

IEC PC118

Smart Grid “User” Interface

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IEC PC118 Smart Grid User Interface

Mission and Members

* Mission

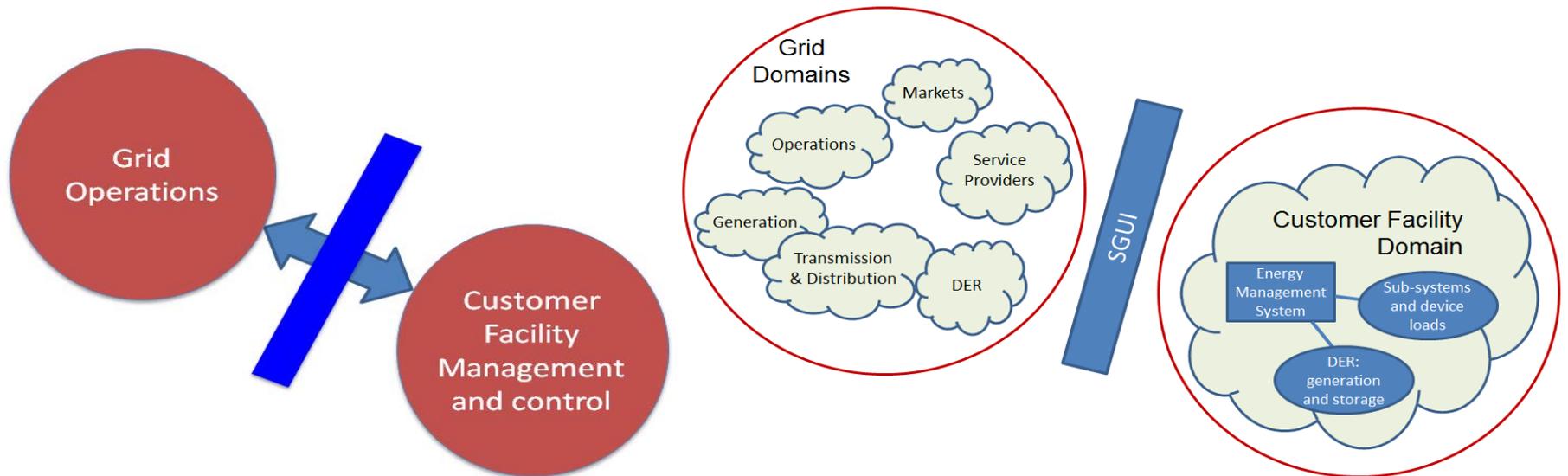
- * PC118 was formed by the IEC in late 2011 and first met in Beijing in Feb, 2012.
- * “Standardization in the field of information exchange for demand response and in connecting demand side equipment and/or systems into the smart grid.”
- * “PC118 will develop a harmonized and consistent suite of standards for the users.”

* Members

- * U.S., China, Japan, France, India, South Korea, Germany, ...
- * Members agreed to **identify country requirements for the B2G interface, identify standards gaps and prepare a technical report.**

The PC118 Tech Report

- * The SGUI is a logical, abstract, cross-domain interface that supports appropriately secure communications of information between an entity within the customer domain and an external entity.



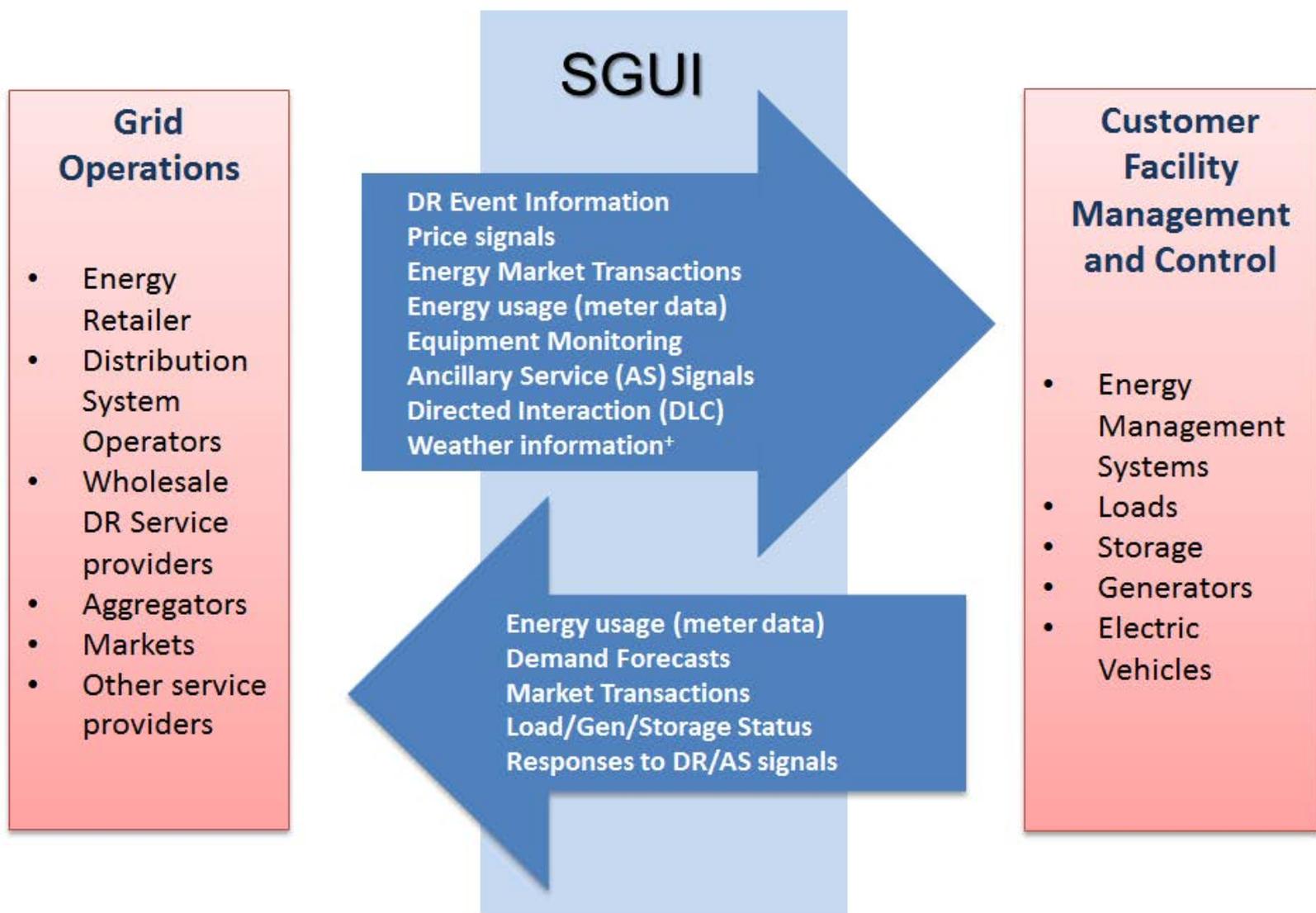
PC118 Status

- * The SGUI Technical Report is nearly ready to be released as an IEC Draft Tech Report for PC118 member country approval by vote
- * IEC Accepted OpenADR 2.0B as a Publically Available Specification (PAS)
 - * Mapping and Adapter from the IEC Common Information Model to OpenADR 2.0B
- * IEC accepted Energy Interoperation as input to working group development of an international standard
- * IEC agreed to work cooperatively with IEEE P2030 on any changes to SEP2 to reach a dual logo IEEE-IEC standard. Pending IEEE acceptance of this proposal.

Thanks!

Conclusion

- * PC118 is focused on B2G standards (grid interactions) that DOE needs to pay attention to.
- * SGIP led the way on these standards. NIST staff continue to lead the standards process.
- * The B2G interface is well-served by OASIS Energy Interoperation and OpenADR, as acknowledged by the international community and PC118 members. These standards will be used internationally.
- * The PC118 Draft Tech Report is due out in several weeks.
- * The TR has helped to classify B2G use cases, identify standards gaps, and serve to advance U.S. standards



⁺Weather information is important for Smart Grid, but is not listed as an SGUI functional requirement in section 1.4. International standards (e.g. WXXM in WMO) cover this, and weather services already provide weather data.

Information exchange through the SGUI between the Grid (external service providers) and Users in the Customer Facility domain.

Energy Interoperation and SEP2

- * PC118 agreed to take Energy Interoperation as input to a new standards development effort in PC118 WG1. The goal is to make small adjustments as necessary to meet any international concerns.
- * PC118 agreed to work cooperatively with IEEE P2030 on any changes to SEP2 to reach a dual logo IEEE-IEC standard. Pending IEEE acceptance of this proposal.

OpenADR 2.0 status

- * The OpenADR Alliance published the OpenADR 2.0 Profile B specification (covering profile implementation details, security, testing and certification) in 2013.
- * Products are being certified and tested in pilots
- * OpenADR experts are meeting regularly with IEC TC57 experts to develop a mapping from the IEC Common Information Model (for power system) to the OpenADR information model.
- * The goal is to have an international DR standard that covers DR signal from utility backend to customer end device system.
- * OpenADR is also part of the FSGIM information model to support and guide building-domain protocols such as BACnet and SEP for DR.

SGIP and NIST involvement

- * SGIP priority action plans have led to the development of key B2G standards:
 - * OpenADR and SEP2 (IEEE P2030.5)
 - * OASIS Energy Interoperation
 - * OASIS EMIX and WS-Calendar
- * Steve Bushby serves as chair of the U.S. Technical Advisory Group for PC118.
- * David Holmberg serves as WG2 (Power DR) convener and also editor of the Smart Grid User Interface Technical Report.
- * PC118 is advancing key B2G standards to international status.

Table 2-9 SGUI Functional Use Case Classes and Descriptions

UCC No.	Use Case Class (UCC)	Description (also see Section 1.4 for more detail)
1	Market Interactions	Market transactions and interactions
2	Convey Price Information	Price information
3	Convey Ancillary Services (AS) Signals	AS including faster response change in use (e.g.) phase control; sometimes these functions are implemented using so-called “fast DR” which is a service provided by curtailment and increase.
4	Convey DR and DER Signals	Demand Response or Distributed Energy Resource events
5	Convey Indications of Impending Power Failure or Exceptional Event	Notification that a power failure and/or natural disaster is imminent.
6	Convey Directed Interaction Requests (includes DLC)	Use cases suggest direct interaction with a device through service or control-centric means to address specific device response or behavior.
7	Convey Energy Usage Data (Meter Data)	Historical, present, and projected information. For example, projected demand, historical usage, and response to a curtailment event.
8	Convey Monitoring Information	Monitoring and verification of the state of energy management and use, e.g., with respect to response to a curtailment, generation, or storage draw request.

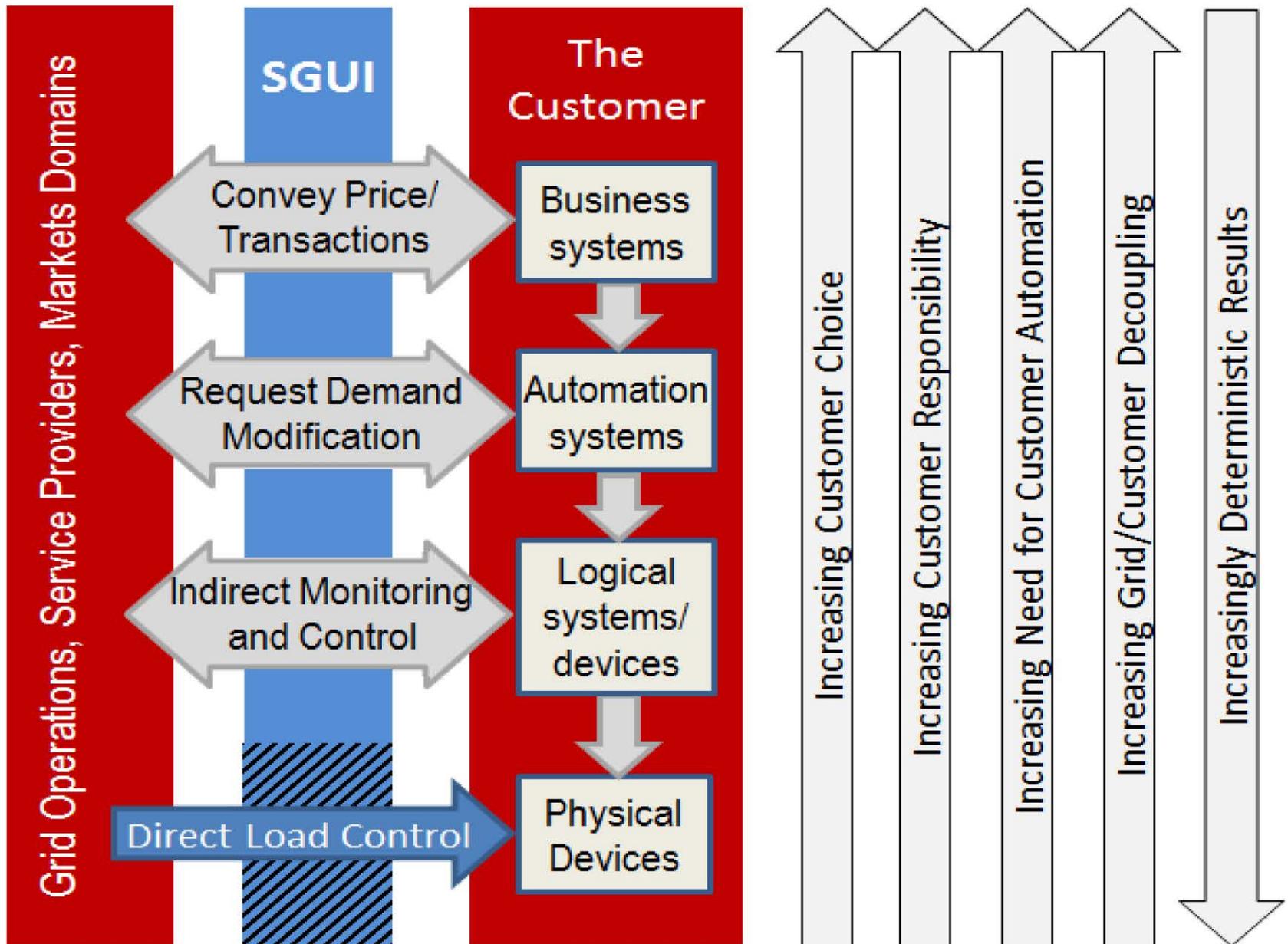


Figure 1-2 Levels of Demand Response Interactions

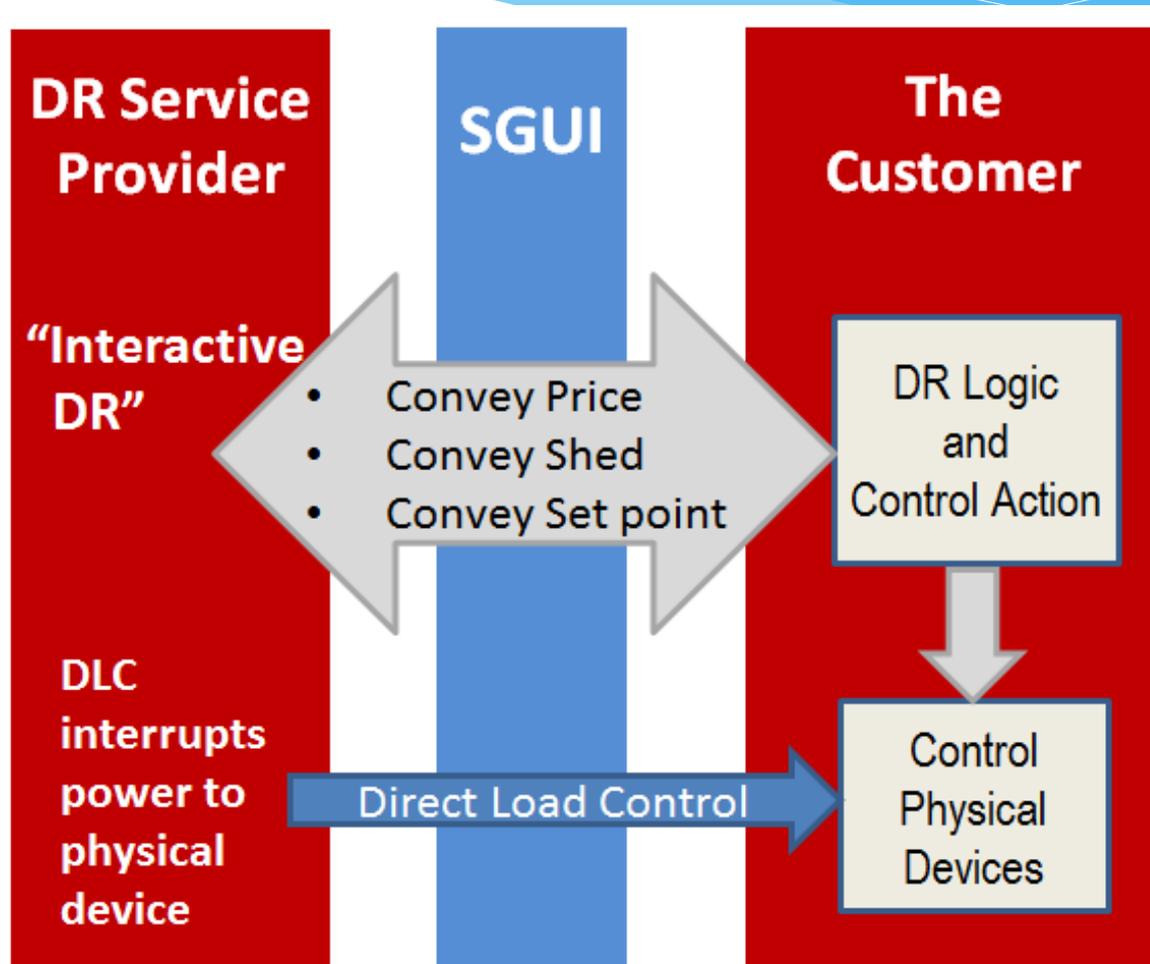


Figure 1-3 Interactive demand response versus DLC.