

TRESAMIGAS LLC
UNITING THE NATION'S ELECTRIC POWER GRID

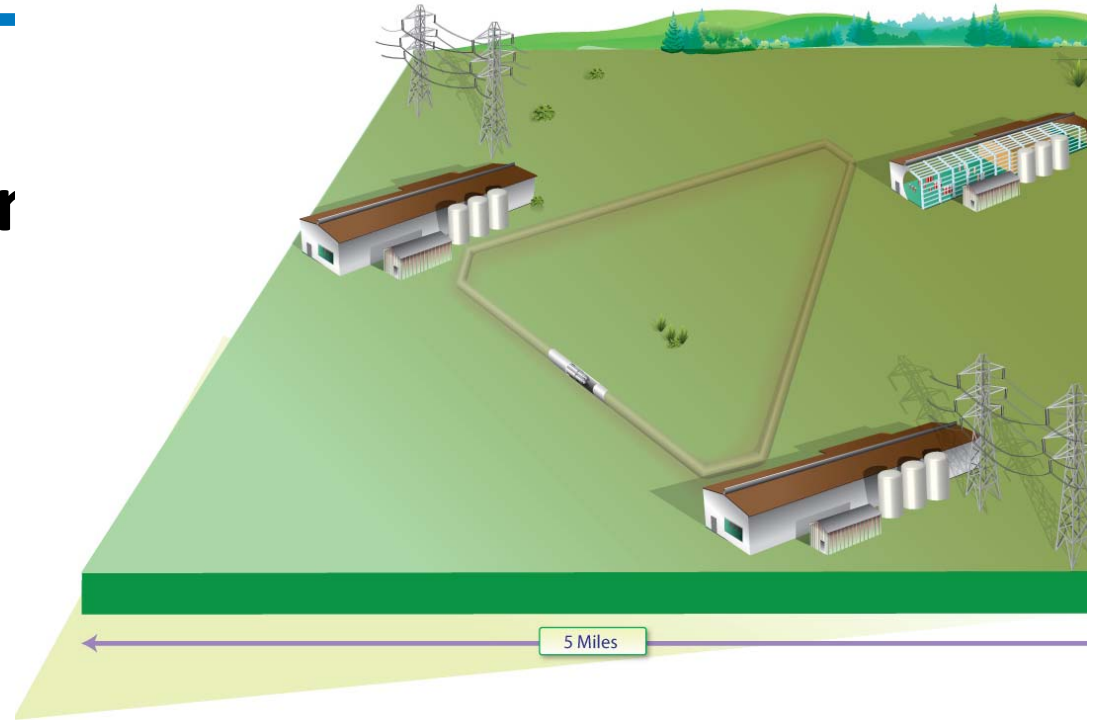
THE TRES AMIGAS SUPERSTATION PROJECT

SWAT meeting – November 3rd 2009

Tres Amigas SuperStation



TASS is a multi-terminal AC/DC station located in Clovis, NM



Why a SuperStation?



Grid Opportunities

1. To connect the three U.S. asynchronous power grids through a DC Hub that can regulate the direction and level of power flows between the grids, thereby improving the efficiency of the transmission systems in all regions
2. To provide economic incentives to further drive the growth of the nation's transmission grid by expanding opportunities for efficient transactions across currently inaccessible market regions
3. To optimize the value of existing AC infrastructure using state of the art technology
4. To provide reliable and cost effective transmission services consistent with NERC standards and regional reliability requirements

Why a SuperStation?



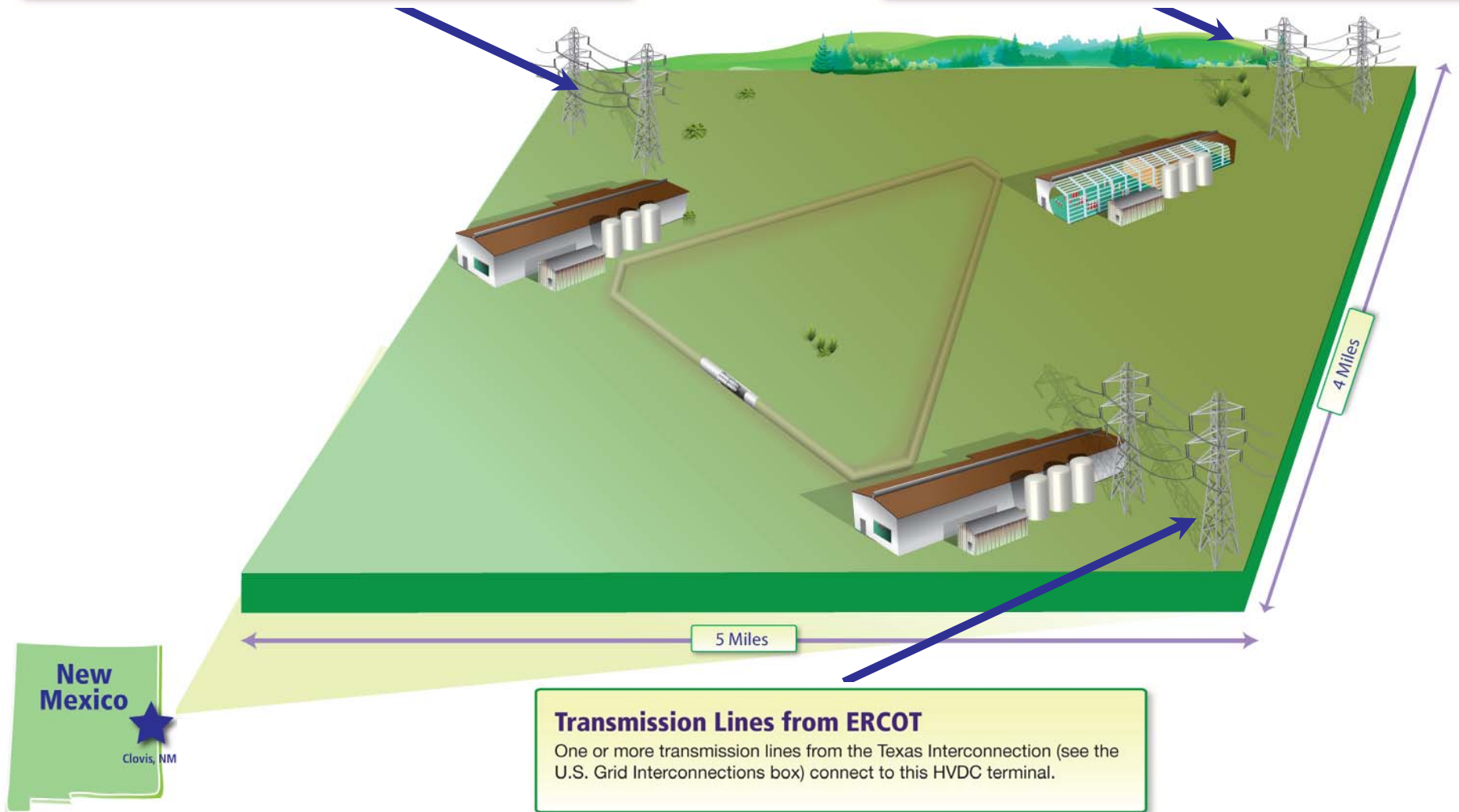
Renewable Opportunities

5. To enable the buying, selling and physical delivery of electricity between participants in multiple grids
6. To optimize the performance of renewable energy sources by offering or creating options to firm intermittent power across a broad geographic area wherein a more cost-effective renewable product could be created
7. To promote the development of renewable energy projects by creating an opportunity for such projects to connect to multiple high demand load areas
8. To enable renewable energy to follow hourly demand fluctuations throughout a large portion of North America
9. To integrate large scale renewable resources by providing the capability to manage real-time power fluctuations that would otherwise exceed the capability of many existing balancing authorities

WHAT WOULD A SUPERSTATION LOOK LIKE?

Transmission Lines from Western Interconnection

Transmission Lines from Eastern Interconnection



Technology Breakthrough - Converters



- **The latest proven technology in converters - Voltage Source Converter (VSC) technology will be used**
 - Unlike traditional converter technology, VSC design supports the multi-terminal ring design goals of Tres Amigas
 - 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)
 - 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

Operational VSC design advantages include:

- VSCs can independently control real power in either direction and supply reactive power, thereby stabilizing frequency and voltage
- Unlike traditional converters, VSC converters have black start capability
- The VSC converter system responds rapidly to AC faults and system disturbances
- The voltage support capability of VSC converters reduces AC transmission system losses

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
- Emergency assistance
- Black Start capability to help restart a collapsed network

HVDC Cable Technology



- American Superconductor Corporation (AMSC) "Superconductor Electricity Pipelines" was chosen for Tres Amigas because of its strengths in the following areas:
 - Only superconductor HVDC cable can handle multi-gigawatt power in a single cable configuration with no electrical losses
 - Underground placement of the cable increases system security and reliability
 - The superconductor HVDC cable will initially be designed to carry five gigawatts of power per cable and can easily be expanded
- AMSC will be responsible for the engineering and manufacture of the superconductor cable system

Energy Storage Technology

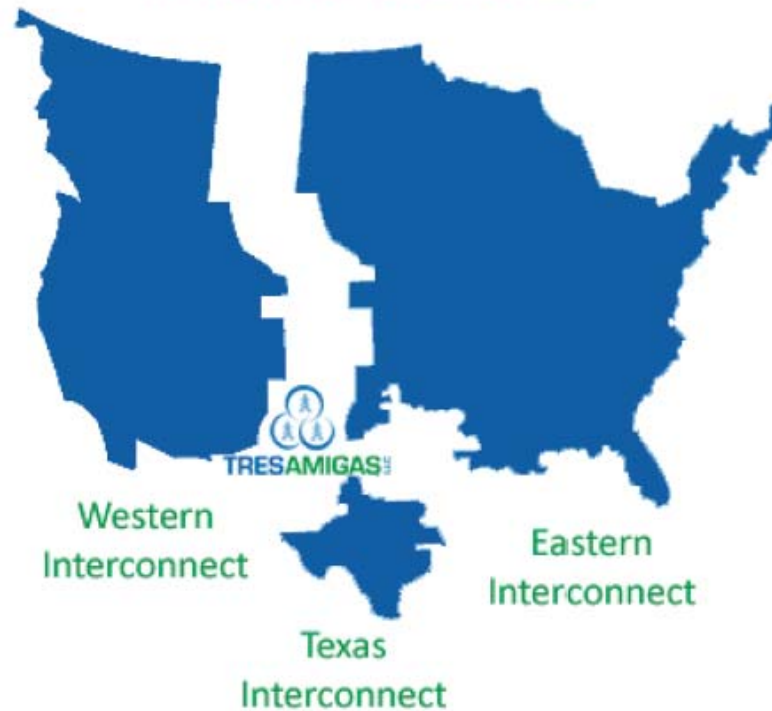


- Tres Amigas will be implementing an energy storage battery of proven design that will complement the transfer of energy with optional ancillary services
 - Fast, dynamic response to system changes
 - Ability to handle the large number of charge-discharge cycles associated with intermittent renewable energy sources
 - Has the ability to provide reactive support which may be critical to grid reliability and power quality
- The Tres Amigas SuperStation will be a green design - on site storage batteries will be charged with renewable energy
 - Zero emissions
 - Back-up generation
 - Black Start
 - Regulation
 - “Firming” renewable intermittent resources used for station power
 - Other “Firming” options may be offered

Tres Amigas SuperStation Location



NATIONAL POWER GRIDS



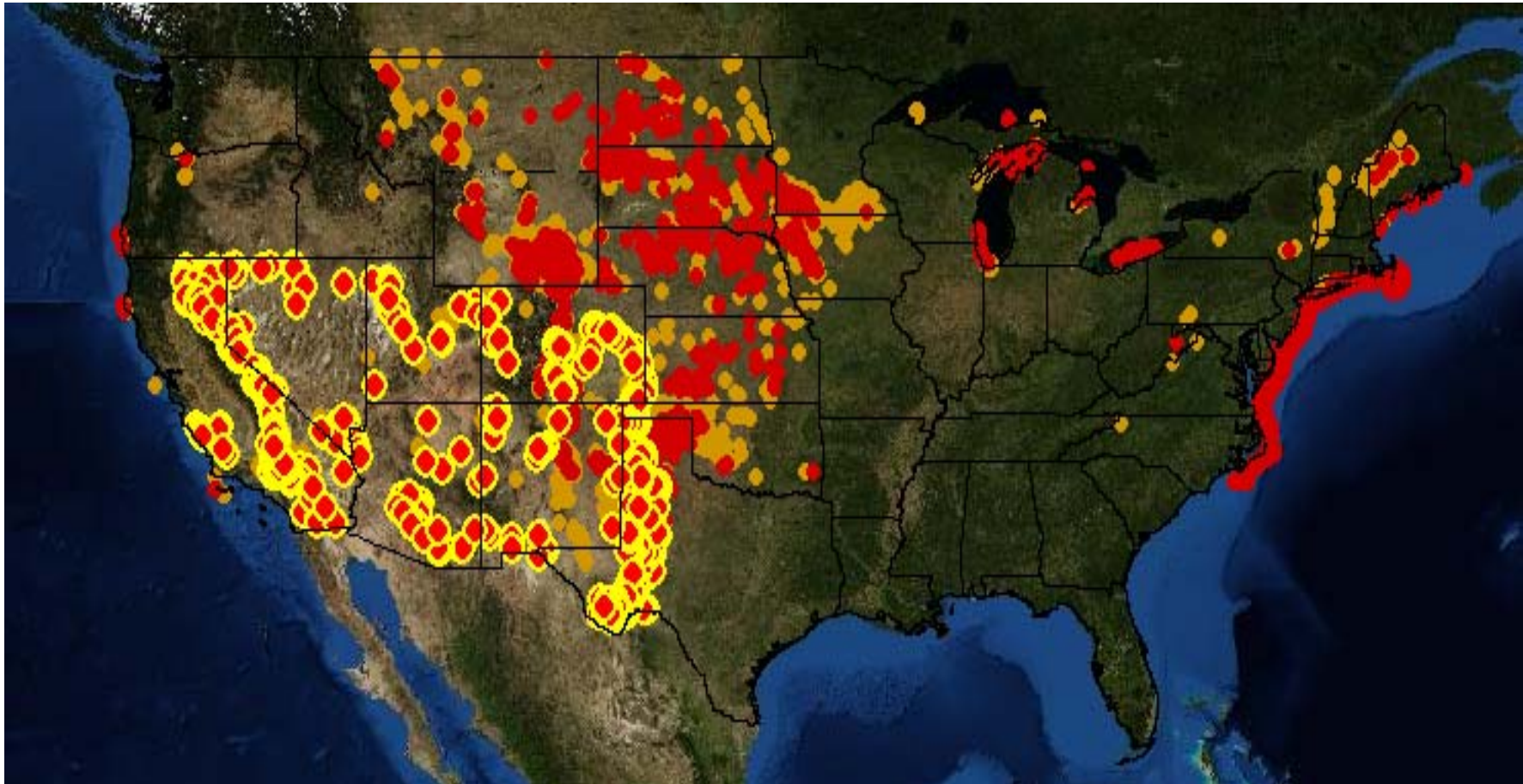
Tres Amigas Is Ideally Situated in Eastern New Mexico Near the Borders of CO, OK and TX Serving as a Three-Way Interconnection of WECC, Eastern and ERCOT

Tres Amigas SuperStation Location



- The New Mexico State Land Office has granted Tres Amigas, LLC an option to lease 14,400 acres (22.5 square miles) for this purpose
- The Tres Amigas SuperStation is located in an area of the country rich in renewable resources

NREL Wind and Solar > 35% Capacity



Location Advantages



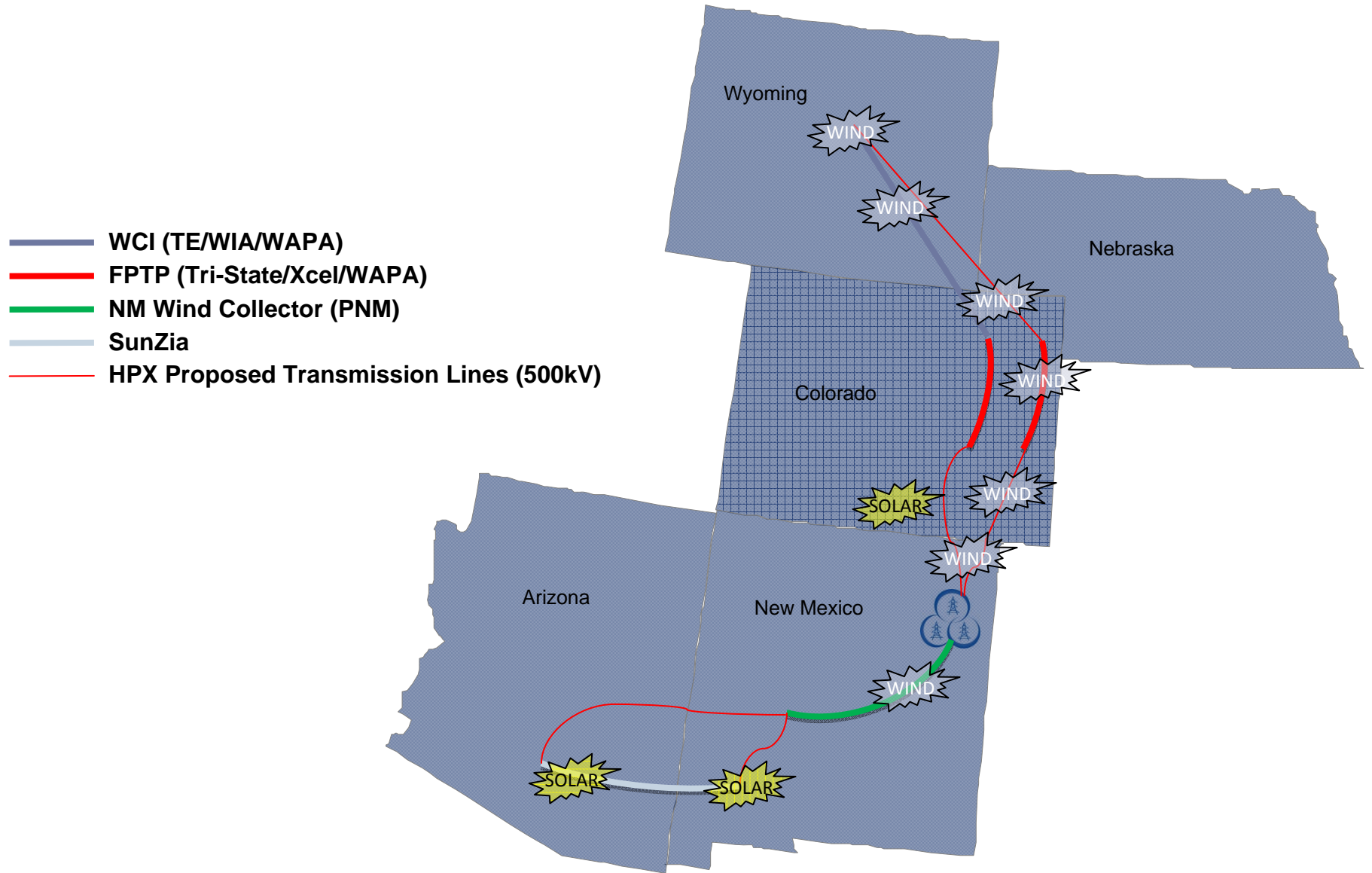
- Tres Amigas will optimize the nation's renewable energy resources by permitting each grid to benefit from access to the best available resource mix
- Tres Amigas will increase the value of several large transmission projects planned for the Southwest and will support the expansion of the national corridor system

Beneficiary: WECC



- High Plains Express (HPX): Xcel, Tri-State, SRP, WAPA, PNM, CSU will connect the states of Arizona, New Mexico, Colorado, and Wyoming. It will be 1250 miles long and have 3500- 4000 MW of transmission capacity. It is expected to be operating in 2017
- New Mexico Wind Collector: PNM plans to expand its current transmission system to accommodate large amounts of proposed wind generation in eastern New Mexico. Various expansion alternatives are still being developed
- SunZia: IPP Developers plans to construct and operate up to two 500 kilovolt (kV) transmission lines originating at a new substation in either Socorro County or Lincoln County in the vicinity of Bingham or Ancho, New Mexico, and terminating at the Pinal Central Substation in Pinal County near Coolidge, Arizona. The proposed transmission line route will be approximately 460 miles in length

Beneficiary: WECC

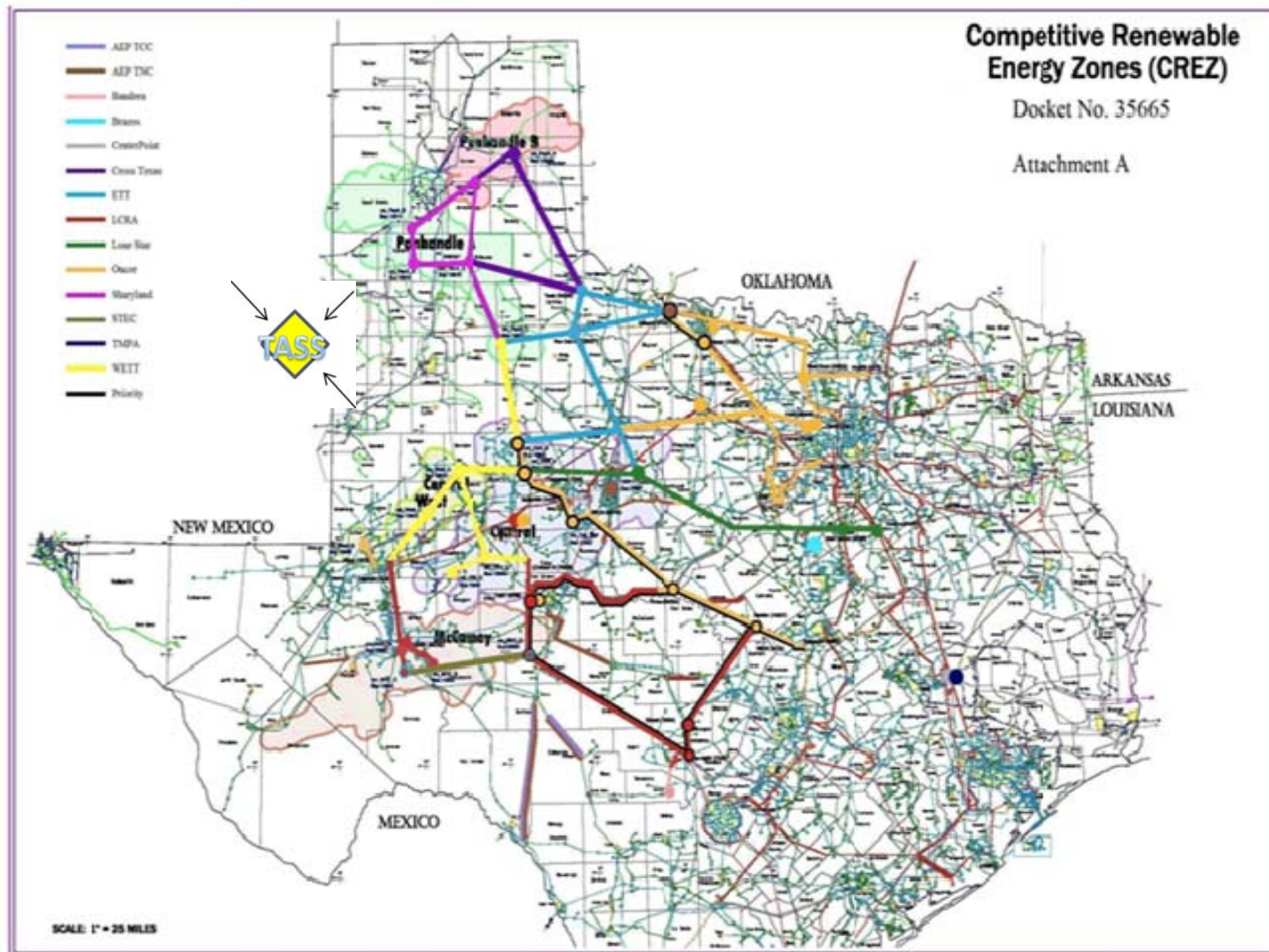


Beneficiary: ERCOT



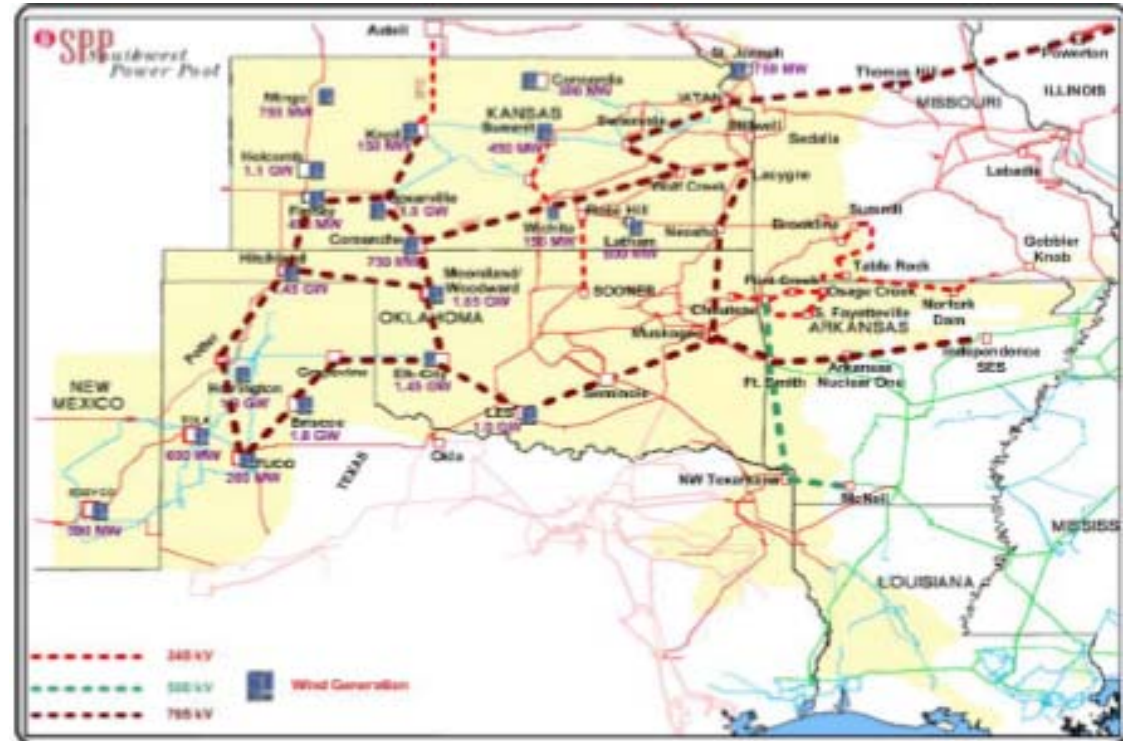
- Public Utility Commission of Texas approved 2400 miles of transmission to be constructed in five CREZ regions by the end of 2014. Included are:
 - Sharyland Utilities: Construct approximately 250-300 miles of new electric transmission facilities located in the Texas Panhandle and South Plains.
 - WETT: Constructing a network of power transmission lines in northern and central Texas that will connect wind generation projects in West Texas with major power markets such as Dallas.
 - LCRA: Construct own, and operate about 600 miles of new and existing transmission lines and facilities.

Beneficiary: ERCOT



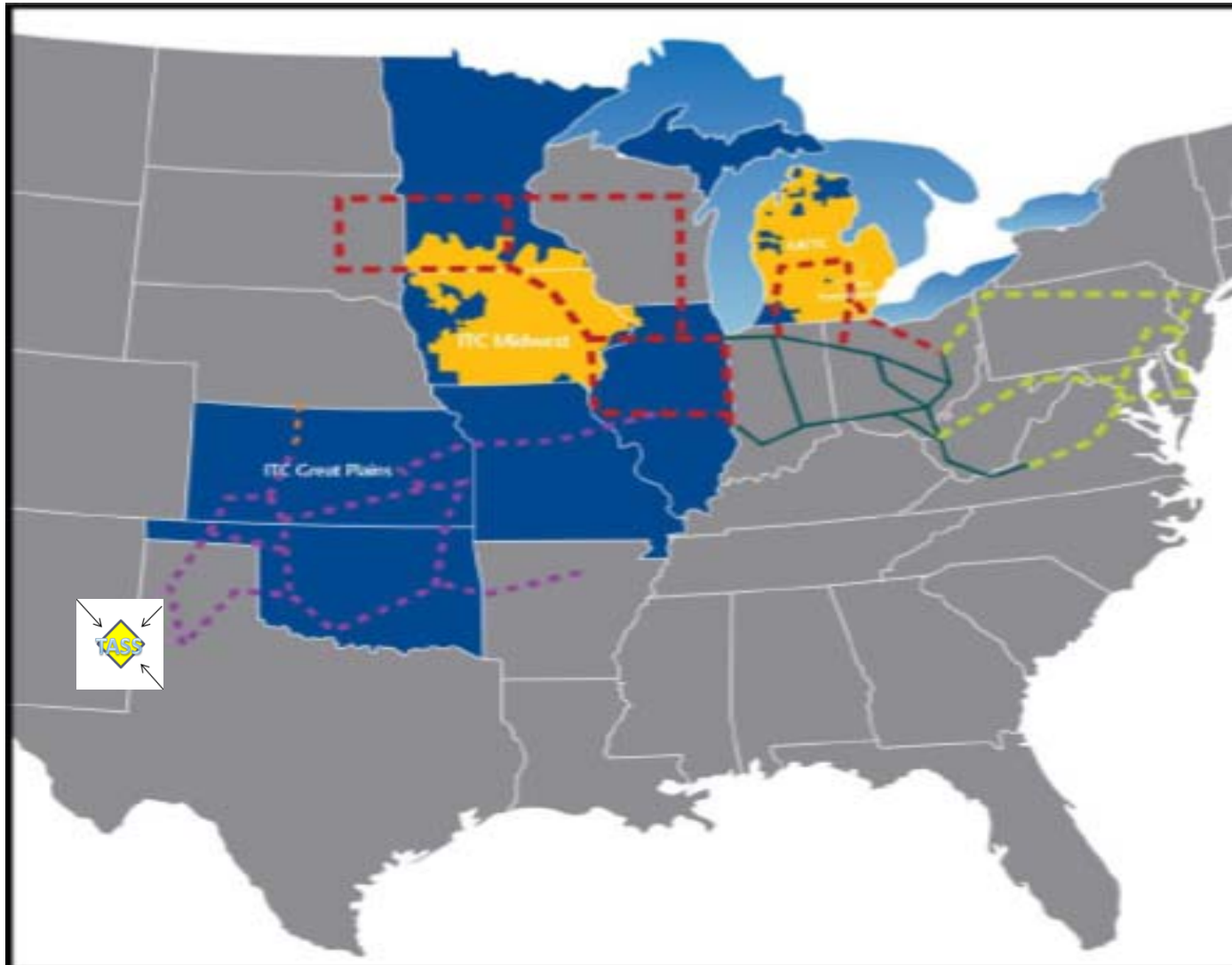
Beneficiary: Eastern

- SPP is studying 2850 miles of 765 and 500kV transmission from the Texas panhandle through Texas, Kansas, Oklahoma, Arkansas and Missouri (SPP EHV Overlay)
- These projects are in various stages of development
- The total cost is \$8 billion

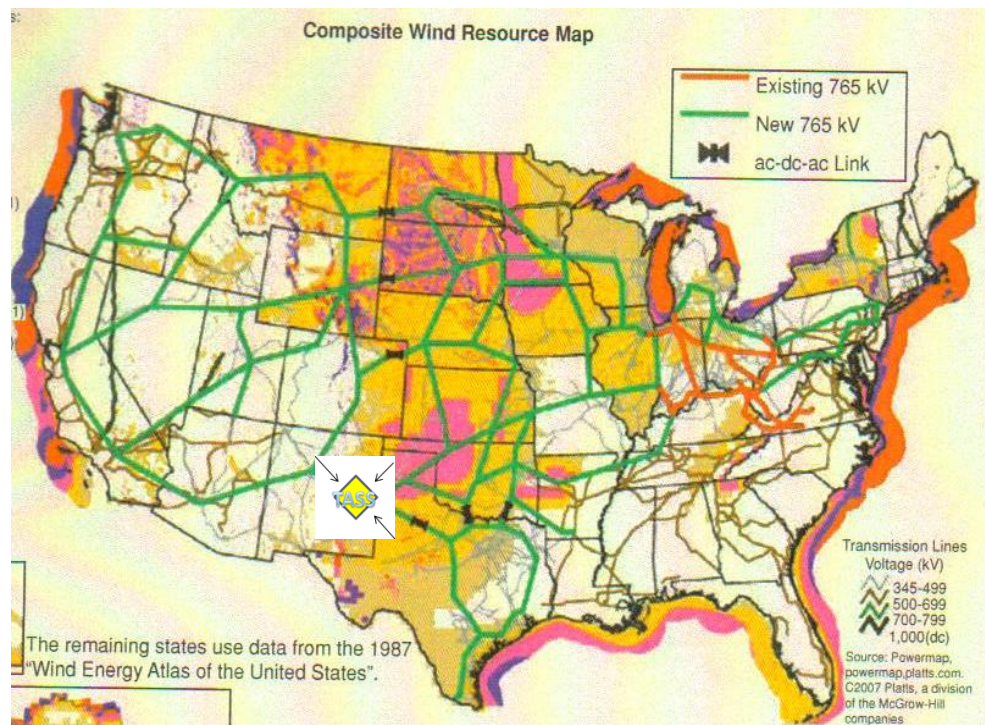


Source:

Eastern EHV Plan



U.S. Transmission Grid Concept



- Concept of DOE National Renewable Energy Laboratory and American Electric Power Company
- D.C and 765 KV AC lines

Source:

Energy Firming Options



- In addition to firm transmission services TASS will offer to energy suppliers the following
 - Options for battery storage
 - Facilitation of multilateral contracts with energy suppliers
 - Facilitation of pass through dynamic scheduling

Summary of National Benefits



1. Tres Amigas will enhance the reliability of the national grid by connecting ERCOT, Eastern, and the WECC electrical grids through a robust interconnection station
2. Tres Amigas will promote the National Corridor Transmission System by providing added value to other planned transmission developments
3. Tres Amigas will provide better utilization of transmission
4. Tres Amigas will accord load serving entities and customers an economic benefit through sourcing energy from any of the three grids

Summary of National Benefits



4. Tres Amigas will support current public policy by enabling the integration and the development of new, clean, renewable power sources
5. Tres Amigas will support national goals by being a green design with the station energized with renewable energy – onsite storage batteries will be charged with renewable energy for back-up generation
6. Tres Amigas will enable other benefits such as reserve sharing pools across asynchronous grids

Part of the Future



- Tres Amigas will be an important part of the anticipated growth of the interconnected network to facilitate the integration of renewable resources on a national basis

Senior Management Team



Phil Harris, Managing Partner and CEO: Phil has extensive experience in the electricity sector . He has worked across the nation with various entities associated with the investment , regulatory, and utilities side of the business to advance the evolution of the energy market. His years as the CEO of the PJM ISO have primed him for a leadership role in public relations and nation-wide policy development.

Ziad Alaywan, Managing Partner, COO: Ziad has over 22 years of project experience in the energy sector; primarily in transmission, generation and market operations. He founded ZGlobal Inc., an engineering & consulting firm, after working for almost a decade with Pacific Gas & Electric as Manager of Real Time Grid Operation. Ziad was the first CAISO employee and successfully led the implementation of the CAISO market & grid system in 12 months. Ziad was Managing Director of CAISO Market & Grid Operations until 2004.

Russ Stidolph, Managing Partner and CFO: Russ is the founder and a Managing Director of AltEnergy. Prior to founding AltEnergy, Russ was a Principal at J.H. Whitney & Co., LLC a middle-market private equity firm based in New Canaan, Connecticut. While at J.H. Whitney he was responsible for starting and developing the firm's alternative energy investing practice. Prior to joining J.H. Whitney, Russ was a member of the corporate finance group at PaineWebber, Inc., responsible for high yield and leverage finance origination. Currently Russ sits on the board of directors of Viridity, Inc, AgriSol Energy, LLC and GRP Funding, LLC.

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