



2015 RTP Update

RPG Meeting
October 20, 2015

Outline

- Reliability analysis update
- Economic analysis update
- Next step

Reliability Analysis Update

- ❑ ERCOT finished the following reliability analysis
 - ❖ Base case analysis (Year 2016, 2018, 2020 and 2021)
 - identified reliability criteria violations, developed transmission solutions and constraint management plans
 - studied the scenario with all wind out of service in each study region (P0, P1, and P7)
 - ❖ Short circuit analysis (Year 2018 and 2020)
 - ❖ Sensitivity analysis for the reduced generator reactive power capability (2016 and 2020 summer peak conditions)
 - ❖ Impact of the outage of long-lead time equipment (P0, P1 and P2)

Reliability Analysis Update

❑ Reliability Analysis in Progress

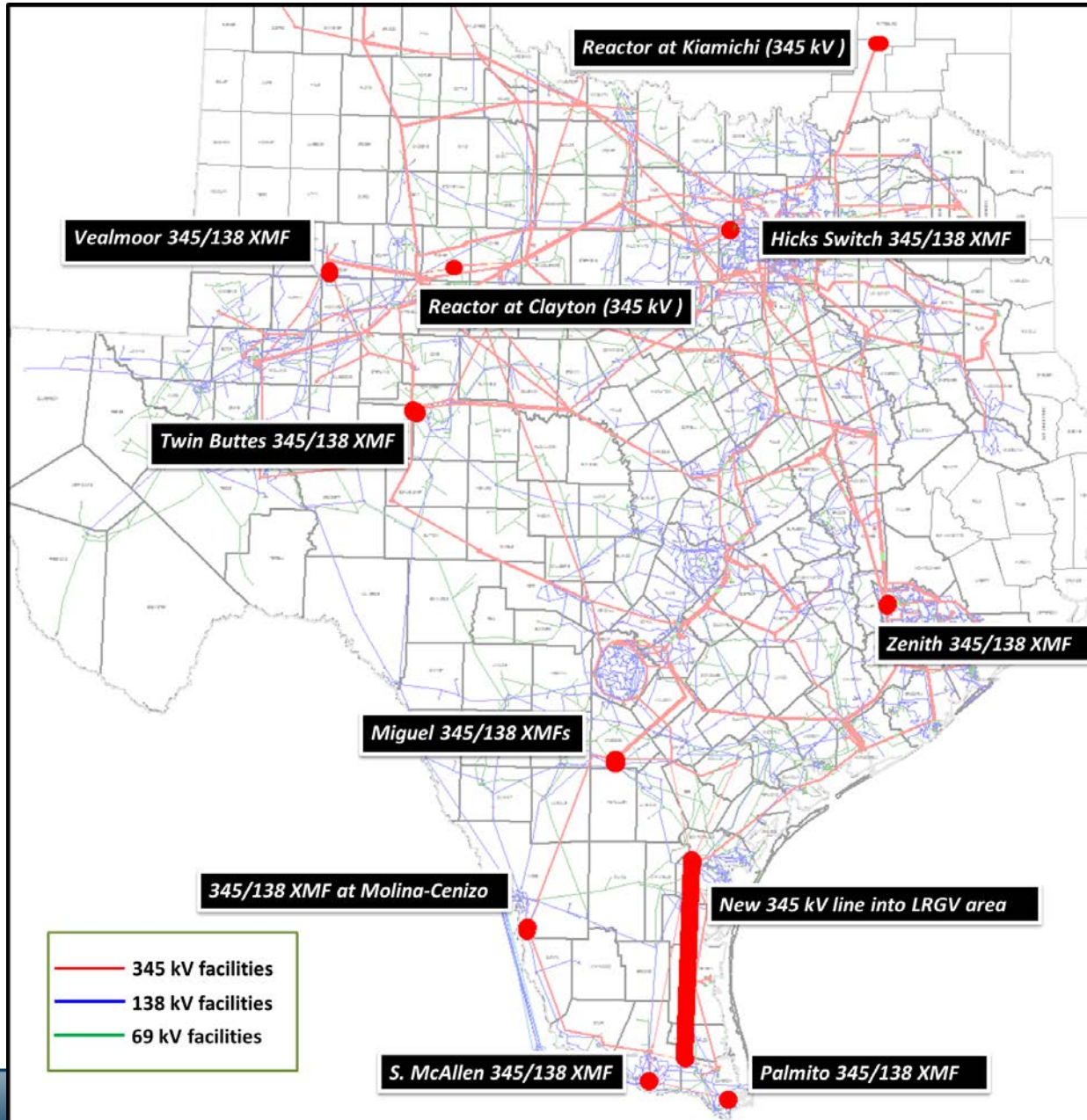
- ❖ 2018 off-peak sensitivity case (high-wind low-load condition)
- ❖ Multiple element outage analysis and cascading analysis

- ## ❑ Based on the feedback from TSPs, ERCOT is currently updating the project spreadsheet and constraint management plan. ERCOT plans to post the result spreadsheets and final reliability cases (base and sensitivity cases) in the MIS Secure Area for final TSP review

Major 345-kV projects in 2015 RTP Reliability Analysis

- ❑ New 345 kV line into LRGV area (currently under RPG review)
- ❑ Additional 345/138 kV transformers
 - ❖ South McAllen, Cenizo and Palmito in South
 - ❖ Vealmoor and Twin Buttes in West and Far West
 - ❖ Hicks Switch in North Central
 - ❖ Zenith in Coast
- ❑ Upgrade of existing 345/138 kV transformers
 - ❖ Miguel in South
- ❑ 345 kV Reactor
 - ❖ 144 Mvar reactor at Kiamichi 345-kV substation
 - ❖ Additional 50 Mvar reactor at Clayton 345-kV substation

Map of the Major 345-kV Projects



Summary of Reliability Analysis (Base Case)

Number of <u>Transmission Upgrades</u> identified by kV	69	138	345	2015 RTP	Previously Identified*
Line Addition	2	6	1	9	2
Line Upgrade	12	21	-	33	13
Transformer Addition	-	4	8	12	4
Transformer Upgrade	-	3	2	5	4
Reactive Additions (Capacitor, Reactor, STATCOM)	-	9	2	11	1
Other Upgrades (Terminal Equipment, Bus Tie, Breaker)	1	4	-	5	2

* Projects identified in the 2014 RTP which were needed in 2015 RTP

Voltage Level (kV)	Number of <u>Constraint Management Plan</u> Required			
	2016	2018	2020	2021
345	4	1	1	1
138	16	3	3	5
69	18	-	-	-
Total	38	4	4	6

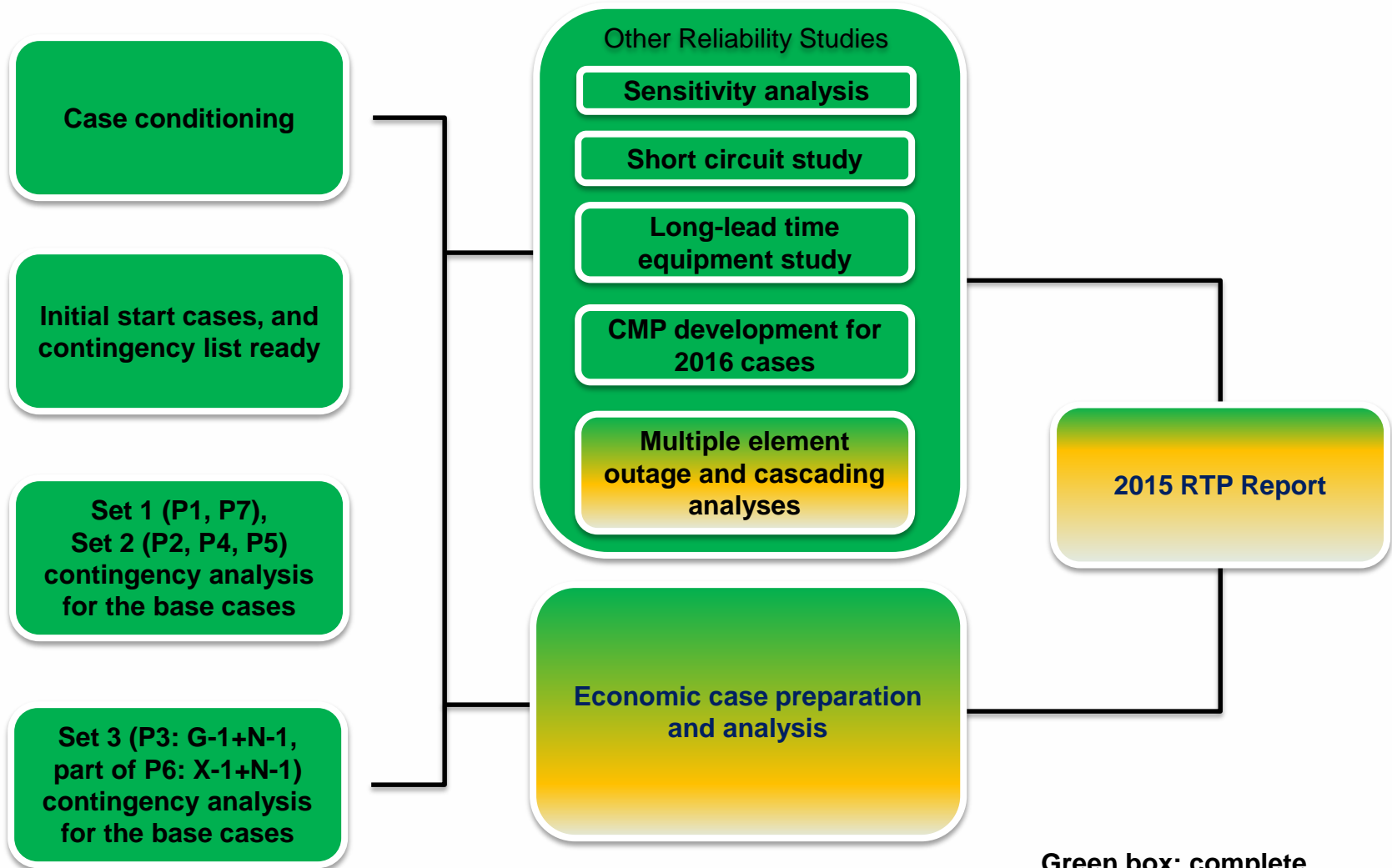
Economic Analysis Update

- ❑ Based on the 2015 RTP study scope, ERCOT is performing 2015 RTP economic analysis for years 2018 and 2021
- ❑ All transmission projects identified in the 2015 RTP Reliability Analysis were added to the economic cases
- ❑ ERCOT added new generators meeting PG 6.9 based on the GINR (June-2015) for the economic analysis
- ❑ The Panhandle second circuits (Alibates-AJ Swope-Windmill-Ogallala-Tule Canyon) are included in 2021 case. The identified Panhandle export limits are also included in both cases.
- ❑ Economic Start Cases were posted in the MIS Secure Area

<https://mis.ercot.com/pps/tibco/mis/Pages/Grid+Information/RegionalPlanning>

>> 2015 Regional Transmission Plan Postings

Next steps



Green box: complete
Yellow box: in progress

Next steps

- ❑ ERCOT will complete the remaining reliability analyses and economic analysis
- ❑ ERCOT will send a draft-RTP report for TSP review and feedback in December or earlier

Appendix

RTP Scope and Process document

The 2015 RTP reliability and economic analyses were conducted per the Scope and Process document posted earlier on MIS Secure.

The scope document can be found at : [MIS Secure](#)

Generators meeting PG 6.9 requirements added to economic analysis (June-2015 GINR)

Generation	MW For Grid	Fuel	County	2018	2021
Javelina Wind	250	WIND	Zapata	X	X
San Roman Wind 1	103	WIND	Cameron	X	X
Torrecillas Wind A	250	WIND	Webb	X	X
Torrecillas Wind B	250	WIND	Webb	X	X
South Plains III	150	WIND	Floyd	X	X
Baffin Wind (Penascal 3)	202	WIND	Kenedy	X	X
Shannon Wind (South Clay)	200	WIND	Clay	X	X
Los Vientos V	110	WIND	Starr	X	X
Sky Global Power One	51	GAS	Colorado	X	X
South Plains II	150	WIND	Floyd	X	X
Lamar Power Upgrade	130	GAS	Lamar	X	X
Elk 2	197	GAS	Hale	X	X
Elk 3	197	GAS	Hale	X	X
OCI Alamo 6	110	SOLAR	Pecos	X	X
RE Roserock Solar	150	SOLAR	Pecos	X	X
Los Vientos IV	200	WIND	Starr	X	X
Electra Wind	360	WIND	Wilbarger	X	X
Pecos Solar Power I	108	SOLAR	Pecos	X	X
East Pecos Solar	100	SOLAR	Pecos	X	X
Oak Solar	100	SOLAR	Pecos	X	X
Freeport LNG PreTreatment Facility	11	GAS	Brazoria	X	X