ACC Interconnection Rules
Workshop
Interconnection Process Topics

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Agenda

• Introduction – Residential and Small Commercial PV
• Safety
• Reliability
• Process
• Questions
Context

• High volume of interconnections
  – 42,000+ existing
  – Grows by ~ 1,300 – 1,500/Mo
  – 100+ PV installers

• High-penetration – must plan ahead to maintain system reliability
Safety – Interconnecting is a serious issue

• Must be first and most important priority
  – Customers, Crews, Contractors

• Electrical equipment is very dangerous
  – Avoid injury or fatality
  – Most people do not understand the hazard
  – Invisible and instantaneous

• Crew safety not covered by code
  – Examples: Access and APS clearance requirements
Safety

- Rules must reflect zero tolerance for risk
  - Avoid electrical and non-electrical hazards
    - Customer, Crews, Contractors

- Adaptable for discretionary modifications
  - New hazards identified
  - Absolute and quick response
    - Code changes, jurisdiction changes, field experiences
Reliability

• APS provides service 24-7, 365
  – Product is produced and consumed instantly

• Interconnecting to an increasingly complex and dynamic grid
  – 10% APS feeders have reverse power flow
    • More than 300 hours annually
    • Growing issue
    • Complex diagnostics and planning
  – High penetration causes power quality issues
  – Each feeder is different
Reliability

• PV production does not typically match customer usage

• Rules must reflect ability to adapt to change in real-time
  – Technologies change
  – Codes and laws change
  – Feeders change

• Speed of change is increasing
Process – Adaptable and transparent

• Current process:
  – Automated
  – Training Supplied
  – Checklists and Templates provided
  – Adaptable
  – Tracked for record keeping and accountability

• Rules must maintain adaptability
Process

- Customer Submits Application
- Installer Submits Application
- Customer and Installer Application Review and Approval
- Installer installs the system
- Final Review
- Billing changes made/Inspection/Meter Set
Process

- Process should take ~20 days

- ACC does not regulate PV/DER installers
  - 66% of application error rate
  - 20% re-application error rate
  - All safety/reliability related
  - High turnover rate of installer administration

- Financial interest vs safety/reliability

- Must be adaptable to system conditions
Conclusion

• Safety is #1

• Rules must be dynamically adaptable

• Utility is the proponent of system change and installer accountability – in real-time

• Process must be adaptable and transparent