



# GridLiance West Project Proposals for the 2019 TPP Reliability Request Window

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CAISO 2019/2020 Transmission Planning Process  
September 25-26, 2019

# Gamebird 230/138 kV Substation Project



- ◆ Issues: Transformer overloading at Amargosa and Pahrump substations and low voltage on 138 kV system under P1, P4, P6, and P7 events
- ◆ Proposed Project
  - Build a new 230 kV bus at existing Gamebird 138 kV switching station, including three new 230 kV breakers
  - Install a new 230/138 kV transformer at Gamebird
  - Connect the Pahrump – Sloan Canyon 230 kV line to the new Gamebird 230 kV bus
  - Project solves issues noted above
- ◆ Proposed In-Service Date
  - Summer 2021
  - Requesting expedited CAISO management approval in November/December due to urgent need and no impact on other GLW/VEA projects.
  - Urgent need for expedited approval driven by Summer 2021 in-service date and 12 – 15 month manufacturing lead time of transformer.
- ◆ Estimated Cost: \$4.9MM
- ◆ Alternatives Considered:
  - Install a 10 MVAR shunt capacitor bank on the 138 kV system and correct the power factor on the distribution to 0.97 pf
  - This alternative does not solve the single contingency outage of either Pahrump transformer for the other.

# Gamebird 230/138 kV Substation Project



# Benefits of the Gamebird 230/138 kV Substation Project

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- ◆ Improve overall grid reliability and security
- ◆ Provides much needed voltage support in areas where VEA is experiencing higher load growth. Multiple 230 kV sources both on the west and east side of the load provide near and long-term benefits.
- ◆ Performs better from a voltage support perspective than installing a 10 MVAR capacitor bank at Sandy and correcting the power factor in other areas with additional pole capacitors. This alternative scenario does not solve the single contingency outage of either Pahrump transformer for the other.
- ◆ Provides long-term reliability and voltage support necessary for higher load growth.
- ◆ Eliminates reliability issues created by the loss of the Pahrump-Gamebird 138 kV line

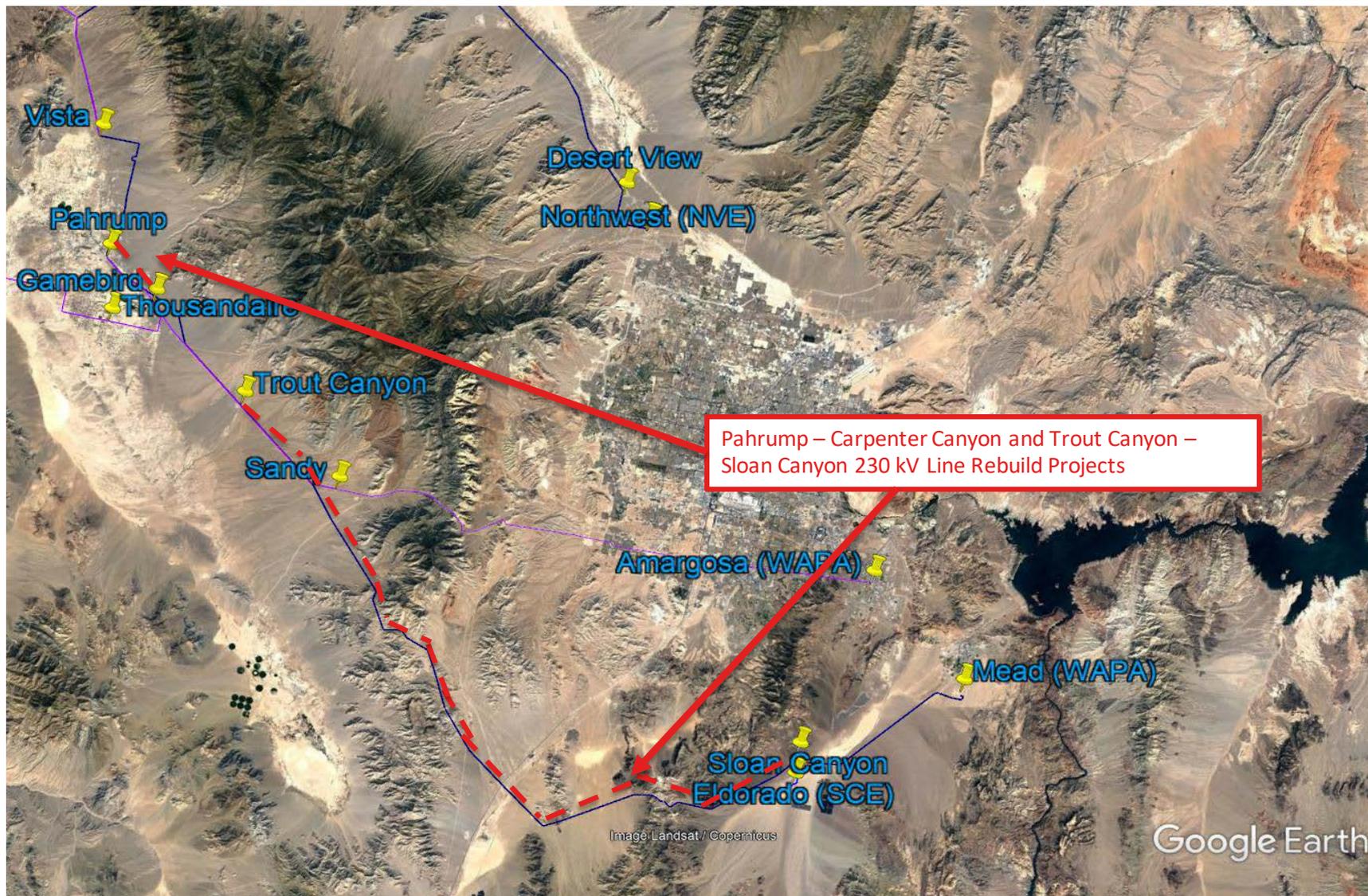


# Pahrump – Carpenter Canyon and Trout Canyon – Sloan Canyon 230 kV Line Rebuild Projects

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- ◆ Issues: Overloads of the Pahrump – Carpenter Canyon and Trout Canyon – Sloan Canyon 230 kV Lines under P1, P4, P6, and P7 events
- ◆ Proposed Project
  - Rebuild the Pahrump – Carpenter Canyon and Trout Canyon – Sloan Canyon 230 kV line to bundled 1590 AAC.
- ◆ Proposed In-Service Date
  - 1/1/2023 or earlier
- ◆ Estimated Cost: \$82.9MM
- ◆ Alternatives Considered:
  - RAS installation
    - » Does not increase transmission capacity or overall grid reliability.
    - » Not a long-term solution for the GLW system

# Pahrump – Carpenter Canyon and Trout Canyon – Sloan Canyon 230 kV Line Rebuild Projects



## Benefits of the Pahrump – Carpenter Canyon and Trout Canyon – Sloan Canyon 230 kV Line Rebuild Projects

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- ◆ Improves overall grid reliability and security in areas where it can benefit the grid the most.
- ◆ Adds significant transmission capacity by strengthening the existing 230 kV loop in the GLW system
  - The proposed project is needed to increase grid reliability by adding beneficial transmission capacity and by eliminating the number of contingencies needing mitigation.
- ◆ Decreases the dependency on RAS installations as the amount of generation in the area increases.
  - New transmission capacity represented by infrastructure improvements rather than through use of mitigation processes will strengthen the electrical grid and increase overall grid reliability.
- ◆ Eliminates NERC criteria violations in the base cases for thermal overloads on the Pahrump – Carpenter and Trout Canyon – Sloan Canyon 230 kV line.