

Critical Standards for DER Grid Integration

and...

Help build our smart world

Grid Innovation Track
SEPA Grid Evolution Summit



GRID EVOLUTION
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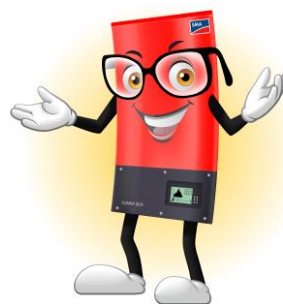
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DER Integration Standards

An overview...

“Mr. Smart Inverter”



IEEE Standard for
DER Interconnection

IEEE 1547
Full Revision

California
Rule 21
SIWG

CA Rule
Requiring
Smart Inverters

UL1741SA

Smart Inverter
Test Standard

Also...

- IEEE 2030.5
- IEC 61850 series
- DNP3
- SunSpec
- MESA
- eMIP
- OCHP
- OCPI
- OCPP
- OCSP
- and more...

Breakout Exercise

You must choose, but
choose wisely...



Your future vision of.....

EV Integration:

The ability to manage EV load is an important building block in realizing the full value of electric vehicles

Because the market is still in its early days, we have a chance to establish the concept of open standards as a key component of EV / grid integration

Open standards will make it simpler for utilities (and ISOs) to manage EV load

It is not necessary at this point to “declare a winner” among potential open standards candidates (eg, OpenADR, SEP 2, ISO 15118) – each has its own useful functionality

What’s important now is for integrators to create value by solving customer challenges, not by charging a “toll” from a proprietary standard – or from an “open” standard where an entity claims certain IP rights

Your future vision of.....

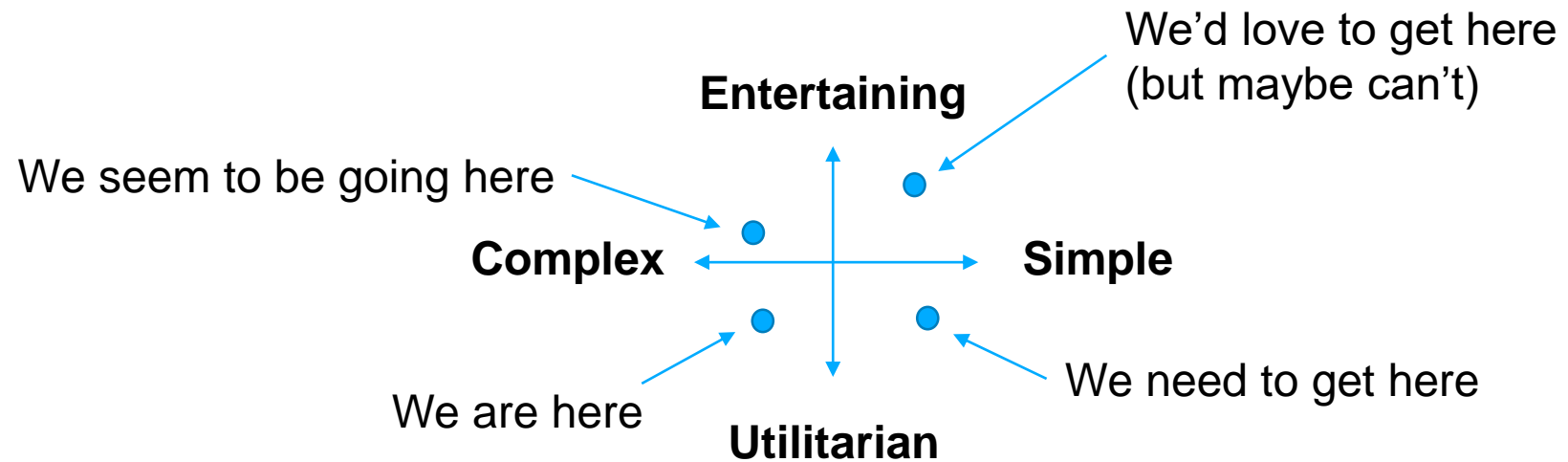


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Consumers & the Grid (interfaces):



Your future vision of.....

Consumers & the Grid:

Do we -- as architects of the future -- demand that consumers become more technically savvy or do we demand that our technology become more consumer savvy?

We need a plug and play world.

Some concepts to discuss (and relevant standard):

Nationwide standardization of consumer DER interfaces

BYOD (USNAP / CEA-2045)

EVSE (SAE J1772) extension to other generation devices

A universal backer board for all smart thermostats

A home “key” (maybe smartphone) with NFC for one-touch provisioning of new devices

Industry driven? Policy driven? Utility driven?

Your future vision of.....

Grid Architecture and Grid Services:

Integrating DER will be driven by ICT standards that are electricity technology agnostic.

That is, we won't have different standards for PV, EV, various types of electric storage, or flexible demand-side resources.

Instead, we'll have connection rules based on architectural principles that enable independent DER operators to offer the one or more types of DERs in a facility (campus, building, EV parking lot, house, etc.) to safely and securely interact with a party responsible for proper operation with the electricity system.

This will be done by evolving existing codes, standards, and guides in specific directions.

Report Back - Discuss

EV Integration

Consumers & the Grid

Grid Architecture & Grid Services





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