

**Enabling Advanced Power Electronics Technologies
for the Next Generation Electric Utility Grid Workshop**

July 17-18, 2018 | Albuquerque, NM

**Session 1: What does the electric
utility grid look like if power
electronics are readily available?**

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Energy for What's AheadSM



SCE by the Numbers

Who We Serve

- 15 million residents in service territory
- 5 million customer accounts
- 50,000 square-mile service area

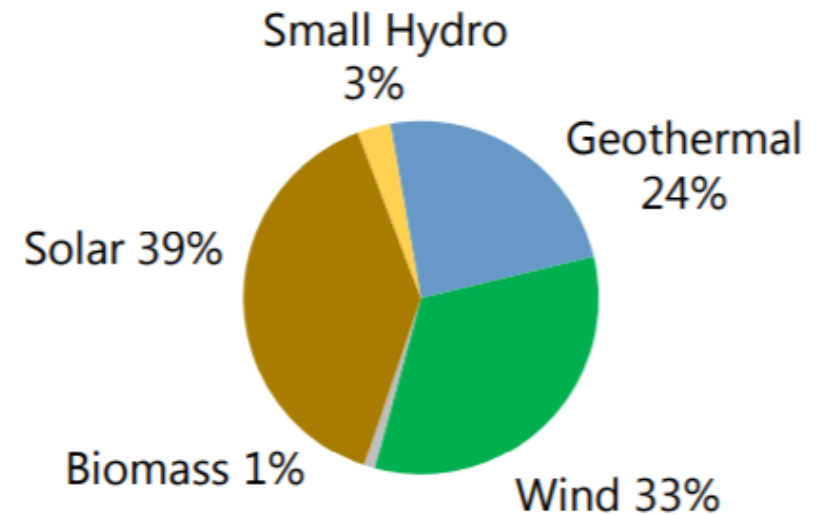
What We Monitor and Maintain

- 1.4 million power poles
- 725,000 transformers
- 118,000 miles of T&D lines
- 3,200 MW owned generation

Distributed Energy Resource (DER) Statistics

- 252,501 combined residential and non-residential NEM projects (2,121 MW installed)
- Procured close to 500 MW of storage

2017 Renewable Resources (Preliminary): 32.1% of SCE's portfolio



Power Electronics Applications at SCE

Field Evaluation of Solar PV Power Plants



- SCE installed power quality monitors on solar PV plants switchgears to capture the performance of solar PV power plants
- 1200 MW fault induced solar PV interruption

First Utility Infrastructure Charging Program



- Demonstrated to industry critical elements of program
- Published first EVSE test procedure for power and communication systems
- Developed first implementation of energy management system

Solar PV Inverter Assessment



- Testing of smart solar inverters verified grid support functions needed for higher DER penetration
- Supported California Rule 21, UL 1741SA, IEEE 1547A, and IEEE 1547-2018

Aliso Canyon Energy Storage

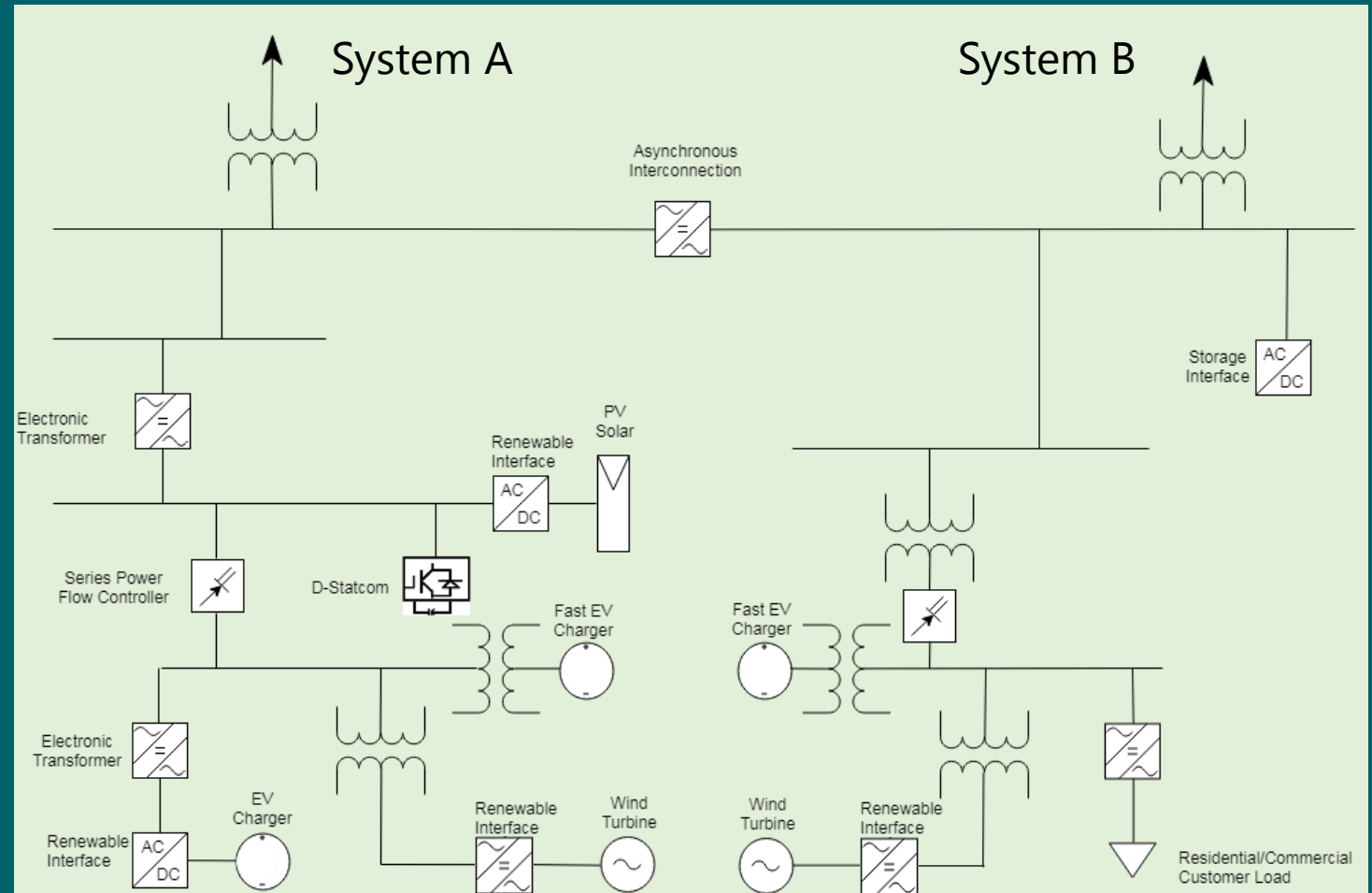


- Large scale grid-connected storage system participating in the wholesale market
- Know-how to deploy a storage system in six months
- Know-how to integrate with wholesale market

Power Electronics as Enablers of SCE's Clean Power and Electrification Pathway

PE are key to achieve by 2030:

- An electric grid supplied by 80% carbon-free energy;
- More than 7M EVs on California roads; and
- Increase electrification of buildings (e.g., using electricity to power nearly 33% of space and water heaters).



Thank You

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