<table>
<thead>
<tr>
<th><strong>DOCKETED</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Docket Number:</strong></td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
</tr>
<tr>
<td><strong>TN #:</strong></td>
</tr>
<tr>
<td><strong>Document Title:</strong></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
</tr>
<tr>
<td><strong>Docketed Date:</strong></td>
</tr>
</tbody>
</table>
Maximizing Corridors and Advanced Transmission Technologies

Kevin Richardson
May 24, 2017
Rector-Vestal and Magunden-Vestal 220 kV Lines

Structure samples from the Rector, Vestal, Magunden 220 kV Corridor

- Four lines, 137 total circuit miles, early 1900’s original construction
- Corridor had a history of possible upgrades
  - 2008 Central California Clean Energy Transmission Project (C3ETP) Studies
  - 2015 San Joaquin Valley Solar Studies
  - 2015 Big Creek Corridor Long-Term Mitigation Plan
  - 2016 Big Creek Corridor Rating Increase
- High Temperature Low Sag (HTLS) conductors
  - Similar weight and diameter of existing wires
  - Higher ampacity
  - Lower losses
  - Lower sag = less new structures
  - Less environmental disturbance
Maximizing Corridors and Advanced Transmission Technology Considerations

• SCE Transmission Planning Philosophy
  - More of an art than a science
  - Flexibility and creative thinking vs. flowcharts and rigid internal standards
  - Transmission Planner vs. Management participation in policy and collaborative study efforts

• Utilities already experienced with maximizing corridors and existing facilities
  - 500 kV construction with 220 kV initial energization
  - Double-circuit construction with one circuit strung or both circuits strung in a box-loop configuration
  - Routing new lines near existing substations to facilitate the expansion of those substations in the future
  - Positioning new structures in an existing corridor to facilitate building addition lines at a later date

• Challenges to Maximizing Corridors and Advanced Technologies in:
  - Non-regulatory collaborative study efforts: Short timelines hinder quantity and quality. These study efforts should start with the end result in mind.
  - Generation Interconnection Studies: Right-sizing and Advanced Technologies may increase the cost of triggered upgrades in Phase 1 and Phase 2 studies.
  - FERC 1000: Unless directly specified in the project scope for bid, competitive bidding may discourage right-sizing due to cost issues.
  - Project Licensing: Regulating agencies should consider adopting supportive policies, similar to the low-cost design steps to reduce EMF levels, so project sponsors are not immediately disadvantaged from a cost/scope justification standpoint when they include right-sizing and/or advanced technologies in their proposed projects.