

Tucson Electric Power DG Experiences

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Tucson Electric Power

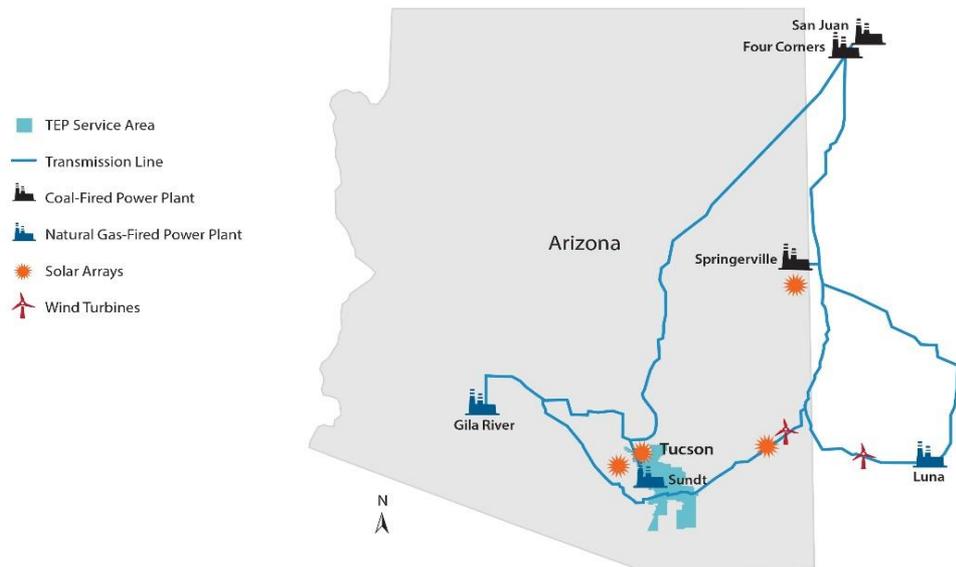
12/8/2020

Agenda

- TEP Company Overview
- Distributed Generation Interconnection Requirements (DGIRs)
- Renewable Energy Standard / Net Metering
- Questions

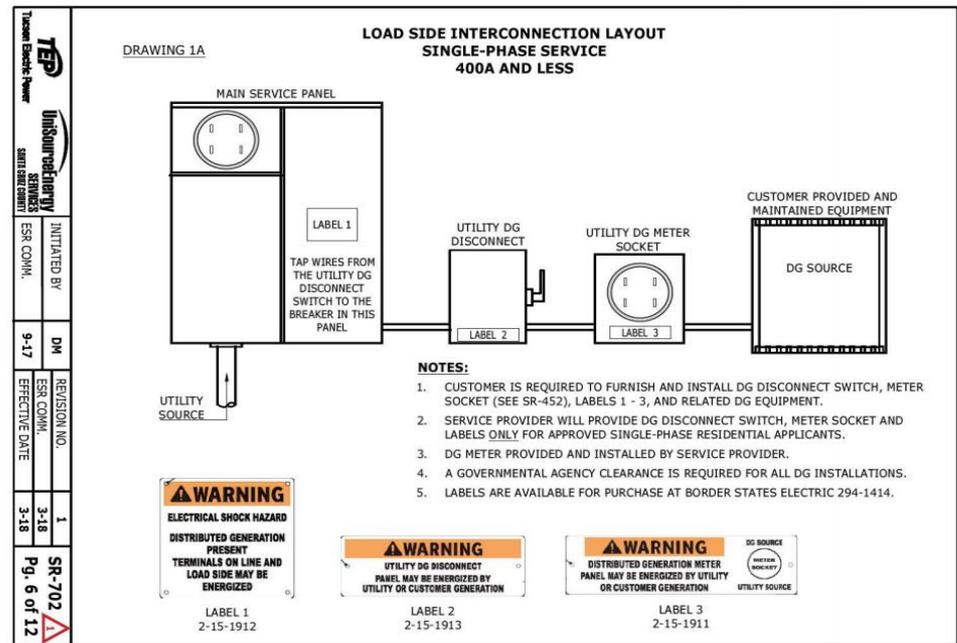
TEP Company Overview

- A Fortis Company
- Service Territory – 1155 sq miles
- # of Customers – 432,000+
- # of DG Customers - 27,000+
- Peak Load – 2433 MW
- DG Capacity – 460 MW+
- New Integrated Resource Plan
 - 2000MW of Renewables
 - 1400MW of Energy Storage



Distributed Generation Interconnection Requirements (DGIRs)

- Conduct workshops with stakeholders early to define requirements and processes
- Standardize on key safety equipment
 - Disconnect switch
 - Equipment Labeling
 - DG or Production meter for all systems



DGIRs – System Mapping

- System Mapping for all DG systems
 - Identify location & system size in mapping system
 - This data is used by system operators, planners, engineers, & business units
 - A traceable system map will streamline interconnection review and study process as DG saturation increases



DGIRs – Additional Technical Details

- Protection Requirements and device settings
 - Relay settings at subs and reclosers
 - Settings at voltage regulators for backfeed
 - Xfmr LTC settings
 - Effectively-grounded connections to reduce risk of over-voltage issues
 - Direct Transfer-trip for Larger DG systems



DGIRs – Application Process

- Consider a web-based interconnection application platform to streamline process for utility & customer

The screenshot shows the PowerClerk web application interface. At the top, there are logos for TEP and PowerClerk. Below the logos, the text "PowerClerk" is displayed. The main heading reads "WELCOME TO TEP'S DG ON-LINE APPLICATION SYSTEM". Underneath, there is a "COMPANY CONTACTS:" section with a table:

Residential Projects & All Program Related Questions	TEP PowerClerk Portal Questions	Non-Residential Projects
Renewables@TEP.com	DER@TEP.com	CommRenewables@TEP.com

To the right of the table is a "Log In" form with fields for "Username:" (containing "example@company.com") and "Password:", a "Log In" button, and a "Forgot Password?" link.

Below the table, there is a "LINKS:" section with "PowerClerk Resources" (including "STATUS GUIDE - PowerClerk Status Guide") and "Installer Resources" (including "GET STARTED WITH SOLAR", "DG SATURATION MAPS", "INSTALLER DOCUMENTS", "CUSTOMER DOCUMENTS", "CHECKLIST", "MORE INFORMATION ABOUT THE DGIRS", and "ADDITIONAL DETAILS ABOUT SAFE INTERCONNECTIONS TO TEP'S GRID").

Further down, there is a "TEP WEBSITE QUICK LINKS:" section with links for "CUSTOMER METER & INTERVAL DATA - Customer Usage Data Release Form", "INSTALLER DRAWING CHECKLIST - Ignoring Checklist", and "MINOR MODIFICATION INFORMATION - #tpor.#modifications".

At the bottom, there is an "Electric Service Requirements" section with links for "ELECTRIC SERVICE REQUIREMENTS - TEP's Electric Service Requirements", "ENERGY STORAGE SYSTEMS - SRZ10", and "CSR BOOK - Electrical Service Requirements Book".



Renewable Energy Standard

- Arizona Corporation Commission (ACC) adopted the Renewable Energy Standard and Tariff (REST) in 2006
 - Requires utilities to meet 15% of retail energy sales from renewable energy by 2025
 - Of that amount, 30% must come from DG
 - Various incentives were also approved to encourage the adoption of DG



Net Metering

- ACC adopted net metering rules in 2008
- TEP's net metering tariff approved in 2009
 - Allows customers with rooftop solar to offset self-consumption and to “bank” excess kWh and offset future consumption
 - Each year, unused banked kWh are purchased by the utility at their respective marginal cost rates



Value of Solar Decision

- Over time, as installation costs declined, DG incentives were phased out due to the increased adoption of rooftop solar
- The ACC opened a docket to investigate the costs and value of rooftop solar
- In 2017 the ACC issued the “Value of Solar” decision
 - Modified net metering to prohibit the banking of kWh and instead replaced it with a monthly cash out as the ACC recognized a cost shift to non-solar customers
 - Grandfathered all then-existing rooftop solar customers under old net metering rules
- TEP implemented the Value of Solar decision in September 2018

Questions

