

# TEP and UNSE Ten-Year Transmission Plans

## Arizona Corporation Commission 2016 Biennial Transmission Assessment

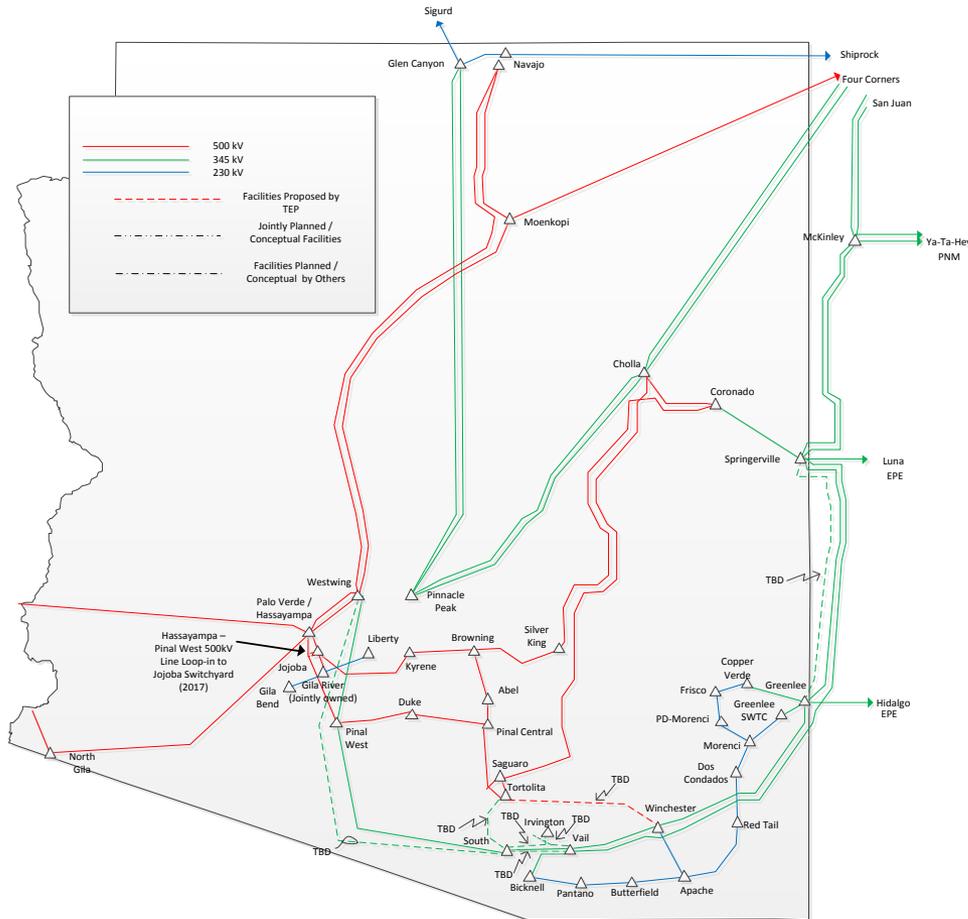
Gary Trent  
Tucson Electric Power  
9th BTA Workshop No. 1  
June 1, 2016



# Topics

- **Ten-Year Plans**
  - Changes relative to the 8th BTA
- **Technical studies and Reports**
  - Projects without power flow and stability studies
- **Stakeholder input**
- **Subregional transmission planning forums**
  - Projects not addressed in subregional planning forums
- **Transmission projects seeking a WECC Path Rating**

# TEP EHV Transmission Projects\*



## ■ Completed Projects

### – Series Capacitor Replacements

- Springerville – Vail 345kV Line at Vail (2015)
- Winchester – Vail 345kV Line at Vail (2015)
- Springerville – Greenlee 345kV Line at Greenlee (2015)

### – Pinal Central – Tortolita 500kV Line (2015)

## ■ New Projects

- None

## ■ Advanced Projects

- None

## ■ Deferred Projects

- None

## ■ Removed Projects

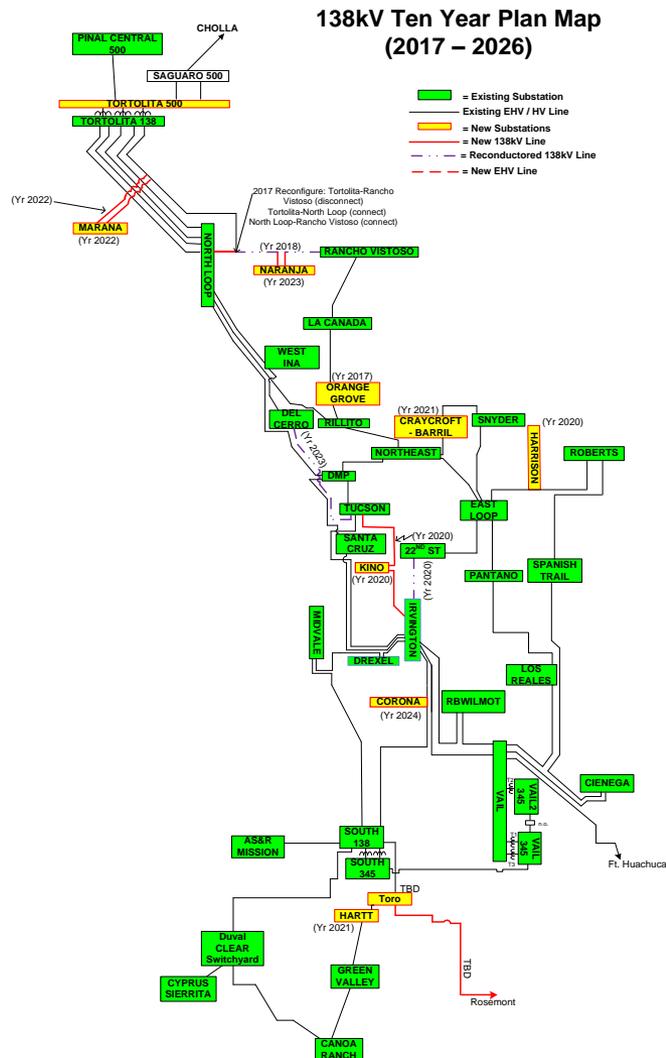
- None

## ■ Unchanged Projects

- “Conceptual Projects” with “TBD” Dates

\* Changes referenced to 8<sup>th</sup> BTA / January 2014 Filing

# TEP 138kV Transmission Projects\*

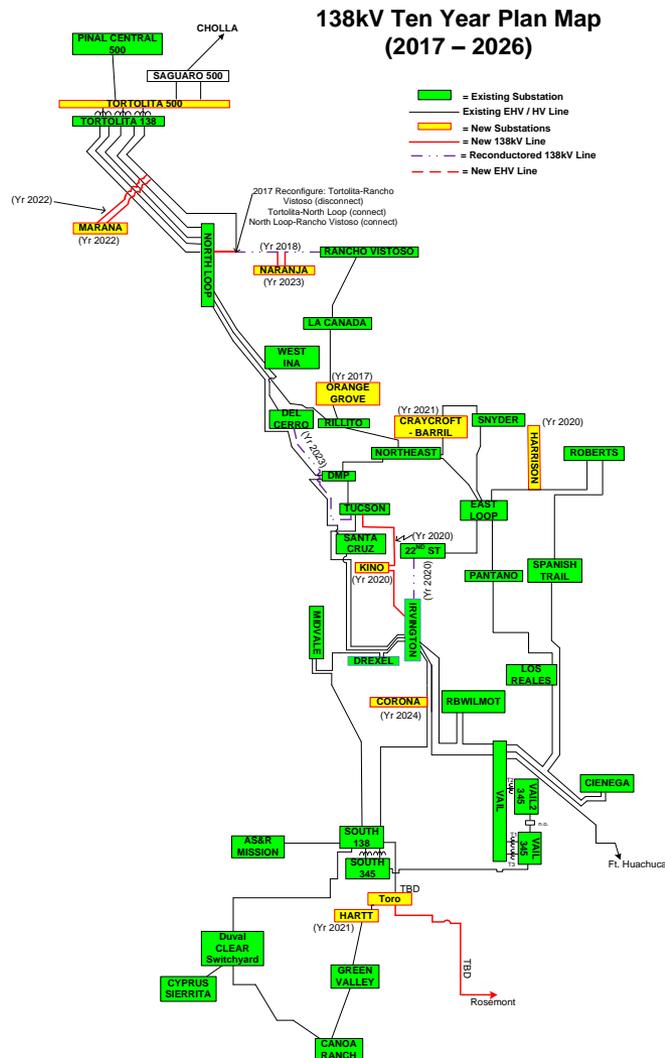


## Completed Projects

- DMP – Tucson 138kV Line (2014)
- Northeast – Rillito 138kV Line Reconductor (2014)
- Rillito 138kV Capacitor Bank #1 Upgrade (2014)
- DMP – Northeast 138kV Line Reconductor (2015)
- North Loop – Rillito 138kV Line Reconductor (2015)
- DMP – North Loop 138kV Line Reconductor (2015)
- North Loop – West Ina 138kV Line Reconductor (2015)
- West Ina – Del Cerro 138kV Line Reconductor (2015)
- South 138kV Capacitor Bank #1 Upgrade (2015)

\* Changes referenced to 8th BTA / January 2014 Filing

# TEP 138kV Transmission Projects\*

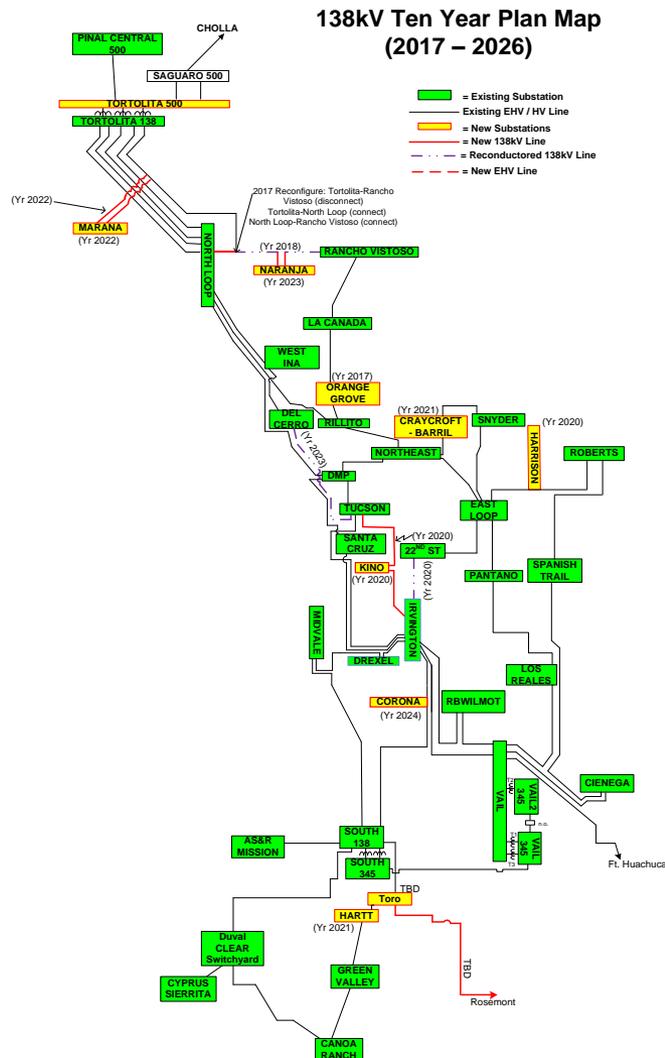


## New Projects

- West Ina – Del Cerro 138kV Line Reconductor (2015)
- Canoa Ranch 138kV Capacitor Bank #1 Addition (2016)
- Roberts 138kV Capacitor Bank #1 Addition (2017)
- Midvale 138kV Capacitor Bank #1 Addition (2017)
- North Loop – Rancho Vistoso 138kV Line Reconductor (2018)
- Irvington – 22<sup>nd</sup> Street 138kV Line Reconductor (2020)
- Del Cerro – Tucson 138kV Line Reconductor (2023)
- Loop-in of North Loop – Rancho Vistoso 138kV Line to new Naranja 138kV Substation (2023)
- Loop-in of Irvington – South 138kV Line to new Corona 138kV Substation (2024)
- Irvington – Vail 138kV Line Reconductor (TBD)
- Irvington – Robert Bills Wilmot – Vail 138kV Line Reconductor (TBD)
- Irvington – South 138kV Line Reconductor (TBD)
- Irvington – Drexel – Midvale – South 138kV Line Reconductor (TBD)

\* Changes referenced to 8th BTA / January 2014 Filing

# TEP 138kV Transmission Projects\*



## Advanced Projects

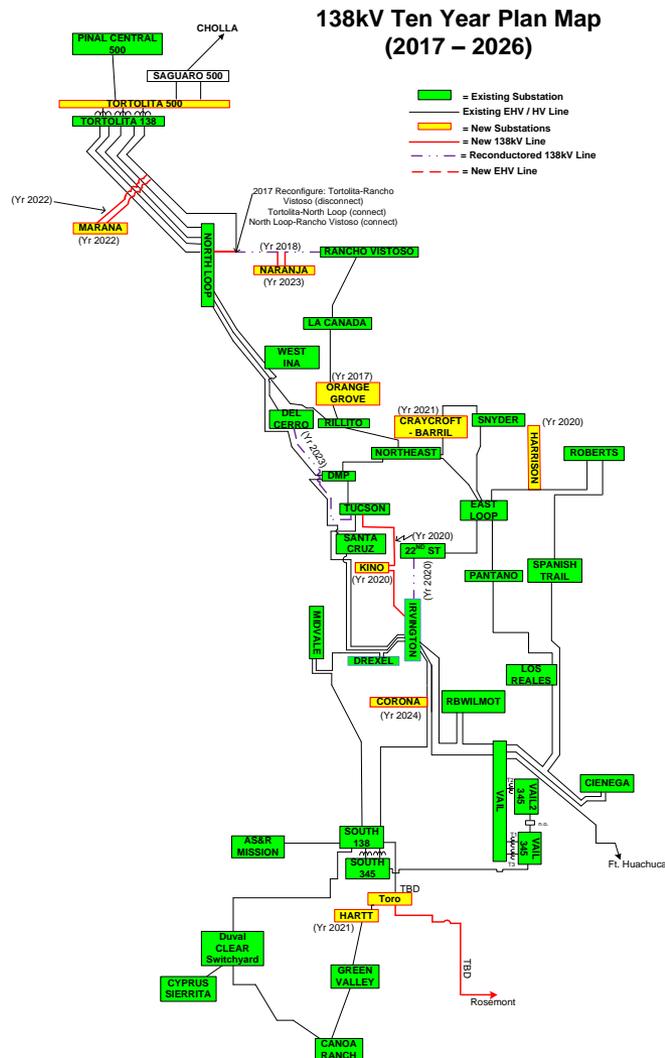
- Loop-in of La Canada – Rillito 138kV Line to new Orange Grove 138kV Substation (2020 → 2017)
- New Irvington – Tucson #2 138kV Line with Loop-in to new Kino 138kV Substation (2021 → 2020)
- Loop-in of Roberts – East Loop 138kV Line to new Harrison 138kV Substation (2021 → 2020)
- Loop-in of Northeast – Snyder 138kV Line to new Craycroft Baril 138kV Substation (2022 → 2021)
- Loop-in of South – Green Valley 138kV Line to new Hartt 138kV Substation (2022 → 2021)
- Loop-in of Tortolita – North Loop 138kV Line #5 to new Marana 138kV Substation (2023 → 2022)

## Unchanged Projects

- North Loop 138kV Capacitor Bank #1 and #2 Upgrades (2016)
- Reconfiguration of Tortolita – Rancho Vistoso 138kV Line to Tortolita – North Loop 138kV Line #5 and North Loop – Rancho Vistoso 138kV Line (2017)
- Irvington – 22nd Street 138kV #2 Line (TBD)
- Vail – East Loop 138kV #3 Line (TBD)

\* Changes referenced to 8th BTA / January 2014 Filing

# TEP 138kV Transmission Projects\*



## Deferred Projects

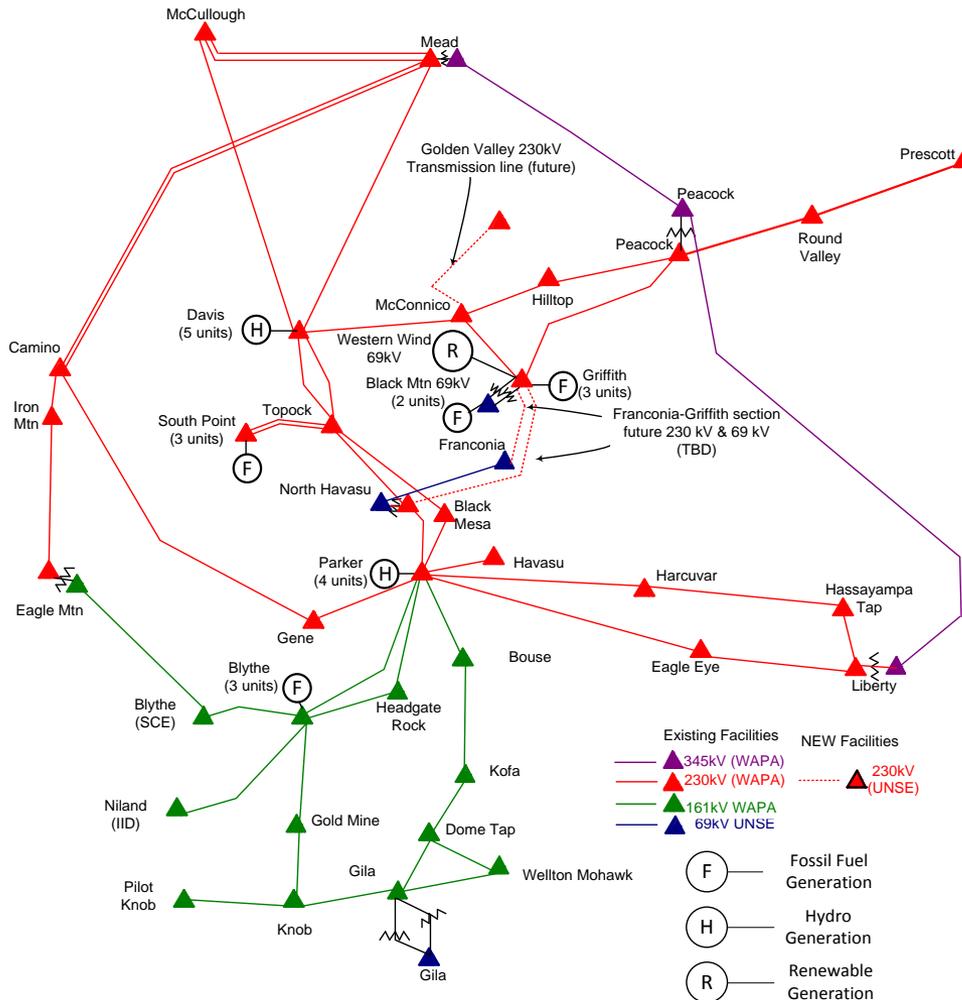
- Toro – Rosemont 138kV Line (2015 → 2017)
- Toro Loop-in of South – Green Valley 138kV Line (2015 → 2017)
- Reconfiguration of Tortolita – Rancho Vistoso 138kV to North Loop – Rancho Vistoso 138kV (2015 → 2017)

## Removed Projects

- Irvington 138kV Capacitor Bank #1 and #2 Upgrades
- Irvington 138kV Capacitor Bank #3 Addition and Upgrade
- DMP 138kV Capacitor Bank #1 Upgrade
- DMP Capacitor Bank #2 Addition and Upgrade

\* Changes referenced to 8th BTA / January 2014 Filing

# UNSE Mohave County Transmission Projects\*



- **Completed Projects**

- None

- **New Projects**

- Golden Valley 230kV Line (2021)

- **Advanced Projects**

- None

- **Deferred Projects**

- None

- **Removed Projects**

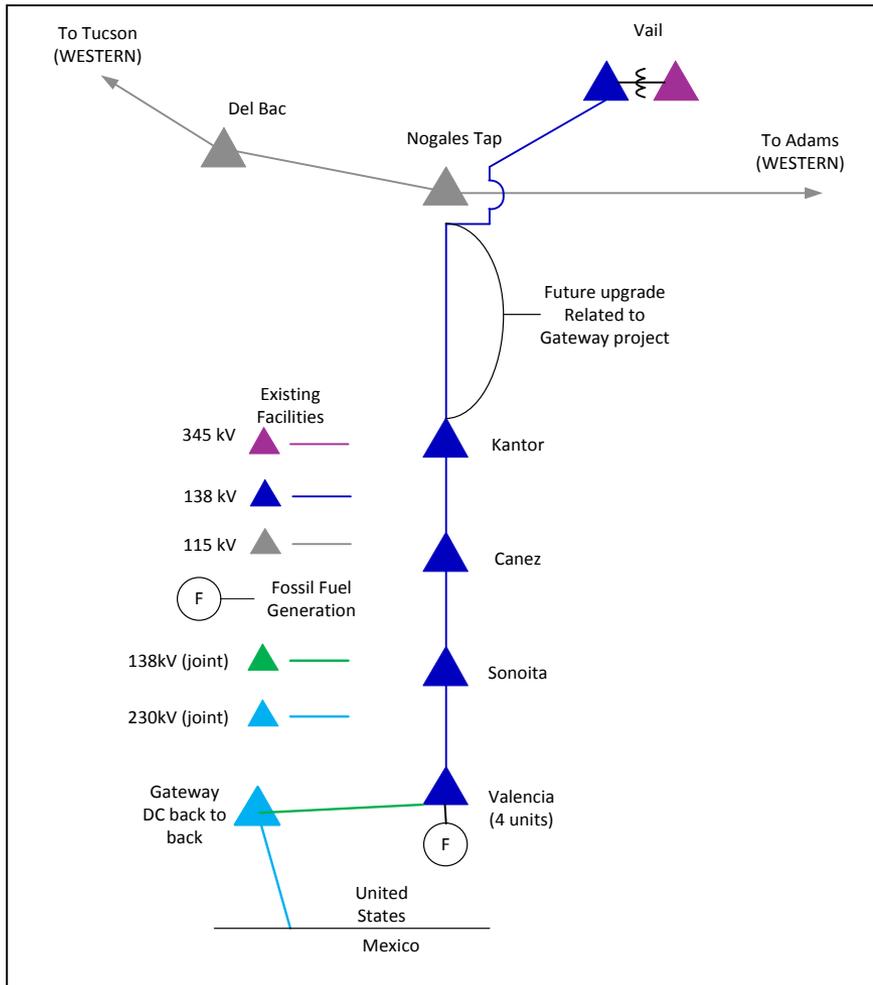
- None

- **Unchanged Projects**

- Griffith – North Havasu 230kV Line (TBD)

\* Changes referenced to 8th BTA / January 2014 Filing

# UNSE Santa Cruz County Transmission Projects\*



- **Completed Projects**

- None

- **New Projects**

- Mexico D.C. Interconnection (2018)

- **Advanced Projects**

- None

- **Deferred Projects**

- None

- **Removed Projects**

- None

- **Unchanged Projects**

- None

\* Changes referenced to 8th BTA / January 2014 Filing

# Technical Studies

- **Capital Budget Studies**
  - Includes study years 2016-2021
  - Power flow only
- **Ten-Year Plan Studies**
  - Includes study years 2022-2025
  - Power flow only
- **TPL Compliance Studies**
  - Based on Ten-Year Plan filed in January 2015
  - Power flow and Transient Stability
  - Included years 2017, 2020, 2021, and 2024

# Reports Supporting Ten-Year Plans

- **Reports Included in Ten-Year Plan Filings**
  - TEP Ten-Year Plan Transmission Projects For Years 2016-2025
  - UNSE Ten-Year Plan Transmission Projects For Years 2016-2025
  
- **Reports Not Included in Ten-Year Plan Filings**
  - Transmission Planning Memos
  - 2015 Annual Transmission Reliability Assessment
  - WestConnect 2015 Regional Transmission Plan

# Projects Without Technical Reports

- **Hassayampa – Pinal West 500kV line loop-in to Jojoba Switchyard**
  - Associated with the Gila River generator acquisition
  - Interconnection study in progress
  - Will be included in future technical reports
- **Conceptual projects associated with potential generation additions at Irvington**
  - Vail – Irvington 345kV Line
  - Irvington – South 345kV Line

# Stakeholder Input

- TEP, UNSE Stakeholder meetings held in 2nd and 4th quarters each year
- WestConnect meetings held in 1st and 3rd quarters each year
- Network customer loads and resource forecasts provided
- Base case coordination among AZ utilities

# Subregional Transmission Planning

- **Western Electricity Coordinating Council**

- Transmission Expansion Planning Policy Committee (TEPPC)
  - All TEP planned projects except the the Jojoba loop-in of the Hassayampa – Pinal West line were included in the Common Case Transmission Assumptions
  - TEP conceptual projects were not included in the Common Case Transmission Assumptions

- **WestConnect**

- Southwest Area Transmission (SWAT)
  - Arizona Transmission Subcommittee (SWAT-AZ)
- All TEP projects were included as planned or conceptual projects

# WECC Path Rating

- **No TEP projects are seeking a WECC Path Rating**
- **No UNSE projects are seeking a WECC Path Rating**
- **Total Transfer Capability is determined using NERC Standard MOD-029**

# Questions

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