

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE  
STATE OF CALIFORNIA**

Order Instituting Rulemaking to Continue  
Implementation and Administration of  
California Renewables Portfolio Standard

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Rulemaking 11-05-005  
(Filed May 5, 2011)

**NOTICE OF EX PARTE COMMUNICATION**

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Chief Commercial Officer for Tres Amigas, LLC



December 16, 2011



APPENDIX A



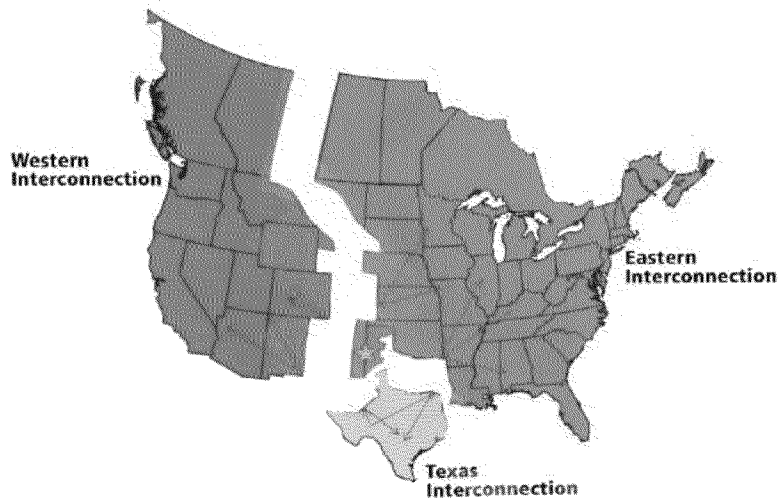
# Tres Amigas LLC

**Expanding Markets/Enhancing  
Reliability**

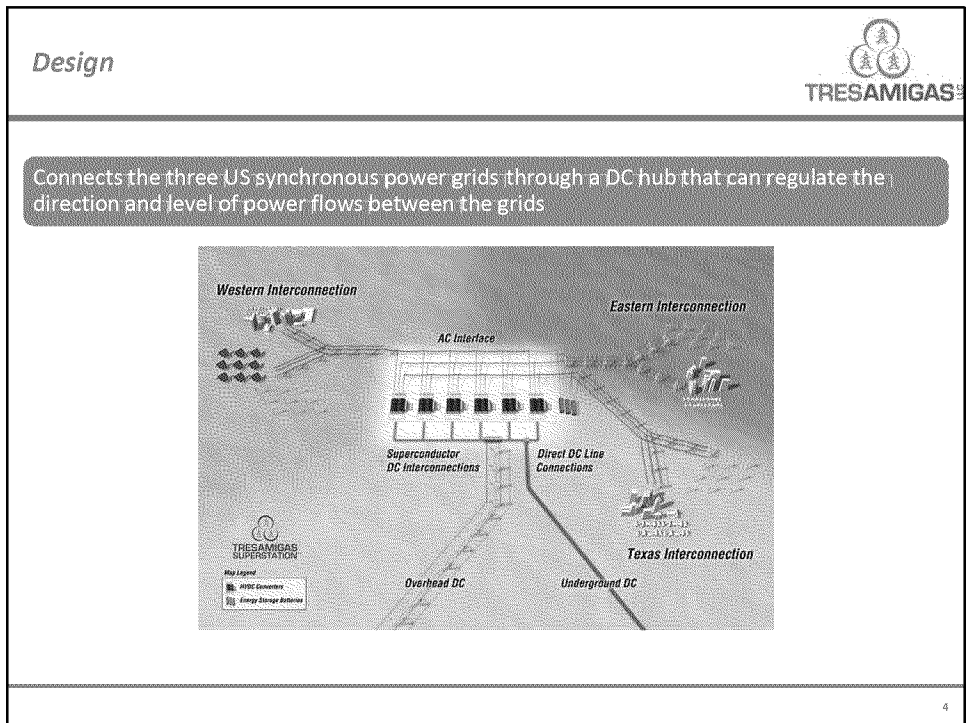
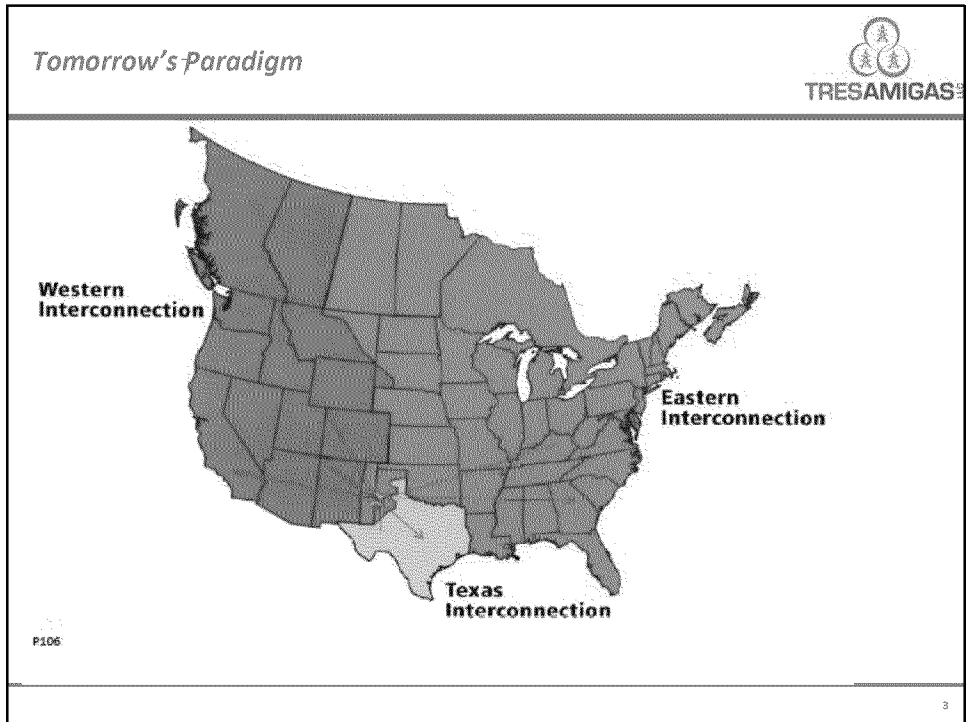
Peter G. Esposito  
SR. Vice President & Chief Commercial Officer

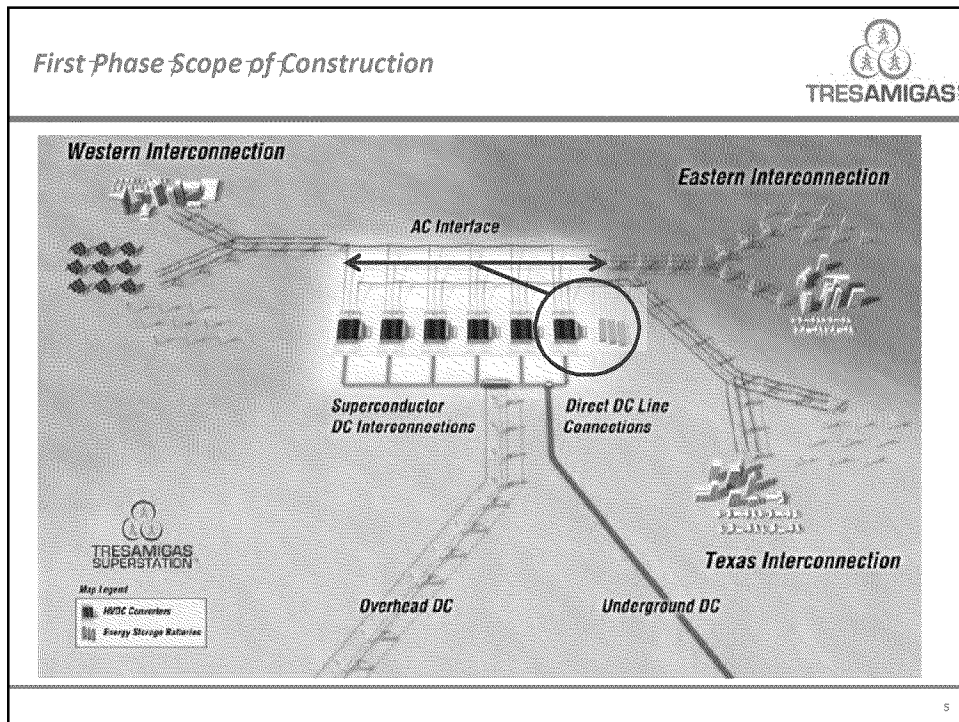
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*Today's Paradigm*



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*Technology Breakthroughs: Converters*

**Western Interconnection**

**Eastern Interconnection**

**Texas Interconnection**

**AC Interface**

**Superconductor DC Interconnections**

**Direct DC Line Connections**

**Overhead DC**

**Underground DC**

**TRESAMIGAS SUPERSTATION**

**Map Legend**

- HVDC Converters
- Energy Storage Batteries

TRESAMIGAS

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**The latest proven technology in converters, Voltage Source Converter (VSC) technology will be used.**

- VSC control systems determine both power levels and direction and are able to vary power levels from +100 percent to -100 percent incrementally (as desired). VSCs do this without any converter function interruption (IE, switching to AC) or equipment interruption (switching shunt banks or filters)
- Unlike traditional converter technology, VSC design supports the multi-terminal ring design goals of Tres Amigas and can be scalable
- The VSC converters make power control flow changes rapidly and accurately
- Dispatch control is significantly improved and simplified thereby improving the performance and efficiency of the interconnected AC networks

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## Technology Breakthroughs: Converters



Tres Amigas will be able to offer the following services to and between the grids:

- Sharing of spinning reserve
- Emergency power imports/exports
- Dynamic voltage support (reduces losses)
- Emergency assistance
- Black Start capability to restart a collapsed network

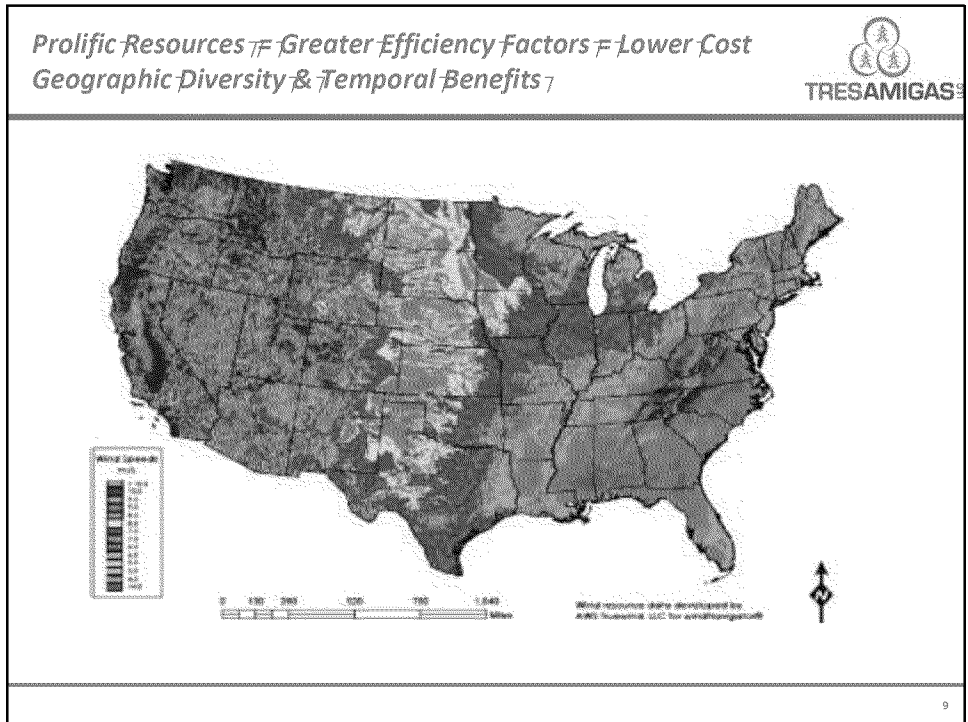
## Tres Amigas Energy Management Systems



Tres Amigas will be a Balancing Authority in the Western Electrical Coordinating Council (WECC)

Tres Amigas has engaged Viridity Energy to develop a comprehensive Energy Management System (EMS)

- The EMS will allow Tres Amigas to dispatch disparate sources of energy to accommodate the development and delivery of hybrid energy products, e.g. wind/solar, wind/gas, wind/gas/solar.



*Transmission from E. NM and W. TX to CA*

**Existing:**

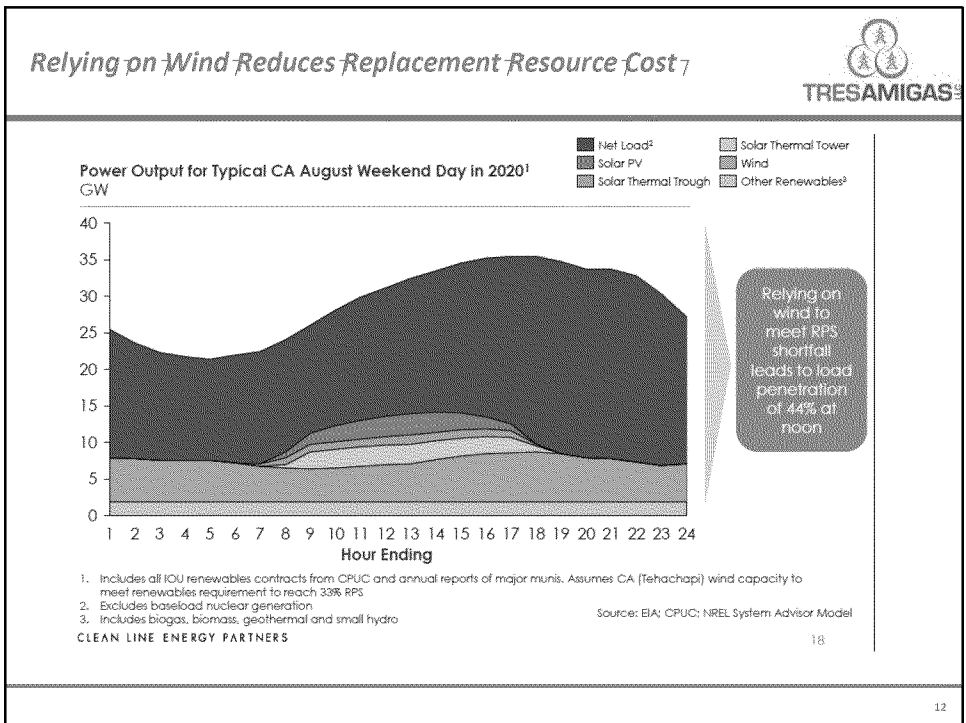
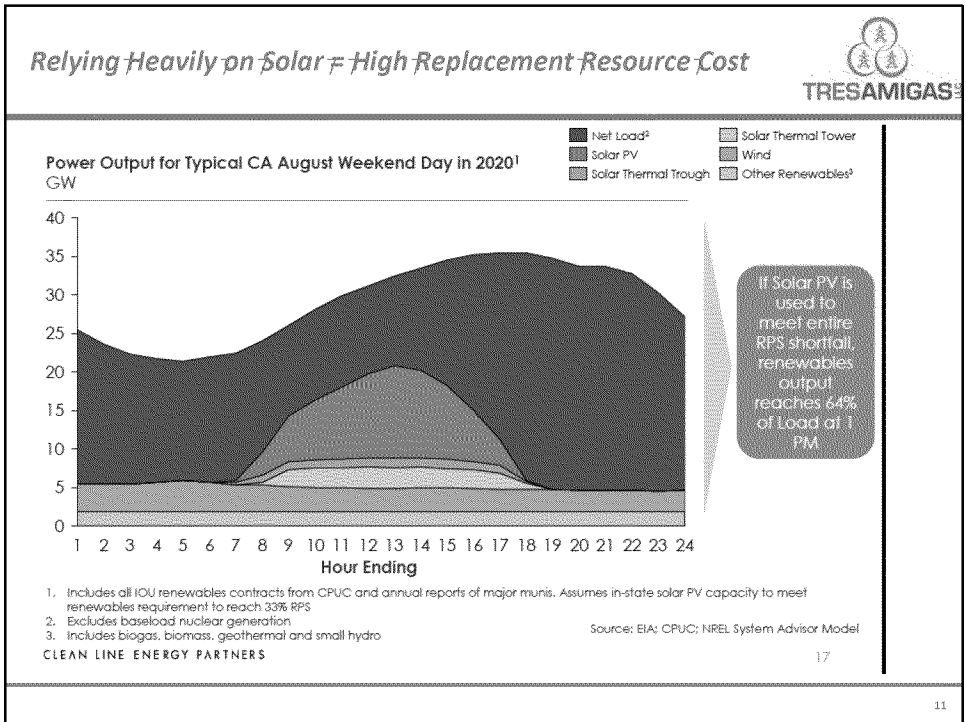
- PNM to Four Corners; Four Corners to CA

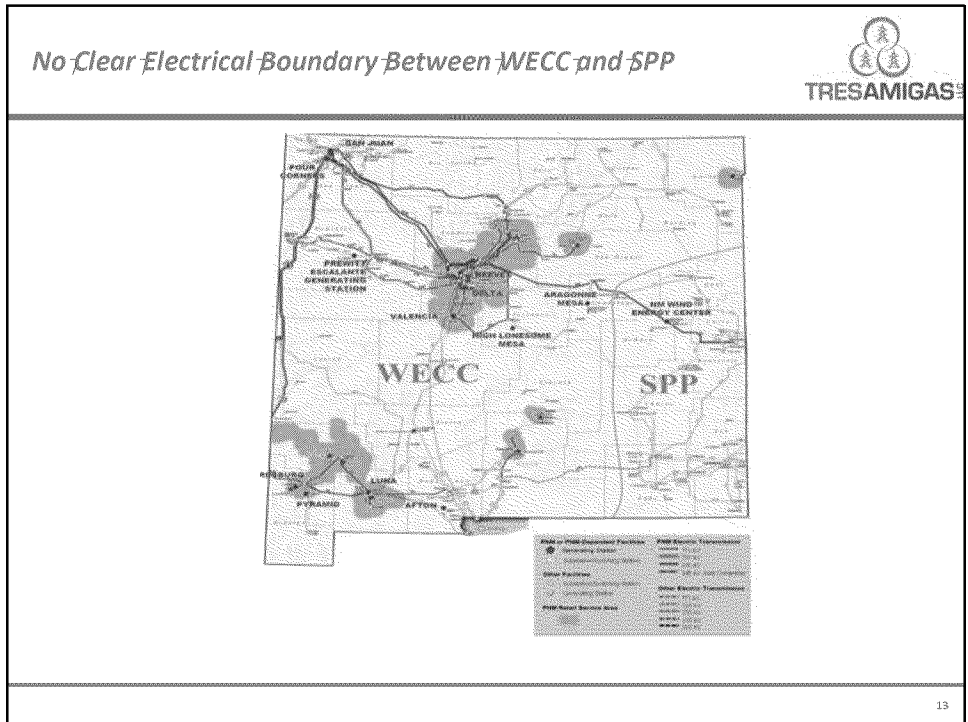
**Planned:**

- Clean Line Centennial
- Sun Zia
- Southline

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*Take Aways*

Thoughtful implementation of SB 1X will increase reliability and reduce cost

- Inclusive approach will benefit California, consistent with the statute

Tres Amigas will be a WECC Balancing Authority

- Direct connections
- Others functionally WECC sourced as a result of conversion to WECC frequency and TA scheduling/balancing authority function

Tres Amigas, independent transmission proposals along with wind and solar development in NM and West Texas spread costs and reduce risk of another 2000-01 energy crisis

- Diversification of sources will reduce reliance on hydro
- Geographic diversity will further reduce weather risk
- Reduced financial risk on CA ratepayers

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