

# ***ACC DGI Workshop***

## **Group Breakout Session Issues**

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### **Safety**

1. Ensure Protection of Workers / Customers
2. Safe Practices for Connection / Isolation of Distributed Generation to / from System
3. Training and Certification / Licensing Process for Workers
4. Standardized Safety Requirements Conforming to NEC / OSHA, etc.
5. Zero Tolerance on Unsafe Conditions
6. Distinguish Safety Requirements for Large vs. Small Customer Applications

### **Siting**

1. Size Thresholds for Which Siting Is a Public Issue
2. Tracking / Mapping of Distributed Generation for UDC Capacity Planning
3. Who Pays for Underutilized Distribution Facilities Resulting From Distributed Generation Siting

### **Certification / Permitting**

1. Certification of Distributed Generation System Package
2. Who has Jurisdiction Over
  - Tariffs, Cost Shifting
  - Grid Access
  - Reliability

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### **Distributed Generation Fuel Requirements**

1. Is a Fuel Preference Policy Needed (Gas, Solar, Wind, H<sub>2</sub>, etc.)
2. Is a Fuel Pressure Standard Needed for Distributed Generation
3. Who Pays For Fuel Delivery Infrastructure
4. Delivery of H<sub>2</sub> as By Product of Fuel Cell Application

### **Location and Types of Distributed Generation Connections**

1. Consider Standards for Inverter vs. Synchronous Connections
2. Should Standards Distinguish Between Transmission, Distribution, and Customer's Service System Connections
3. Can a Location Match be Achieved for Mutual Benefit of Customer and UDC
4. Application Process Standardized and Streamlined
5. Must be an Electric Service Provider to Re-Sale?

### **Points of & Types of Interconnection**

1. UDC's Total Control a Concern - Jurisdiction of All Utilities (Including SRP) for Interconnections
2. Standardize Equipment for Monitoring and Verification of Interconnection
3. Site Specific Considerations vs. Interconnection Standards
4. Parallel vs. Islanded Operations of Distributed Generators
5. Is There a Distributed Generator Size Limit for Particular Interconnections

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### **Power Quality**

1. Distributed Generation Compliance with WSCC / NERC / IEEE and Industry Standards
2. Power Factor, Harmonics, Voltage Flicker, Frequency and Voltage Control Concerns
3. Bilateral Power Quality Impacts of Distributed Generators, Utilities and Other Customers
4. How to Monitor and Enforce

### **Operational Interdependence**

1. How will Distributed Generator Customers Contribute to Ancillary Service Requirements
2. Interface Equipment Must Provide Bilateral (Mutual) Protection / Voltage Control
3. System Dispatch / Control for Mutual System Benefit
4. Management of / Response to Disturbances
5. More Complex Operational Requirements When Many Distributed Generators Co-exist
6. Customers Reliance on Utility for Operational and Engineering Expertise

### **System Dynamics**

1. Automatic Voltage Regulation / Power System Stabilizer / Unit Testing Requirements
2. Distributed Generator Load Following Capability
3. Real-time Pricing Affect on System Dispatch and Operation
4. Automation via Supervisory Control And Data Acquisition

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### **Operational Controls**

1. Who Should Control Distributed Generator - Customer vs. Control Area Operator
2. Should Manual or Automatic Controls Be Used
3. Customer Issue: Controls Need To Follow Load To Maximize Investment
4. If Control Area Operator Dispatches Unit - Standards for Control & Telemetry Equipment Interface
  - Voltage Control
  - Power System Stabilizer
  - Governor Response (Frequency)
  - Dynamic Signal if Regulating or Load Following
5. If Utility Benefits From Dispatch of Units - How is Customer Compensated

### **Telemetry**

1. Telemetry Required For Parallel Operation ( Sell Back)
2. Distributed Generator Telemetry to Send Real Time Data to Control Area Operator
3. Transfer Tripping Distributed Generator for Disturbance on Distribution System
4. Who Owns the Information / with Whom is Information Shared
5. Who Pays the Cost for Telemetry
6. Is Net Metering Allowed

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### **Protection Requirements**

1. Uniform Standards or Utility Specific
2. Balance Economics / Safety
3. How Much Control Should Utility Have In Defining Requirement
4. Dependent Upon Unit Size and Location in System
5. Define by Type of Unit and Type of Utility Interconnection

### **Other Issues / Concerns**

1. Environmental
2. Customer Education
3. Who has Jurisdiction - ACC vs. FERC, ISO, Local, etc.
4. Scheduling Requirement
5. Pricing - Rates / Incentives
  - Utility Tariffs - Backup, Stand-By, Supplemental, Emergency, Buy-Back
  - Cost -Shifting - Who Pays Cost of Departing Customer
  - Should Distributed Generation be Allowed to Bypass Wires Charges
  - Monetary Compensation for Grid Benefits of Distributed Generation
  - Providing Opportunity / Encouragement for Smaller Distributed Generation (i.e. Residential)
  - Should ACC Provide Incentives for some Distributed Generation, if Cost Increases for Others, But Overall Cost is Reduced