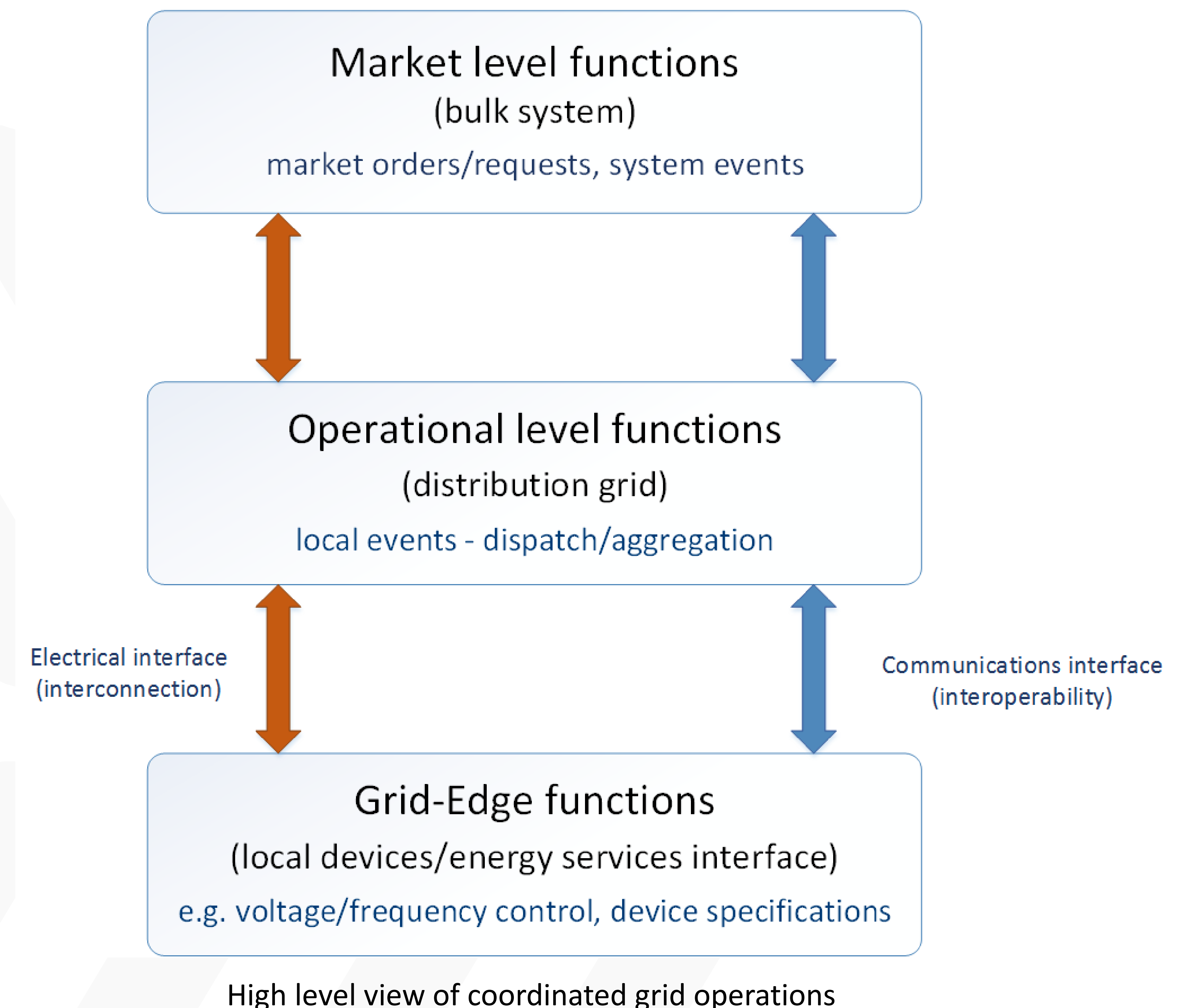
Significant Milestones	Date
Preliminary gap analysis	9/30/16
Gap prioritization framework	2/28/17
Gap analysis recommendations	3/31/17
Develop test procedures	Q2 2017
Validate test procedures	Q3 2017
Standards coordination	throughout

Progress to Date

- **Stakeholder engagement**
 - GMLC Workshop 9/2016 (Denver, CO)
 - SGIP 2016 Grid Summit 11/2016 (Washington, DC)
 - GMLC workshop, 3/2017 (Atlanta, GA)
- **Gap analysis and prioritization (Mar, 2017)**

Partnering DOE Labs:

NREL, LBNL, PNNL, SNL, ORNL, INL, ANL



Gap Analysis and Prioritization: Key Findings and Recommendations

- **Maintain focus on key grid services related to:** Energy | Regulation | Local voltage management | Artificial inertia
- **Focus on key grid-edge assets** Inverter-based (generation/storage) | Electric vehicles | Responsive loads | Microgrids (special case)
- **Inverter-based assets**
 - Affirm updates in revision of IEEE 1547, support updates for DNP3, IEEE 2030.5, IEC 61850, and SunSpec/MESA Modbus protocol maps
- **Responsive loads**
 - Support updates to OpenADR and ASHRAE standards to enable grid services, determine capability and requirements of IEEE 2030.5 (SEP2), explore the requirements for standardizing the energy services interface
- **Electric vehicles**
 - Support updates to SAEJ3072 to include volt/VAR functionality and new IEEE 1457.1 updates
- **Microgrids**
 - Support IEEE 2030, explore capabilities for grid-connected mode