

STEPTOE & JOHNSON^{LLP}

ATTORNEYS AT LAW

David B. Raskin
202.429.6254
draskin@steptoe.com

1330 Connecticut Avenue, NW
Washington, DC 20036-1795
Tel 202.429.3000
Fax 202.429.3902
steptoe.com

December 8, 2009

Via Electronic Filing

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: *Tres Amigas LLC*
Docket No. EL10- -000

Dear Secretary Bose:

Pursuant to Rule 207 of the rules and regulations of the Federal Energy Regulatory Commission, 18 C.F.R. § 385.207 (2009), Tres Amigas LLC submits a Petition for Disclaimer of Jurisdiction. A check to pay the filing fee of \$22,550 for this Petition is being sent to the Commission via courier.

Please do not hesitate to contact the undersigned if you have any questions in this matter.

Respectfully submitted,

/s/ David B. Raskin

David B. Raskin
Attorney for Tres Amigas LLC

Attachments

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Tres Amigas LLC

Docket No. EL10-_____

**PETITION FOR DISCLAIMER OF JURISDICTION
OF TRES AMIGAS LLC**

Pursuant to Rule 207 of the Commission’s rules of practice and procedure, 18 CFR §385.207 (2009), Tres Amigas LLC (“Petitioner”) hereby requests a ruling by the Commission that any transmission owner that constructs transmission facilities interconnecting the ERCOT grid to the proposed Tres Amigas Superstation (“Tres Amigas”) will not be subject to FERC jurisdiction as a public utility under the Federal Power Act by virtue of such interconnection, that transmission services over the alternating current (“AC”) lines from ERCOT to Tres Amigas (and synchronized with the ERCOT grid) will not be subject to the Commission’s jurisdiction, and that establishing a new AC to Direct Current (“DC”) interconnection between Tres Amigas and ERCOT will not change the jurisdictional status of any other ERCOT utilities or ERCOT transactions.¹ The Petitioner is submitting the filing fee associated with this Petition under separate cover.

¹ Comparable relief was recently requested in several Rule 207 petitions for disclaimer of jurisdiction filed by entities operating in ERCOT. *E.g., Cottonwood Energy Co., LP*, 118 FERC (Continued ...)

The relief requested in this Petition is essential for the Tres Amigas project to move forward. The ERCOT parties with whom the Petitioner has discussed interconnecting with Tres Amigas have made clear that they will not likely obtain approvals in Texas to construct transmission lines to Tres Amigas without this jurisdictional disclaimer, and without an ERCOT interconnection the unique benefits of Tres Amigas will be lost. Accordingly, Tres Amigas respectfully requests that the Commission grant this Petition as expeditiously as possible.²

I. SUMMARY

The Petitioner asks the Commission to disclaim jurisdiction over any ERCOT transmission owner that builds a transmission line to establish a new AC/DC interconnection between ERCOT and the Tres Amigas superstation, and that it further find that establishment of such a new ERCOT interconnection would not subject any facilities, entities or transactions inside ERCOT to Commission jurisdiction.

The Petitioner requests this relief on alternative grounds:

1. The Petitioner requests that the Commission find that the alternating current (“AC”) electric grid in ERCOT is not in interstate commerce and therefore not subject to Commission jurisdiction under the FPA, except as otherwise specifically

¶ 61,198 (2007) (“*Cottonwood Energy*”); *Sharyland Utils., LP*, 121 FERC ¶ 61,006 (2007) (“*Sharyland*”); *Cross Texas Transmission, LLC*, 129 FERC ¶ 61,106 (2009) (“*Cross Texas*”). The Commission granted these petitions.

² Simultaneous with the filing of this Petition, the Petitioner is filing a Section 205 application for negotiated pricing authority for the Tres Amigas project. In that filing, the Petitioner is requesting a 60-day effective date for its proposed rates. The Petitioner respectfully requests that the Commission rule on this Petition at the same time so that Tres Amigas can move forward with both of these essential initial approvals in hand.

provided for in the FPA, based on the Commission's longstanding jurisdictional practice and on the fact that the ERCOT grid is not synchronized with the interstate grids and therefore electric energy in ERCOT does not "commingle" with interstate energy. This finding would preserve the status quo without diminishing the Commission's current jurisdiction over any transactions, or its ability to carry out its regulatory responsibilities.

2. Alternatively, the Petitioner asks the Commission to rule that the Petitioner would be eligible for a jurisdictional disclaimer in accordance with Section 201(b)(2) of the Federal Power Act ("FPA" or "Act"), if it were to obtain a wheeling order from the Commission pursuant to FPA Section 211. As shown below, the Petitioner would not be eligible for an interconnection order under FPA Section 210 because of Texas law, but the Petitioner contends that obtaining an FPA Section 211 order is sufficient to trigger the jurisdictional limitation in FPA Section 201(b)(2). If the Commission rules on this alternative basis, the Petitioner also asks the Commission to provisionally confirm that it meets the standards for obtaining a wheeling order under FPA Section 211.

3. If the Commission does not disclaim jurisdiction on either of the two grounds described above, the Petitioner requests that the Commission rule that the Petitioner is entitled to a disclaimer of jurisdiction based on the unique design of the Tres Amigas superstation, which will maintain the electrical separation of ERCOT and the interstate grids using new technology and a unique configuration of facilities.

II. FACTUAL BACKGROUND

A. Description of Tres Amigas

Tres Amigas proposes to establish a unique, three-way AC/DC transmission interconnection that is intended to eliminate the market separation between the three asynchronous interconnections in the continental United States,³ without interfering with ERCOT's status as a separate interconnection under the jurisdiction of the Public Utility Commission of Texas ("PUCT") and Texas law. Tres Amigas will help resolve a problem that has confounded the electric industry for many years and that has stifled the efficient development of the electric system in the Southwest and neighboring areas. It will employ cutting edge technologies, such as voltage source converters and underground superconducting DC transmission cable, in a unique and creative engineering configuration in order to remove electrical barriers to the movement of power across the three interconnections. Tres Amigas will permit power sellers in ERCOT to schedule power to either the Eastern Interconnection or the WECC; power sellers in the Eastern Interconnection to schedule power to either ERCOT or the WECC; and power sellers in WECC to schedule power to either ERCOT or the Eastern Interconnection.

Attachment A to this Petition contains a conceptual drawing of the Tres Amigas superstation. As shown, the three interconnection points, or terminals, will be tied together by approximately two miles of underground, superconducting DC

³ These three asynchronous grids are the Western Electric Coordinating Council ("WECC"), the Electric Reliability Council of Texas ("ERCOT"), and the Eastern Interconnection.

transmission cable, which is state-of-the art technology developed by Tres Amigas participant, American Superconductor Corporation. All electric power flowing over the superconducting cables within Tres Amigas will consist of DC electricity. The use of underground superconducting DC transmission cable will permit Tres Amigas to reliably move large quantities of power between the three terminals, with minimal environmental impact, and with virtually no losses. Tres Amigas will be a showcase for this new technology that was originally developed at the Los Alamos National Laboratory.

No other facility on the electric grid has this configuration or performs this function. Not only will Tres Amigas use a new technology (voltage source converters) to convert electricity from AC to DC electrical current and then back to AC current that is synchronized with a different grid, there will also be a physical separation of the three non-synchronized AC grids by approximately two miles of DC transmission wires. The DC system within Tres Amigas will also operate as a separate Balancing Authority Area under the NERC rules. Within the superstation, Tres Amigas will be electrically equivalent to its own interconnection because the DC electricity within the superstation will not be synchronized with any of the three existing AC interconnections.

B. Benefits of Tres Amigas

Tres Amigas will advance the public interest in several important ways. First, a new power marketing hub will be created in proximity to large amounts of existing and potential renewable generation, providing the developers of renewable (and other) generation expanded markets in which to sell their power. Tres Amigas will permit renewable generation being developed in each of the Eastern Interconnection,

ERCOT and WECC to be delivered to markets that are currently only minimally accessible. This will enhance the value of new generation, creating additional incentives for its development. This benefit is particularly important because Tres Amigas will be located adjacent to areas of the country that have been identified as among the most promising from the standpoint of developing renewable wind, solar and geothermal power.

Second, marginal prices for energy in the three interconnections, which typically diverge because the markets are electrically separated, will move closer together, allowing electricity to be produced more efficiently and saving electric consumers large amounts of money. For example, the Petitioner's studies show that marginal energy prices vary significantly between the Southwest Power Pool (in the Eastern Interconnection), ERCOT and the WECC at this time. Our studies show that energy prices vary by more than \$50 per MWh in over 2,000 hours per year between the CAISO and ERCOT, over 1,600 hours per year between ERCOT and the Palo Verde hub, over approximately 1,500 hours per year between SPP and the CAISO, and over approximately 800 hours per year between ERCOT and the SPP. Accordingly, significant opportunities exist to produce power more efficiently.

Third, opportunities will exist to "firm up" intermittent and variable renewable energy by taking advantage of geographical diversity and onsite battery technology at Tres Amigas. Studies have shown that the quality of intermittent and variable renewable energy can be enhanced by aggregating sources from geographic locations that may experience high winds or sunshine at different times. In addition, Tres

Amigas will expand the geographic reach of markets generally, offering additional opportunities to take advantage of load and resource diversity.

Fourth, the value of transmission investments made in the regions around Tres Amigas will be enhanced by allowing power to move more freely between the interconnections. Tres Amigas will permit power to move to and from different markets, expanding the potential use of the existing transmission grid and expansions thereto. Tres Amigas should provide system planners new opportunities to improve the efficiency and reliability of the electric system at a lower overall cost.

Fifth, electric system reliability in the area around Tres Amigas will be improved because Tres Amigas will connect the three asynchronous grids at a robust station with back-up power and voltage source converter technology that will provide substantial reactive power to the transmission system in each of the interconnections. This is particularly important because Tres Amigas will be located in a remote area, where a strong source of reactive power is necessary to support both new transmission and new renewable generation. Tres Amigas will allow more renewable generation to be interconnected in this important region and reduce the investment cost associated with transmission development in the area.

C. Interconnection of Tres Amigas with ERCOT

As described in the Petitioner's companion Section 205 filing that is being made simultaneously with this Petition, numerous parties have approached the Petitioner to discuss interconnecting their transmission facilities and renewable generation facilities to Tres Amigas. This includes substantial interest from transmission and generation

developers in Texas, who would need to interconnect with Tres Amigas via the ERCOT grid. Several billion dollars of EHV transmission is currently under development in ERCOT, in order to integrate thousands of MWs of wind generation in Competitive Renewable Energy Zones (“CREZ”) identified by the PUCT. Clear opportunities exist to build transmission facilities from the CREZ transmission system to Tres Amigas, and the Petitioner has held positive discussions with potential developers of such transmission facilities. This is not surprising because interconnection of the CREZ transmission system with Tres Amigas will enhance the value of both the new transmission lines being constructed in ERCOT and the wind generation connecting to them, by creating a broader market for the export and import of energy.

However, Tres Amigas’ discussions with transmission and renewable generation developers operating in ERCOT have quickly turned to the necessity of providing assurance that transactions and facilities operating in ERCOT, including (but not limited to) any AC transmission lines from ERCOT that directly interconnect to Tres Amigas, will not become subject to FERC jurisdiction as a result of establishing an AC/DC interconnection between ERCOT and Tres Amigas. As the Commission knows, other parties proposing to build new AC/DC interconnections with ERCOT have requested disclaimers of jurisdiction in order to preserve ERCOT’s status as an intrastate electric system subject to regulation by the PUCT.

III. SCOPE OF FERC JURISDICTION IN THESE CIRCUMSTANCES

The Commission has long recognized and honored the jurisdictional separation between ERCOT and the interstate grid. The separation of ERCOT from the

interstate grid (and thus most Commission jurisdiction) is expressly recognized in Sections 212(k) and 216(k) of the FPA, and it is a longstanding aspect of federal energy law that should continue to be recognized. The existence of Tres Amigas should not change this historical practice from a statutory, factual or policy perspective. In fact, the Petitioner believes that the time is right for the Commission to rule that the jurisdictional status quo will be maintained for so long as ERCOT operates asynchronously with the two interstate grids, absent Congressional action to the contrary. This will not change the Commission's jurisdiction over any wholesale power or transmission transactions.

A. The Supreme Court's *FPL* Decision

Two provisions of the FPA, Sections 212(k) and 216(k), recognize ERCOT as being a separate jurisdictional entity outside of interstate commerce and regulated by the PUCT. The FPA, however, does not set forth specific standards for determining whether this jurisdictional separation must be preserved. The Supreme Court has provided the applicable guidelines. Under Section 201 of the Act, the Commission's jurisdiction generally extends to all transmission facilities that operate in "interstate commerce." In *Federal Power Comm'n v. Florida Power & Light Co.*, 404 U.S. 453 (1972) ("*FPL*"), the Supreme Court held that the geographic location of a particular transmission line or wholesale power transaction is not dispositive of whether the line or transaction is in interstate commerce. Rather, transmission lines and energy transactions within a single state were found to take place in interstate commerce in circumstances where electricity flowing into a bus connecting two Florida utilities "commingled" with

electricity in the receiving system and ultimately with electricity in other states through other interconnections on the same synchronized grid. 404 U.S. at 462-63.

Importantly, the Supreme Court found that whether or not electricity produced in one state “commingles” with electricity in interstate commerce is a factual question to be determined based on the physics of electricity flows on the grid. *Id.* The Court based its decision on engineering testimony presented by the Federal Power Commission’s (“FPC”) technical staff in the agency proceeding below. The Court found that the FPC had shown that electric energy flowing in lines located in the State of Florida commingled with energy flowing in out-of-state lines based on the characteristics of electric energy on an AC system.

The *FPL* decision, however, dealt with the movement of power within the synchronized AC grid known as the Eastern Interconnection; in that case, the Court accepted the FPC’s factual finding that electricity within a synchronized AC grid commingles across state lines, thereby making transactions between utilities in one state part of interstate commerce.⁴ The Court did not address the physics of electricity flows between asynchronous grids, such as between ERCOT and one of the FERC-jurisdictional grids, which are tied together by AC/DC converters.

As discussed further and in the attached Affidavit of Phillip G. Harris (Attachment B), the physics of electricity flows between ERCOT and the interstate grid

⁴ The Court rejected the FPC’s “unity of electromagnetic response” theory, which was the alternative justification proposed for asserting jurisdiction. *Id.* In addition, the Court acknowledged that the “commingling” theory was just that: a theory or rough representation of what happens when electricity flows in a synchronized electric system. *Id.* at 465.

are different from those discussed in the *FPL* case. The interconnections between ERCOT and the interstate grid are not “free-flowing.” In order for power to be scheduled from one interconnection to another, the electrical current must be converted from an AC wave to a DC pulse and then back to an AC wave that is synchronized with the receiving grid. He explains that there is no mixing of energy in the conversion process. In fact, he explains that the asynchronous grids must be kept electrically separated in this conversion process or else substantial damage to the electric system will occur. The Commission has never offered factual evidence attempting to show that electric energy on asynchronous AC grids is “commingled” within the Supreme Court’s meaning in these circumstances when they are tied together by an AC/DC converter. In fact, the Commission’s original ERCOT interconnection decisions deferred consideration of this issue as shown below.

B. The Original Texas Interconnection Cases

The Commission first addressed this jurisdictional issue in the early 1980s in connection with the first proposals to interconnect ERCOT with the interstate grid. In that case, the Commission consensually resolved a series of complaints associated with these proposed interconnections without firmly deciding the underlying jurisdictional issue based on the factual issue discussed in the *FPL* decision. Rather, the Commission held that the interconnection of ERCOT and the FERC jurisdictional grid via AC/DC conversion would not make the ERCOT interconnecting company a public utility, or make the ERCOT system as a whole FERC-jurisdictional, in circumstances where the Commission has issued an order under FPA Sections 210 and 211 directing that the

parties interconnect and wheel. *Central Power & Light Co.*, 17 FERC ¶ 61, 078 (1981) (“1981 Order”). The 1981 Order relied on language in FPA Section 201(b)(2), which provides that an entity does not become FERC-jurisdictional if it is in interstate commerce solely by virtue of complying with an order issued under FPA Section 210 or 211. Thus, the Commission avoided the factual commingling issue by finding that so long as the interconnecting parties applied for and obtained orders under Sections 210 and 211 no FERC jurisdiction would attach.

In a later decision involving implementation of the 1981 Order, the Commission more directly addressed its jurisdiction in the context of an AC/DC interconnection between ERCOT and the FERC-jurisdictional grid as follows:

[The ERCOT utilities] ***may be or will be*** operating in interstate commerce by virtue of the interconnections required by this order and the wheeling, transmission, purchase, sale, exchange, coordination or commingling of electric power to, from or within ERCOT, including the ownership or use of facilities therefor, or by virtue of the ***synchronous or asynchronous operation*** of electromagnetic unity of response of interconnected electric facilities; [the ERCOT utilities], however, shall not be subject to jurisdiction under Section 201 of the Act by virtue of Section 201(b)(2) of the Act.

Central Power & Light Co., 40 FERC ¶ 61,077 at 61,223 (1987) (“1987 Order”)

(emphasis added). Accordingly, the Commission again chose not to decide whether FERC jurisdiction would necessarily attach in the absence of a Section 210 or 211 Order. In fact, it used the words “may be or will be,” clearly indicating that it was withholding judgment on the issue, and expressly distinguishing between potential synchronous and asynchronous interconnection. Nonetheless, it affirmed that Section 201(b)(2) proscribed the exercise of FERC jurisdiction in ERCOT so long as the Commission issued an order

under Section 210 or 211 applicable to the interconnecting utilities, so there was no reason to address the commingling issue.

C. Subsequent Texas Interconnection Cases

In later cases, parties proposing to build an AC/DC interconnection between ERCOT and the interstate grid avoided asking the Commission to address the factual issue raised by the *FPL* decision by agreeing voluntarily to submit applications under Sections 210 and 211 in connection with their proposals. The Commission then disclaimed jurisdiction pursuant to Section 201(b)(2) because the affected parties had voluntarily filed applications and obtained orders directing the interconnections under FPA Sections 210 and 211. *See Brazos Elec. Power Coop., Inc.*, 118 FERC ¶ 61,199 at P 12 (2007) (“*Brazos*”); *Kiowa Power Partners, LLC*, 99 FERC ¶ 61,251 at P 9 (2002). These cases cited back to the earlier AC/DC ERCOT interconnection cases from the 1980s discussed above as the applicable precedent.

In these more recent interconnection decisions, the Commission did not address the factual issue from *FPL* that had been left open in the original Texas interconnection cases, which would have established whether, in the Commission’s view, the interconnection of non-synchronized grids via AC/DC conversion would result in “commingling” as the term was used by the Supreme Court in *FPL*. The “may be or will be” language in the 1987 Order remains the only statement on this issue, and this language clearly reflects a decision to withhold judgment.

D. Other Recent Cases

In a series of recent cases involving the jurisdictional separation of ERCOT with the interstate grid, the Commission granted petitions for declaratory orders disclaiming jurisdiction in other factual contexts.⁵ None of those cases involved the establishment of a new AC/DC interconnection. In those cases, the Commission found that there would be no “commingling” of electric energy because all of the energy produced or consumed would remain within either ERCOT or interstate commerce, but would not simultaneously appear in both. Thus, in *Cottonwood Energy*, the Commission found that the use of “disconnect” switches that separated ERCOT from the Eastern Interconnection was sufficient to prevent the commingling of energy, even though the switches could be configured at any time to put the energy in either ERCOT or the Eastern Interconnection.

From the language used in the *Sharyland* order, however, the Commission appeared to take the position that the Supreme Court’s “commingling” test is one involving the nature of a scheduled transaction rather than physical electricity flows. The Commission seemed to conclude that if a particular transaction involved the sale of power from ERCOT to the Comisión Federal de Electricidad (“CFE”) in Mexico that could ultimately end up back in another State through the scheduling of power over an AC/DC interconnection, commingling would occur. The Commission nonetheless disclaimed jurisdiction based on a finding that this form of transactional commingling

⁵ E.g., *Cottonwood Energy*, 118 FERC ¶ 61,198; *Sharyland*, 121 FERC ¶ 61,006; *Cross Texas*, 129 FERC ¶61,106.

was very unlikely and would be unplanned. *Sharyland* at P 23. Moreover, the Commission did not provide any factual explanation consistent with *FPL* reasoning to support its finding that commingling could occur in circumstances where power would have to cross over an AC/DC tie between asynchronous grids. The Commission may have found it unnecessary to provide this explanation because of its ultimate disclaimer of jurisdiction.

IV. REQUEST FOR DISCLAIMER OF JURISDICTION

A. The Commission's Prior Practice Is No Longer Sufficient

The Commission's prior decisions left open a fairly straightforward route for parties proposing to interconnect ERCOT and the interstate grid via an AC/DC tie without affecting the jurisdictional status of ERCOT entities. That route involved filing a voluntary application for an interconnection order under Section 210 of the FPA and a voluntary application for a wheeling order under Section 211, allowing the parties to take advantage of Section 201(b)(2), which states that "compliance with any order of the Commission under the provisions of section 210 or 211 shall not make an electric utility or other entity subject to the jurisdiction of the Commission for any purpose other than the purposes specified in the preceding sentence." As noted above, this was the route followed in the original ERCOT interconnection cases and in a few cases filed with the Commission since that time by parties seeking to interconnect without affecting the status of ERCOT.

Unfortunately, that route is no longer available in this and most other cases because of language used in FPA Section 210 in combination with recently-enacted

prohibitions under Texas law. Section 210(a)(1)(A) gives the Commission authority to direct the interconnection of the transmission facilities of any “electric utility” with those of an applicant that is also an electric utility. Section 3(22) of the FPA defines an “electric utility” as a “person ... that sells electric energy.” The Petitioner will be (or can become) an electric utility under the FPA because it intends to operate battery storage facilities at the Tres Amigas superstation, which will be used to supply energy in the form of ancillary services, as well as to provide firming energy services to others. The Petitioner would also be free to file a tariff with the Commission permitting it to purchase and then re-sell small amounts of energy if this were necessary to be an electric utility under the Act.

However, the entities located in Texas who propose to build transmission lines to interconnect the ERCOT grid with Tres Amigas apparently cannot be electric utilities, because Texas law expressly prohibits a transmission utility from selling electric energy. Sec. 39.105(a) of the Texas Public Utility Regulatory Act, entitled “Limitation on Sale of Electricity”⁶ provides that:

After January 1, 2002, a transmission and distribution utility may not sell electricity or otherwise participate in the market for electricity except for the purpose of buying electricity to serve its own needs.

Therefore, one of the parties that would have to be the subject of a Section 210 order would not be eligible to be the recipient of such an order, and it would therefore appear to

⁶ TEX. UTIL. CODE ANN. §39.105 (Vernon 2007).

be impossible to obtain a FPA Section 210 order in this case. This statutory provision does not give the PUCT authority to waive the prohibition.

The provision reflects the fact that Texas has chosen to unbundle its electric services in order to promote competition and customer choice. These are policies that this Commission has also supported since the issuance of Order No. 888, although the Commission chose to use mandatory functional unbundling of transmission from energy sales rather than corporate unbundling. As a result of this provision of Texas law, the mechanism that the Commission used in the past to approve interconnections between ERCOT and the interstate grid, which requires obtaining an order under FPA Sections 210 and 211, will be available in only limited circumstances involving entities that are not subject to mandatory corporate unbundling, like the Brazos generation and transmission cooperative, which recently obtained a disclaimer of jurisdiction under the old paradigm.⁷

B. The Commission Should Preserve Longstanding Practice by Finding That ERCOT Is Not in Interstate Commerce Because It Operates Asynchronously With the Interstate Grids

The Commission should issue an order in this proceeding preserving the current jurisdictional separation of ERCOT from the interstate grid, consistent with the reasoning of the Supreme Court's *FPL* decision and with longstanding precedent and practice that has been implicitly endorsed by Congress, and do away with the need to address this jurisdictional issue every time a new party wants to build an AC/DC

⁷ *Brazos Elec. Power Coop., Inc., supra.*

interconnection between ERCOT and the FERC-jurisdictional grid. This action would preserve the Commission's current jurisdiction over transmission services and wholesale power transactions in interstate commerce.

It is now well-established over several decades of operation that wholesale power and transmission transactions that take place exclusively inside ERCOT are not subject to the Commission's jurisdiction, with limited exceptions expressly provided for in the FPA. See footnote 5, *supra*; see also *American Electric Power Service Corp.*, 117 FERC ¶ 61,359 (2006). No one seems to dispute that ERCOT operates independently from the interstate grid under the jurisdiction of the PUCT and Texas law for most purposes, and the Commission has now issued many orders disclaiming jurisdiction over parties and facilities operating in ERCOT, many of which are described above.

An agency may give deference to longstanding policy and practice, especially where deviation from a settled practice would upset existing expectations. *E.g.*, *Consolidated Edison Co. of New York, Inc., v. FERC*, 958 F.2d 429, 435 (D.C. Cir. 1992); *Alabama Power Co. v. FERC*, 22 F.3d 270, 273 (11th Cir. 1994). This rule applies to questions of agency jurisdiction. *Williams Natural Gas Co.*, 59 FERC ¶ 61,306 at 62,130 (1992) (Commission affirms jurisdiction "to avoid upsetting the long-established and accepted jurisdictional status of numerous similar lateral pipelines in the United States"); *Rosebud Sioux Tribe v. Kneip*, 430 U.S. 584, 604-05 (1977) (where State had exercised jurisdiction for many years, this fact "created justifiable expectations" which should not be upset by a new reading of a statute urged by Petitioner); *Yankton Sioux Tribe v. Gaffey*, 188 F.3d 1010, 1029 (8th Cir. 1999); *Grand Labs. Inc. v. Harris*,

660 F.2d 1288, 1293 (8th Cir. 1981) (FDA’s assertion of jurisdiction rejected as “contrary to . . . the FDA’s prior longstanding interpretation of its jurisdiction”).

The Courts have also found that the existence of a longstanding practice can indicate implied Congressional acceptance of the practice. For example, in *Disabled American Veterans v. Sec’y of Veterans Affairs*, 419 F.3d 1317 (Fed. Cir. 2005), the court endorsed a VA practice that was arguably not sanctioned by the relevant statute. *Id.* at 1322. The court reasoned that, where Congress had done nothing to disturb this well-settled agency practice “congressional inaction in the face of long-standing agency practice can rise to the level of implied adoption.” *Id.* at 1322-23. The court cited *United States v. Midwest Oil Co.*, 236 U.S. 459, 481 (1915) for the proposition that congressional silence in the face of a long-standing Executive practice was “equivalent to consent to continue the practice until the power was revoked by some subsequent action by Congress.” See also *San Huan New Materials High Tech, Inc. v. Int’l Trade Comm’n*, 161 F.3d 1347, 1355 (Fed. Cir. 1999) (Congress ratifies agency practice when it legislates in an area of law covered by that practice, with full awareness of agency’s practice, and does not change or refer to that practice); *Town of Brookline v. Gorsuch*, 667 F.2d 215, 220 (1st Cir. 1981) (“[l]ongstanding agency practice, particularly where acquiesced in by the Congress, also receives deferential treatment”).

Congress has amended the FPA several times since the first AC/DC interconnection with ERCOT was established without suggesting any discontent with ERCOT’s remaining generally outside of the Commission’s jurisdiction. In fact, Congress has adopted two provisions since that time, FPA Sections 212(k) and 216(k),

which explicitly recognize ERCOT's separate jurisdictional status. Congress has also adopted provisions putting ERCOT utilities under FERC jurisdiction for certain limited purposes without changing the jurisdictional status quo for other purposes, e.g., FPA Section 215 (Reliability). Therefore, it appears that Congress has endorsed the jurisdictional status quo while directing FERC to exercise jurisdiction in the limited cases where it wants it to do so.

Given this longstanding situation, it is no longer clear why the Commission should rely on FPA Section 201(b)(2) to issue individual jurisdictional disclaimers whenever a party wants to create an AC/DC tie between ERCOT and the interstate grid, particularly where the prior practice may no longer be available. Orders under FPA Sections 210 and 211 are not required to satisfy the jurisdictional provisions of the FPA. The *FPL* decision, which defined the scope of FERC jurisdiction in terms of the physics of electricity flows on a synchronized AC grid, leaves the Commission sufficient discretion to find that where electricity grids are not synchronized, the electric current is not "commingled."⁸ Indeed, the electrical facts may require this result.

As described in the attached Affidavit of Phillip G. Harris, so long as the three interconnections operate asynchronously, electricity on the three interconnections cannot "commingle" as the Supreme Court used this term. He explains that, when asynchronous AC grids are connected using AC/DC conversion technology, it is essential

⁸ The Encarta Dictionary defines "commingle" as to "mix something or become mixed". As shown below, electric energy that is scheduled across an AC/DC interconnection does not become mixed; indeed, it cannot do so without causing substantial damage to the electric system.

that the electric energy be separated in order to prevent serious damage to each of the asynchronous electric systems. The AC/DC conversion process involves transforming AC wave energy synchronized with one grid into a DC pulse, which block the flow of energy between the asynchronous grids, and then back to an AC wave that is synchronized with the receiving grid. This electrical conversion process must take place for the very reason that the asynchronous grids must be kept electrically separated in order to prevent massive damage to facilities and equipment. Thus, AC/DC conversion technology allows electric energy to be scheduled between asynchronous grids while preventing the electric current from becoming commingled. In contrast, electric energy on a single AC grid is commingled throughout the grid because the electric energy is fully synchronized and flows freely.⁹ As Mr. Harris explains, the AC/DC conversion process exists in order to control the flow of electricity so that it can be safely re-synchronized.¹⁰

⁹ As the Commission has stated, “[f]rom an electrical engineering perspective, each of the three interconnections in the United States (the Eastern, the Western, and ERCOT) operates as a single machine.” *Regional Transmission Organizations*, Notice of Proposed Rulemaking, 64 Fed. Reg. 31,389 (June 10, 1999), FERC Stats. & Regs. ¶ 32,541 at 33,697 (1999) (footnote omitted). Similarly, the Supreme Court, in discussing each of the interconnections, stated that “any electricity that enters the grid immediately becomes a part of a vast pool of energy that is constantly moving in interstate commerce.” *New York v. FERC*, 535 U.S. 1, 7 (2001) (footnote omitted). Neither of these statements is true when discussing the scheduled delivery of power between synchronous interconnections using an AC/DC interconnection.

¹⁰ In a few recent orders discussed at pages 14-15 above, the Commission appeared to apply a transactional test to determine whether “commingling” has occurred. Thus, it found that transactions that could move through ERCOT and then sink in the interstate grid by passing through an AC/DC tie were commingled. This definition of “commingling” appears to be inconsistent with the engineering-based analysis used by the Supreme Court in *FPL*. The Commission did not provide an explanation for its use of the term commingling in those cases or tie that use to the analysis used in *FPL*.

A Commission finding that ERCOT remains outside of FERC jurisdiction for most purposes would also be consistent with FPA Section 201(c), which provides that “electric energy shall be held to be transmitted in interstate commerce if transmitted from a State and consumed at any point outside thereof.” That provision discusses the jurisdictional status of electric energy *transactions*. Accordingly, if energy is sourced in ERCOT and then scheduled across an AC/DC interconnection for delivery and then sale on the interstate grid, to the best of the Petitioner’s knowledge there has never been a dispute that such transaction would, pursuant to Section 201(c), take place in interstate commerce and be subject to the Commission’s jurisdiction. The Commission has held only that transactions taking place exclusively in ERCOT are outside of its jurisdiction.¹¹ So long as the Commission retains jurisdiction over wholesale power transactions that sink in the interstate grid, it does not need to repeatedly disclaim jurisdiction over facilities and transactions that occur within ERCOT and over which it has never asserted jurisdiction.

The Petitioner is not asking the Commission to re-define the limits of its jurisdiction over particular transactions. It is proposing only that the Commission affirm the existing jurisdictional status of ERCOT as being consistent with the jurisdictional provisions of the FPA in circumstances where a new AC/DC interconnection between ERCOT and the interstate grid is proposed. It is not proposing that the Commission give up jurisdiction over any transactions over which it currently has it or assert jurisdiction

¹¹ E.g., *American Elec. Power Service Corp.*, 117 FERC ¶ 61, 359 at P 17 (2006).

where it does not. By disclaiming jurisdiction in this instance, the Commission will uphold settled expectations and reduce regulatory burdens by eliminating the requirement for separate FERC approvals each time a new AC/DC interconnection is proposed. It would also overcome an unintended statutory problem created by changes in public utility law in Texas.

C. Alternatively, the Commission Should Disclaim Jurisdiction Based on an Order Issued Under FPA Section 211 Alone

Because an Order under Section 210 is not obtainable, the Petitioner alternatively requests that the Commission disclaim jurisdiction under FPA Section 201(b)(2) if and when the Petitioner obtains an Order from the FERC under FPA Section 211 directing that the ERCOT interconnecting party must wheel power to Tres Amigas.¹² Although the Petitioner and its ERCOT interconnecting partner could not obtain an order under Section 210 of the FPA for the reasons discussed earlier in this Petition, they would be eligible to obtain an Order under Section 211.

FPA Section 211 provides that an electric utility (or other entity generating power) may apply for an order, and that the Commission may order any “transmitting utility” to wheel power. Therefore, assuming that Tres Amigas were to qualify as an “electric utility” (for the same reasons discussed above with respect to Section 210), Section 211 would allow the Commission to order the ERCOT interconnecting party to

¹² Any such wheeling would be pursuant to the open access rules of the PUCT, which has jurisdiction over transmission services provided in the ERCOT grid. See FPA Section 212(k). Nothing in Section 211 suggests that the Commission cannot issue such an order to a transmitting utility operating in ERCOT. In fact, Section 212(k) explicitly contemplates such orders.

wheel power to Tres Amigas if it is a “transmitting utility.” FPA Section 3(23) defines a “transmitting utility” as an entity that owns or operates transmission facilities in interstate commerce and that transmits power at wholesale. Accordingly, in order for Section 211 to apply, the Commission would have to find that the ERCOT interconnecting entity would be operating transmission facilities in interstate commerce after it interconnects with the Tres Amigas superstation. Such a finding would appear to be consistent with the Commission’s decisions on the original AC/DC interconnections between ERCOT and the interstate grid and with its more recent decision in *Brazos* (at P 30), where it approved a new AC/DC interconnection based on orders under Sections 210 and 211. It would also accord with the reasoning in the recent Commission decisions in which the Commission found that energy that was sourced in ERCOT would be in interstate commerce if it were transmitted through CFE/Mexico and ultimately delivered from CFE/Mexico back into the interstate grid in another state. *Sharyland, supra* at PP 20-22; *TexMex Energy, L.L.C.*, 124 FERC ¶ 61,129 at PP 12-13 (2008).

The Commission should therefore find that Tres Amigas is eligible as an electric utility to apply for an order under Section 211 that would require an ERCOT interconnecting party to wheel power over its interconnecting transmission line since that party would be a transmitting utility under the FPA.

The Commission should also find that receipt of an Order under Section 211 alone (without a complementary Section 210 order) is sufficient to trigger the jurisdictional bar contained in Section 201(b)(2). First, Section 201(b)(2) states that compliance “with any order of the Commission under the provisions of section 210 or

211” will be sufficient to keep an entity outside of FERC jurisdiction. The FPA uses the word “or” making clear that an order issued under *either* section is sufficient to avoid Commission jurisdiction. The Commission may not effectively change the word “or” into “and” by requiring issuance of an order under both provisions in order for Section 201(b)(2) to apply.

Second, the Section 210 Order alone will be necessary for power to flow over the ERCOT interconnection into Tres Amigas because all of the potential interconnecting parties in ERCOT that have discussed building to Tres Amigas have made clear that unless FERC disclaims jurisdiction the interconnection will not be built and power therefore cannot be delivered over the transmission line interconnecting with Tres Amigas. Therefore, the delivery of energy from ERCOT into Tres Amigas will not occur in the absence of the Section 211 wheeling order and it will therefore necessarily be the case that the delivery of power from ERCOT to the interstate grid will take place only as a result of the Section 211 order.

Moreover, obtaining an interconnection order under Section 210 would be superfluous. The interconnection will not occur in the absence of a Section 211 wheeling order that triggers a disclaimer of jurisdiction, so there is no substantive reason for the Commission to issue a separate interconnection order under Section 210. In order to provide assurance that this is the case, the Petitioner will commit not to enter into any interconnection agreement (“IA”) applicable to an ERCOT interconnection with Tres Amigas that does not include a provision requiring that an effective order by the Commission pursuant to Section 211 will have been obtained, and that the Commission

will have actually disclaimed jurisdiction pursuant to Section 201(b)(2), prior to permitting the interconnection to be energized. The Petitioner is willing to have this contractual commitment be made a condition of the Commission's order disclaiming jurisdiction in this proceeding.

A wheeling order under Section 210 is also necessary to make the interconnection effective and usable. Therefore, a Section 210 order should be sufficient to make an entity eligible for a disclaimer under FPA Section 201(b)(2) because compliance with that order, standing alone, was necessary to create an effective, operable interconnection.

The reasoning described above is not very different from the reasoning that the Commission employed in prior cases in which it relied on FPA Section 210 and 211 orders to disclaim jurisdiction. In all of those prior cases, the parties involved in the interconnection were agreeing *voluntarily* to make the necessary Section 210 and 211 filings. They were not forcibly complying with such orders. Nonetheless, the Commission was able to find that the interconnection and wheeling would not have taken place absent orders issued under Sections 210 and 211, thus triggering Section 201(b)(2). The obvious (and only apparent) reason for this conclusion was that the ERCOT parties were not willing to interconnect and wheel over the AC/DC interconnections without the jurisdictional protection afforded by Section 201(b)(2) of the FPA. That is also the case here.

In sum, if the Commission issues a Section 210 order in connection with an ERCOT AC/DC interconnection with Tres Amigas and the subsequent delivery of power

over the interconnecting line, the parties will be eligible for a disclaimer of jurisdiction pursuant to FPA Section 201(b)(2).

D. The Petitioner Will Satisfy the Substantive Standards in Sections 211 and 212 of the FPA

If the Commission grants the disclaimer of jurisdiction based on the Petitioner obtaining a wheeling Order under FPA Section 211, the Petitioner will file one or more later applications with the Commission under FPA Section 211 requesting an order directing each ERCOT party proposing to build transmission facilities to Tres Amigas to wheel power over such facilities to Tres Amigas. In connection with such future application(s), the Petitioner is herein requesting that the Commission provisionally find that the Petitioner would be entitled to receive a favorable Section 211 order under the standards set forth in Sections 211 and 212 of the FPA¹³ if the facts are ultimately found to be consistent with those set forth below. In other words, the Petitioner is not asking the Commission to approve an application that is not before it, but to confirm that if the Petitioner is able to demonstrate the facts set forth below in the Section 211 application (and such demonstration is not overcome by opposing facts submitted by others), it would be entitled to receive a favorable Section 211 order, thereby triggering a jurisdictional disclaimer under Section 201(b)(2).

1. Section 211(a) requires that the Commission find that the ordered wheeling will be “in the public interest.” The Petitioner asks the Commission to confirm

¹³ Section 211 provides that any applicant for a wheeling order under Section 211 must satisfy the applicable standards of Sections 211 and 212 of the FPA.

that, assuming the facts set forth in Sections I.A and B. above concerning the substantial public benefits produced by Tres Amigas are found to be true and are not overcome by contrary evidence presented in the Section 211 proceeding, Tres Amigas would satisfy the public interest standard set forth in FPA Section 211(a).¹⁴

2. Assuming that (1) Tres Amigas obtains approval from NERC and WECC to operate Tres Amigas as a Balancing Authority Area and commits to comply with all applicable NERC and WECC reliability standards, (2) that any entity that constructs transmission from ERCOT that interconnects with Tres Amigas will comply with all applicable NERC and ERCOT reliability standards applicable to such transmission owner, and (3) no evidence is presented to the effect that the wheeling of power from ERCOT would otherwise impair system reliability, a Section 211 order directing such ERCOT transmission owner to wheel power to Tres Amigas would not “unreasonably impair the continued reliability of electric systems affected by such order” as required by FPA Section 211(b).

3. Assuming that an entity that builds transmission facilities from the ERCOT grid to interconnect with Tres Amigas will be subject to the jurisdiction of the PUCT, if such entity is obligated to provide open access transmission services in accordance with the open access tariff approved by the PUCT, and subject to rates, terms

¹⁴ The public interest benefits of Tres Amigas are described in even greater detail in the companion Section 205 filing being made by the Petitioner today.

and conditions approved by the PUCT, that the FPA Section 211 application will satisfy the requirements of FPA Section 212(a) concerning the rates, terms and conditions of ordered transmission service, as construed in accordance with FPA Section 212(k) for ERCOT transmission owners.

E. Alternative Request for Disclaimer of Jurisdiction Without FPA Section 211 Order Based on Unique Facts at Tres Amigas

In the event that the Commission cannot disclaim jurisdiction based on either of the alternative grounds set forth above, the Petitioner requests that the Commission find that the interconnection of a transmission line from ERCOT with Tres Amigas will not trigger the exercise of FERC jurisdiction over the owner of such line or ERCOT because of the unique facts associated with the design and operation of Tres Amigas. As discussed earlier in this Petition, the Commission found in 1987 that a party interconnecting the ERCOT and FERC-jurisdictional grids via an AC/DC interconnection “*may be or will be*” operating in interstate commerce, leaving the clear implication that the Commission was not deciding at that time whether, in some circumstances, FERC jurisdiction would not attach. The Applicant believes that, given the unique configuration of facilities at Tres Amigas, any ERCOT-sourced electricity flowing through Tres Amigas will not commingle with interstate electricity within the meaning of the Supreme Court’s *FPL* decision, and the Commission should disclaim jurisdiction.

First, the Petitioner will commit that any transmission owner that interconnects with Tres Amigas from ERCOT will own facilities only on the AC side of the AC/DC terminal at the superstation. Accordingly, all of the electric energy flowing in

the facilities owned by such ERCOT transmission owner will be synchronized solely with the ERCOT grid. Because any electricity sourced in one of the interstate grids will be converted at Tres Amigas to ERCOT energy before it enters the ERCOT interconnecting line, that line will have only ERCOT-synchronized AC current flowing through it.

Second, Tres Amigas will be a NERC-approved Balancing Authority Area operating its own DC system, with several miles of DC transmission lines between the ERCOT interconnection and the interconnection with the two FERC-jurisdictional AC grids. Therefore, a triangular system of superconducting transmission lines carrying direct current electricity will stand between the ERCOT AC grid and the two interstate AC grids. This configuration and particular set of capabilities does not exist anywhere else on the U.S. electric system (or in the world).

The situation in this case is also very different from the existing AC/DC interconnections between ERCOT and the FERC-jurisdictional grids because, as Mr. Harris explains in his Affidavit, Tres Amigas will use a new technology known as “voltage source converters” to change AC energy to DC. As Mr. Harris explains, the DC energy inside of Tres Amigas will be fully controllable both as to its reactive power and real power components. Voltage source converters add additional control capability that distinguishes the power inside of Tres Amigas from uncontrolled AC flows on an AC grid. In these unique circumstances, Tres Amigas believes it is fair to conclude that the electricity flowing in the ERCOT interconnecting line will not be “commingled” with electricity in the FERC-jurisdictional AC grids because Tres Amigas will operate a DC electric system in between the AC grids in which electricity will be fully under the

control of system operators, a factor that will enable operators to use Tres Amigas to enhance the reliability of the AC networks surrounding Tres Amigas. The existence of a fully controllable and controlled DC electric system in between the three AC grids is unique and provides a sufficient basis to conclude that Tres Amigas will keep the ERCOT grid outside of interstate commerce.

For these reasons, Tres Amigas alternatively requests that the Commission disclaim jurisdiction without requiring the issuance of FPA Section 210 or 211 orders that trigger FPA Section 201(b)(2) based on the unique facts of this case, because the Tres Amigas superstation will not operate like any other facility currently in operation.

V. COMMUNICATIONS

The Applicant requests that all filings and other correspondence in this proceeding be sent to the following individuals, both of whom should be included on the Commission's official service list in this proceeding.

David B. Raskin
Steptoe & Johnson LLP
1330 Connecticut Avenue, NW
Washington, DC 20036
202.429.6254
draskin@steptoe.com

Phillip G. Harris
Managing Partner and CEO
Tres Amigas LLC
200 W De Vargas Street, #7
Santa Fe, NM 87501-2643
970.731.1049

VI. CONCLUSION

For all of the foregoing reasons, the Petitioner requests that the Commission: (1) Maintain the longstanding jurisdictional separation of ERCOT from the interstate grid without requiring separate orders disclaiming jurisdiction each time a party wants to construct a new AC/DC tie between ERCOT and the FERC-jurisdictional grid;

(2) In the alternative, disclaim jurisdiction over an ERCOT transmission owner interconnecting with Tres Amigas based on issuing an Order pursuant to FPA Section 211; (3) If it disclaims jurisdiction based on (2) above, provisionally find that, assuming the facts set forth herein are ultimately found to be true, Tres Amigas would meet the substantive requirements of FPA Sections 211 and 212; and (4) In the alternative, find that Tres Amigas creates a unique factual situation in which an ERCOT entity interconnecting with Tres Amigas would not be in interstate commerce because the unique configuration of facilities at Tres Amigas will allow the Petitioner to control the flow of power between and among the three asynchronous grids in an unprecedented fashion.

Respectfully submitted,

/s/ David B. Raskin

David B. Raskin
STEPTOE & JOHNSON LLP
1330 Connecticut Avenue NW
Washington, DC 20036
(202) 429-3000

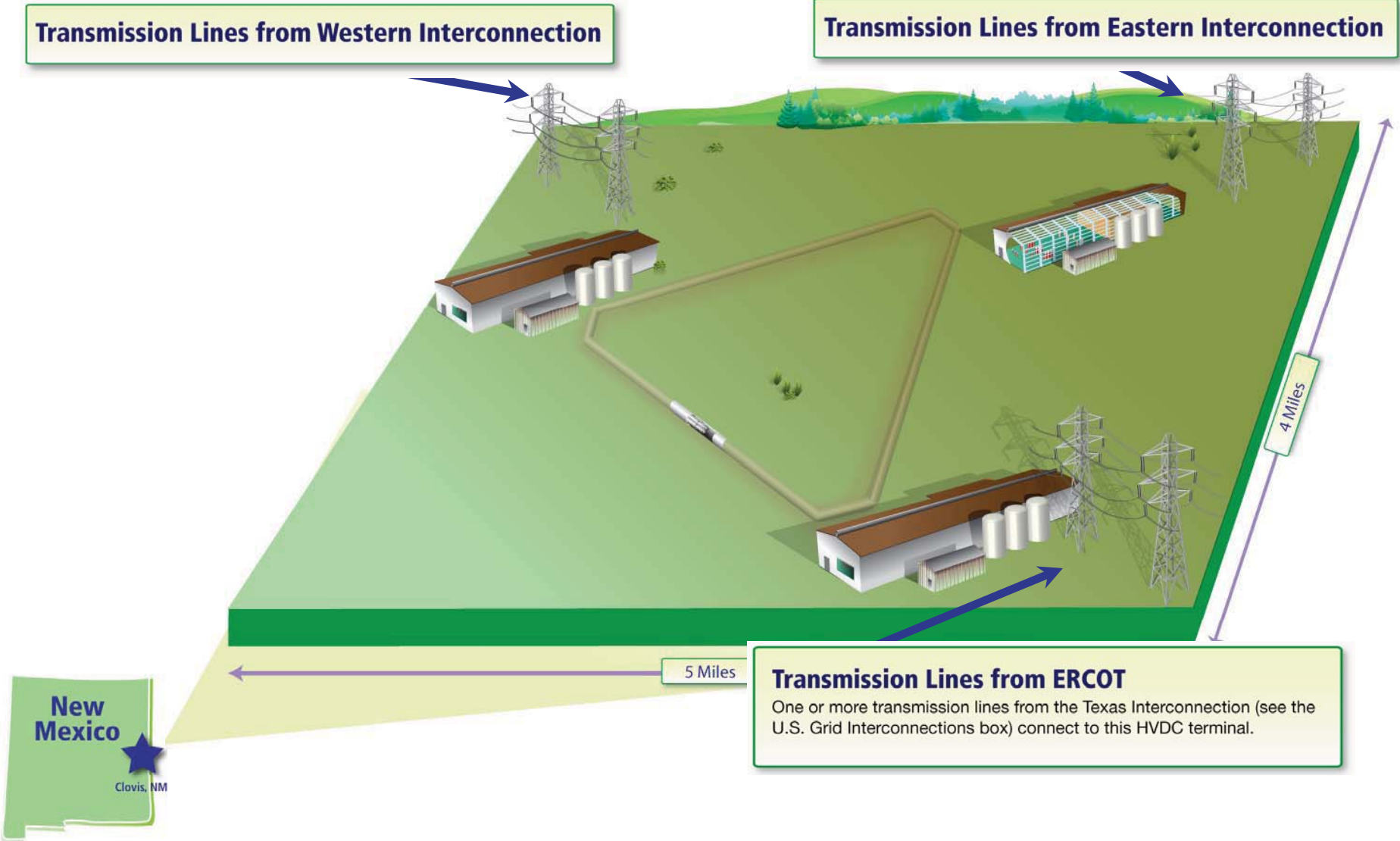
Attorney for Tres Amigas LLC

Dated: December 8, 2009

Attachment A



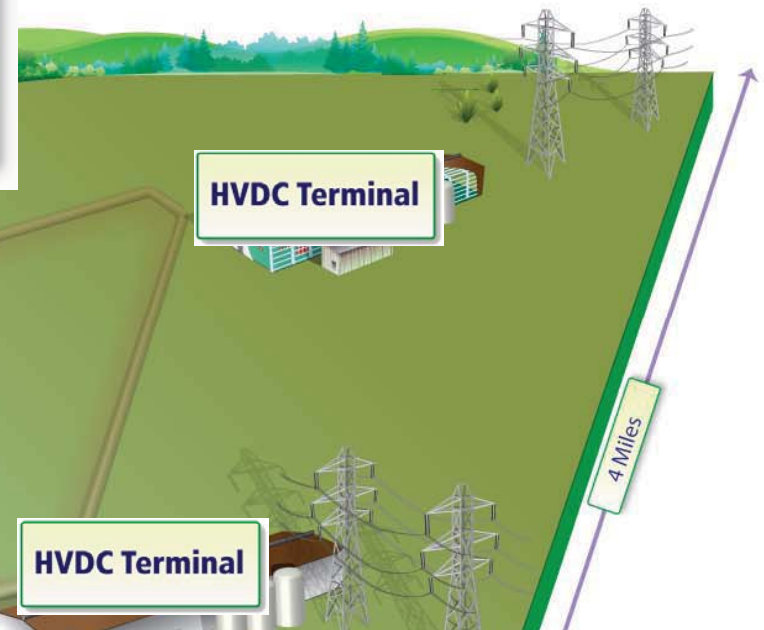
The Tres Amigas SuperStation





HVDC Terminal

When bringing power into the Tres Amigas SuperStation, the HVDC terminals convert alternating current (AC) power in the transmission lines to direct current (DC) power and then send that power through superconductor pipelines. When supplying power from Tres Amigas, the HVDC terminals convert the DC power on the superconductor pipeline back to AC power suitable for the transmission line that will be carrying it to distant electrical demand centers. Power transfer between any of the transmission lines connecting at Tres Amigas can only be accomplished through this conversion process.



HVDC Terminal – What's Inside

Each HVDC terminal looks like a standard utility substation with the addition of a building that houses the actual HVDC converter. Inside the converter building are high voltage power electronics that convert electricity back and forth between AC and DC (direct current) power. Tres Amigas SuperStation uses what are known as Voltage Source Converters (VSC), which enable the unique three-way grid interconnection. The substation also houses cooling equipment for the power electronics and the superconductor pipeline.



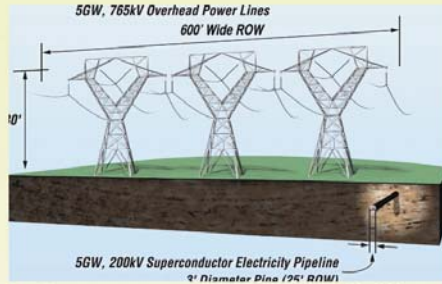
DC Superconductor Ring

Key to the Tres Amigas SuperStation is an underground pipeline of direct current (DC) superconductor cables less than three feet in diameter capable of carrying more than 5,000,000,000 watts (5 gigawatts) of electricity with no electrical losses; enough electricity to power 2.5 million homes. Superconductor cables:

Enhance efficiency: When the station is running at full power, the superconductor pipeline can save as much as 60,000,000 kW-Hrs of energy annually compared with conventional transmission technology. That's equivalent to the electricity usage of 30,000 homes and a 40,000 ton reduction in CO2 emissions.

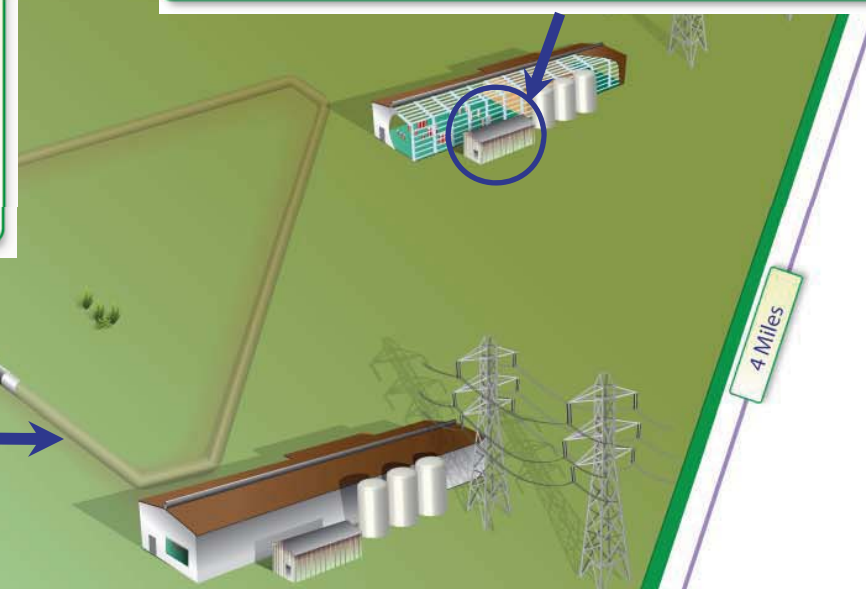
Are out of sight: A single, underground superconductor pipeline can carry as much power as three, 765kV AC overhead transmission lines (see figure).

Increase power security: Unlike overhead lines, underground cables are virtually immune to weather-related outages, the most common cause of power disruptions. Similarly, underground placement makes them less subject to vandalism and other forms of willful attack.



Energy Storage Battery

Each HVDC terminal is equipped with an advanced battery system to provide both back up to the renewable energy purchased by Tres Amigas to run the facility and to provide what are termed "ancillary services" support to the connecting AC systems.

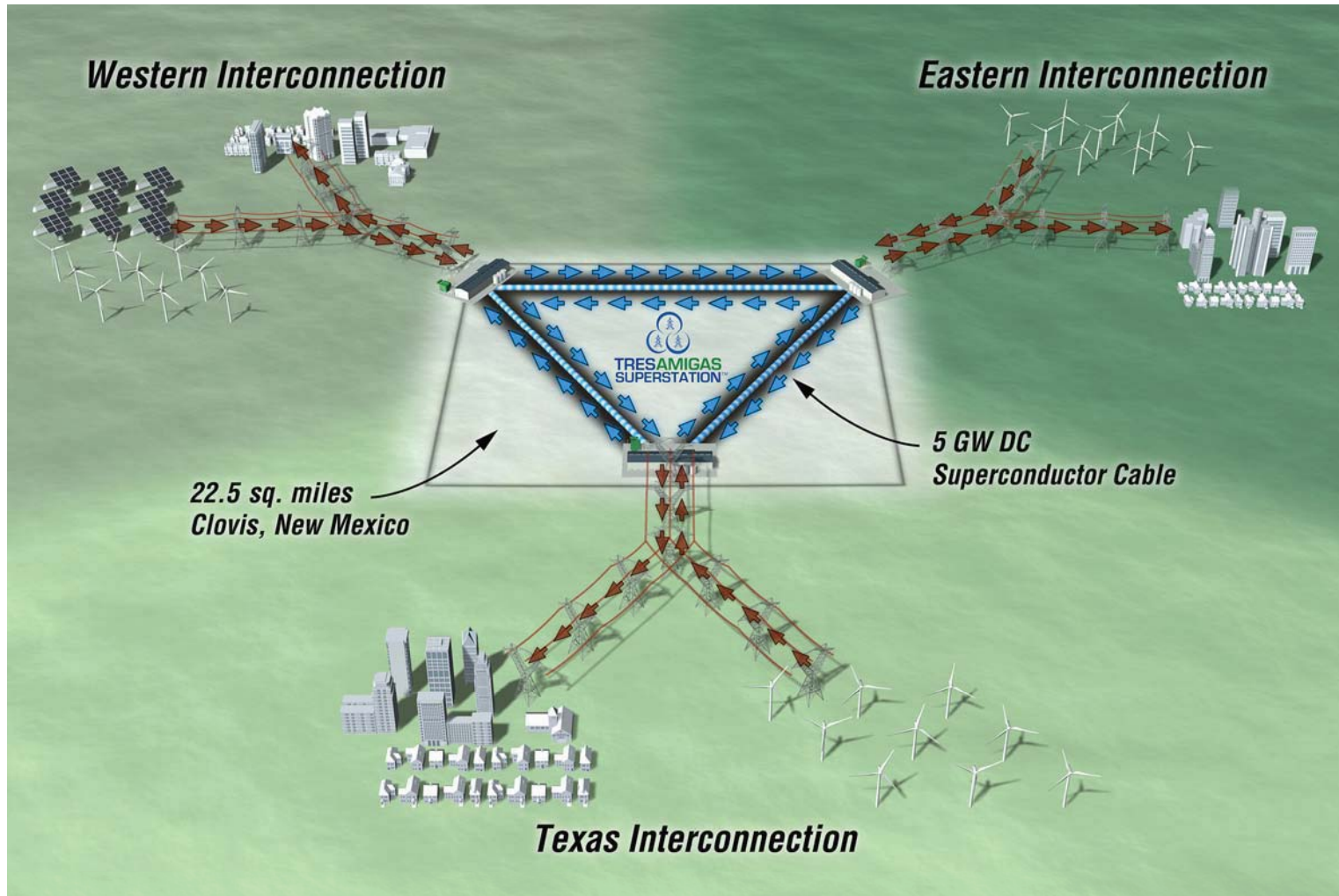


What are Superconductors?

A superconductor is a perfect conductor of electricity; it carries direct current with 100% efficiency. When properly cooled, superconductor wires provide significant advantages over conventional copper and aluminum wires because they can transmit 150 times more electricity than conventional wires of the same size.



The Tres Amigas SuperStation



Attachment B

Affidavit of Phillip G. Harris

Professional Background:

Prior to founding Tres Amigas LLC, I had 30 years of experience working in the electric power industry. Most notably, I was Chair, President, and Chief Executive Officer of PJM Interconnection, L.L.C. (“PJM”) for 15 years. In addition, I have served as a member of the Board of Trustees of the North American Electric Reliability Council, the Board of the Mid-Atlantic Area Council, and the Board of the Southwest Power Pool. Prior to my tenure at PJM, I was Chief Operating Officer for Cajun Electric Power Cooperative, Inc., a large generation and transmission cooperative in Louisiana. I am a graduate of the United States Military Academy at West Point, with a degree in Applied Science and Engineering. I have a Master of Arts in Business Management, with an emphasis on research and statistical methodology, from the University of Northern Colorado. I am a Certified Management Accountant and a Certified Computer Systems Professional. I am a member of the IEEE, a Technical Advisor to the North China Grid Company, and a mediator for Singaporean energy disputes.

Purpose for Affidavit:

I am providing this Affidavit in support of a filing being made by Tres Amigas LLC asking the Federal Energy Regulatory Commission to disclaim jurisdiction over electric facilities in the Electric Reliability Council of Texas (“ERCOT”) following the interconnection of ERCOT to the Tres Amigas Superstation. Tres Amigas is a unique facility that we are developing in eastern New Mexico to interconnect the three synchronous electric grids in the continental United States at one location.

I am providing engineering testimony regarding the characteristics of electric power flows within a synchronized electric system versus flows between two asynchronous systems. This will involve describing the physical changes that occur when electric energy is converted from Alternating Current (“AC”) to Direct Current (“DC”) and then back to AC at a converter station like the ones that will exist at Tres Amigas. I will describe what occurs when electricity flows across the AC/DC converters that will be also describe the benefits of using the new voltage source converter technology that will be employed at Tres Amigas.

FERC counsel for Tres Amigas has informed me that the United States Supreme Court has defined the issue of whether electric energy is part of the interstate electric system in terms of whether the electric energy “commingles” across state lines, and that the Supreme Court relied on engineering evidence to make this determination. Although the word “commingles” is not a term that electrical engineers typically use to describe the flow of electricity, I am providing an engineering perspective on this issue.

Electrical Characteristics of Tres Amigas:

In an AC system one cannot precisely control the varying flow of the electrons across an interconnected multi-node HVAC network. Because the flow of electrons cannot be controlled, it is necessary to perform system impact studies to determine the impacts of changes on the AC network in other parts of the network. In an HVDC system, such as the proposed Tres Amigas balancing authority area, one can precisely control the flow of electrons in a multi-node network that includes all power components (the voltage level, current, and current direction).

Voltage source converters (“VSCs”) like the ones that will be used at Tres Amigas control the flow of electrons. 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 (i.e., switching to AC) or equipment interruption (switching shunt banks or filters). This is the reason why, when an AC transmission grid interconnects to Tres Amigas, the interconnection looks like either a generator or energy exporting point - independent of neighboring balancing authority contingencies or interruptions. VSC converters can also offer black start generator status to a collapsed network. As when load is dropped in an internal system and the generator output is cut, the same scenario will occur when the receiving AC grid suffers an interruption. Tres Amigas will sense the interruption and send an immediate signal to the generating grid to cut the generation.

With VSC technology nothing is mixed. The three AC grids see the interconnection as a generator within their own balancing authority and have the capability to schedule the generator. As an exporter they will see the interconnection as a local load - subject to load contingencies like other load pockets within their areas. Multiple AC transmission lines can be added in one grid without concerns in another grid. One grid can go black (Murphy's law) and the other grids would have minimal concern, such as loss of a generator or loss of a load.

In light of the above facts, it is my opinion as an engineer that the three synchronous systems will not be commingled with each other or with the HVDC grid of Tres Amigas. Tres Amigas has the capability to nullify all the negatives of AC grid interconnection while selectively and independently being able to provide the benefits of grid interconnection using voltage source converters.

Electricity Flows on a Synchronized AC Grid:

All of the electric current within a synchronized AC grid has the same sine wave pattern. All of the electrical equipment connected to the electric system is operating together as an electrical unit, subject to rules and procedures that have been developed over the years to ensure that electrical problems on one portion of the synchronized system do not seriously impact other parts of the system. This is what is meant by the AC system being synchronized. It is essential for safe and reliable operation that this synchronization be maintained at all times.

Because all of the electricity is synchronized, an AC grid operates like a single, interdependent machine, and the components of the AC system that electricity must pass through are said to be “free flowing.” When something occurs electrically on one portion of the grid, it literally affects the electrical flows throughout the grid. All of the electricity is essentially the same electricity that is flowing across the entire synchronized interconnection. The only way to create a boundary that blocks the flow of electricity in a synchronized AC grid is by opening a breaker, which prevents electricity from flowing by preventing the movement of electrons across a physical boundary.

So, in this context, when Florida Power & Light Company sold electricity to a neighboring utility inside Florida, I can understand as an engineer why the Supreme Court would have found that this electricity “commingled” with electricity in Georgia and other parts of the Eastern Interconnection. The electricity was all part of the single, synchronized AC grid with free flowing ties.

Conversion of AC Electricity to DC at an AC/DC Interconnection:

The facts, however, are very different when you talk about the movement of power across AC/DC converters in order to schedule power between one synchronized AC grid and another. The first thing that has to be recognized is that, even with the conversion of electricity from AC to DC and then back to AC, the two AC grids are never synchronized. They do not, and they cannot, act as a single electrical machine. The electricity does not “commingle” as the Supreme Court used that term in discussing flows within the Eastern Interconnection. In fact, if the AC current in each synchronized interconnection were physically allowed to commingle, it would create electrical chaos, damaging any electric facilities and equipment that could not be electrically isolated from the disturbance.

Therefore, in order to permit a form of connection between two grids that are not in synchronous operation, the non-controllable AC current is changed to a controllable DC current. Thus, the first physical separation that occurs is a change in the form of electricity from a wave form that has been produced by generators in the first AC grid to a direct current circuit. This conversion is accomplished by power electronics. The next physical separation occurs by changing the direct current circuit back to an AC wave form that matches the three phase wave form in the receiving AC grid. This is done by the DC convertor, which generates very short electrical pulses that reconstitute the AC wave.

It is critical to this conversion process that the electricity in each of the synchronized AC grids be kept electrically separate at all times in order to avoid damage to the electric system. Therefore, while the outcome of the AC/DC conversion process is that electricity from one interconnection is able to be used in another, the electrons are never allowed to commingle. It is only by keeping the interconnections electrically separated that the process of AC/DC conversion described above can occur. It is in the DC process where the comingling is stopped.

Electric Benefits of Tres Amigas Design:

The conversion technology at Tres Amigas is a vast improvement over the technology used at most of the existing AC/DC ties in the United States. VSCs use a state of the art technology based upon self-commutated, insulated gate bipolar transistors (“IGBT”). This technology changes the AC wave form into a DC circuit with conventional DC voltage and current characteristics and then, with precise control, back to an AC wave form. Unlike vintage converters, the VSC converter has a control process that rapidly and accurately defines the direction and magnitude of the AC power at each node within the DC network.

For power transmission, the VSC technology enables the conversion of power from multiple synchronous grids to a common DC network and reconversion back to the synchronous networks while each operates within it's own synchronized electrical state and with its own reliability protocols.

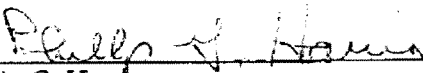
The technology used at Tres Amigas provides numerous electrical benefits to the surrounding electric system:

- * VSC can rapidly control both active and reactive power independently.
- * The reactive power will be controlled separately at each synchronous interconnection independent of the voltage levels on the other synchronized systems.
- * By using VSC, Tres Amigas will not place restrictions on each AC network's minimum short-circuit capacity.
- * The self-commutation feature of VSC technology will permit the the set of three different phase voltages to be synthesized.
- * Because VSC convertors themselves have no reactive demand, Tres Amigas will be able to control reactive power to regulate in each separate AC system
- * The real-time dynamic support of each AC system will be conducted based on each system's separate and individual need and will improve stability, transfer capability and most likely reduce losses on each connecting AC system.
- * The VSC will provide black start capability to each interconnection separately.

Tres Amigas will appear, electrically, to each interconnection as a large generator. The value of this to the long distance AC transmission lines planned for this region is significant. Although specific engineering analysis of each line interconnecting to Tres Amigas will need to be done, it is intuitive through the technology that Tres Amigas will solve many voltage, reactive support, stability, and dynamic control problems that long distance AC lines connected to large intermittent generation resources create, and probably will reduce losses on these planned large AC transmission lines as well.

AFFIDAVIT

Phillip G. Harris, being first duly sworn, deposes and states that he is the affiant identified on the attached affidavit, that the attached affidavit was prepared by him or under his direction and supervision, and that the statements made therein are true and correct to the best of his knowledge, information and belief.



Phillip G. Harris

Subscribed and sworn to before me this 8th day of December, 2009, by Phillip G. Harris

Notary Public

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document on the Public Utility Commission of Texas, the New Mexico Public Regulation Commission, Public Service Company of New Mexico and Southwest Public Service Corporation.

Dated at Washington, DC, this 8th day of December, 2009.

/s/ David B. Raskin

David B. Raskin
STEPTOE & JOHNSON LLP
1330 Connecticut Avenue NW
Washington, DC 20036
(202) 429-3000