



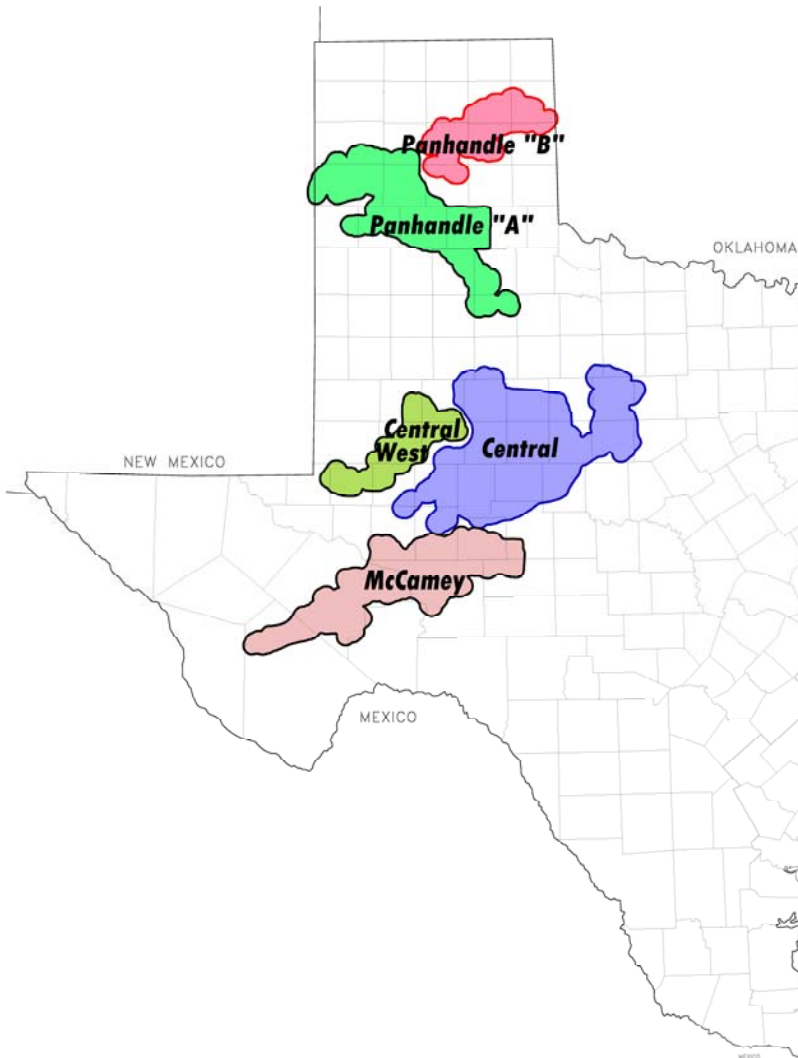
CREZ Transmission Optimization Study Summary

Dan Woodfin
Director, System Planning

ERCOT Board of Directors

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PUCT Scenarios for Plan Development



Capacity of New CREZ Wind by Scenario (MW)

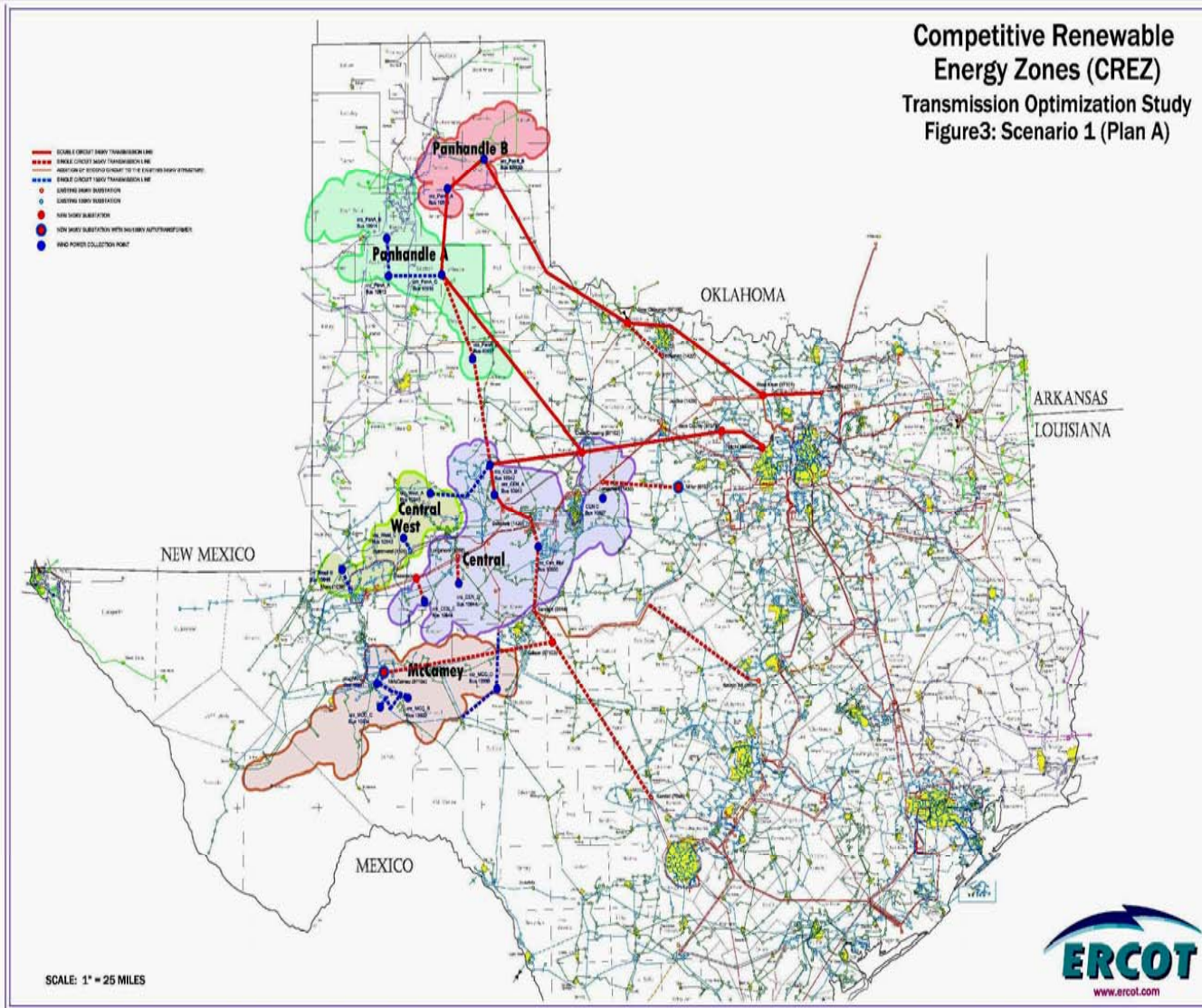
Wind Zone	Scen. 1	Scen. 2	Scen. 3	Scen. 4
Panhandle A	1,422	3,191	4,960	6,660
Panhandle B	1,067	2,393	3,720	0
McCamey	829	1,859	2,890	3,190
Central	1,358	3,047	4,735	5,615
Central West	474	1,063	1,651	2,051
Total*	12,053	18,456	24,859	24,419

* Assumes 6,903 MW of existing wind capacity

- **ERCOT applied three overarching criteria to this Study:**
 - system reliability;
 - sufficient transfer capacity; and
 - based on the PUCT scenarios, how “beneficial and cost-effective to consumers” each transmission plan would be
- **ERCOT worked extensively with stakeholders to develop and review input assumptions and issues, analytical processes, and proposed solutions**
- **Transmission equipment costs have increased substantially since the mid-2006 values that underlay the original ERCOT CREZ Report**
- **The Study evaluated a variety of types of transmission solutions and hundreds of individual plans**

- **Two plans were provided for scenario 1**
 - A lowest cost plan – Plan A
 - A more expandable plan – Plan B
- **A plan was provided for each of scenarios 2, 3 and 4**
 - Plans for scenario 2 and 3 are expansion of Plan B
 - Plan for scenario 4 is adjustment of plan for scenario 3 due to difference in generation location between these scenarios

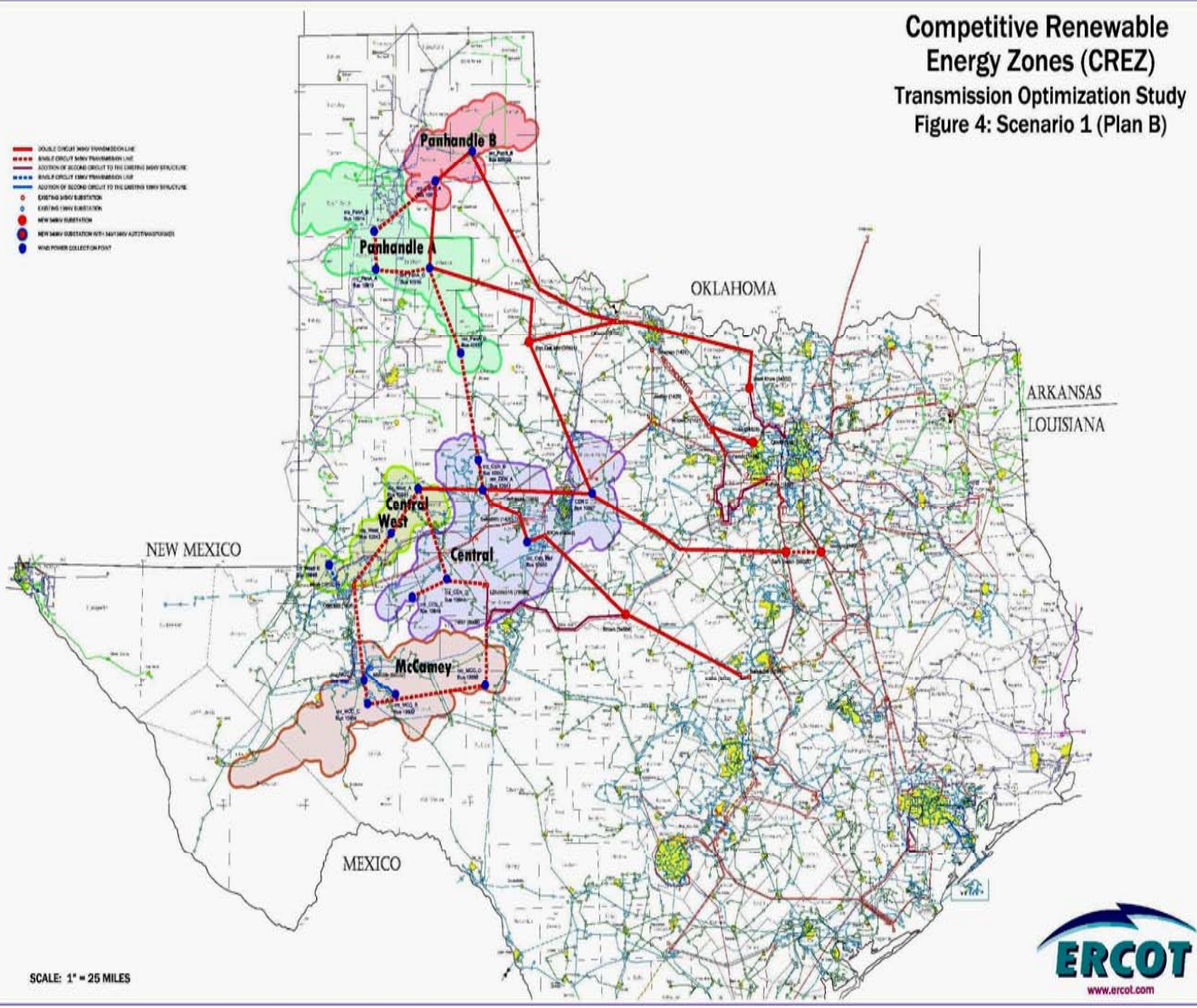
Scenario 1 (12GW) - Plan A



- Plan Cost - \$2.95B
- Collection System Cost - \$350-410M
- 1435 mi. new 345kV ROW
- 203 mi. new 138kV ROW
- Not as expandable as Plan B

Scenario 1 (12GW) – Plan B

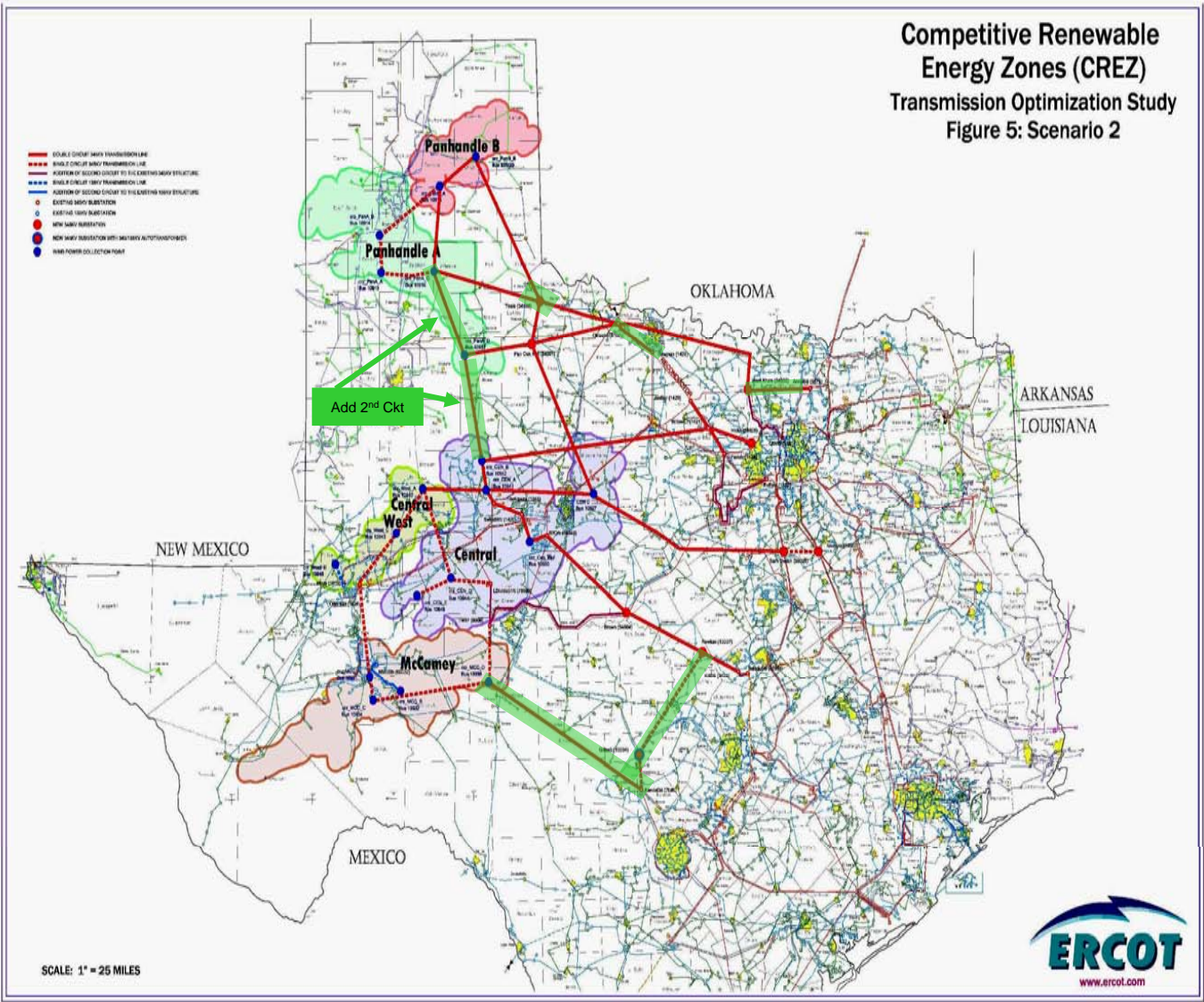
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Figure 4: Scenario 1 (Plan B)



- Plan Cost - \$3.78B
- Collection System Cost - \$410-530M
- 1789 mi. new 345kV ROW
- 42 mi. new 138kV ROW
- Expandable

Scenario 2 (18GW)

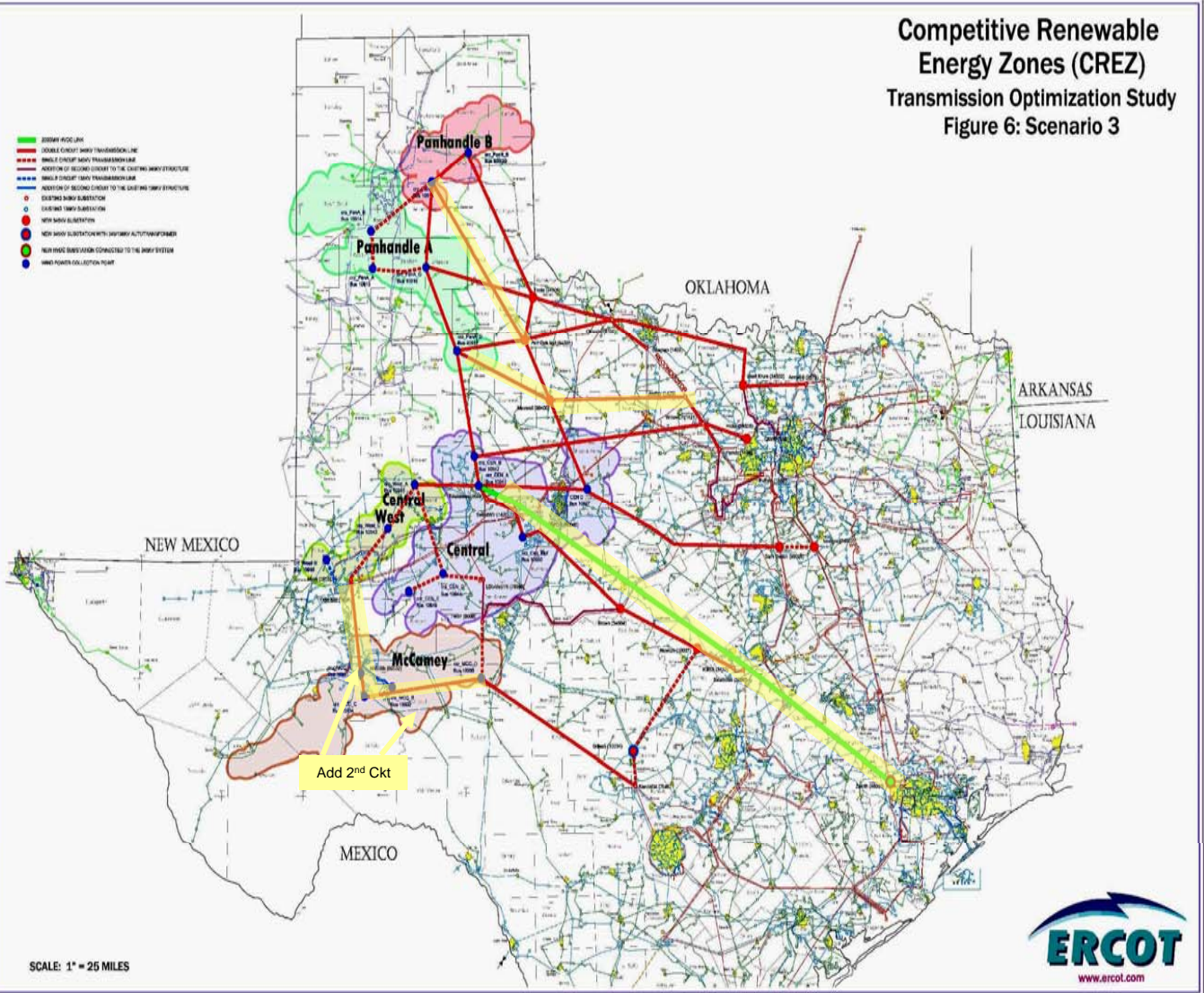
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Figure 5: Scenario 2



- **Plan Cost - \$4.93B**
- **Collection System Cost - \$580-820M**
- **2334 mi. new 345kV ROW**
- **42 mi. new 138kV ROW**
- **Expandable from Scenario 1 Plan B and expandable to Scenario 3**

Scenario 3 (24GW)

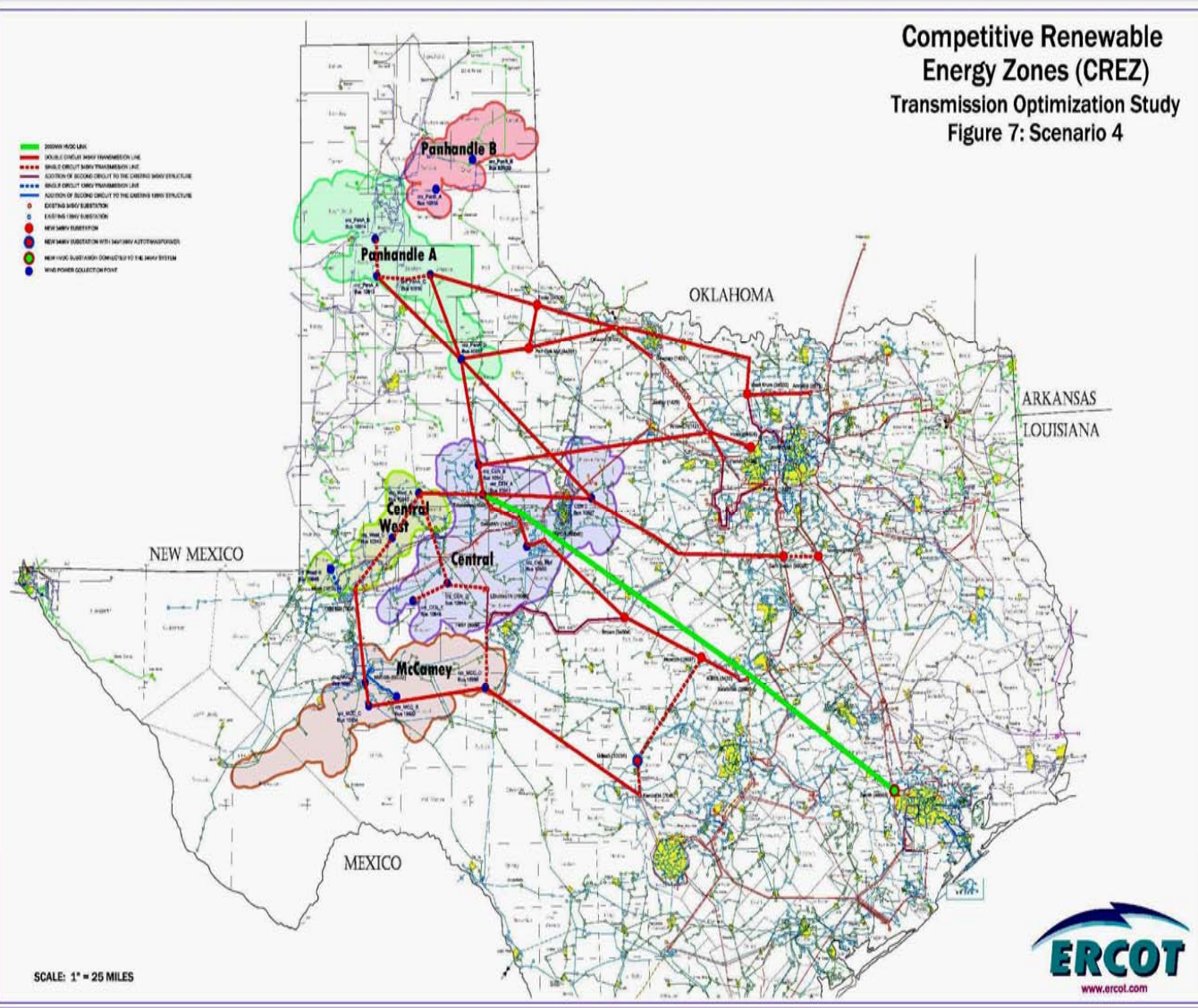
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Figure 6: Scenario 3



- Plan Cost - \$6.38B
- Collection System Cost - \$720-1030M
- 2634 mi. new 345kV ROW
- 42 mi. new 138kV ROW
- 360 mi. new HVDC ROW
- Expandable from Scenario 2

Scenario 4 (24GW, w/o Panhandle B)

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Figure 7: Scenario 4



- Plan Cost - \$5.75B
- Collection System Cost - \$670-940M
- 2087 mi. new 345kV ROW
- 42 mi. new 138kV ROW
- 360 mi. new HVDC ROW
- Similar to Scenario 3 with reduced/modified lines in Panhandle

Summary

Scenario	Wind Installed (GW)	Transmission Cost (\$B)	Collection Cost (\$B)	Total New ROW (Miles)	Regions
1 – Plan A	12.053	2.95	0.35 – 0.41	1,638	All 5
1 – Plan B	12.053	3.78	0.41 – 0.53	1,831	All 5
2	18.456	4.93	0.58 – 0.82	2,376	All 5
3	24.859	6.38	0.72 – 1.03	3,036	All 5
4	24.419	5.75	0.67 – 0.94	2,489	No Panhandle B

Questions?