

ONCOR WEST TEXAS PLANNING UPDATE

as of July 7, 2015

**Presentation to ERCOT Regional Planning Group
at July 21, 2015 Meeting
Austin, TX – MET Center**

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Plans are subject to change due to factors including, but not limited to, load, generation, engineering, system protection and system topology.

WE DELIVER.



WEST TEXAS PLAN KEY ELEMENTS

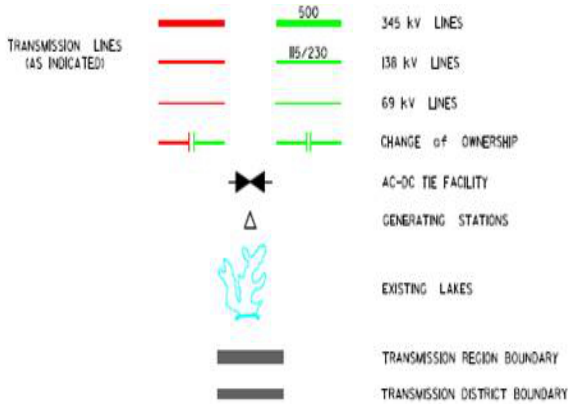
- **Convert 69 kV system to 138 kV**
 - Rebuild 69 kV Lines with double-circuit 138 kV construction, one circuit at 69 kV
 - Gradually migrate loads from 69 kV to 138 kV service
- **New 138 kV transmission lines**
 - Create 138 kV loops to enable clearances and improve system reliability
 - Work closely with oil & gas customers to provide expedited service to large single point loads
- **Upgrade and add switching stations**
 - Increase capacity, modern configurations facilitate greater clearance availability
 - Improved system protection and communications
 - Provisions for future expansion and physical security requirements (CIP)
- **Upgrade and add autotransformers with Load Tap Changing (LTCs)**
 - Increase capacity and voltage support; operational flexibility for clearances
- **Upgrade and add substations with LTCs**
 - Increase load serving substation capacity to meet growth plans
 - Increase distribution voltage control capability
- **345 kV Infrastructure**
 - Provide backbone support
 - Reach out to areas where there is extreme load and generation growth, but there is a lack of adequate transmission grid infrastructure

ONCOR WEST TEXAS IMPROVEMENTS

	2011	2012	2013	2014	2015 Planned	2016 Planned	2017 Planned	2018 Planned
Transmission Customer Related Requests No Upg	2	4	13	23	10	25	11	1
Transmission Projects	4	8	11	23	26	17	15	9
Transmission Circuit Miles	36	15	21	138	170	280	355	161
Transmission Auto Capacity Added	0	100 MVA	600 MVA	0	1900 MVA	750 MVA	0	0
Distribution Upgrade Projects	23	22	16	15	17	17	16	17
Distribution Sub Capacity Added	60.3 MVA	169.4 MVA	112.9 MVA	374.6 MVA	348.2 MVA	395.8 MVA	257.5 MVA	230.9 MVA
Distribution Customer Related Upgrade Projects	68	111	117	259	97 thru May	-	-	-
Distribution Customer Related Requests No Upg	n/a	n/a	298	222	109 thru May	-	-	-

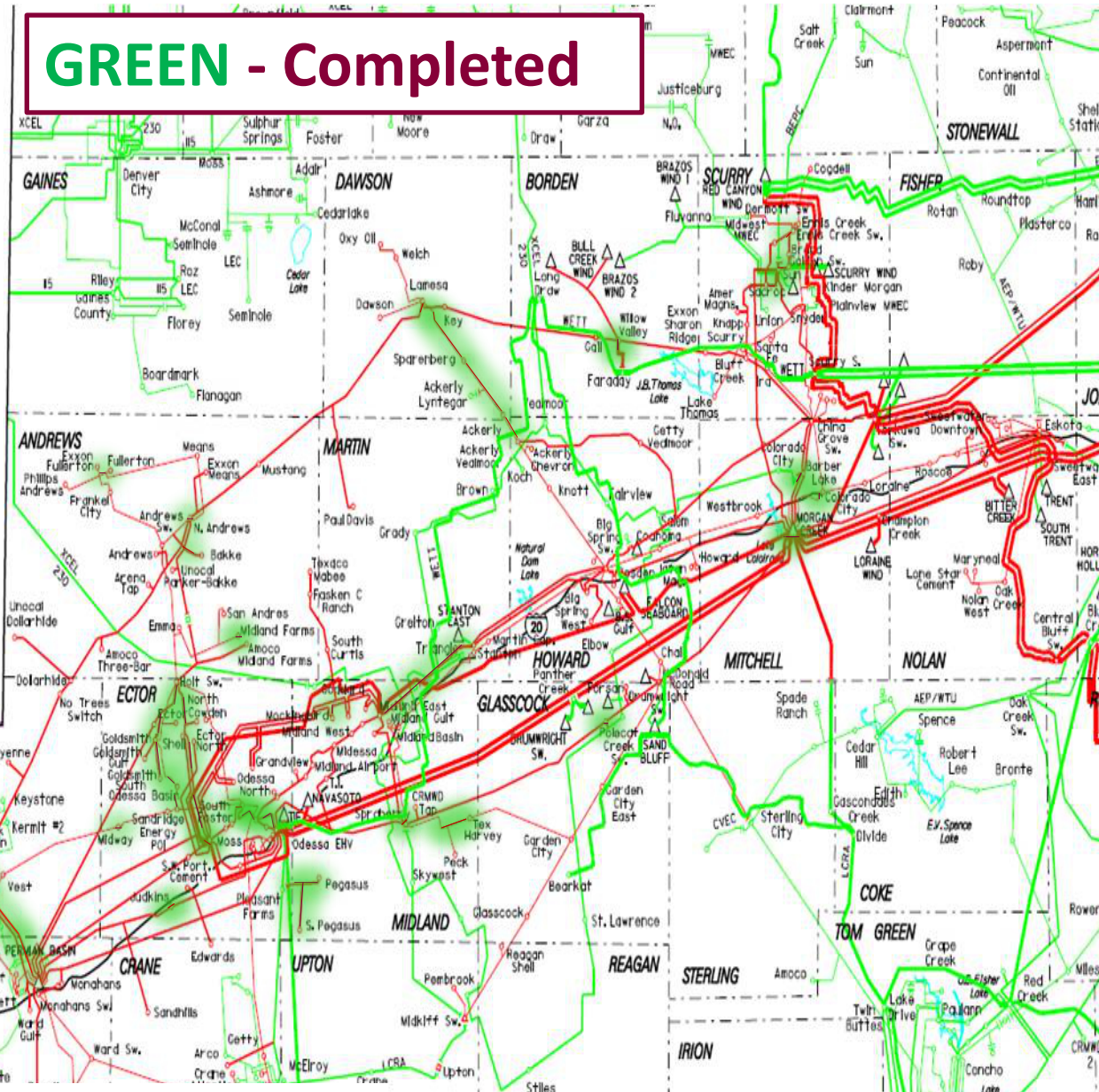
ONCOR 2011-2014 IMPROVEMENTS

GREEN - Completed



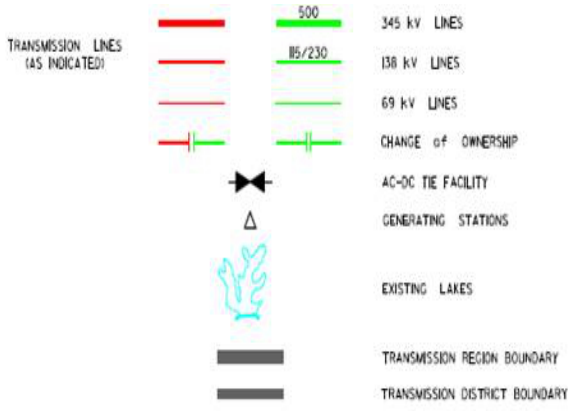
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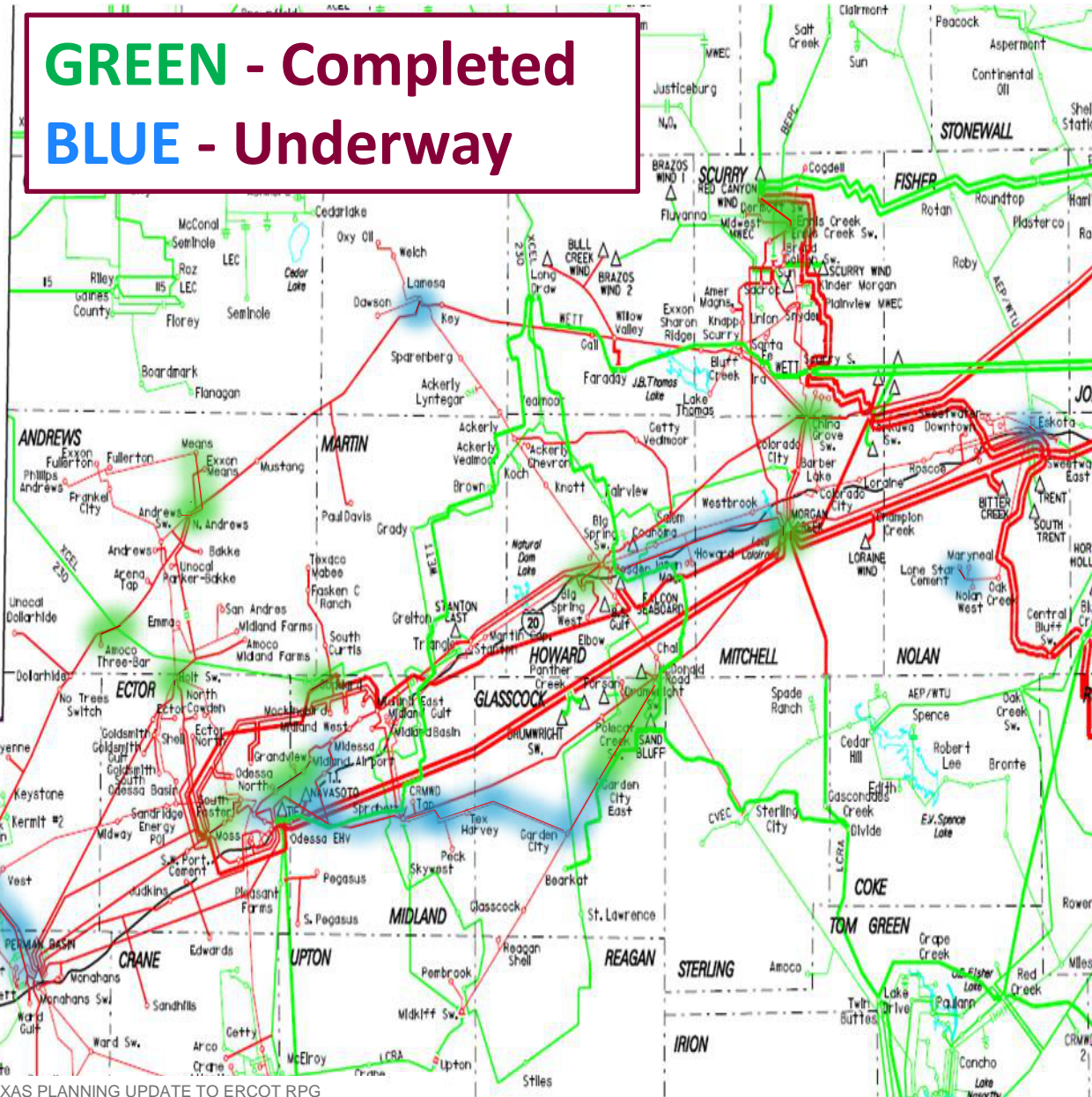
ONCOR 2015 IMPROVEMENTS

GREEN - Completed
BLUE - Underway



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ONCOR 2015 IMPROVEMENTS COMPLETED

** ERCOT RPG Review Completed/Approved
* Currently Under Review by ERCOT RPG

- Upgrade Midland Airport – Glenhaven 138 kV Line April 2015
- Construct New Dermott Sw. Sta. – Ennis Creek Tap 138 kV Line May 2015
- Upgrade Big Spring Switch – Big Spring West 138 kV Lines May 2015
- Install McDonald Road Sw. Sta. – Garden City East 138 kV Line May 2015
- Replace Morgan Creek 138/69 kV Autotransformer May 2015
- Upgrade Odessa North – Amoco South Foster – Westover 138 kV Line May 2015
- Upgrade McDonald Road 138 kV Switching Station May 2015
- Rebuild Holt 138 kV Switching Station as Double-Bus May 2015
- Upgrade China Grove Switching Station Terminal Equipment May 2015
- Rebuild Lamesa 69 kV Switching Station as Ring Bus May 2015
- Construct New Andrews County South 345/138 kV Switching Station June 2015 **
- Construct New Midland County Northwest 345/138 kV Switching Station June 2015 **
- Upgrade North Andrews – Means 69 kV Line June 2015
- Replace North Andrews 138/69 kV Autotransformers June 2015

ONCOR 2015 IMPROVEMENTS UNDERWAY

** ERCOT RPG Review Completed/Approved
* Currently Under Review by ERCOT RPG

Install Odessa – Midessa South 138 kV Line **Sep 2015**

Upgrade Mason – Screwbean 138 kV Line **Oct 2015**

Install Eskota Switch 138/69 kV Autotransformer #2 **Nov 2015**

Install Sweetwater Creek 69 kV Capacitors **Nov 2015**

Construct New Midessa South 345/138 kV Switching Station **Nov-Dec 2015**

Install Midessa – Midessa South 138 kV Line **June 2016**

Upgrade Spraberry 138 KV Switching Station **Nov-Dec 2015**

Rebuild Odessa 138 kV Switching Station as Ring Bus **Oct-Nov 2015**

Rebuild Wink Switching Station and Install 138/69 kV autotransformer #2 **Dec 2015**

Upgrade Permian Basin – Ward Gulf Tap – Wink 138 kV Line **Dec 2015**

Upgrade Morgan Creek – Cosden 138 kV Line **Dec 2015**

Install Spraberry Sw. Sta. – Garden City East 138 kV Line **Dec 2015 ****

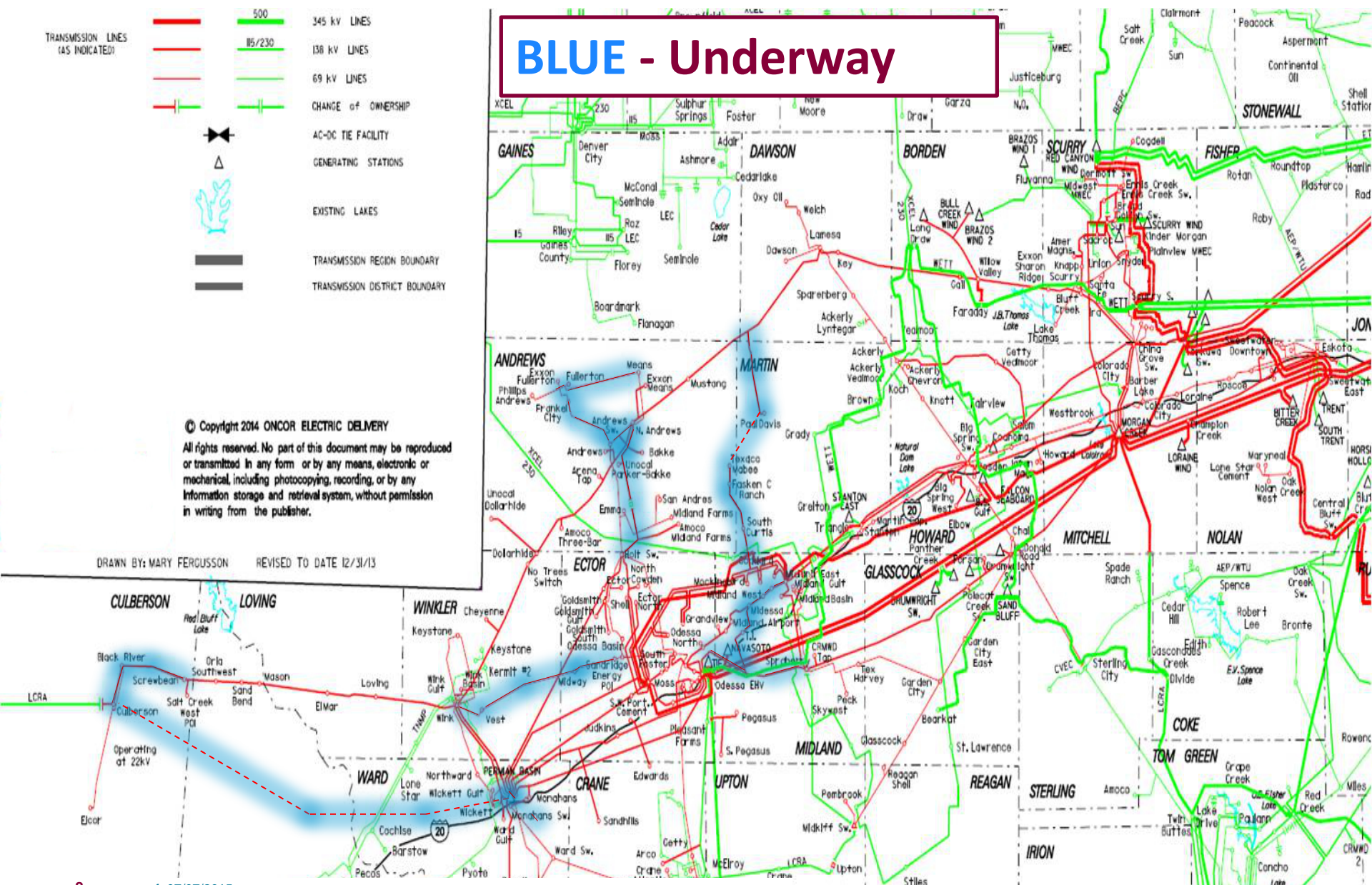
ONCOR 2016 IMPROVEMENTS

BLUE - Underway

- TRANSMISSION LINES (AS INDICATED)
- 500
 - 345 kV LINES
 - 138 kV LINES
 - 69 kV LINES
 - CHANGE OF OWNERSHIP
 - AC-DC TIE FACILITY
 - GENERATING STATIONS
 - EXISTING LAKES
 - TRANSMISSION REGION BOUNDARY
 - TRANSMISSION DISTRICT BOUNDARY

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ONCOR 2016 IMPROVEMENTS UNDERWAY

** ERCOT RPG Review Completed/Approved
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Install Midessa – Midessa South 138 kV Line **Spring 2016**

Rebuild Midessa South – Midland East 138 kV Line **Spring 2016**

Install Midessa South – Spraberry 138 kV Line **Spring 2016**

Rebuild Odessa EHV – Spraberry 138 kV Line **Spring 2016**

Rebuild McKenzie Draw (formerly Paul Davis) – McKenzie Tap 138 kV Line **Spring 2016**

Install Screwbean 138 kV Capacitors **Spring 2016**

Install Fullerton – North Andrews 138 kV Line **Spring 2016**

Construct New Fullerton Switching Station **Spring 2016**

Rebuild Means – Fullerton 69 kV Line **Spring 2016**

Rebuild Fullerton – Andrews – North Andrews 69 kV Line **Spring 2016**

Timing may be adjusted based on proposed acquisition and development of SPS/Xcel Line section in Andrews County.

Rebuild Texaco Mabee Tap – Texaco Mabee 138 kV Line **Fall 2016**

Construct New Permian Basin – Culberson 138 kV Line **Fall 2016 to Fall 2017 ****

Install New Wink – Yukon 138 kV Line (replaces Wink-Odessa Basin 69 kV) **Fall 2016 ***

Rebuild Screwbean – Culberson 138 kV Line **Fall 2016**

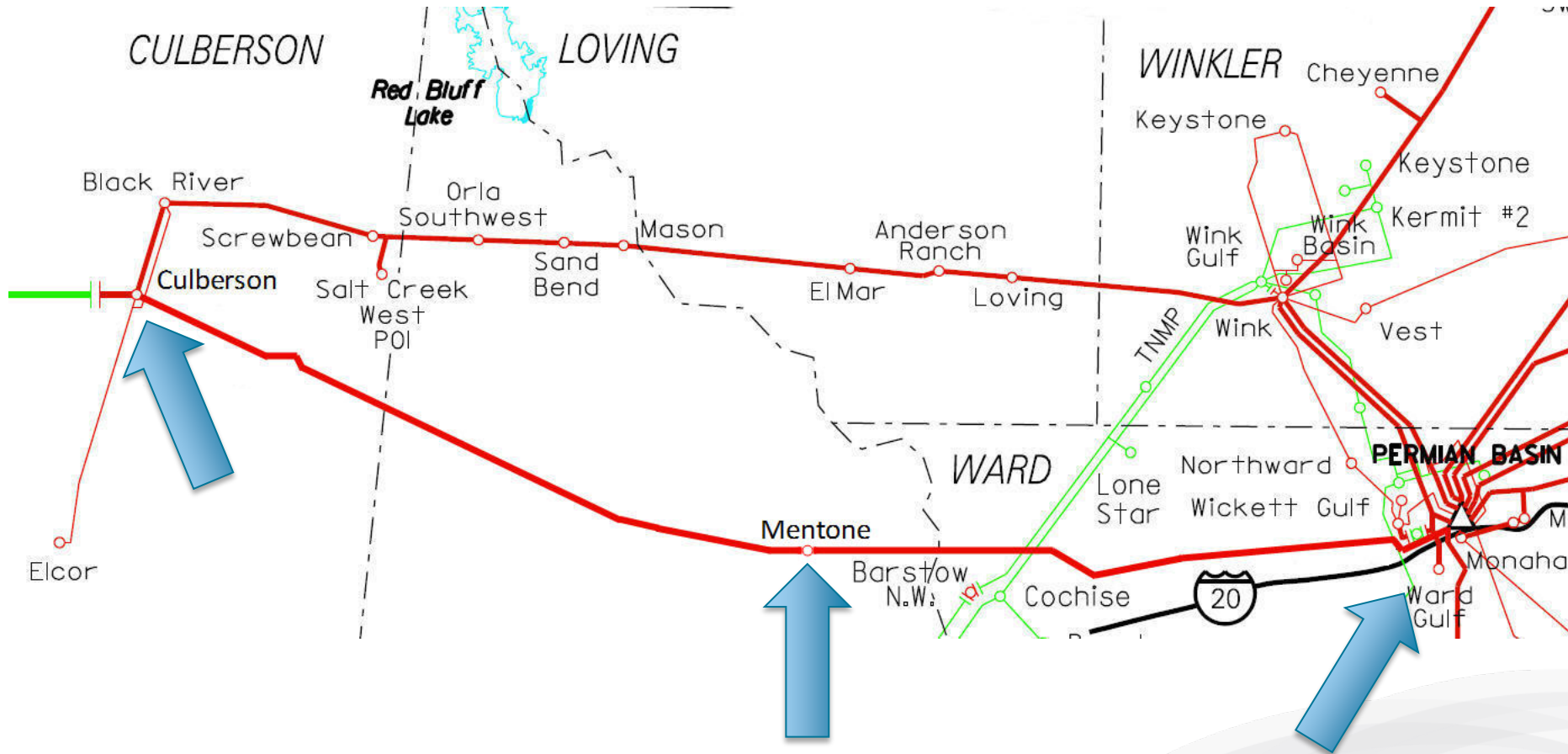
Rebuild Holt – North Andrews 138 kV Line **Fall 2016**

Construct New Midessa South 345 kV Switching Station **Fall 2016**

Construct New Permian Basin 138 kV Switching Station **Fall 2016**



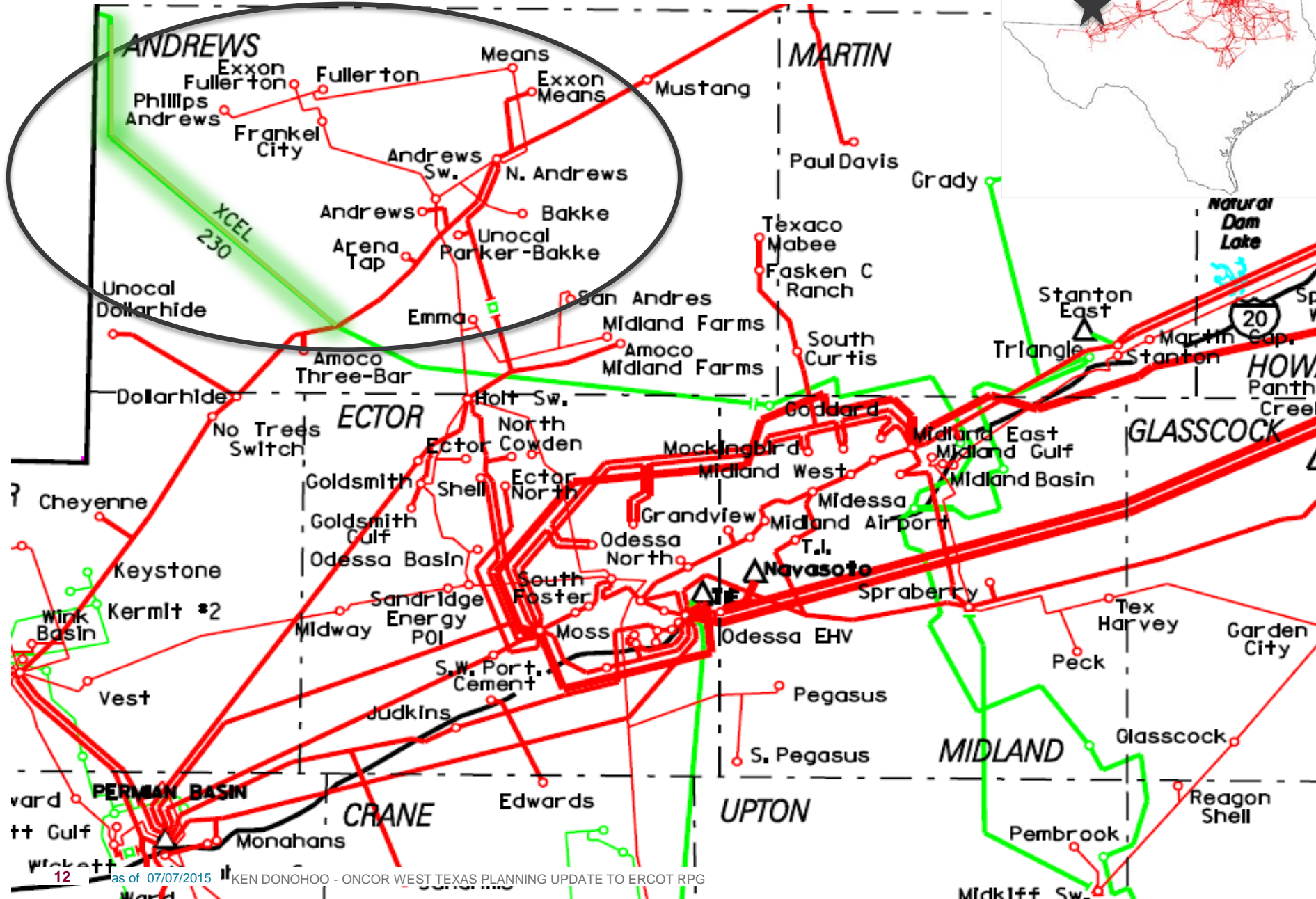
PERMIAN BASIN – CULBERSON 138 kV LINE ONCOR CCN APPROVED



PERMIAN BASIN – CULBERSON 138 kV LINE WINK – CULBERSON 138 kV LINE Double Circuit Capable



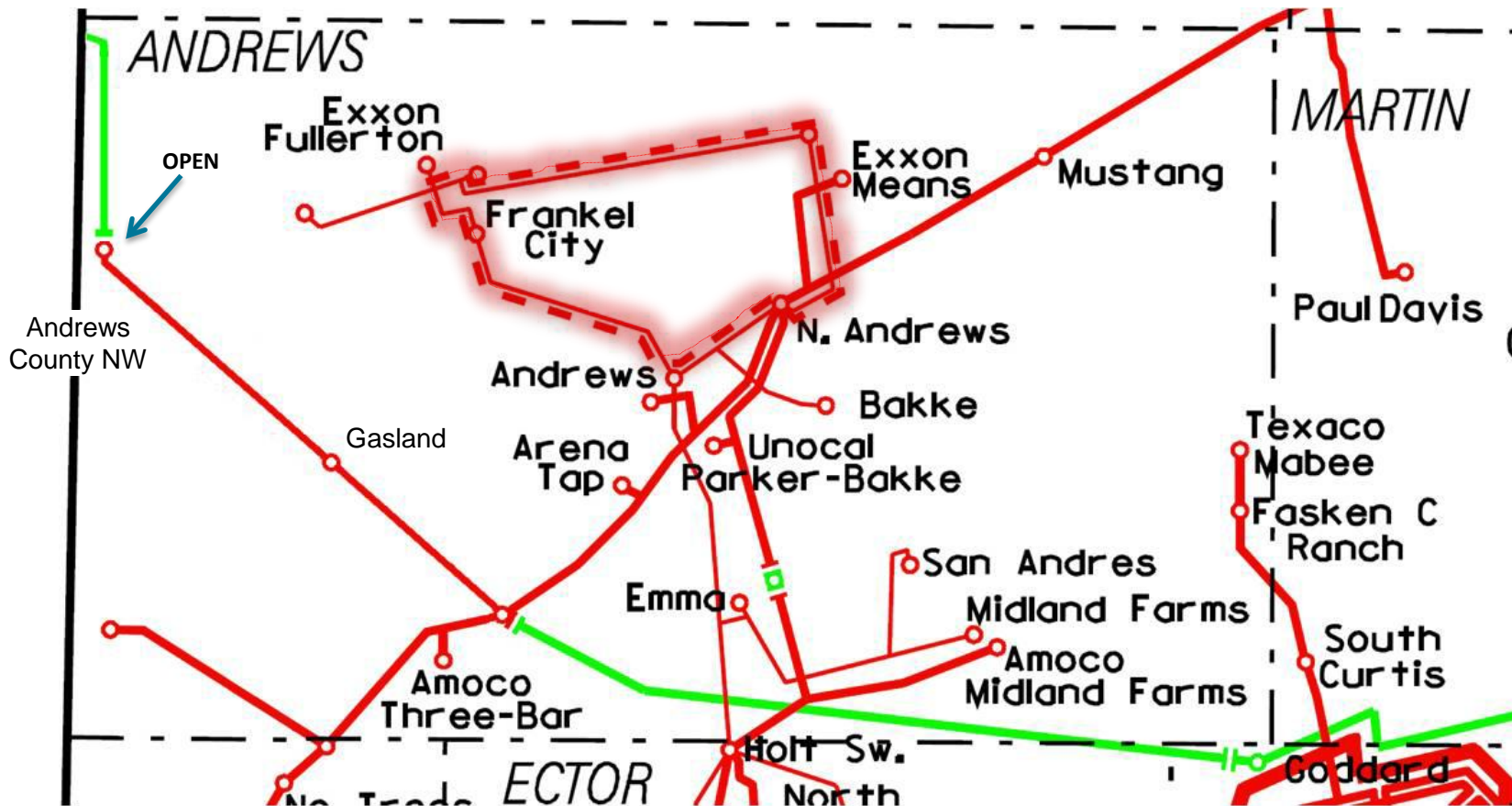
SPS/XCEL LINE LOCATION



ONCOR EXISTING ANDREWS COUNTY PLAN OVERVIEW

Current planned projects establish double-circuit 138 kV and 69 kV loop

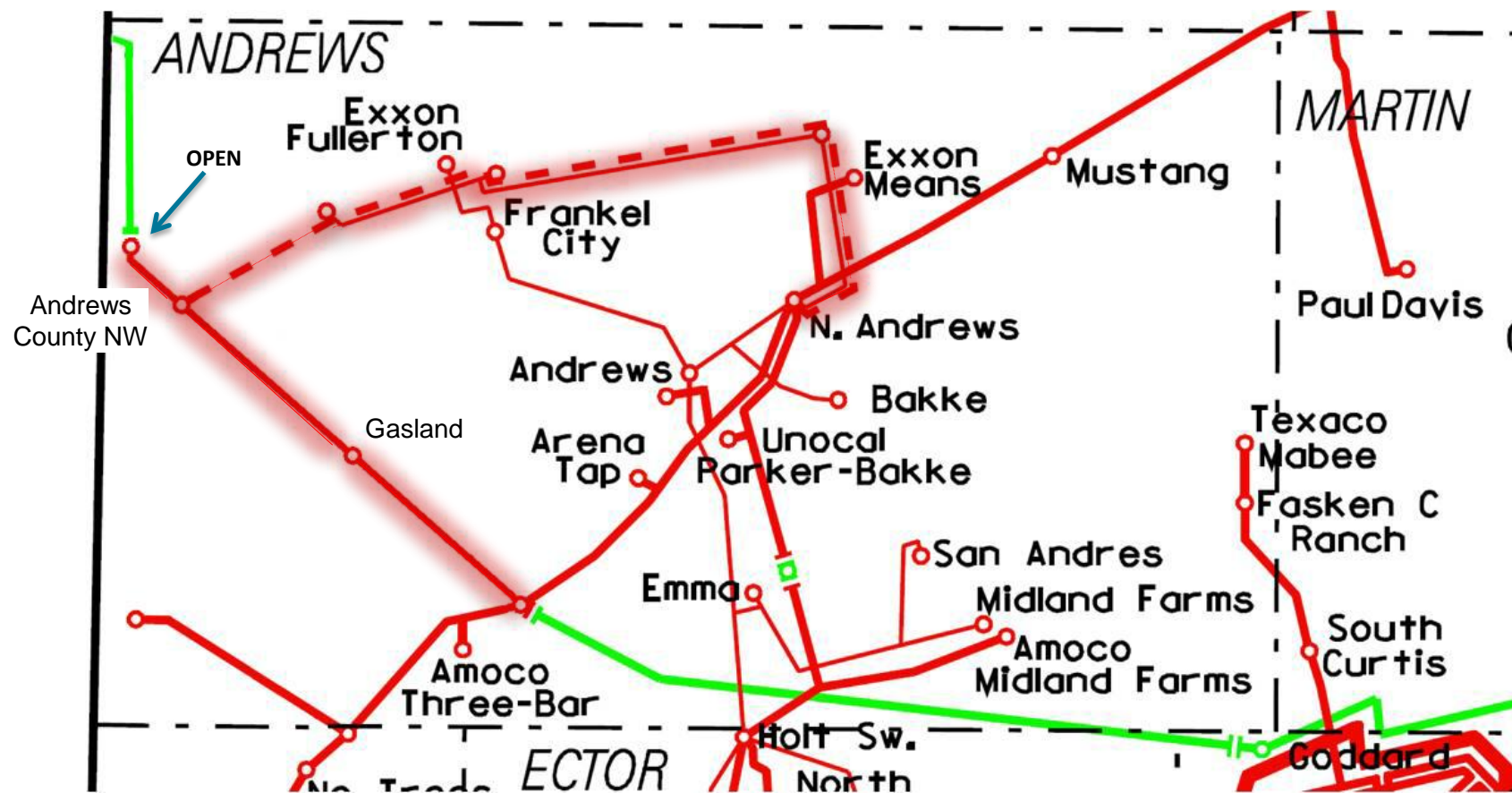
- Projects rebuild the 69 kV system around the Andrews loop using 138 kV double-circuit construction and operate both a 138 kV circuit and a 69 kV circuit
- As load grows over time plan is to convert 69 kV stations to 138 kV operation; when all load is transferred then convert the remaining 69 kV circuit to 138 kV



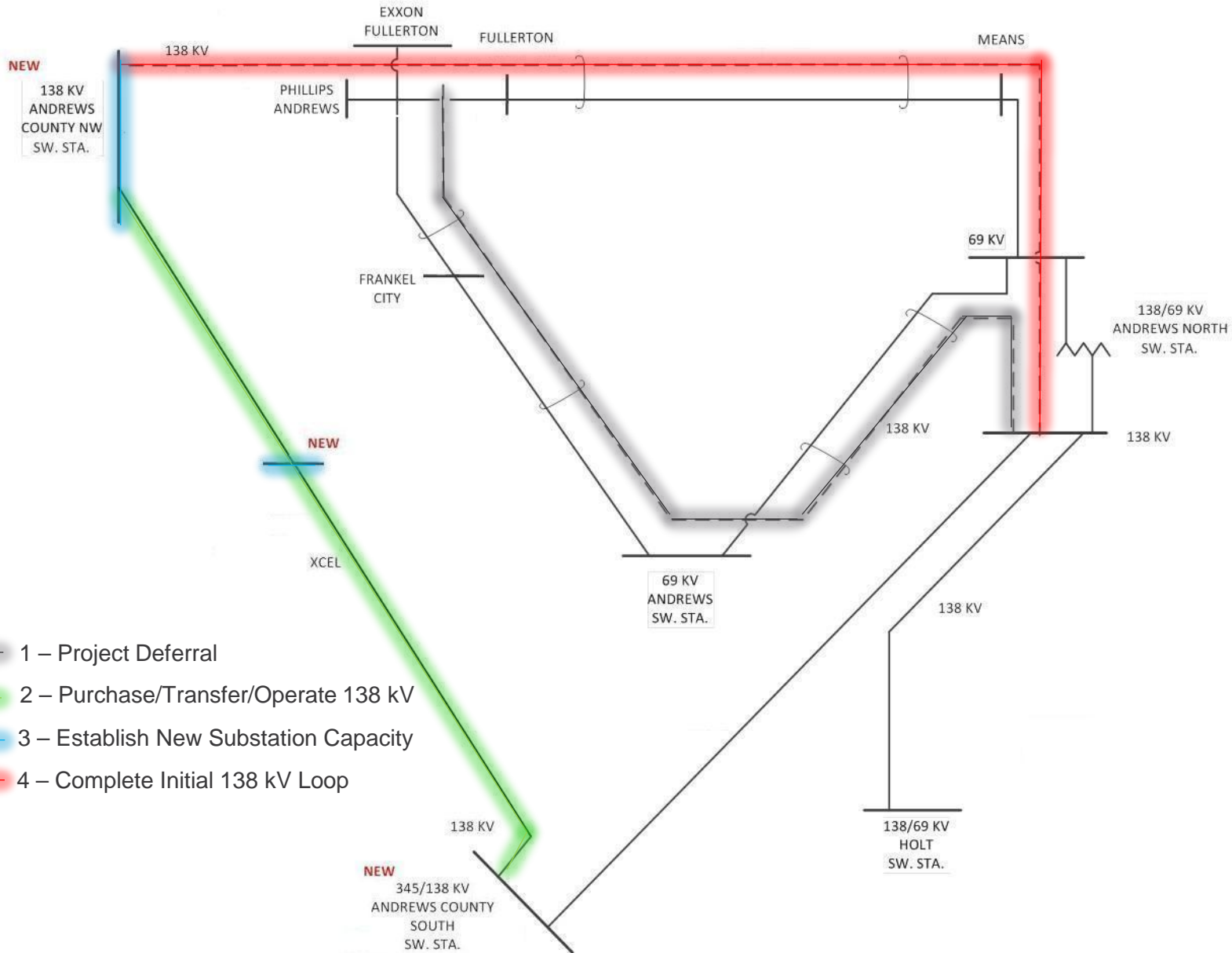
ONCOR PROPOSED ACQUISITION AND DEVELOPMENT OF SPS/XCEL LINE SECTION

Proposed SPS/XCEL line would provide another strong 138 kV source

- Operate the SPS/XCEL line at 138 kV from the new Andrews County South Switching Station and install new substations and feeders to offload the existing stations
- Construct a new 138 kV line to Phillips Andrews and continue 138 kV using double-circuit construction to Andrews North and operate both a 138 kV circuit and a 69 kV circuit



PROPOSED ANDREWS COUNTY 138 kV SEQUENCING



- 1 – Project Deferral
- 2 – Purchase/Transfer/Operate 138 kV
- 3 – Establish New Substation Capacity
- 4 – Complete Initial 138 kV Loop



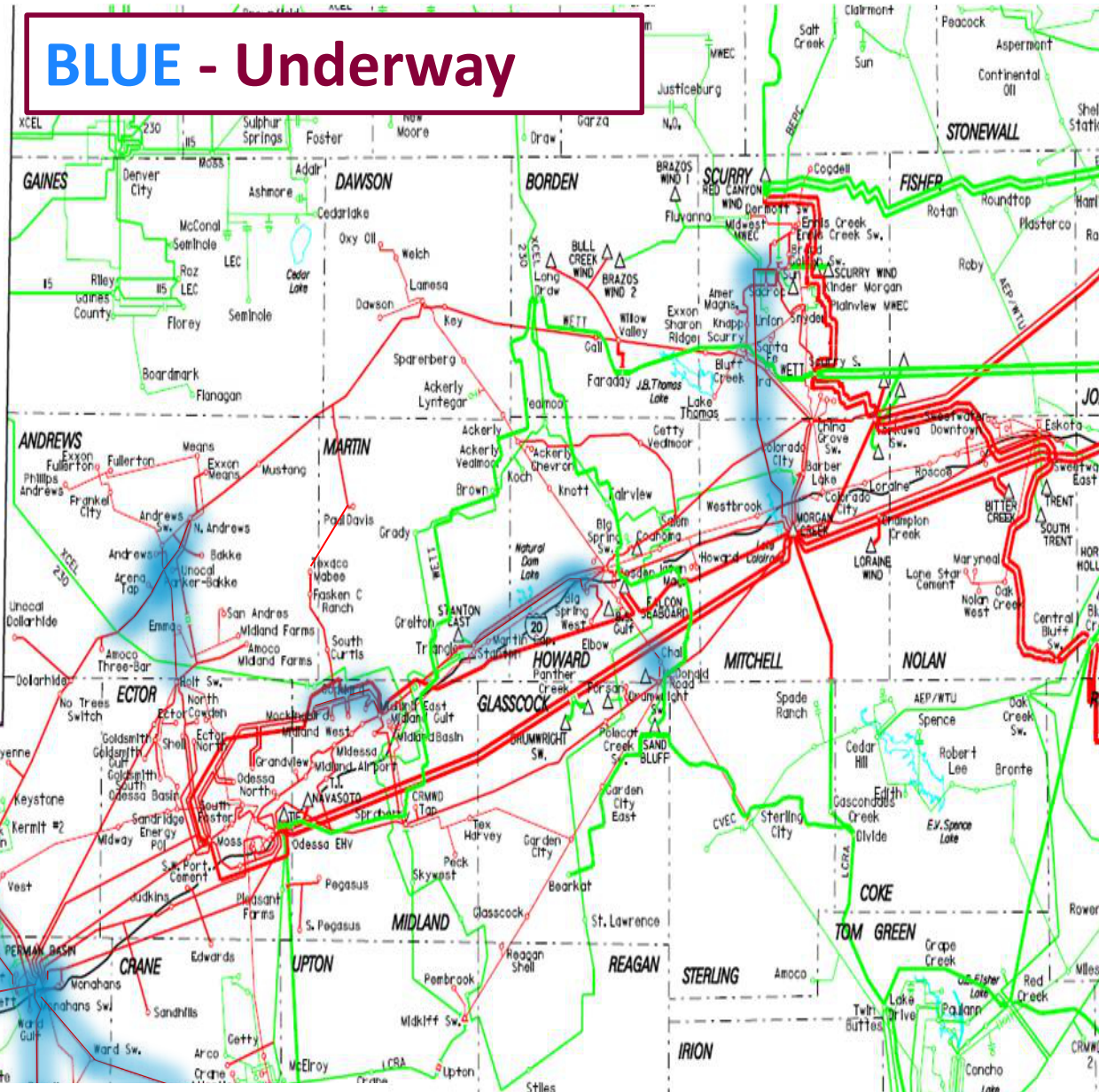
ONCOR 2017 IMPROVEMENTS

BLUE - Underway

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- 500
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 - 138 kV LINES
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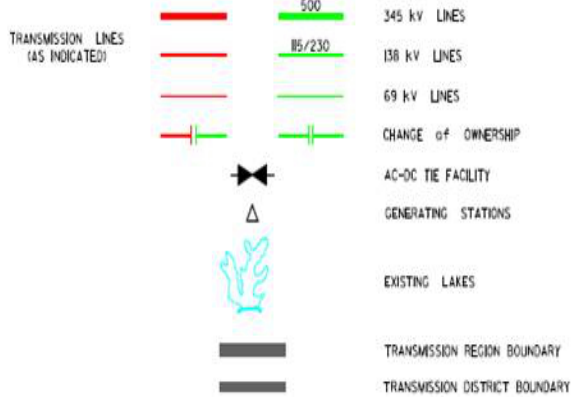
ONCOR 2017 IN-SERVICE DATE PROJECTS

** ERCOT RPG Review Completed/Approved
* Currently Under Review by ERCOT RPG

- Construct New McKenzie Draw (formerly Paul Davis) Switching Station
- Construct New McKenzie Draw – Texaco Mabee 138 kV **
- Rebuild Holt – Andrews 69 kV Line
- Rebuild Andrews County South – North Andrews 138 kV Line
- Rebuild Permian Basin – Barilla Junction 138 kV Line (Joint with AEP)
- Rebuild Big Spring West – Stanton East 138 kV Line
- Convert Chalk Substation from 69 kV to 138 kV
- Install second circuit on Wink – Culberson 138 kV Line
- Install second circuit on Permian Basin – Culberson 138 kV Line
- Construct New Mason 138 kV Switching Station
- Construct New Mentone 138 kV Station
- Install Mason and/or Mentone Dynamic Reactive Device (under study)
- Rebuild Midland County NW – Midland East Double-Circuit 138 kV Line
- Convert Permian Basin – Barnsley 69 kV Line to 138 kV
- Convert Permian Basin – Wink 69 kV Line to 138 kV
- Construct New Monahans 138 kV Switching Station
- Rebuild Morgan Creek – Sun Switch 138 kV Line

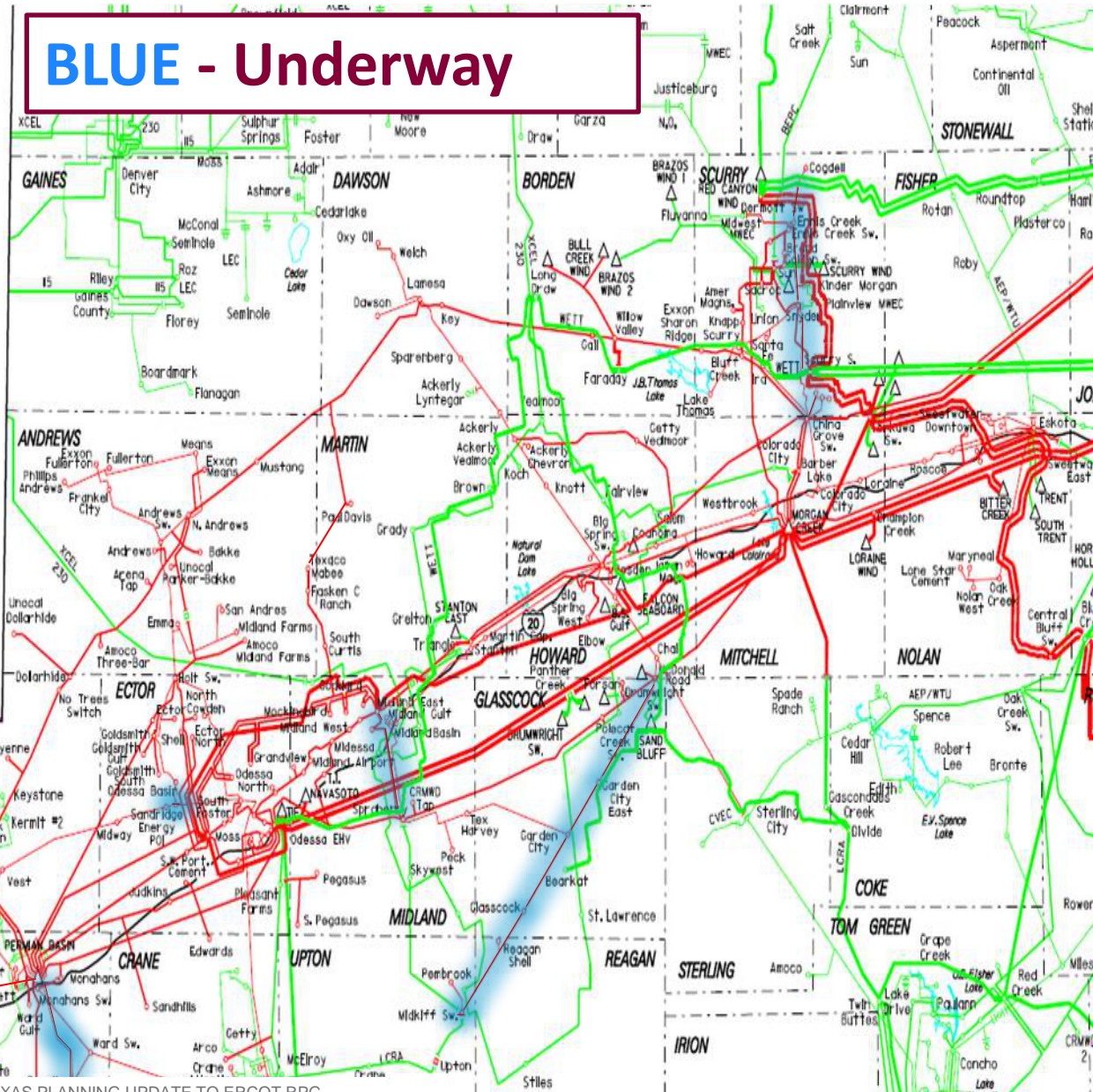
ONCOR 2018 IMPROVEMENTS

BLUE - Underway



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ONCOR 2018 IN-SERVICE DATE PROJECTS

- ** ERCOT RPG Review Completed/Approved
- * Currently Under Review by ERCOT RPG

Rebuild Midland East – Spraberry 138 kV Line

Convert Permian Basin – Northern Natural 69 kV Line to 138 kV

Install Midkiff – McDonald Road 138 kV Line

Rebuild Midkiff 138 kV Switching Station

Convert Snyder – Ennis Creek – Cogdell 69 kV Lines to 138 kV

Convert China Grove – Amoco 69 kV Line to 138 kV

Convert China Grove – Snyder 69 kV Line to 138 kV

Construct New Mason to Mentone 138 kV Line (under study)

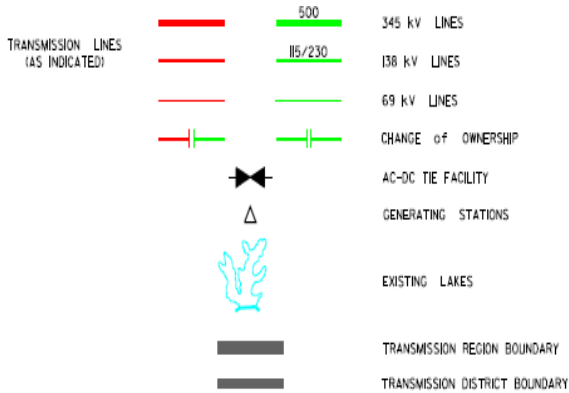
QUESTIONS/DISCUSSION



APPENDIX

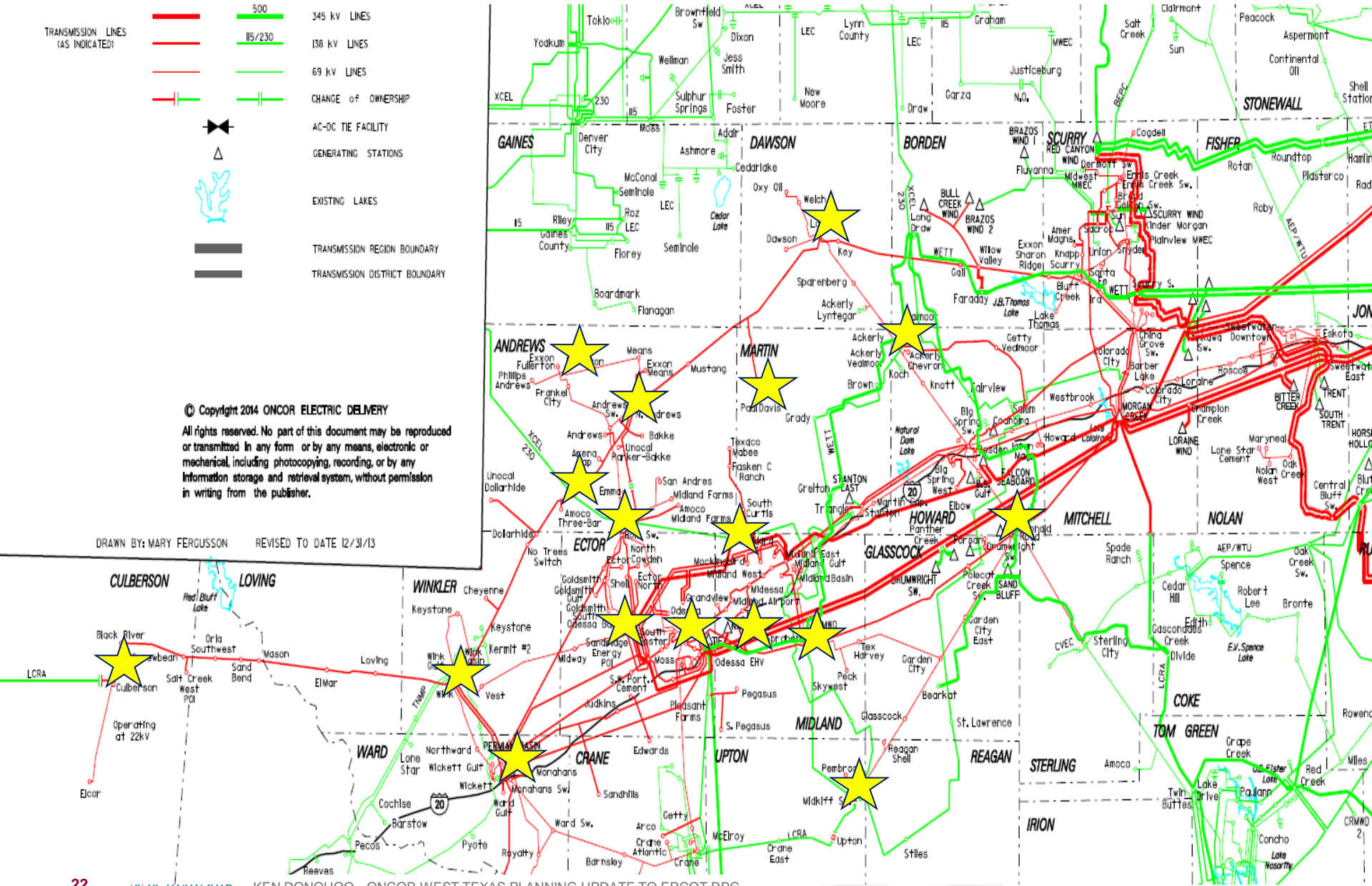
Slides included for possible reference

SUMMARY OF TRANSMISSION STATION PROJECTS



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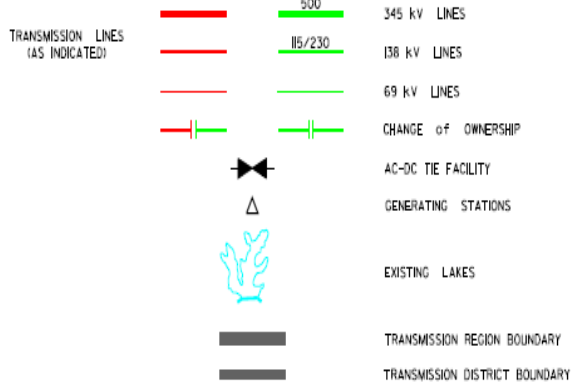
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SUMMARY OF TRANSMISSION STATION PROJECTS

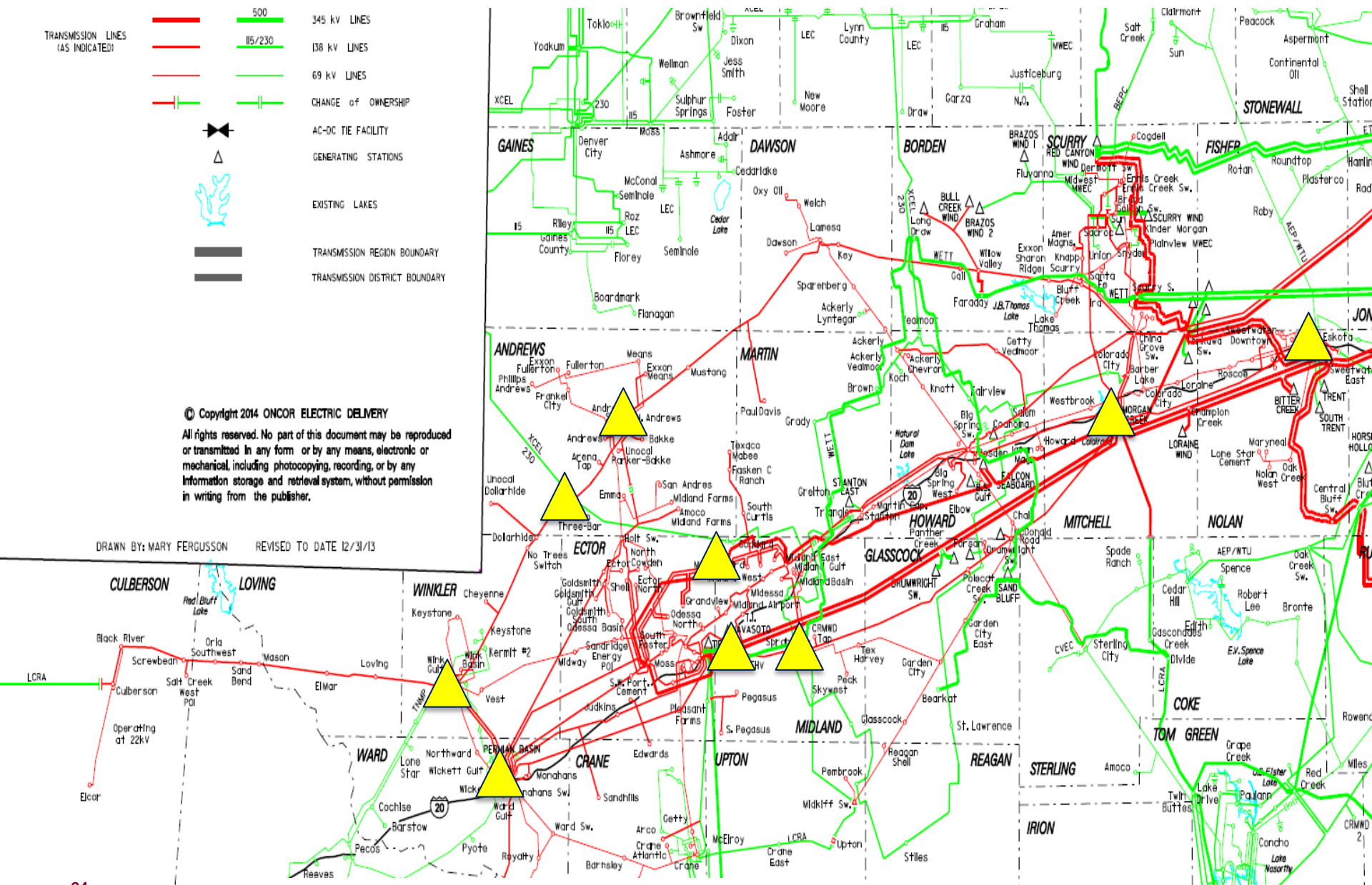
- **Wink: Rebuild 138 and 69 KV**
- **Permian Basin/ Monahans: Establish Monahans Sw. Station and New Permian Basin Station**
- **North Andrews: Rebuild 138 and 69 KV**
- **Lamesa: Rebuild 138 and 69 KV**
- **Spraberry: Rebuild 138 KV**
- **Andrews Co. South: Establish New Switching Station**
- **Midland Co. NW: Establish New Switching Station**
- **Holt: Expand to Double Bus Arrangement on 138 KV**
- **Midessa South: Establish New Switching Station**
- **Buzzard Draw: Establish New Switching Station**
- **McDonald Road: Add Additional Circuit Breakers**
- **Culberson: Convert to Switching Station**
- **Odessa: Rebuild 138 KV**
- **Fullerton: Convert to Switching Station**
- **Midkiff: Rebuild 138 KV**
- **Paul Davis: Establish New Switching Station**

SUMMARY OF AUTOTRANSFORMER UPGRADES



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SUMMARY OF AUTOTRANSFORMER PROJECTS

Autotransformers:

- **Andrews County South: New 345 kV 600 MVA**
- **Midland Co. NW: New 345 kV 600 MVA**
- **Midessa South: New 345 kV 600 MVA**
- **Wink: Add Second 138/69 kV 50 MVA**
- **North Andrews: Upgrade Existing 138/69 kV Autotransformers (2) to 150 MVA**
- **Spraberry: Upgrade Existing 138/69 kV to 150 MVA**
- **Morgan Creek: Upgrade Existing 138/69 kV to 150 MVA**
- **Eskota: Add Second 138/69 kV 150 MVA**