

| Guiding Principle # / Additional Info # / Element # / Sub-element # | Example of testable Guiding principles   | Answer |
|---|--|--------|
| GP-8  | Enables one or more of the framework characteristics as defined by EISA or enables one or more of the six chief characteristics of the envisioned Smart Grid   | Yes/No |
| GP-8.1  | Enables one or more of the framework characteristics as defined by EISA (see below):   | Yes/No |
| GP-8.1.1  | (1) Increased use of digital information and controls technology to improve reliability, security, and efficiency of the electric grid.  | Yes/No |
| GP-8.1.1.1  | Does it address use of digital info to improve reliability of the electric grid?   | Yes/No |
| GP-8.1.1.2  | Does it address use of digital info to improve security of the electric grid?  | Yes/No |
| GP-8.1.1.3  | Does it address use of digital info to improve energy efficiency of the electric grid?   | Yes/No |
| GP-8.1.2  | (2) Dynamic optimization of grid operations and resources, with full cyber-security.   | Yes/No |
| GP-8.1.2.1  | Does it address dynamic optimization of grid operation and resources?  | Yes/No |
| GP-8.1.2.2  | Does it provide full cyber security?   | Yes/No |
| GP-8.1.3  | (3) Deployment and integration of distributed resources and generation, including renewable resources.   | Yes/No |
| GP-8.1.3.1  | Does it enable the deployment and integration of renewable resources and generations?  | Yes/No |
| GP-8.1.3.2  | Does it enable the deployment and integration of distributed resources and generations?  | Yes/No |
| GP-8.1.4  | (4) Development and incorporation of demand response, demand-side resources, and energy-efficiency resources.  | Yes/No |
| GP-8.1.5  | (5) Deployment of “smart” technologies (real-time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices) for metering, communications concerning grid operations and status, and distribution automation. | Yes/No |
| GP-8.1.6  | (6) Integration of “smart” appliances and consumer devices.  | Yes/No |
| GP-8.1.7  | (7) Deployment and integration of advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air conditioning.   | Yes/No |
| GP-8.1.7.1  | Does it enable the deployment and integration of advanced storage technologies?  | Yes/No |

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| GP-8.1.7.2  | Does it enable peak-shaving technologies including plug-in electric and hybrid electric vehicles and thermal-storage air conditioning?         | Yes/No |
| GP-8.2  | Enables one or more of the six chief characteristics of the (DOE) envisioned Smart Grid  | Yes/No |
| GP-8.2.1  | (Is it or Will it be) Enabling Informed Participation by Customers?  | Yes/No |
| GP-8.2.2  | (Is it or Will it be) Accommodating All Generation & Storage Options?  | Yes/No |
| GP-8.2.3  | (Is it or Will it be) Enabling New Products, Services, & Markets ?   | Yes/No |
| GP-8.2.4  | (Is it or Will it be) Providing the Power Quality for the Range of Needs?  | Yes/No |
| GP-8.2.5  | (Is it or Will it be) Optimizing Asset Utilization & Operating Efficiently?  | Yes/No |
| GP-8.2.5.1  | Does it enable improved assets utilization?  | Yes/No |
| GP-8.2.5.2  | Does it enable improvement in operating efficiency?  | Yes/No |
| GP-8.2.6  | (Is it or Will it be enabling) Operating Resiliently: Disturbances, Attacks, & Natural Disasters   | Yes/No |
| GP-8.2.6.1  | Does it enhance power grid resiliency during disturbances?   | Yes/No |
| GP-8.2.6.2  | Does it enhance power grid and system resiliency against attacks (physical, cyber, etc.)?  | Yes/No |
| GP-8.2.6.3  | Does it provide resiliency for power grid and systems against natural disasters?   | Yes/No |
| GP-9  | Addresses, or is likely to address, anticipated Smart Grid requirements identified through the NIST workshops and other stakeholder engagement | Yes/No |
| GP-9.1  | Addresses anticipated Smart Grid requirements?   | Yes/No |
| GP-9.2  | Likely to address anticipated Smart Grid requirements?   | Yes/No |
| GP-3  | Enables the transition of the legacy power grid to the Smart Grid.   | Yes/No |
| GP-3.1  | Does it enable the interoperability between legacy and the Smart Grid standards / systems?   | Yes/No |

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| GP-3.2  | Does it provide a clear transition path for phasing out legacy standards / systems?   | Yes/No |
| GP-14   | Accommodates legacy implementations.  | Yes/No |
| GP-14.1   | Does it enable the integration of legacy devices / systems with Smart Grid devices / systems?   | Yes/No |
|   |   |        |
| GP-2  | Is an open, stable and mature industry-level standards developed in consensus processes from a standards development organization (SDO).                                    | Yes/No |
| GP-2.1  | Is the standard open (for everyone to use and easily accessible)?   | Yes/No |
| GP-2.2  | Is it stable (i.e. it does not anticipate much change in the foreseeable future)?   | Yes/No |
| GP-2.3  | Is it mature (i.e. it's been implemented in various products and existed for some time)?  | Yes/No |
| GP-2.4  | Developed in a consensus process?   | Yes/No |
| GP-2.4.1  | Is the development process impartial to all (WTO principle 3)?  | Yes/No |
| GP-2.4.2  | Is the development process transparent (WTO principle 1)?   | Yes/No |
| GP-2.5  | Has an SDO?   | Yes/No |
| GP-2.5.1  | Is the SDO open to all interested parties (WTO principle 2)?  | Yes/No |
| GP-2.5.2  | Does the SDO properly address the development dimensions (WTO principle 6)?   | Yes/No |
| GP-2.6  | Is it at least an industry-wide accepted standard?  | Yes/No |
| GP-5  | Is supported by an SDO or Users Group to ensure that it is regularly revised and improved to meet changing requirements and that there is strategy for continued relevance: | Yes/No |
| GP-5.1  | Is it supported (or maintained) by an SDO or user group?  | Yes/No |
| GP-5.2  | Will it be constantly reviewed, revised and improved?   | Yes/No |

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| GP-5.3  | Does SDO (or user group) have a (concrete) strategy for continued relevance (and effectiveness of the standard in responding to regulatory and market needs, as well as scientific and technological developments - WTO principle 4)?               | Yes/No |
| GP-7  | Is integrated and harmonized, or there is a plan to integrate and harmonize it with complementing standards across the utility enterprise through the use of an industry architecture that documents key points of interoperability and interfaces: | Yes/No |
| GP-7.1  | Is it already integrated and harmonized with other complimenting standards?   | Yes/No |
| GP-7.2  | Is it in the process to be integrated and harmonized with other complimenting standards?  | Yes/No |
| GP-7.3  | Is there a (concrete) plan to integrate and harmonize with other complementing standards?   | Yes/No |
| GP-7.4  | Is coherent, such that standards minimize duplication and overlap with other existing international standards (WTO principle 5)?  | Yes/No |
| GP-7.5  | Addresses key points of interoperability and interfaces of an industry architecture across the utility enterprise?  | Yes/No |
| GP-12   | Is openly available under fair, reasonable, and nondiscriminatory terms:  | Yes/No |
| GP-12.1   | Are the terms of standard access fair to everyone?  | Yes/No |
| GP-12.2   | Is the cost to access the standard, if any, reasonable (i.e. no more than five thousand US dollars)?  | Yes/No |
| GP-12.3   | Are terms for access the standard non-discriminatory according to SDO?  | Yes/No |
| GP-13   | Has associated conformance tests or a strategy for achieving them:  | Yes/No |
| GP-13.1   | Has (established ways for) conformance tests?   | Yes/No |
| GP-13.1.1   | Has testing standards / guidelines?   | Yes/No |
| GP-13.1.2   | Has established quality assurance measures (traceability measure, calibration procedure, lab accreditation process, and certification process)?   | Yes/No |
| GP-13.2   | There is a strategy for achieving (standard) conformance by users, vendors, industry groups, and / or organizations?  | Yes/No |
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| GP-6  | Is developed and adopted internationally, wherever practical:   | Yes/No |
| GP-6.1  | Is it an international standard?  | Yes/No |
| GP-6.2  | Is it adopted internationally?  | Yes/No |
| GP-15   | Allows for additional functionality and innovation through:   | Yes/No |
| GP-15.1   | <i>Symmetry</i> – facilitates bi-directional flows of energy and information.   | Yes/No |
| GP-15.2   | <i>Transparency</i> – supports a transparent and auditable chain of transactions.   | Yes/No |
| GP-15.3   | <i>Composition</i> – facilitates building of complex interfaces from simpler ones.  | Yes/No |
| GP-15.4   | <i>Extensibility</i> – enables adding new functions or modifying existing ones.   | Yes/No |
| GP-15.5   | <i>Loose coupling</i> – helps to create a flexible platform that can support valid bilateral and multilateral transactions without elaborate pre-arrangement. | Yes/No |
| GP-15.6   | <i>Layered systems</i> – separates functions, with each layer providing services to the layer above and receiving services from the layer below.              | Yes/No |
| GP-15.7   | <i>Shallow integration</i> – does not require detailed mutual information to interact with other managed or configured components.                            | Yes/No |
|   |   |        |
| GP-10   | Is applicable to one of the priority areas identified by FERC and NIST  | Yes/No |
| GP-10.1   | Demand Response and Consumer Energy Efficiency,   | Yes/No |
| GP-10.1.1   | Does it enable the demand response concept?   | Yes/No |
| GP-10.1.2   | Does it help to increase the consumer energy efficiency?  | Yes/No |
| GP-10.2   | Wide Area Situational Awareness,  | Yes/No |
| GP-10.2.1   | Does it enable Wide Area Situational Awareness?   | Yes/No |
| GP-10.3   | Electric Storage,   | Yes/No |

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| GP-10.3.1   | Does it enable the use of electric (energy) storage?   | Yes/No |
| GP-10.4   | Electric Transportation,   | Yes/No |
| GP-10.4.1   | Does it enable the adoption of electric transportation?  | Yes/No |
| GP-10.5   | Advanced Metering Infrastructure,  | Yes/No |
| GP-10.5.1   | Does it enable the deployment of AMI?  | Yes/No |
| GP-10.6   | Distribution Grid Management.  | Yes/No |
| GP-10.6.1   | Does it enable the DGM?  | Yes/No |
| GP-10.7   | Cyber Security   | Yes/No |
| GP-10.7.1   | Is it for cyber security?  | Yes/No |
| GP-10.7.2   | Does the standard include cyber security?  | Yes/No |
| GP-10.7.3   | Does it enable end-to-end cyber security?  | Yes/No |
| GP-10.8   | (Inter-system) communications (/ interfaces)   | Yes/No |
| GP-10.8.1   | Does it address communication needs for enabling Smart Grid?   | Yes/No |
| GP-10.8.2   | Does it address cross-cutting areas, such as network management, data management, and application integration? | Yes/No |
| GP-1  | Is well-established and widely acknowledged as important to the Smart Grid.                                    | Yes/No |
| GP-1.1  | Is it (considered as) a well established standard important to Smart Grid?                                     | Yes/No |
| GP-1.2  | Is it widely acknowledged as important to the Smart Grid?  | Yes/No |
| GP-4  | Has, or is expected to have, significant implementations, adoption, and use                                    | Yes/No |
| GP-4.1  | (Already) Has significant implementation, adoption, and use?   | Yes/No |

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| GP-4.2  | Is expected to have significant implementation, adoption, and use?  | Yes/No |
| GP-11   | Focuses on the semantic understanding layer of GWAC stack, which has been identified as most critical to Smart Grid interoperability: | Yes/No |
| GP-11.1   | Addressing GWAC layer 8 - Policy?   | Yes/No |
| GP-11.2   | Addressing GWAC layer 7 - Business objectives?  | Yes/No |
| GP-11.3   | Addressing GWAC layer 6 - Business procedures?  | Yes/No |
| GP-11.4   | Addressing GWAC layer 5 - Business context?   | Yes/No |
| GP-11.5   | Addressing GWAC layer 4 - Semantic understanding?   | Yes/No |
| GP-11.6   | Addressing GWAC layer 3 - Syntactic interoperability (OSI layers 5 - 7)?  | Yes/No |
| GP-11.7   | Addressing GWAC layer 2 - Network interoperability (OSI layers 3 - 4)?  | Yes/No |
| GP-11.8   | Addressing GWAC layer 1 - Basic connectivity (OSI layers 1 -2)?   | Yes/No |
|   |   |        |
| AI-1  | Addressing intra-domain interfaces?   | Yes/No |
| AI-1.1  | Addressing Markets (M) domain?  | Yes/No |
| AI-1.2  | Addressing Operation (O) domain?  | Yes/No |
| AI-1.3  | Addressing Bulk Generation (BG) domain?   | Yes/No |
| AI-1.4  | Addressing Transmission (T) domain?   | Yes/No |
| AI-1.5  | Addressing Distribution (D) domain?   | Yes/No |

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| AI-1.6  | Addressing Customer (C) domain?          | Yes/No |
| AI-1.7  | Addressing Service Provider (SP) domain? | Yes/No |
| AI-2  | Addressing inter-domain interfaces?      | Yes/No |
| AI-2.1  | Addressing O-M interfaces?               | Yes/No |
| AI-2.2  | Addressing O-BG interfaces?              | Yes/No |
| AI-2.3  | Addressing O-T interfaces?               | Yes/No |
| AI-2.4  | Addressing O-D interfaces?               | Yes/No |
| AI-2.5  | Addressing O-C interfaces?               | Yes/No |
| AI-2.6  | Addressing O-SP interfaces?              | Yes/No |
| AI-2.7  | Addressing M-BG interfaces?              | Yes/No |
| AI-2.8  | Addressing BG-T interfaces?              | Yes/No |
| AI-2.9  | Addressing T-D interfaces?               | Yes/No |
| AI-2.10   | Addressing D-C interfaces?               | Yes/No |
| AI-2.11   | Addressing C-SP interfaces?              | Yes/No |