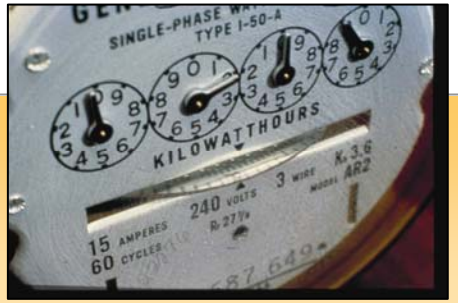


SPS Annual Local Planning Meeting

September 26, 2013

Project Completions Last Year

Jones #4 Plant

2012-2013 Project Completion Update

- **Pecos-Ocotillo (W25) – complete and in-service** (5.8 miles of new 115 kV line, conversion of Ocotillo from 69 kV to 115 kV)
- **T03 In-and-Out – complete and in-service** Two new circuits created (W40 Canyon West-Deaf Smith & W41 Deaf Smith-Hereford). Provides stronger 115 kV support into Hereford
- **T14 Maddox-Sanger Switch – complete and in service** 51 structures were removed and rebuilt and a new 3-way SCADA controlled motor operated switch was installed.
- **Hillside Substation – complete and in-service** new 115/13.2 kV distribution substation in southwest Amarillo. 28 MVA transformer feeds three distribution feeders.
- **Red Bluff Switching Station – complete and in-service** New switching station located in southeast New Mexico, built as 115 kV ring bus expandable to breaker and one-half, with a 2-stage 28.8 Mvar capacitor bank. Provides support for three transmission lines – W37 Whitten-Red Bluff, W38 Red Bluff-WIPP, and W39 Red Bluff-Wood Draw.

2012-2013 Project Completion Update

- **Bennett Substation – in-service** Expanded the 12.47 kV bus and added a new distribution feeder. A new relay package and UFR was also included.
- **Johnson Draw Switching Station – in-service** New 5-terminal, 115 kV breaker and one-half switching station located in Gaines County, Texas. Provides support for W33 Higg-Johnson Draw, W34 Johnson Draw-Amfrac/Mapco. W35 Johnson Draw-Gaines, and W36 Taylor Switch-Johnson Draw. Also provides an interconnection point for Lea Co. 115/69 kV Auto.
- **Wood Draw Substation – in service** New 115/12.47 kV distribution substation located in southeast New Mexico. Substation provides three distribution feeders into an area experiencing extraordinary growth.
- **Eunice Substation – in service** New 2-stage 28.8 Mvar capacitor bank was installed on the 115 kV bus.
- **Chaves County Interchange – in service** Rebuilt the 230 kV and 115 kV buses to breaker and one-half configuration. Transmission terminal points were upgraded and new relay packages were included on all breakers.
- **Kode Novus I – in-service** New 40 MW wind farm located in TX Co., OK & Hansford Co, TX and connected at Hitchland 345 kV.

2012-2013 Project Completion Update

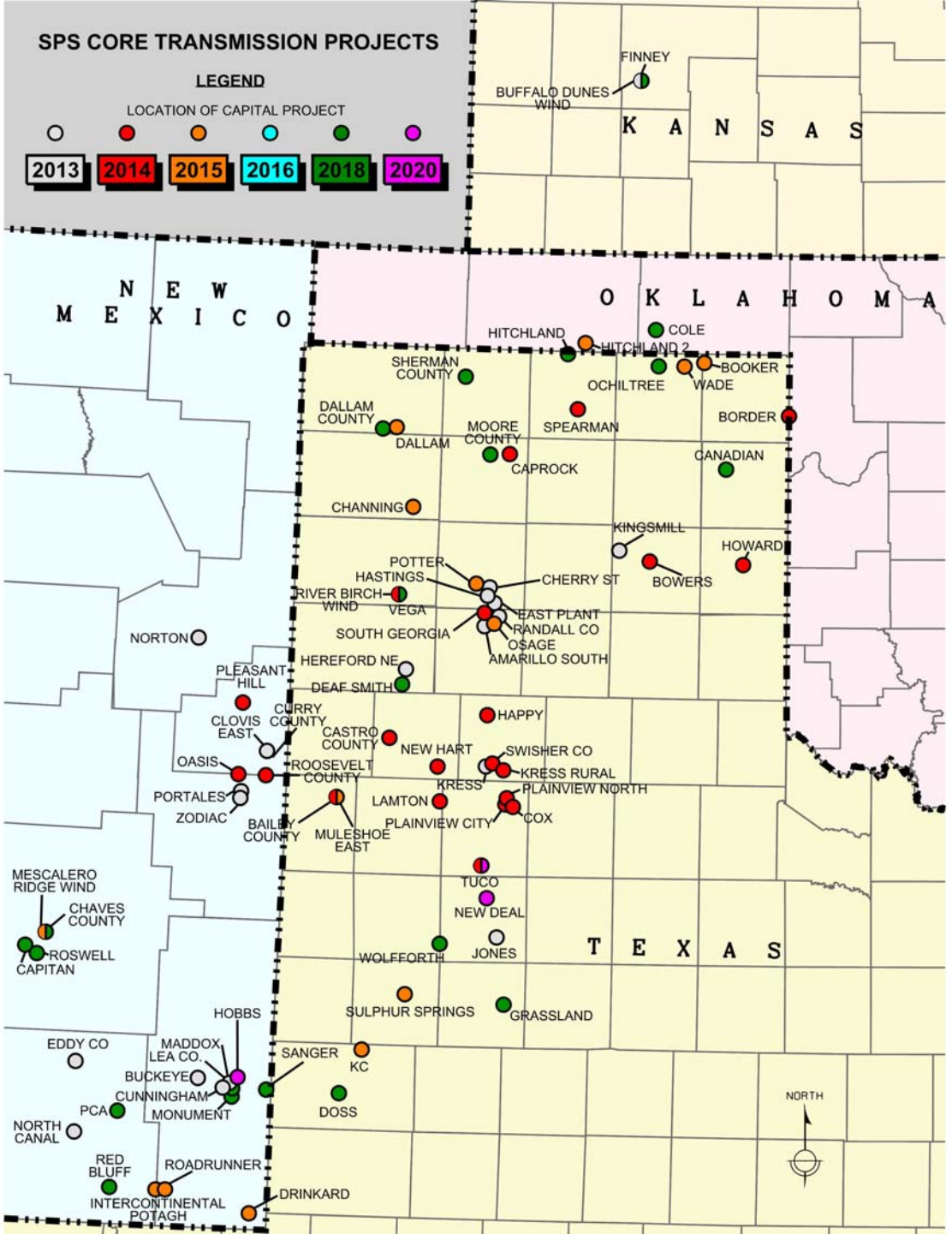
- **T42 (Maddox-Monument)** Rebuilt ~ 3.33 miles with new structures and 795 ACSR conductor.
- **Amoco Wasson** Expanded the substation to provide interconnection for customer's north transformer.
- **Cirrus Substation** New 3-terminal 230 kV ring bus switching station in Lynn County, TX provides interconnection point for Cirrus Wind LLC., 60 MW.
- **K16 & K17 Nichols-Harrington Reconductor** Replaced the existing 795 ACSR conductors with 1020 ACCC conductors. Provides support for Spinning Spur Wind.
- **Phillips #1 Substation** Replaced existing 69 kV breakers 1F25 and 1F30 with new 2000 amp rated equipment. Improves protection to customer owned Phillip's #3 substation.
- **K47 Terminal Upgrade** Replaced the wave traps at Jones and Grassland with new 1600 amp versions. Also installed new relay packages on breakers JK60 at Jones and 7K30 at Grassland.
- **Spinning Spur Wind** New 345 kV termination point was installed at Potter Co. Intg for interconnection point for Spinning Spur Wind, 160 MW.

2012-2013 Project Completion Update

- **Ochiltree Interchange** New 230/115 kV substation located outside Perryton, TX. Primarily fed from K76 Hitchland-Ochiltree, has a 150 MVA 230/115 kV autotransformer that provides support to W28 Ochiltree-Cole, W29 Ochiltree-Spearman Interchange, W30 Ochiltree-Perryton, and W44 Ochiltree-Perryton. 115 kV bus is built in a breaker and one-half configuration to provide for future growth.
- **K87 Amarillo South-Randall** New 230 kV transmission line, 8.36 miles in length.
- **Jones Substation** 230 kV bus was rebuilt to a breaker and one-half configuration; in addition, Jones #4 was brought on-line in June 2013.
- **East Clovis Substation** The substation was converted from 69 kV to 115 kV operation. New 28 MVA 115/13.2 kV power transformer was installed.
- **South Loving Substation** Replaced existing 69/13.2 kV transformer with new 28 MVA 69/13.2 transformer. A third 13.2 kV feeder was brought out.
- **Seminole Interchange** A new 28 MVA 115/23 kV distribution transformer was installed and two distribution circuits were brought out.
- **Spearman Interchange** A new 84 MVA 115/84 autotransformer was installed.

Upcoming Projects

Construction Activity

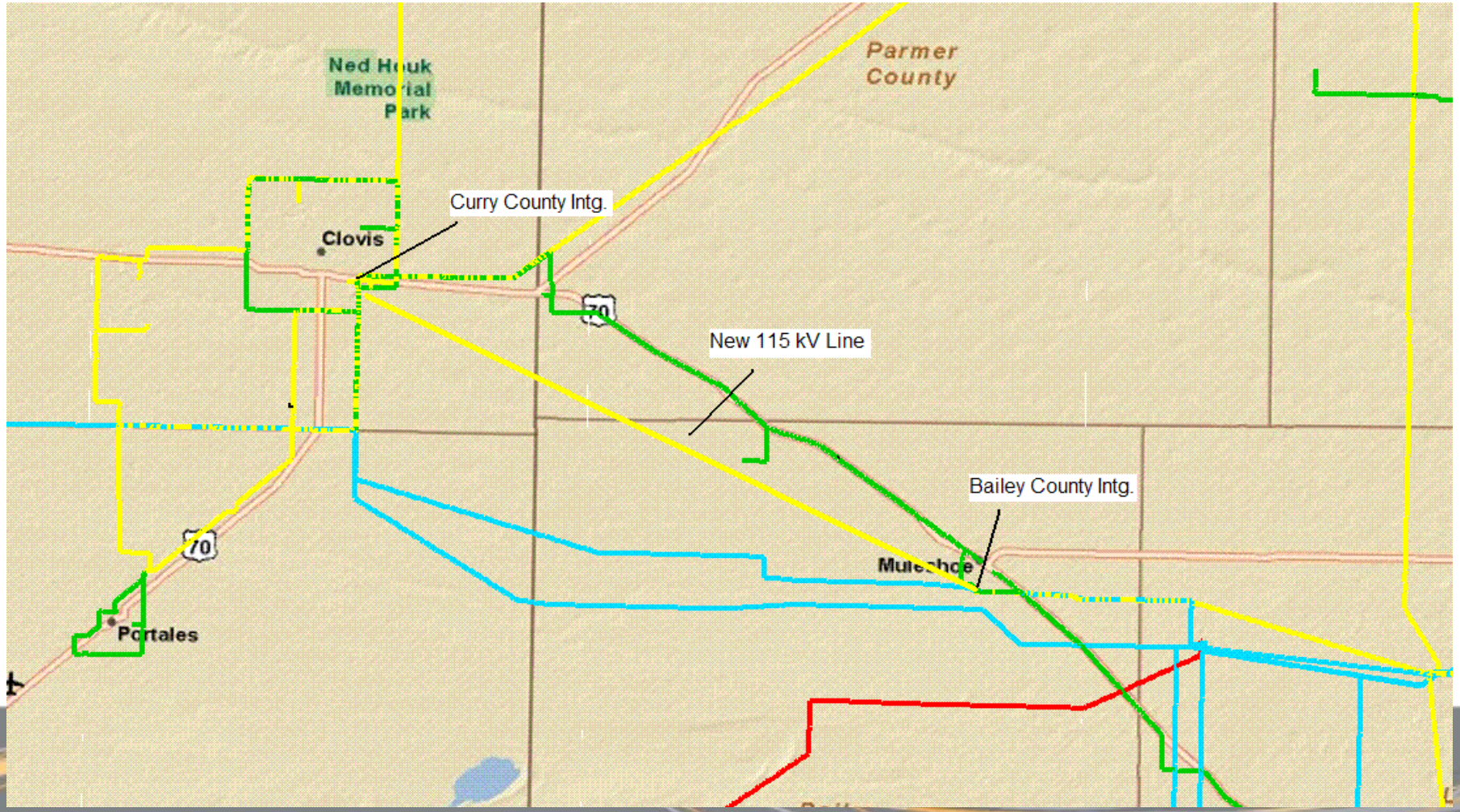


Power for the Plains Website

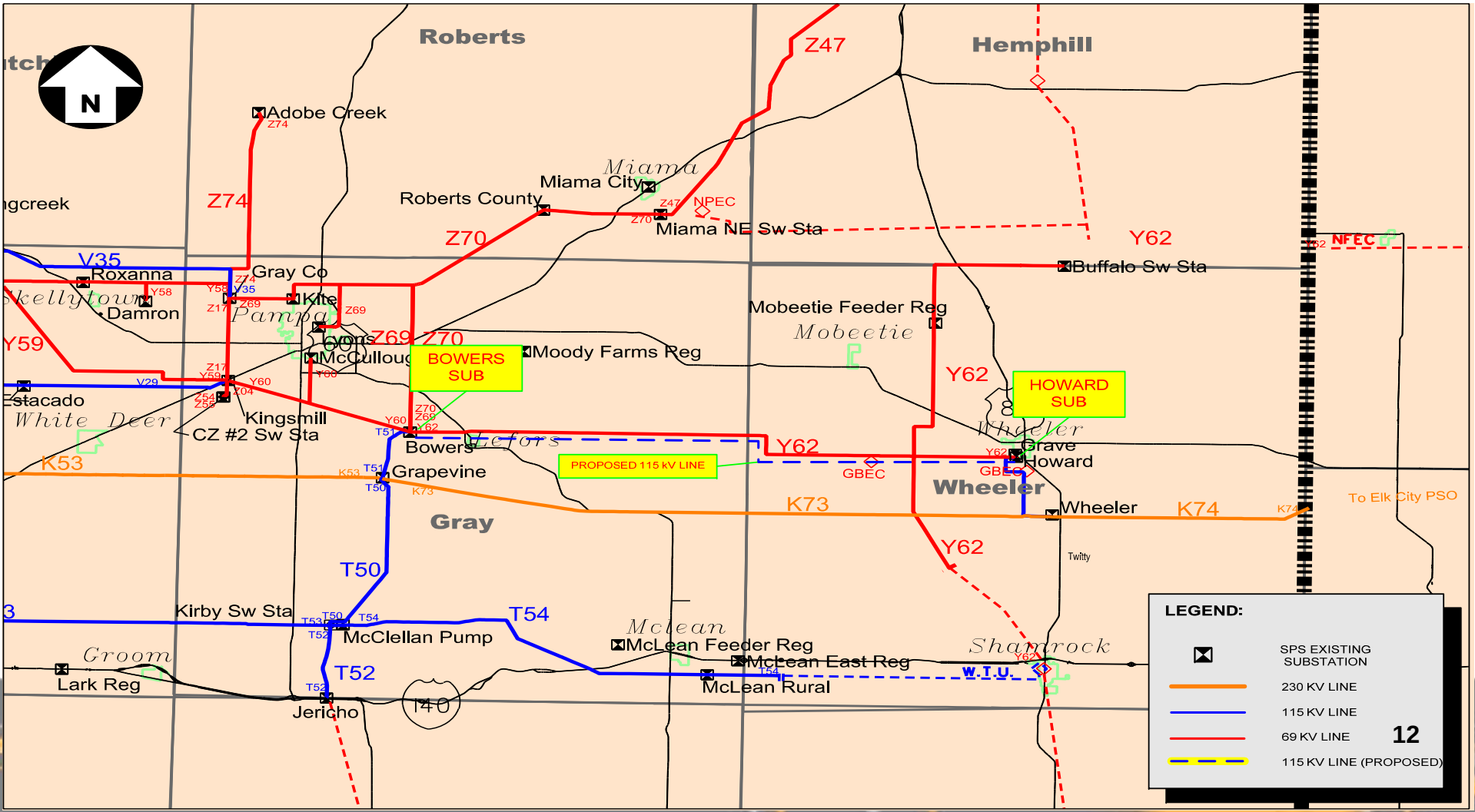
- http://www.powerfortheplains.com/
- Project descriptions
- Routing maps, when available
- General project information
- SPS plans to build $1 Billion of transmission over the next six years

Transmission

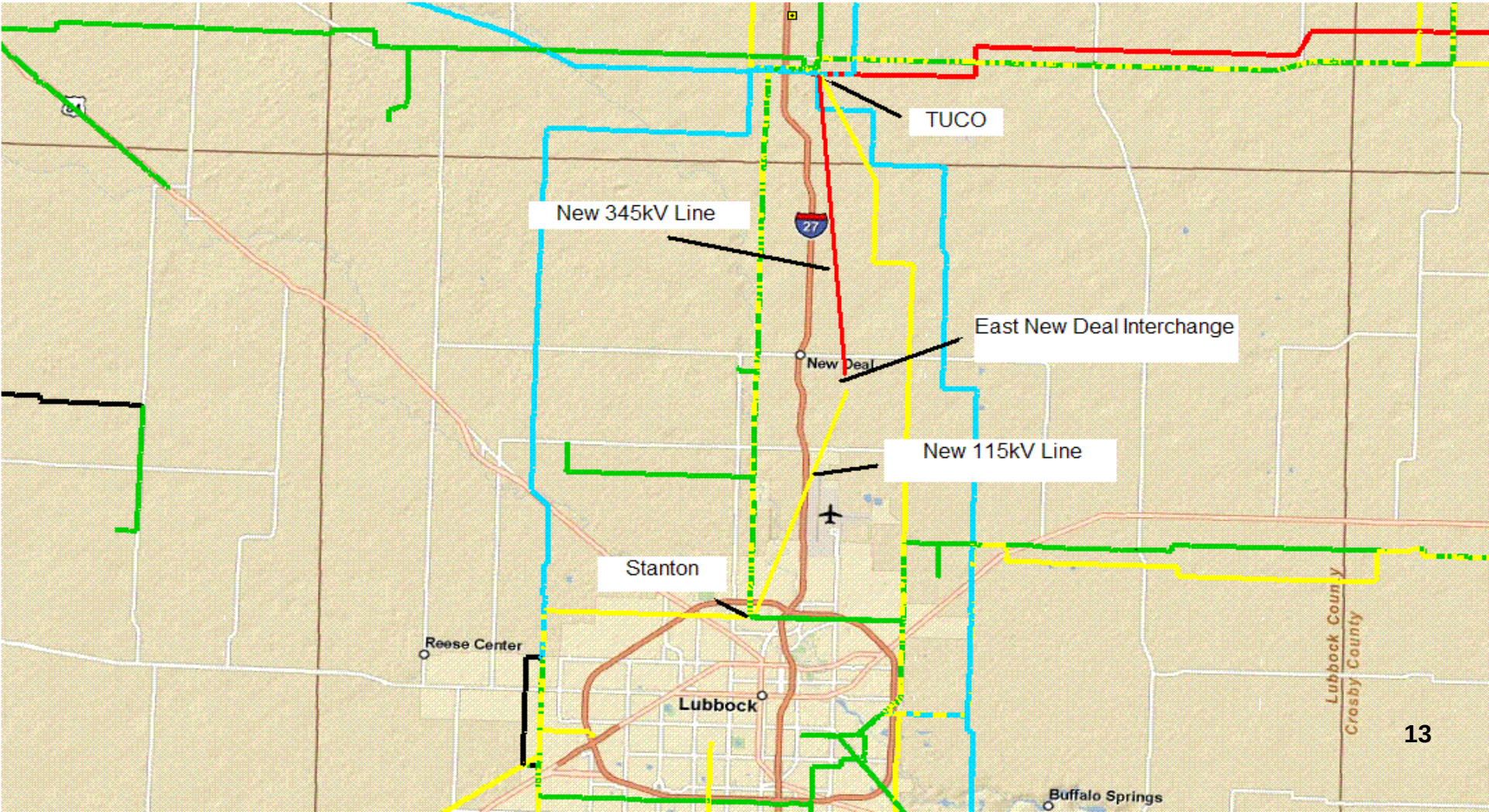
Curry to Bailey 115kV Project
11/30/2015



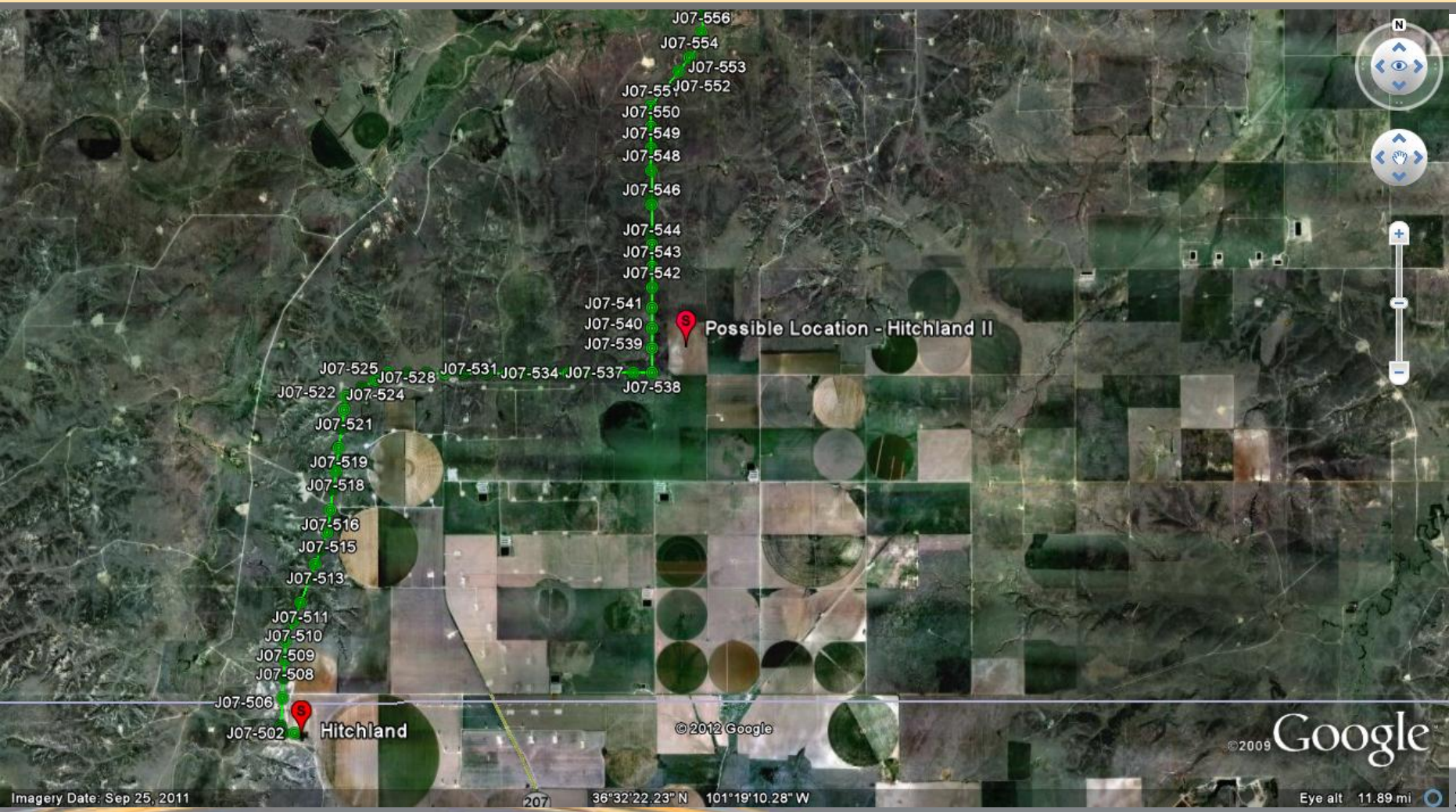
Bowers – Howard 115 kV
5/30/2014



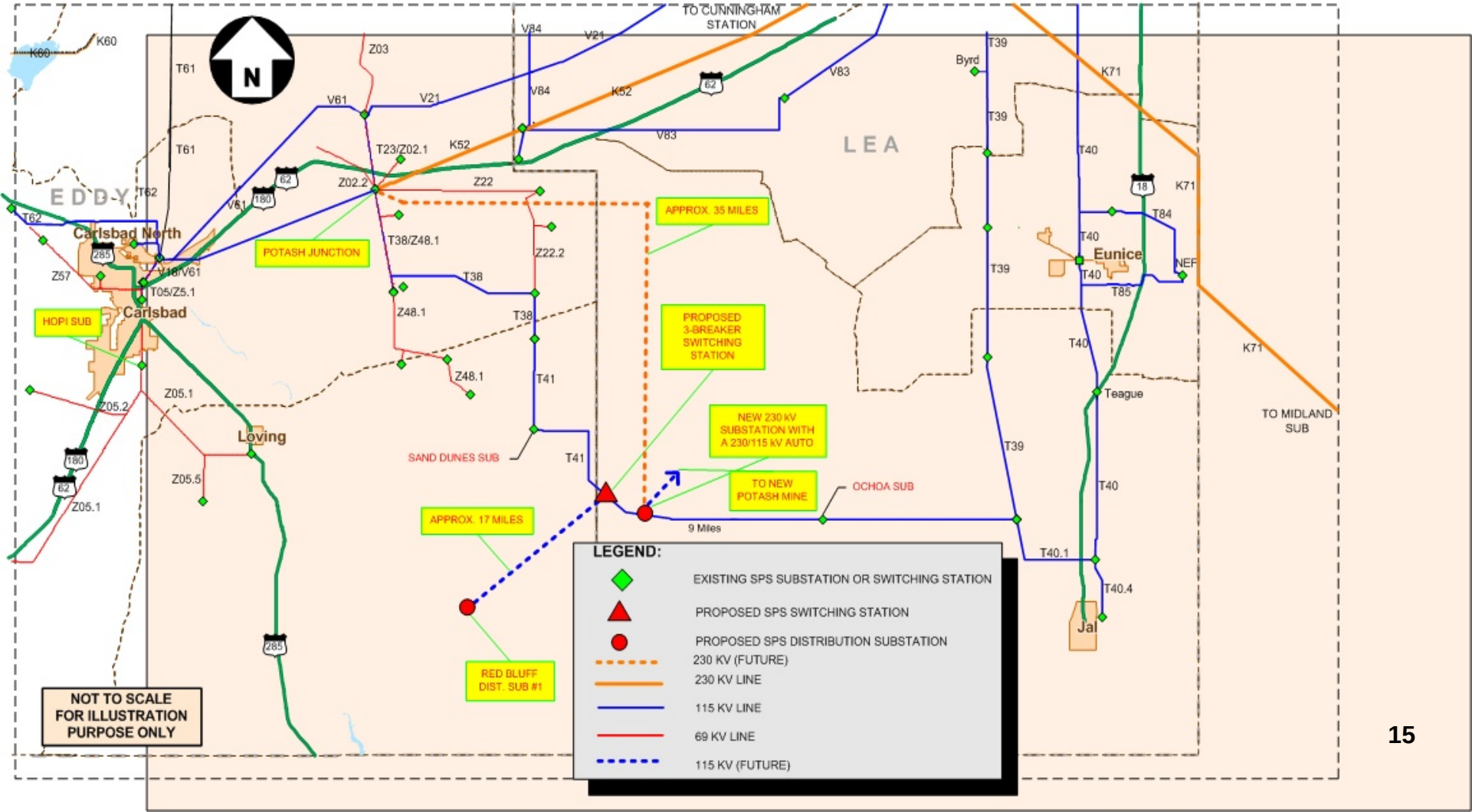
East New Deal Interchange (CNTC) 12/31/2017



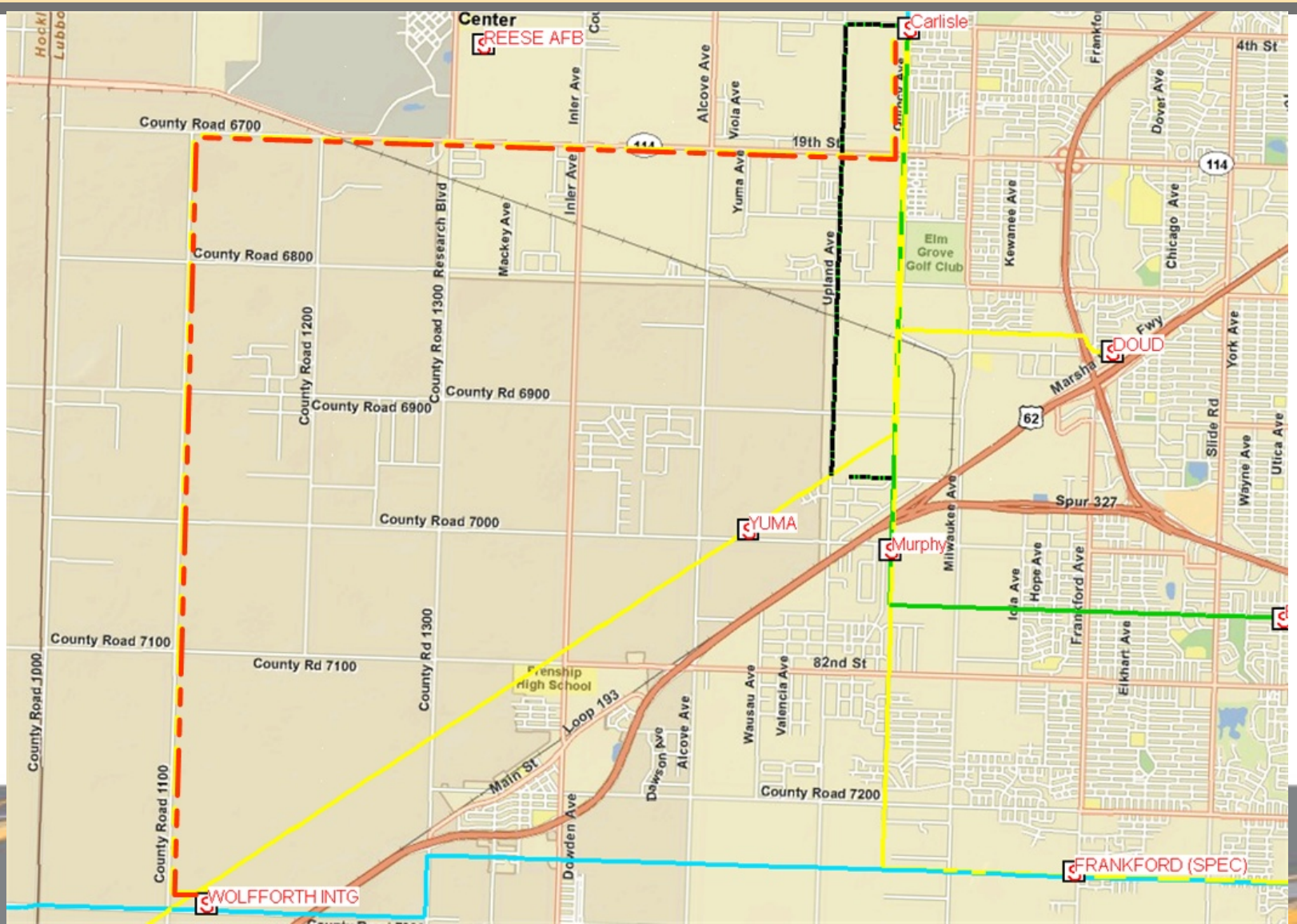
Hitchland II Substation (Optima) 6/1/2016



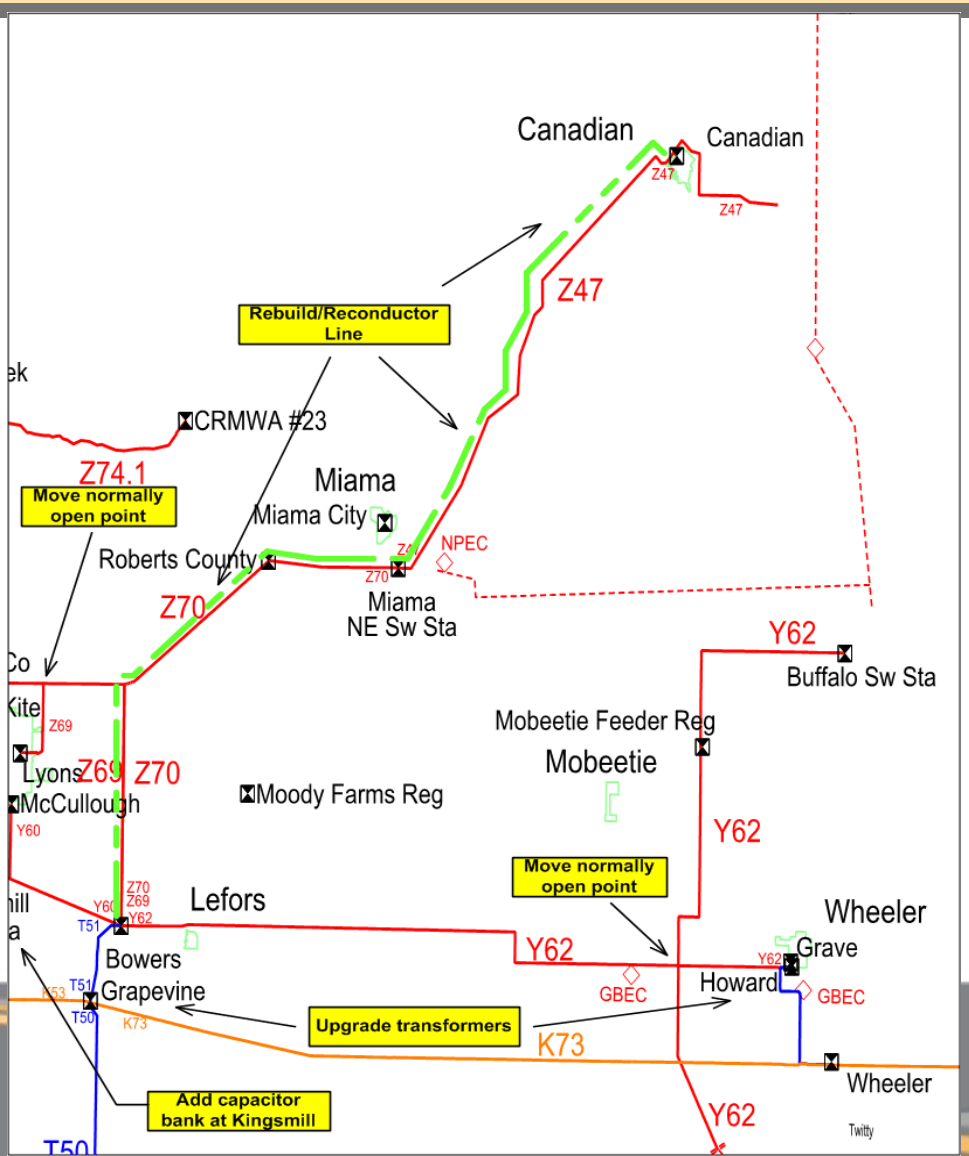
Intercontinental Potash Interconnection (Roadrunner) 10/31/2015



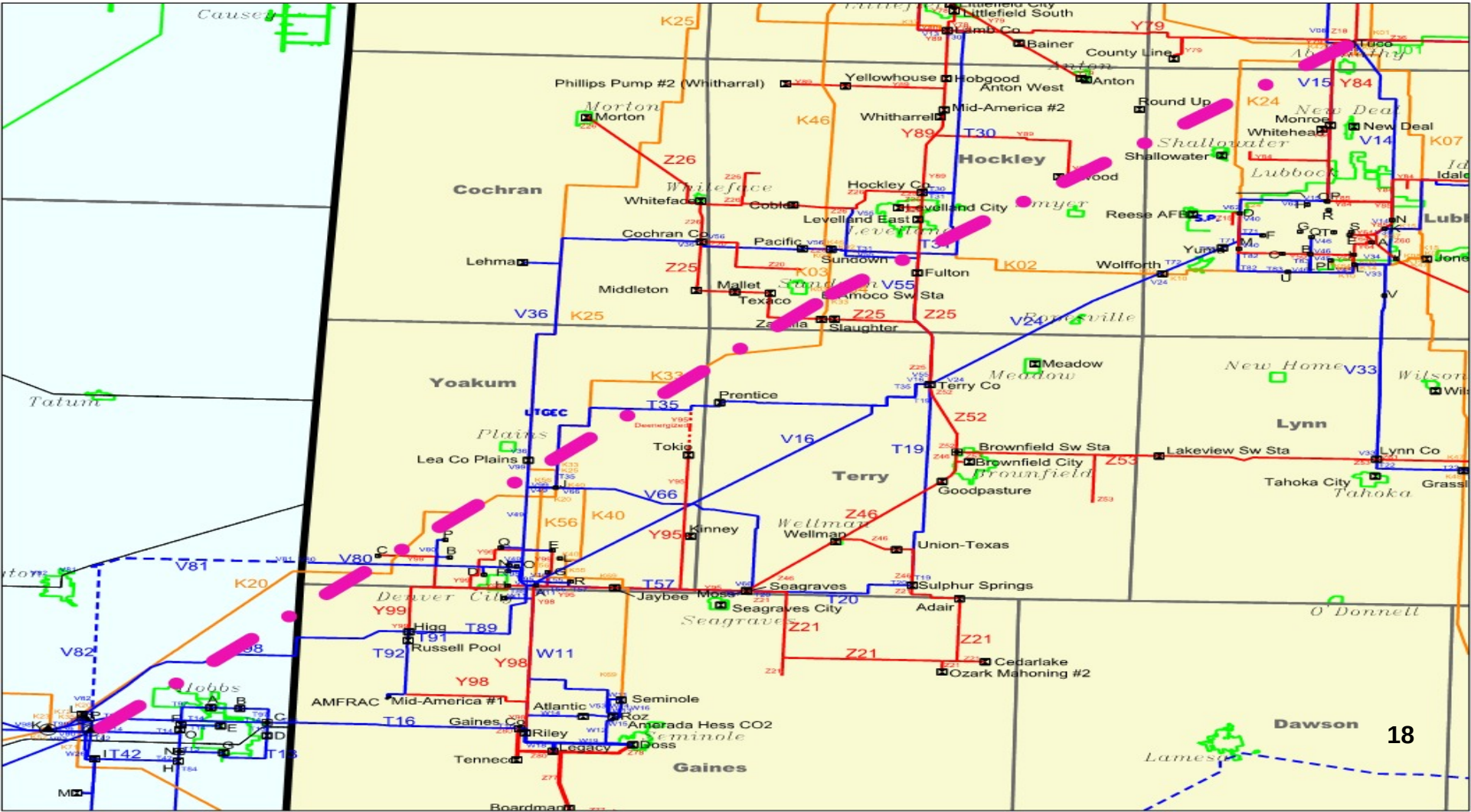
Carlisle-Wolfforth 230 kV Line 6/30/2017



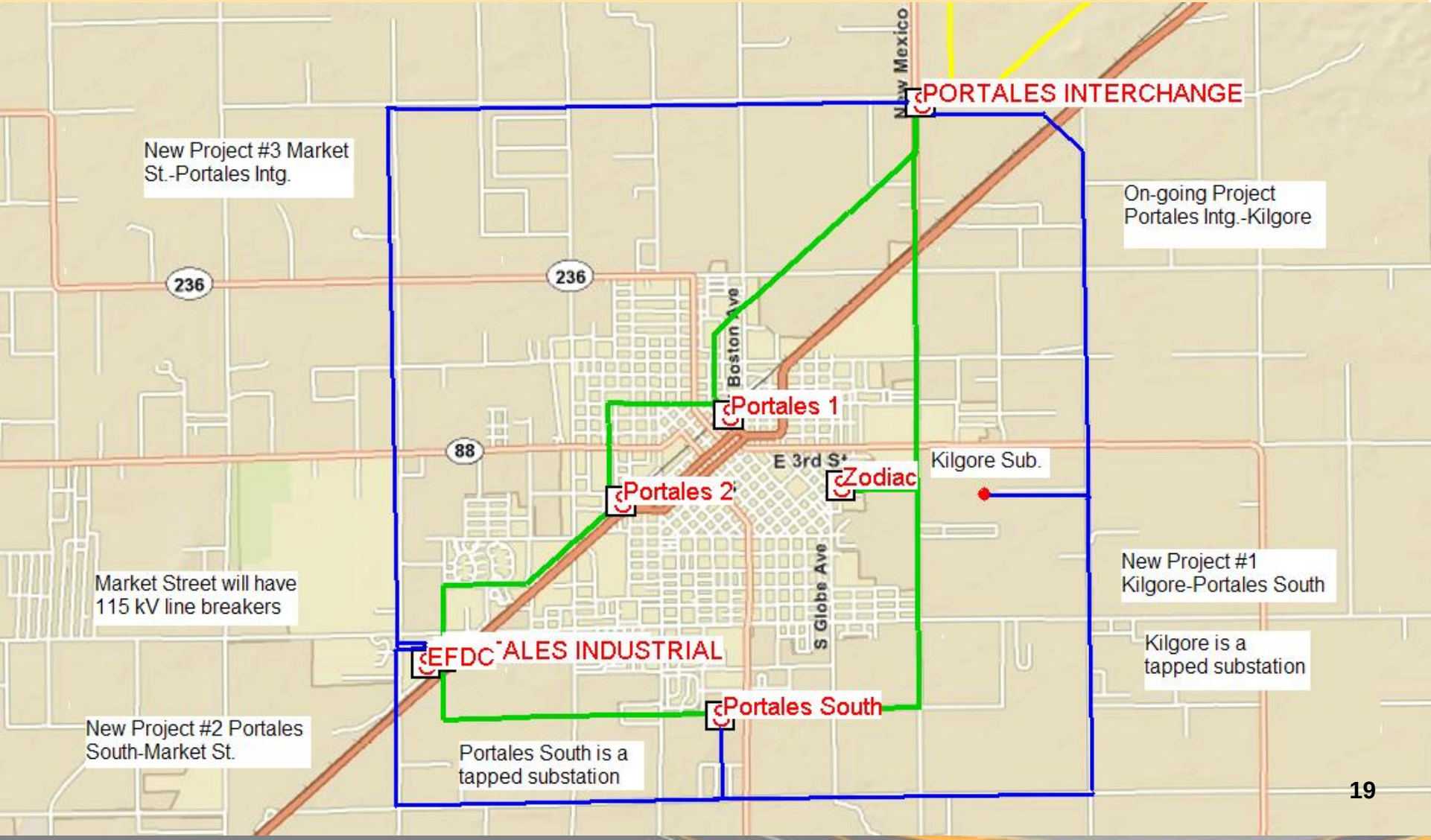
Howard/Miami Load Increase total 6/30/2015



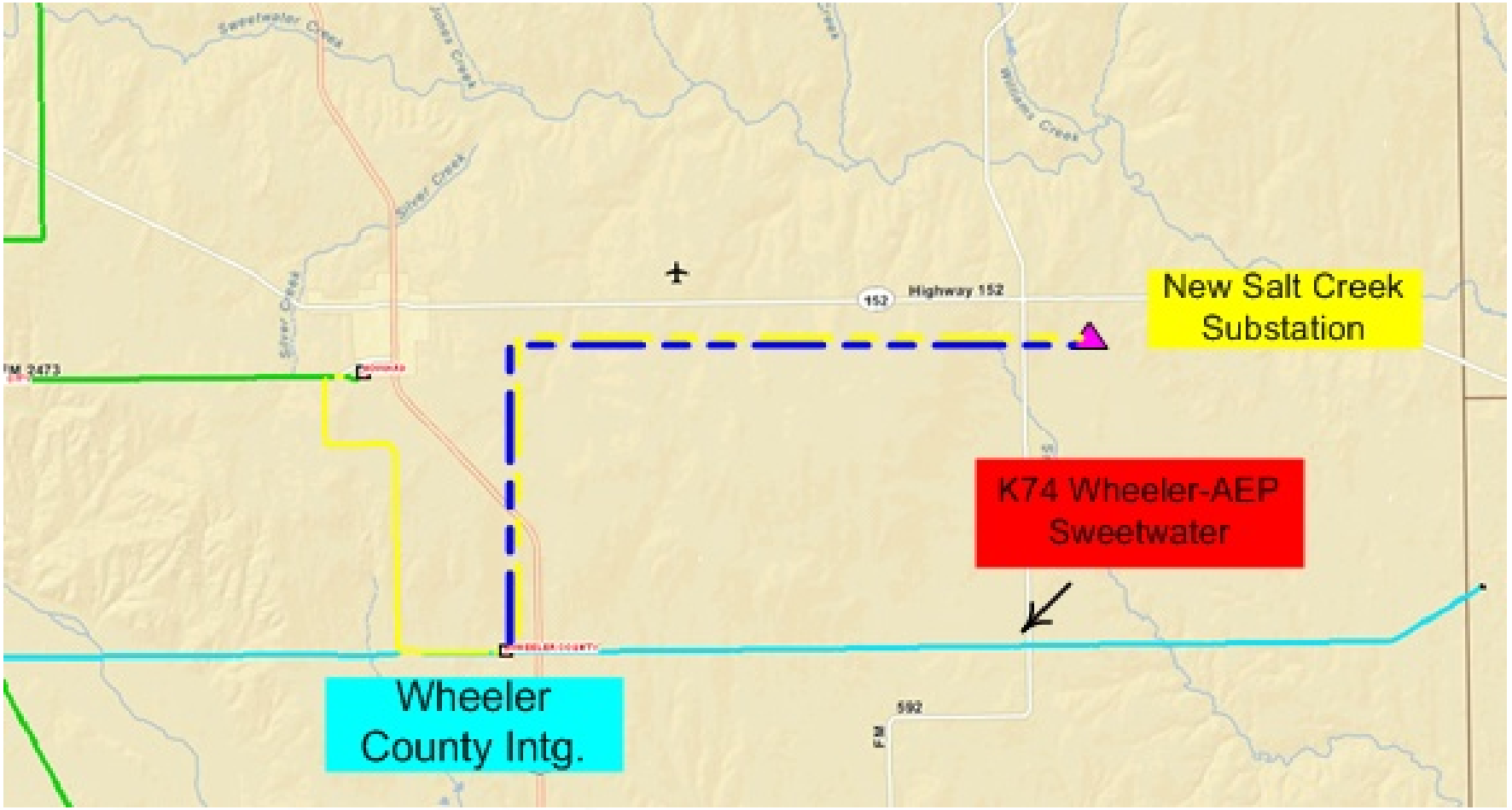
TUCO-Amoco Sw.-Hobbs (CNTC) 345kV Total Project ISD 12/30/2020



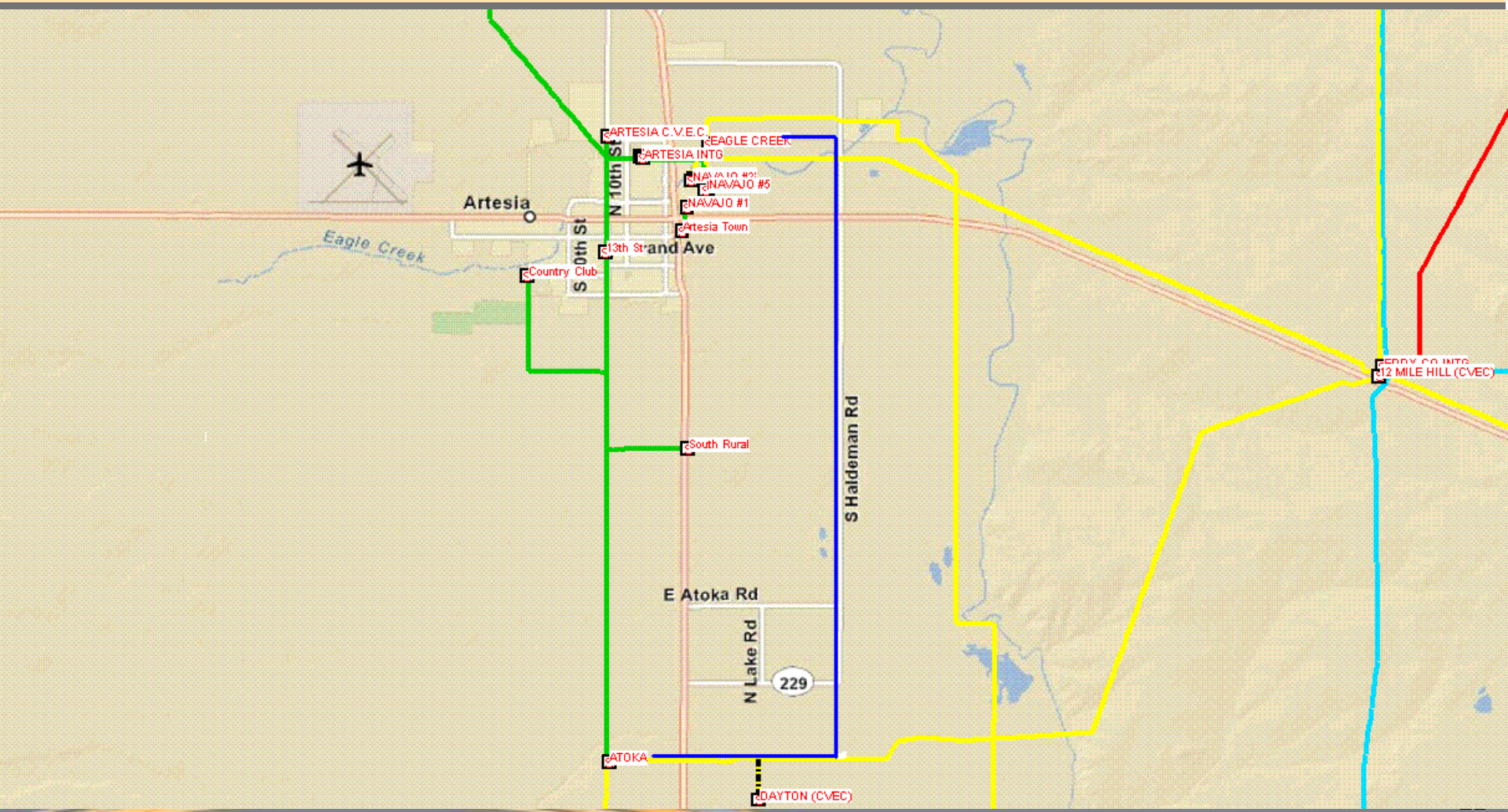
Portales Loop
Total Project ISD – 6/1/2018



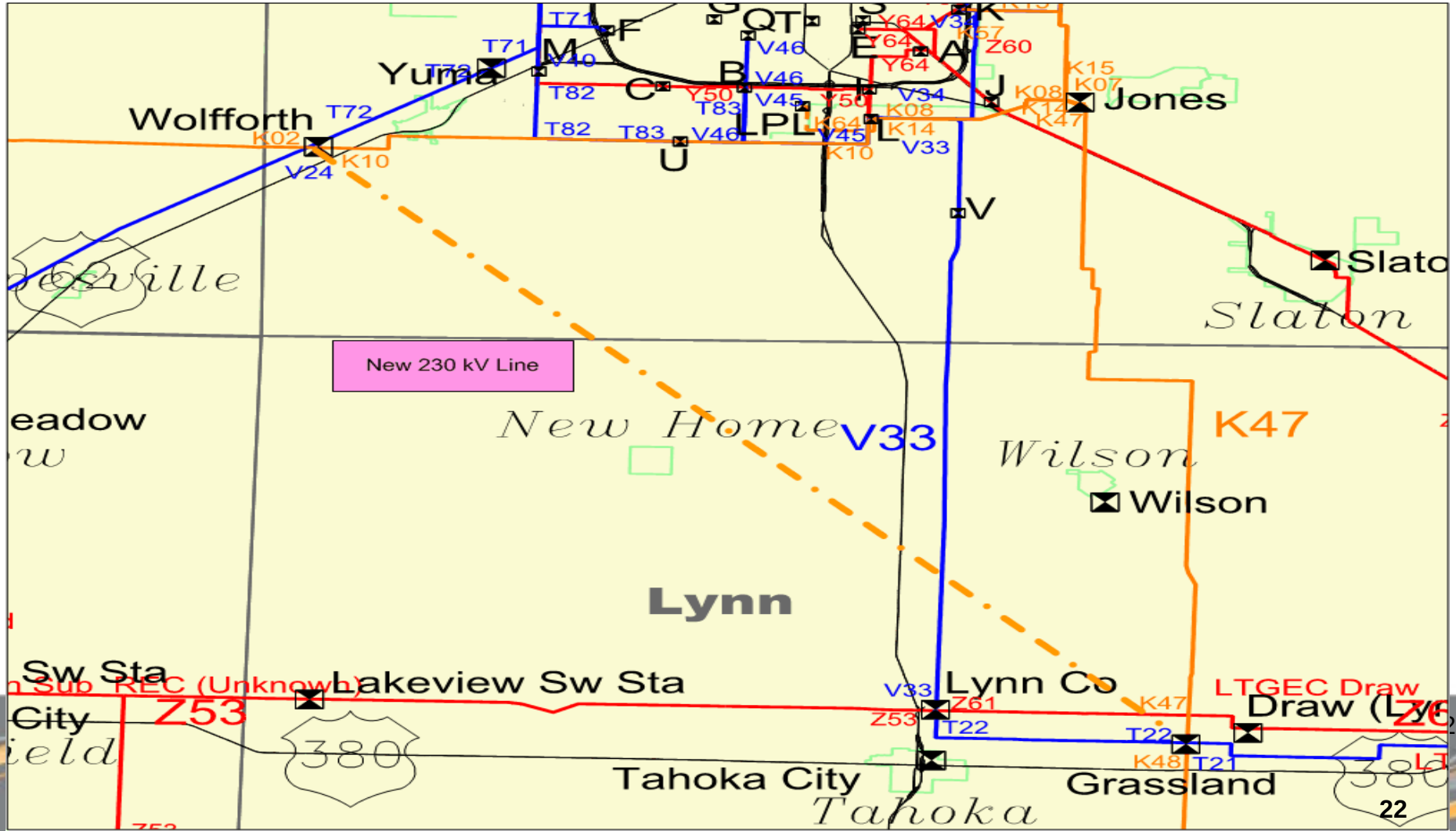
Salt Creek Distribution Substation 6/1/2016



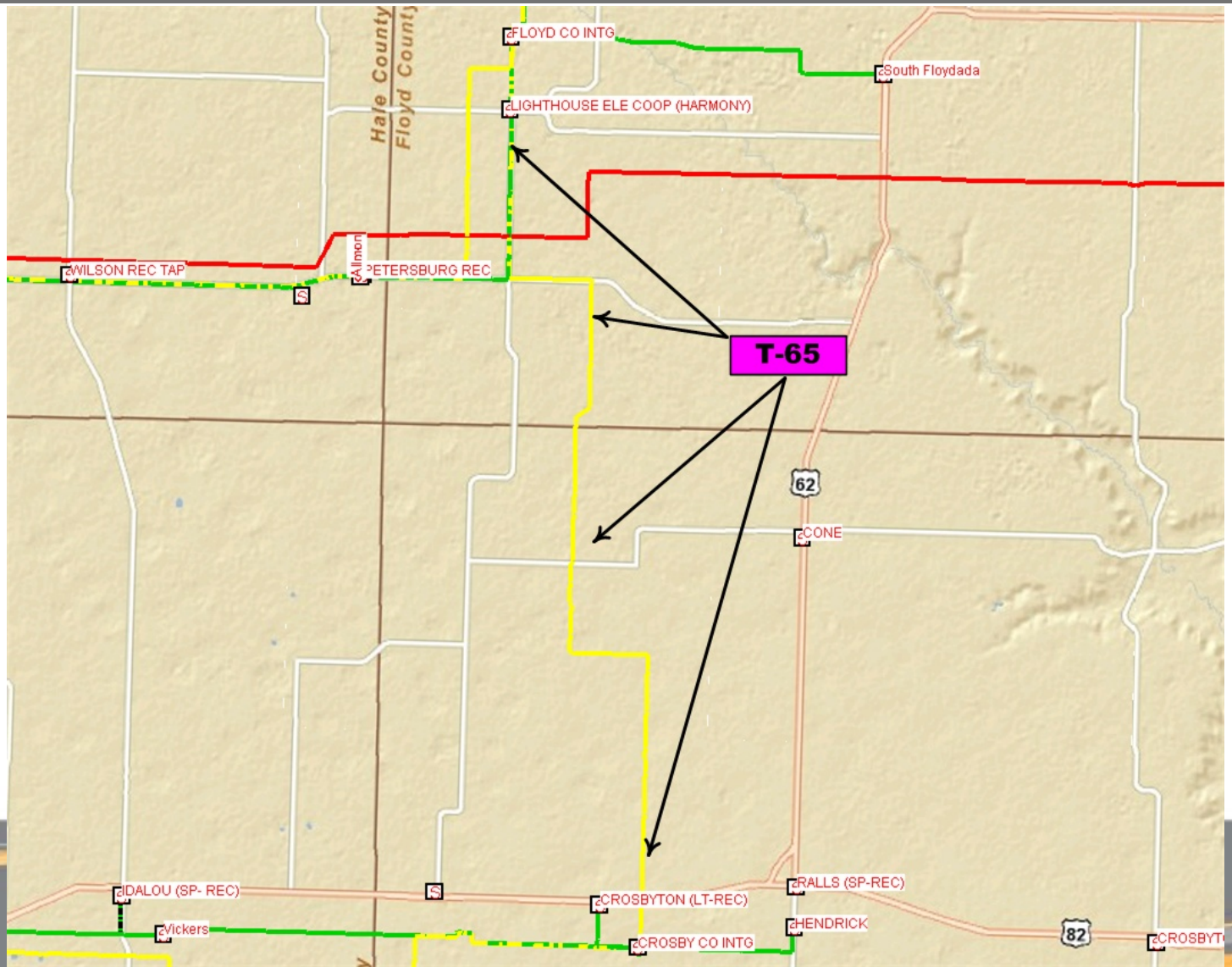
Atoka–Eagle Creek 115 kV line 10/15/2016



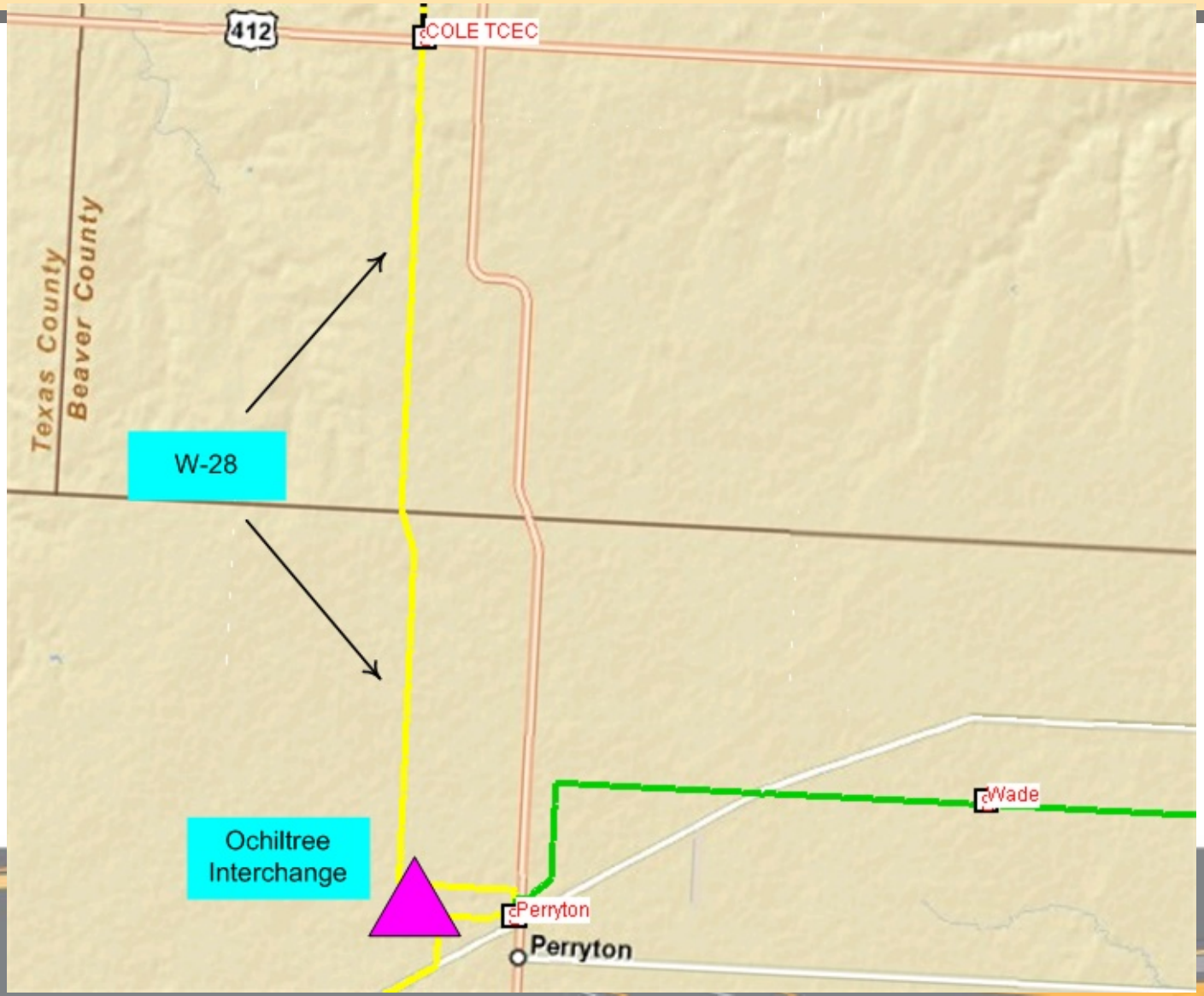
Wolfforth-Grassland 230 kV Line 12/30/2017 (CNTC)



T65 Rebuild/Reconductor Floyd-Crosby 12/31/2015

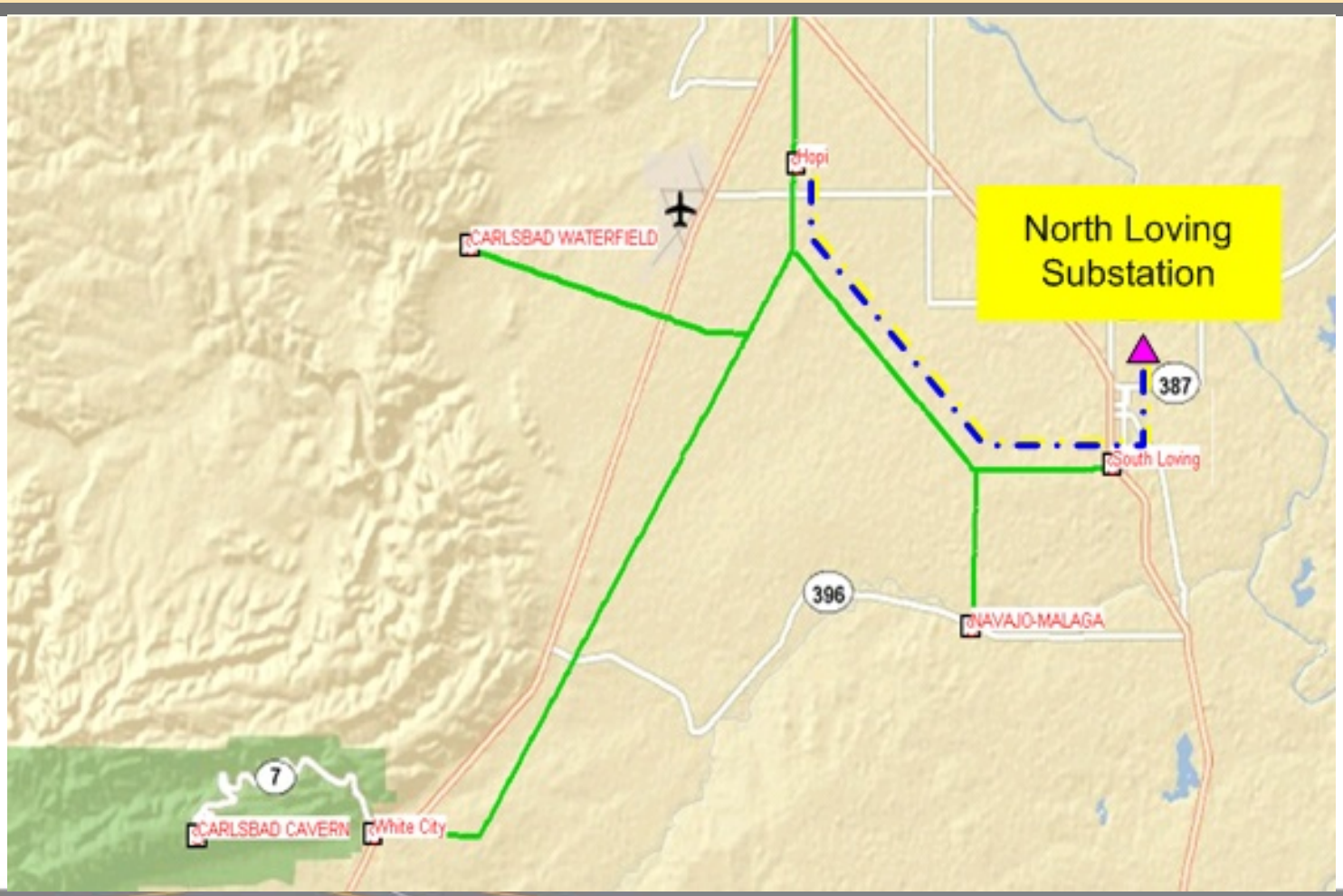


W28 Rebuild/Reconductor Ochiltree-Cole 6/1/2016

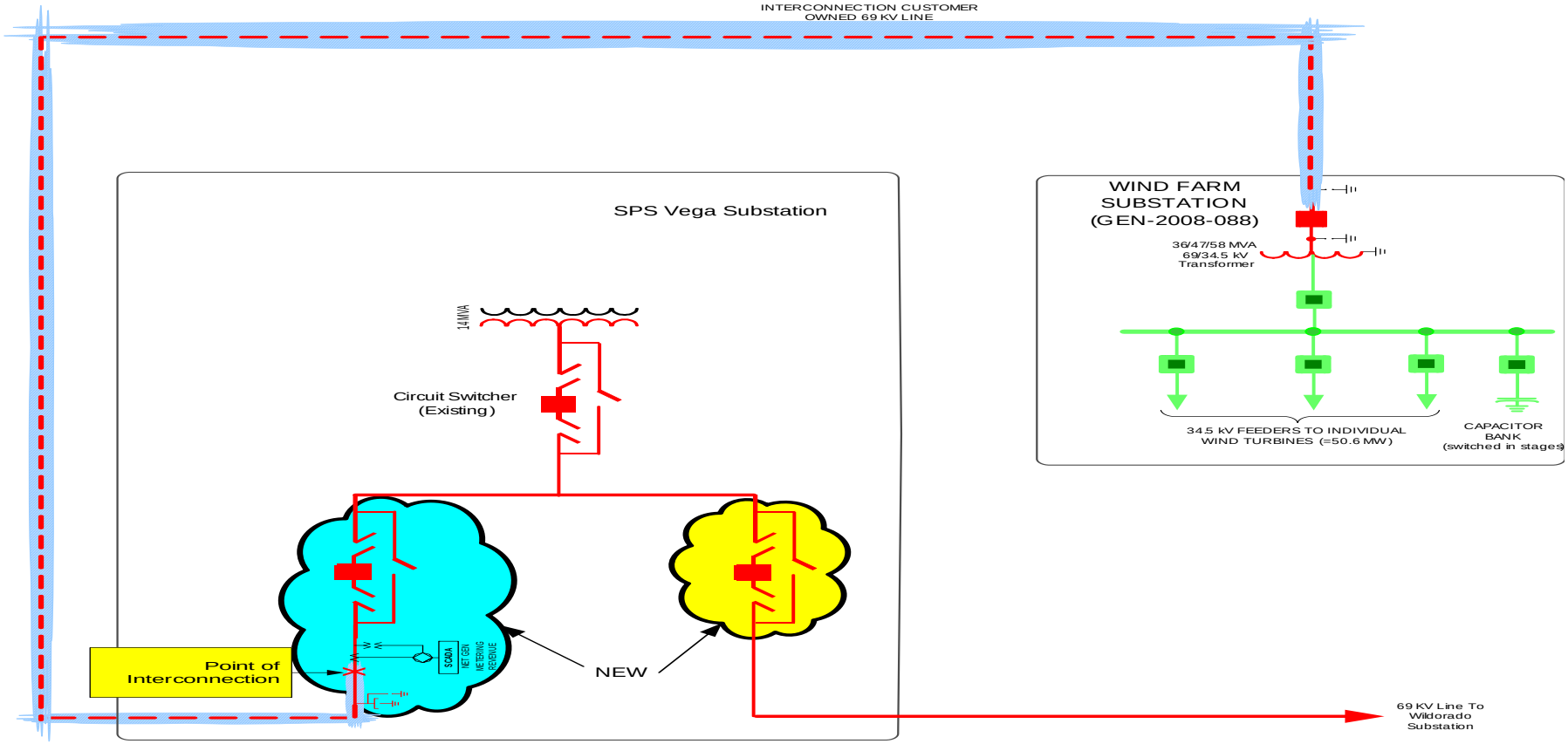


Chaves-Capitan new 115 kV Line, Price Conversion 12/30/2017

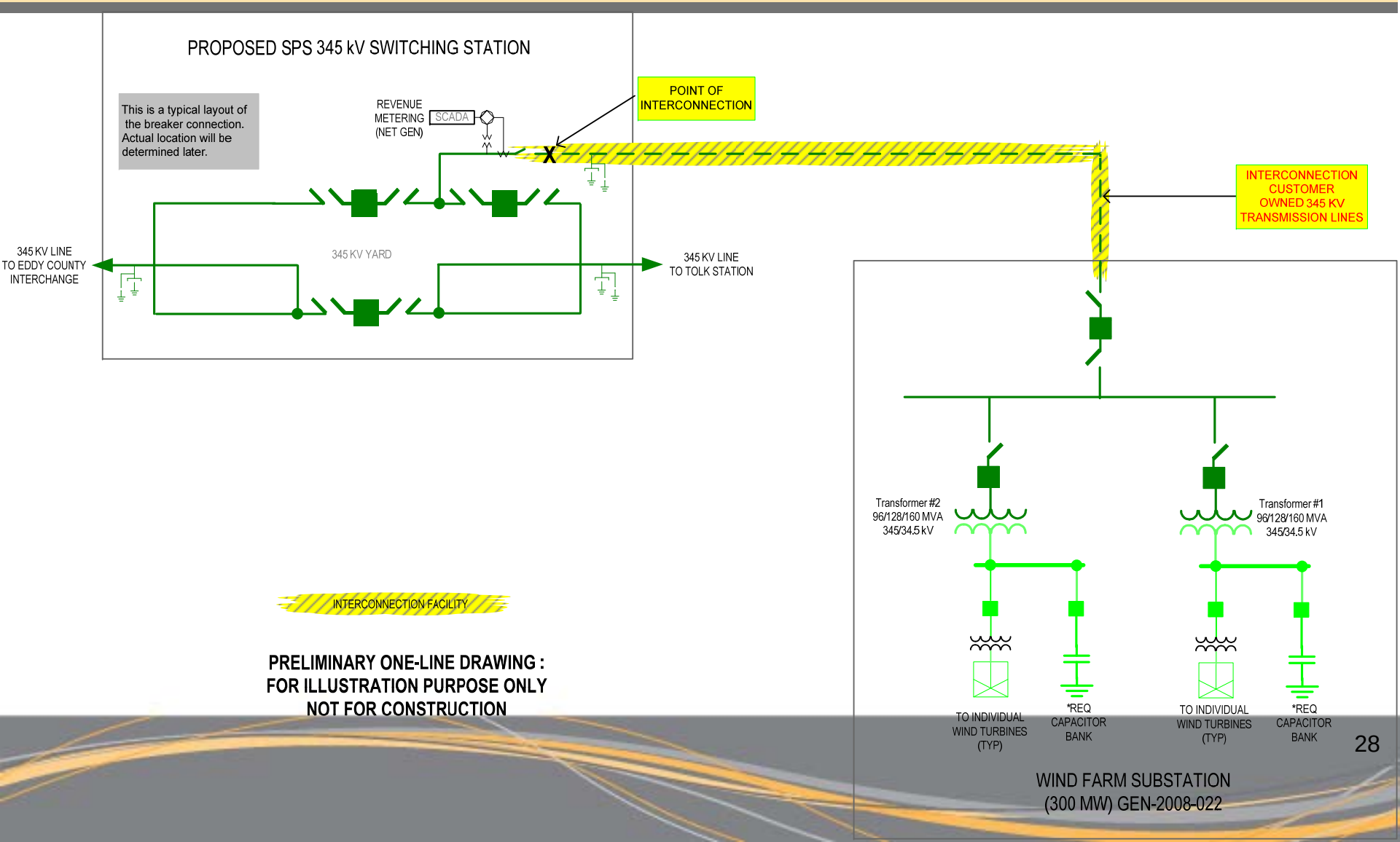
Hopi-North Loving 115 kV Line 9/30/2015



River Birch Wind Interconnection 50 MW



Mescalero Ridge Wind Interconnection 300 MW



Other Projects

- NE Hereford 2nd 115/69 kV auto and 69 kV line conversion to 115 KV – 6/2013
- Deaf Smith Upgrade both 230/115 transformers to 250 MVA – 3/1/2015
- Cochran County 115 kV Capacitor Bank 28.8 Mvar – 6/1/2018
- Crosby County 115 kV Capacitor Bank 14.4 Mvar & Upgrade both 115/69 transformers to 84 MVA – 11/15/2014
- Eddy County Upgrade 230/115 transformer #1 to 250 MVA – 6/1/2015
- Floyd County 115 kV Capacitor Bank 28.8 Mvar – 12/31/2014
- Graham Upgrade 115/69 transformer to 84 MVA – 12/31/2014
- Lubbock South add 2nd 230/115 transformer 250 MVA – 12/31/2014

Other Projects (continued)

- Potash Jct. Upgrade both 115/69 transformers to 84 MVA – 12/31/2014
- Diamondback Substation – 3/2015
- Rolling Hills Interchange – 8/2014
- Newhart Interchange – 10/2014
- Kiser Substation – 11/2014
- Pleasant Hill Interchange – 12/2014
- Drinkard 115 kV Capacitor bank – 12/1/2014
- Bushland 230 kV Capacitor banks two 50 Mvar – 12/30/2013

Questions?

Generation

Generation Interconnections

- Goodwell Wind, 200 MW ~14 m south of Guymon, OK in Hansford Co, TX, ISD 9/1/14, connecting at Hitchland 115 kV
- Randall Wind, (Higher Power) 400 MW near Canyon, in Randall Co, TX, ISD 11/15/14, connecting at new SPS 230 kV switching station ~9m SE of Canyon
- Buffalo Point, 60 MW wind, 2 m west of Post, TX in Garza Co, TX, ISD 6/1/14, connecting at SPS Graham Intg 69 kV ~2m West of Post, TX
- Firewheel Wind, 299 MW, 14 m south of Guymon, OK in Hansford Co, TX, ISD 10/13/16, connecting at Hitchland 345 kV

Generation Interconnections, cont.

- **Mescalero Ridge, 300 MW wind, east of Roswell, NM, ISD 5/2015, connecting at Tolk-Eddy 345 kV line.**
- **River Birch Wind, 50.6 MW in Oldham Co, TX at Vega Sub, ISD 12/31/14, connecting at Vega sub originally 69 kV, but may be upgraded to 115 kV)**
- **Novus Wind IV, 358.8 MW in Hansford Co, TX 14 m south of Guymon, OK, ISD 9/30/16, connecting at Hitchland 345 kV**

Independent Transmission Projects

- Tres Amigas
- Clean Line
  - Facility Study being completed, IA under negotiation

Tres Amigas Superstation Update

(Information from *tresamigasllc.com*)

Tres Amigas SuperStation officials have detailed three phases for construction.

Phase 1:

This will cost $429 million and produce equipment that can transfer 750 megawatts of power between the eastern and western power grids. That's enough power for more than 550,000 homes.

Buildings will be constructed for plant administration and security and to store parts and voltage source converters, which will generate alternate current (AC) from direct current (DC).

Officials expect to break ground in April and complete the phase in three years, when the plant is scheduled to be operational.

Phase 2:

Cost is estimated at $436 million.

Two additional buildings will be constructed for equipment storage. Upon completion about 36 months after it begins, the facility can transfer an additional 1,500 megawatts of power between the eastern grid and Texas grid.

Phase 3:

Officials estimate cost at $793 million. Three more buildings will be constructed to store more voltage source converters.

Once complete, about 36 months after it begins, Tres Amigas can transfer 4,750 megawatts of power — enough for 3.6 million homes — between all three power grids.

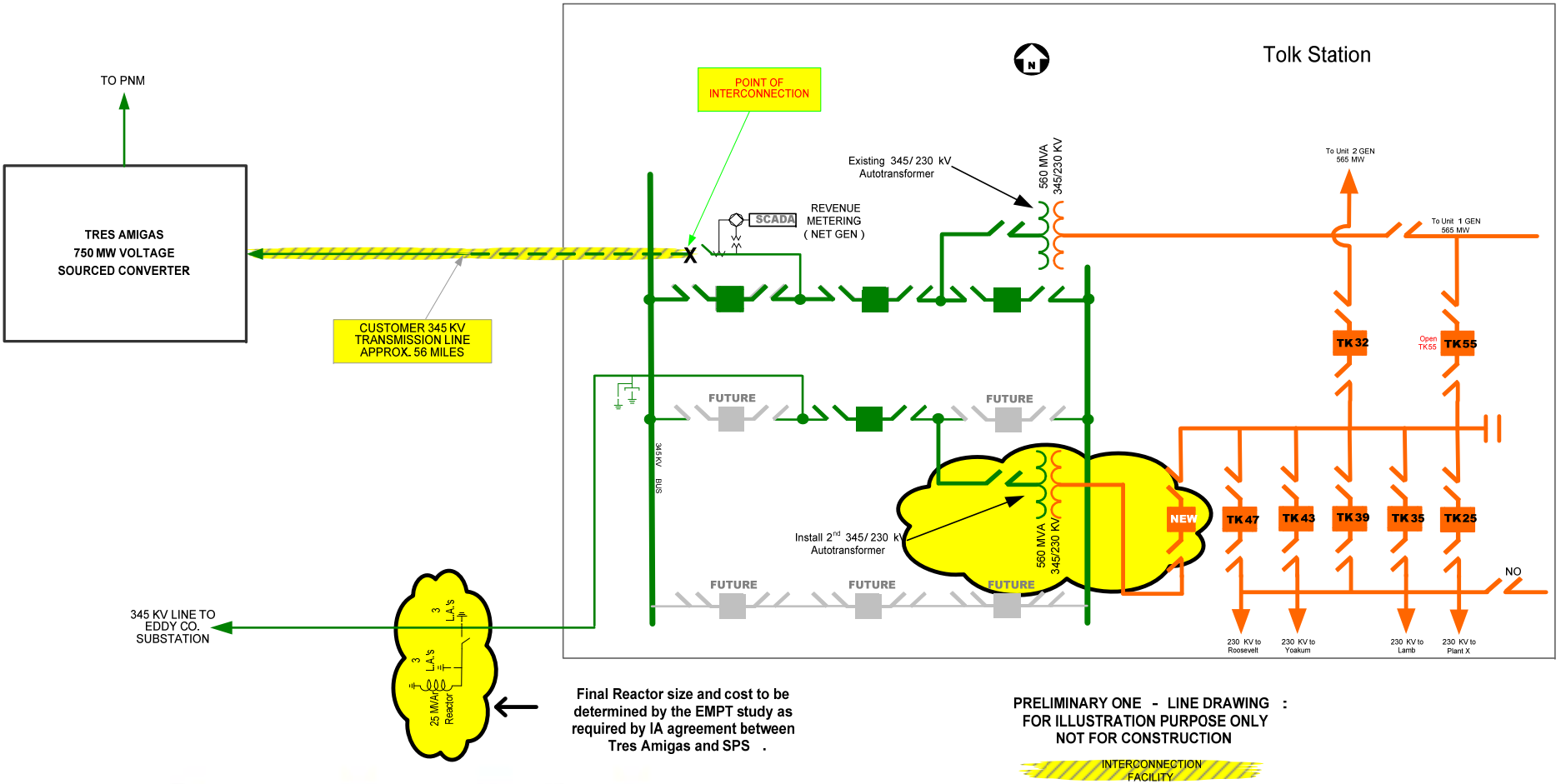
Each phase will create 400 to 500 construction jobs.

Officials estimate the final phase will be complete by 2020 and the superstation will create 15 permanent jobs with 30 to 50 more at its headquarters in Albuquerque.

Tres Amigas Superstation Update (continued)

- FERC on April 9th signed off on an agreement among Tres Amigas LLC, Southwestern Public Service Co. and the Southwest Power Pool, Inc. that will enable the Tres Amigas "Superstation" to interconnect with Southwestern's transmission system.
- The agreement addresses the first phase of the Tres Amigas project, which will consist of a 750-MW, two-node intertie between the Western and Eastern interconnections through the transmission systems of the Public Service Co. of New Mexico and Southwestern, a subsidiary of Xcel Energy Inc. Under the agreement, Southwestern will expand its existing Tolk substation at Tres Amigas' expense and Tres Amigas will construct a 73-mile, 345 kV tie line and other equipment in order to provide a 750-MW intertie with Southwestern.
- Tres Amigas already has received FERC's approval of an interconnection agreement (FERC No. ER12-2424) with PNM, a subsidiary of PNM Resources, Inc.
- Commercial operation of the facility is expected to begin sometime in the summer of 2016.

Tres Amigas One-Line Diagram



Final Reactor size and cost to be determined by the EMPT study as required by IA agreement between Tres Amigas and SPS .

PRELIMINARY ONE - LINE DRAWING :
FOR ILLUSTRATION PURPOSE ONLY
NOT FOR CONSTRUCTION

INTERCONNECTION FACILITY

Plains & Eastern Clean Line

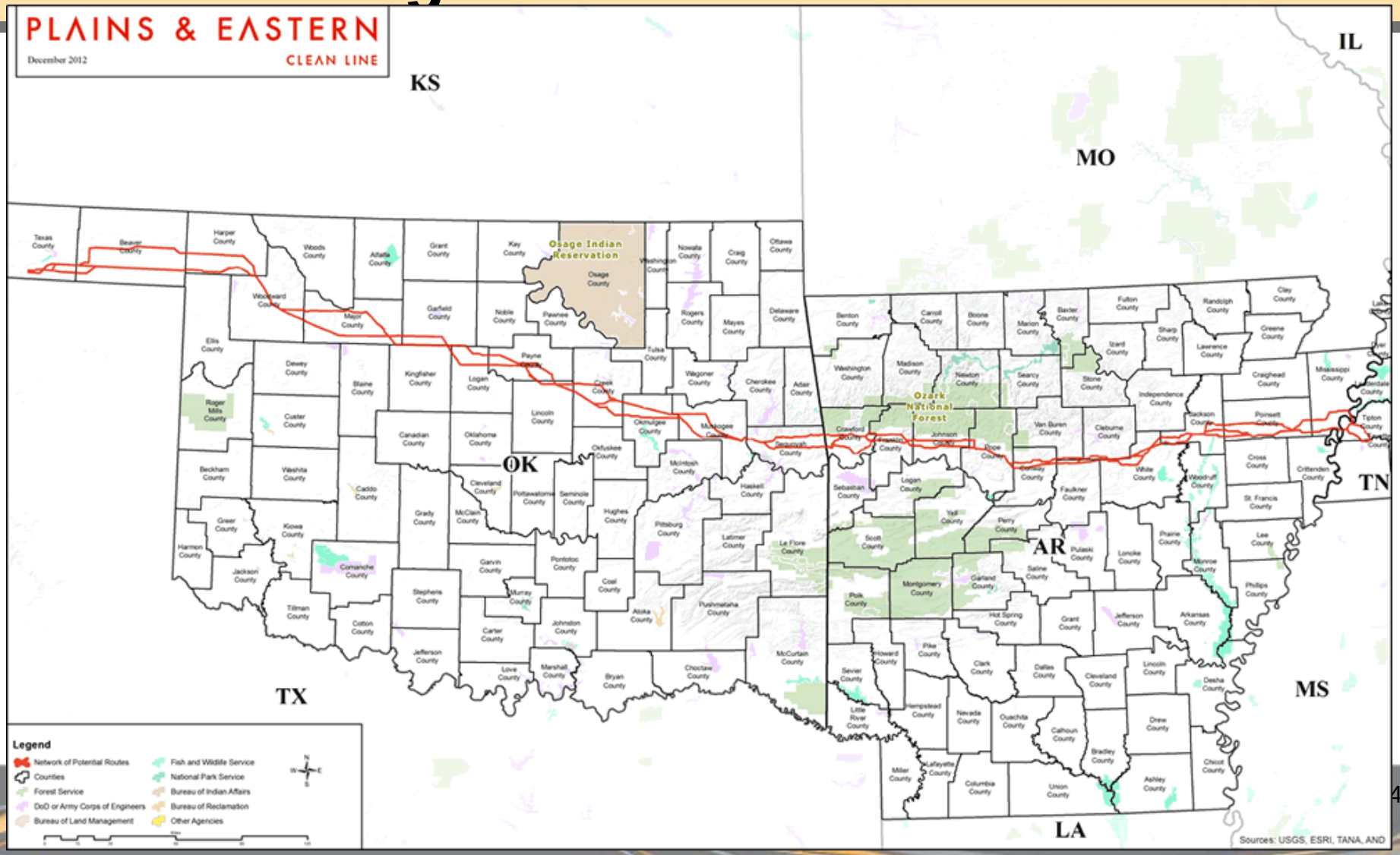
(Information from *www.**plainsandeasterncleanline**.com)*

- **PROJECT OVERVIEW**
- The Plains & Eastern Clean Line will connect 3,500 megawatts of clean energy generation from western Oklahoma, southwest Kansas, and the Texas Panhandle with utilities and customers in Tennessee, Arkansas, and other markets in the Mid-South and Southeast. The development and construction of the Plains & Eastern Clean Line will make possible more than $7 billion of new renewable energy investments in one of America's richest wind resource areas. The transmission line and associated wind farms will create thousands of jobs, increase state and local tax revenues, and deliver enough low-cost clean energy to power more than one million homes.

Plains & Eastern Clean Line Update

- **This project is under development and is expected to take between 5 to 7 years to complete. Construction is to begin around 2015.**
- **Request for Information reveals more than 16K MW of low-cost wind being developed in the OK Panhandle region which is 4x the amount of power necessary to fill the Plains & Eastern Clean Line. More transmission infrastructure will be needed to move wind energy to the Mid-south and Southeast.**

Plains & Eastern Clean Line
Line Diagram



SPS Renewable Interconnections

- Currently ~1536 MW connected
  - ~250 MW distribution
  - ~54 MW distribution solar
  - ~1,153 MW Transmission
  - ~78 MW on customer-owned systems
- SPP generation queue
  - 848.4 Wind MW under study
  - 25 Solar MW under study
  - 436 Fossil fuel MW under study
  - 2389 Wind MW with signed IAs (but not yet online)
  - 319 Wind MW suspended IAs

Models and System Status

2014 SPP MDWG Model Build

- **SPS as a member of SPP participates in the submission of data to the SPP transmission planning model building process.**
- **Powerflow & Dynamic Seasonal Models**

  April Light (L) Spring Peak (G) Summer Peak (S)

  Shoulder (SH) Fall Peak (F) Winter Peak (W)

  - **2014 SPP Model Series Set:** *19 seasonal models*
    - red = both powerflow & dynamics
    - (5) 2014G, 2014S, 2014SH, 2014F, 2014/15W
    - (6) 2015L, 2015G, 2015S, 2015SH, 2015F, 2015/16W
    - (3) 2016G, 2016S, 2016W
    - (3) 2020L, 2020S, 2020/21W
    - (2) 2025S, 2025W

2014 SPP Model Build Schedule

- **Powerflow data due to SPP *(NERC MOD-010-0 & MOD-013-0 Requirement)***
- 2013 Approved Schedule: *http://www.spp.org/publications/MDWG 2014 Series Schedule and Model Selection.pdf*
- **Due Date: October 25, 2013**
- If customer wishes that SPS submit the data in Models-On-Demand format along with SPS submittal. (Data due to SPS)
  - ***Power Flow Data Required***
    - ***New & Updated coincident load data for the seasonal models listed above, have been emailed out.***
    - ***Generator, Transmission Line, Transformer, Shunt Devices***
    - ***Generators: Manufacturer Electrical Data Sheet, Excitation System Data, Governor Data, Power System Stabilizer Data,***
    - ***Transmission Lines: R, X, B (100 MVA Base, per-unit), Normal & Emergency Ratings (MVA)-Summer & Winter, Line Length (miles), and Bus-to-Bus Terminating Points***
    - ***Transformers: Copy of Transformer Test Report***
    - ***Shunt Devices: MVAR value at rated voltage***
    - ***All data shall include BOTH Positive/Zero Sequence Data, AND Ratings Information.***

Generator Modeling

- **Modeling generation on Cooperative, Municipal and Retail systems.**
  - **Requirements:**
    - **Transmission topology for data connecting the generator to BES.**
      - **Positive Sequence R, X, B data**
      - **Zero Sequence R, X, B data**
      - **Ratings Data (Summer & Winter)**
      - **Any transformer data (manufacturer's test report)**
    - **All machine electrical data, exciter data and governor data.**
      - **PSS/E Version 32 format if data sheets are unavailable, otherwise data sheets.**
      - **Required for power and dynamics analysis.**
      - **Pmax, Pmin, Qmax, Qmin (seasonal values if applicable)**
    - **Generator step-up**
      - **Manufacturer's test report.**

Modeling Facility Ratings

- **Facility Ratings**
  - **Purpose: To ensure that Facility Ratings used in planning and operations of the BES are determined based on established methodologies.**
  - **Generators, transmission line, transformers, capacitors, reactors, etc.**
    - **Facilities Rating Methodology and Communication of Ratings (NERC FAC-008-3)**
      - **Each Transmission and Generator owner shall document its current methodology used for developing a Facility Ratings.**
      - **Procedure Manual indicating assumptions and calculations.**
      - **Each Transmission and Generator owner shall establish Facility Ratings for its solely and jointly owned Facilities that are consistent with the FAC-008-3.**
      - **Shall provide Facility Ratings for its Facilities that are existing, new, modified to the Reliability Coordinator, Planning Authority, Transmission Planner and Operator as scheduled by such requesting entities.**
  - **Need communication and tracking documents with each connecting party**

Please visit the NERC website for the exact language of each standard.

SPS Facility Ratings data is now being managed by the SPS Substation Engineering Design.

Compliance Issues for SPS

- Upcoming Audit – October 28
  - Received notification July 24
  - Pre-audit data requests
  - RSAWs and evidence submitted Sept 13
  - Off-site week Oct 7th
- Expanded Compliance Staff

Newly Effective Standards

Jan 1, 2013

- FAC-008-3

April 1, 2013

- FAC-013-2

June 20, 2013

- TPL-003-0b
- TPL-004-0a

July 1, 2013

- EOP-005-2
- EOP-006-2
- EOP-008-1
- VAR-002-2b

Upcoming Standards

Oct 1, 2013

EOP-003-2

MOD-028-2

PRC-006-1

Jan 1, 2014

EOP-004-2

VAR-001-3

PRC-006-SPP-1

- PRC-006 was identified as requiring regional standard
- SPCWG lead development of PRC-006-SPP-1
- Approved by RE Trustees for submittal to NERC July 30, 2012
- Approved by NERC BOT Nov 7, 2012
- Submitted to FERC April 26, 2013
- RE Trustees approve recall Aug 5, 2013

Version 4 of CIP standards

- Effective Oct 1, 2014
- Version 3 required RBAM
- Version 4 use ‘bright line’ criteria
- Version 5 requires impact rating criteria
- NERC provides guidance for transition

TPL Standards

- Feb 28, 2013 filing with FERC
- One TPL standard
- Limit planned load shed
  - Maximum 75 MW
  - New stakeholder process

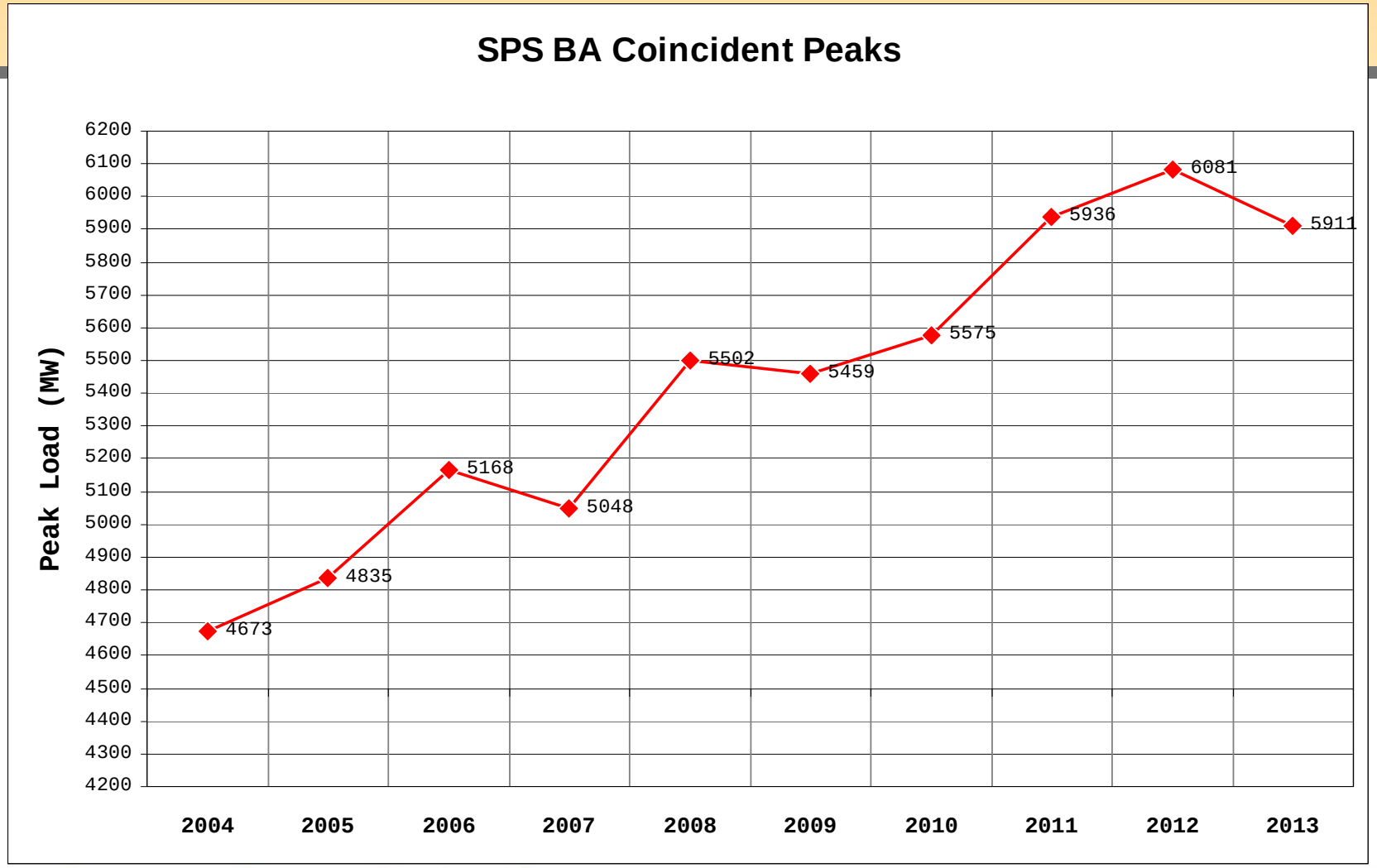
TPL Standard - Proposed New Stakeholder Process

When firm demand interruption is element of Corrective Action Plan, must have process

- **Open to all affected stakeholders, including regulatory or governing bodies**
- **Notice of meeting, stakeholder comment**
- **Intended purpose and scope of interruption**
- **Procedure for questions/concerns and responses**
- **Dispute resolution process for question/concern not resolved to stakeholder's satisfaction**

Questions?

SPS BA Coincident Peaks



SPS BA Coincident Peaks (to August 6, 2013)

Load Comparison 2012-2013 Winter

Criteria 3.3.3 - Trends Area Actual Peak & Planning Peak Load Comparison													
		Summer Peak 2011		Summer Peak 2012		Winter Peak 2011/12		Winter Peak 2012/13		Summer Peak 2011	Summer Peak 2012	Winter Peak 2011/12	Winter Peak 2012/13
Area Num	Area Name	Actual Load (MW)	Planning Peak Load (MW)	Actual Load (MW)	Planning Peak Load (MW)	Actual Load (MW)	Planning Peak Load (MW)	Actual Load (MW)	Planning Peak Load (MW)	Diff	Diff	Diff	Diff
502	CELE	2488	2586	2424	2513	1955	2405	2048	2404	3.8%	3.5%	18.7%	14.8%
503	LAFA	493	494	528	501	335	341	349	341	0.2%	-5.4%	1.8%	-2.2%
504	LEPA	255	228	227	229	159	175	169	175	-11.8%	0.9%	9.3%	3.4%
515	SWPA	2067	2137	1968	2153	1535	1772	1176	1337	3.3%	8.6%	13.4%	12.0%
520	AEPW	14907	14391	14450	14358	10536	11946	7344	8075	-3.6%	-0.6%	11.8%	9.1%
523	GRDA	1200	1081	968	1036	687	752	913	752	-11.0%	6.6%	8.7%	-21.4%
524	OKGE	7089	6093	7068	6321	4592	4350	4692	4389	-16.3%	-11.8%	-5.6%	-6.9%
525	WFEC	1571	1482	1587	1502	1460	1367	1447	1368	-6.0%	-5.7%	-6.8%	-5.8%
526	SPS	5990	5734	6126	6233	4188	4563	4068	4575	-4.5%	1.7%	8.2%	11.1%
534	SUNC	1149	1174	1133	1159	733	754	717	752	2.1%	2.2%	2.8%	4.6%
536	WERE	6712	6312	6652	6349	4251	4368	4235	4326	-6.3%	-4.8%	2.7%	2.1%
540	MIPU	2061	1932	2066	2009	1426	1601	1465	1601	-6.7%	-2.8%	10.9%	8.5%
541	KACP	3769	3592	3773	3689	2508	2633	2497	2731	-4.9%	-2.3%	4.7%	8.6%
542	KACY	510	553	501	556	361	410	358	410	7.8%	9.9%	12.0%	12.7%
544	EMDE	1198	1181	1148	1190	961	1046	1011	1045	-1.4%	3.5%	8.1%	3.3%
545	INDN	315	303	308	310	173	188	171	188	-4.0%	0.6%	8.0%	8.8%
640	NPPD	3411	3287	3892	3839	2499	2974	2448	2973	-3.8%	-1.4%	16.0%	17.7%
645	OPPD	2657	2527	2663	2793	1784	2057	1751	2056	-5.1%	4.7%	13.3%	14.8%
650	LES	796	758	796	753	536	564	542	564	-5.0%	-5.7%	4.9%	3.9%

SPS Planning Website

- Current internet address
  - http://www.xcelenergy.com/About_Us/Transmission/About_Transmission/Planning_for_the_SPS_Transmission_System
  - Local planning meetings and presentations

SPP Web Site Links

- Planning information
  - http://www.spp.org/section.asp?pageID=128
  - High level page to their planning information
- Generation interconnection studies and queue status, aggregate transmission service studies
  - http://sppoasis.spp.org/documents/swpp/transmission/studies.cfm
- SPP project tracking
  - http://www.spp.org/section.asp?pageID=114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