

CADER Technology Characterization Committee Recommendations to the California Energy Commission

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Recommendations to the CEC

- Foster DER Interconnection, Communication Protocols and Safety Standards
- Develop and Maintain Publicly Accessible DER Technology Attributes Database

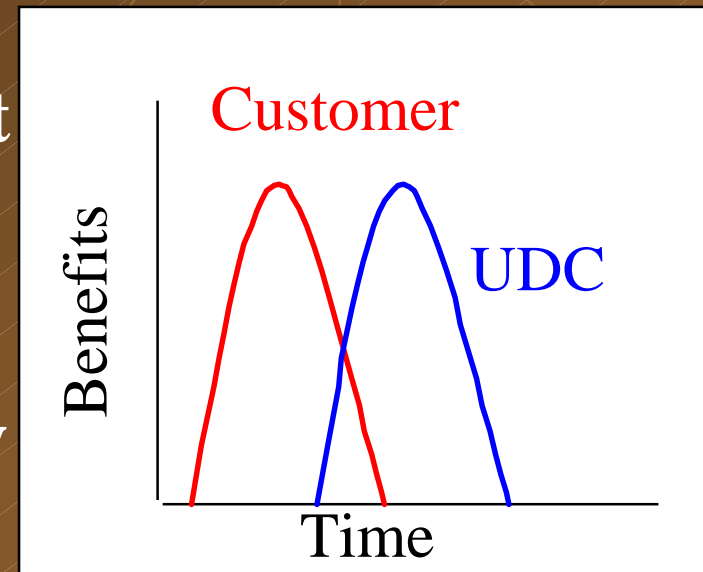
DER Market Integration Challenges

DER Interconnection Standards

- Interconnection requirements are unique to each utility
- Non-uniform interconnection requirements add unnecessary costs to DER projects
- However, proper interconnection is essential to protect equipment and maintain grid reliability and safety

DER Communications & Control Protocols

- **Customer DER benefits may not coincide with distribution system benefits**
- **Coordination of DER and utility operation maximizes total benefits and improves mutual reliability and safety**
- **Power delivery system automation upgrades occurring today**



DER Safety Standards

- **Successful DER Market Penetration Means**
 - ✓ **Ubiquitous Unmanned Generation/Storage Units**
 - ✓ **Close Proximity to People & Properties**
- **Potential DER Safety Hazards**
 - ✓ **Fossil Fuel / Hydrogen**
 - ✓ **High Speed Rotating Equipment**
 - ✓ **Combustion, Chemicals, Electricity**
- **All DER Hazards are Controllable**
 - ✓ **But One Incident Could Seriously Dampen the Market**

DER Technology Information

- Detailed DER characteristics not widely available to local permitting agencies, planning authorities or the public
- Comprehensive DER databases are proprietary
- Public domain information not reported in uniform ways
- “Claims” for emerging technologies difficult to verify

CADER TC Committee Recommendations

Recommended Actions

- Develop a public DER technology database
 - ✓ CADER DER technology matrix as starting point
 - ✓ CEC role as a honest broker of information
- Develop, in a collaborative process, a statewide DER interconnection standard
 - ✓ Build upon work that IEEE, EPRI, DOE and others are performing today
 - ✓ Encourage the participation of UDC's, DER mfg's and protection equipment mfg's

Recommended Actions cont.

- Initiate development and demonstration of DER/Grid coordinated controls
 - ✓ Utilize DOE, EPRI, PIER and other program vehicles
 - ✓ Work towards an “open” and “secure” system
- Foster a safety certification process
 - ✓ Establish a working group to coordinate DER safety certification and to provide certification information to the public