2024 Long-Term System Assessment (LTSA): Transmission Expansion Analysis Update for Current Trends

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Status of Studies

- March 2023 RPG meeting

  2024 LTSA Overview

- May 2023 RPG meeting

  2024 LTSA Stakeholder Survey Results and Current Trends Capacity Expansion Input Assumptions

- September 2023 RPG meeting

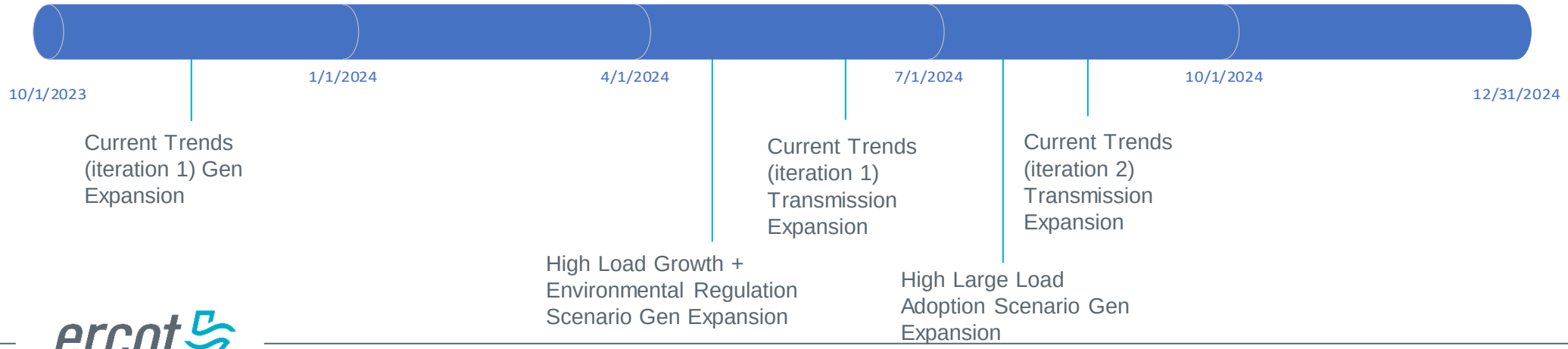
  Preliminary Generation Expansion and Retirement Results for 2024-LTSA Current Trends

- June 2024 RPG meeting

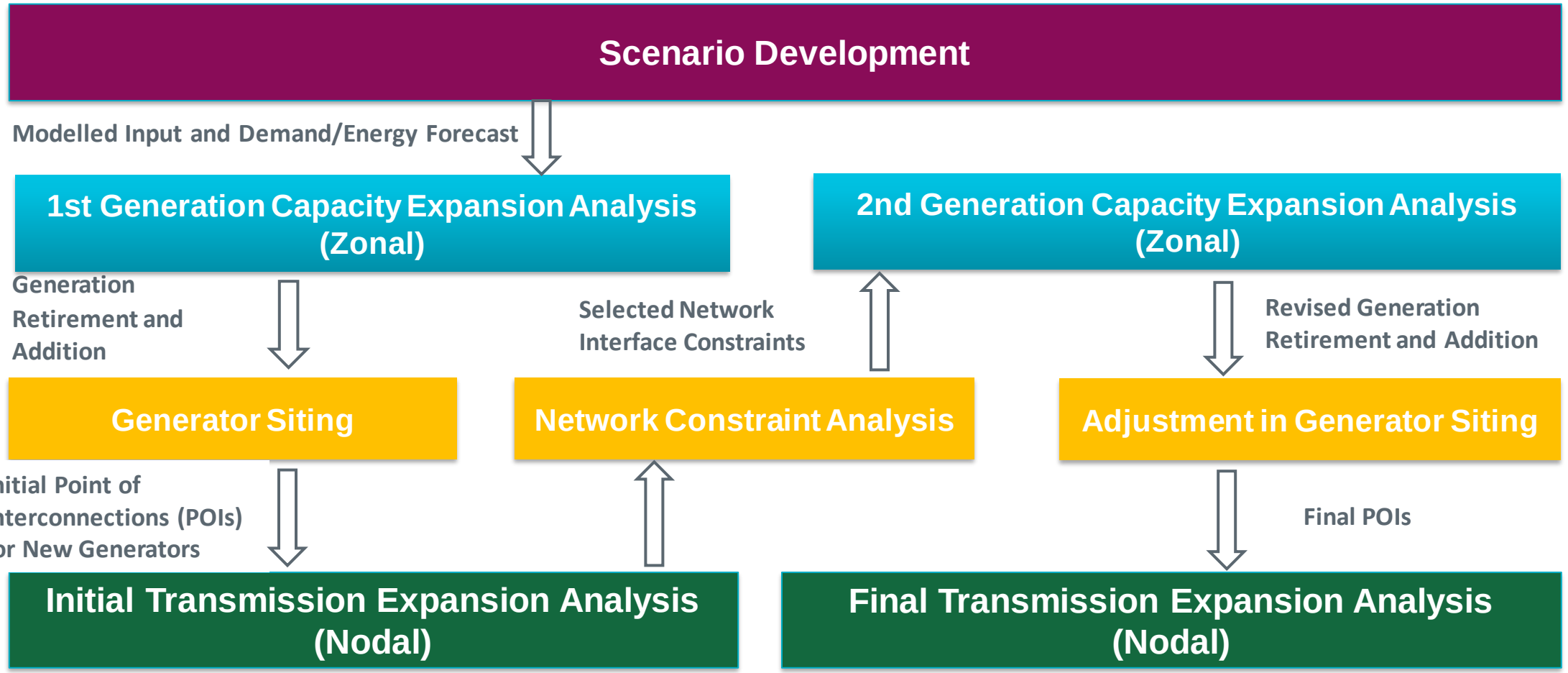
  2024 LTSA High Load Growth and Environmental Regulations Scenario Preliminary Capacity Expansion Results

- August 2024 RPG meeting

  2024 Long-Term System Assessment (LTSA) High Large Load Adoption Scenario



Iterations between Generation Capacity Expansion and Transmission Expansion



- The 1st iteration of Current Trends capacity expansion and retirement analysis used a single zone model and, as such, did not consider any transmission limitations.
- The 2nd iteration utilized a three-zone model and included West Texas Export and Panhandle interfaces.

Recap: Capacity Expansion and Retirement Analysis

- Capacity expansion and retirement analysis yields the total capacity additions by resource type with expected in-service dates.

- A total of 87.7GW of new resources added to Current Trends scenario by 2039.

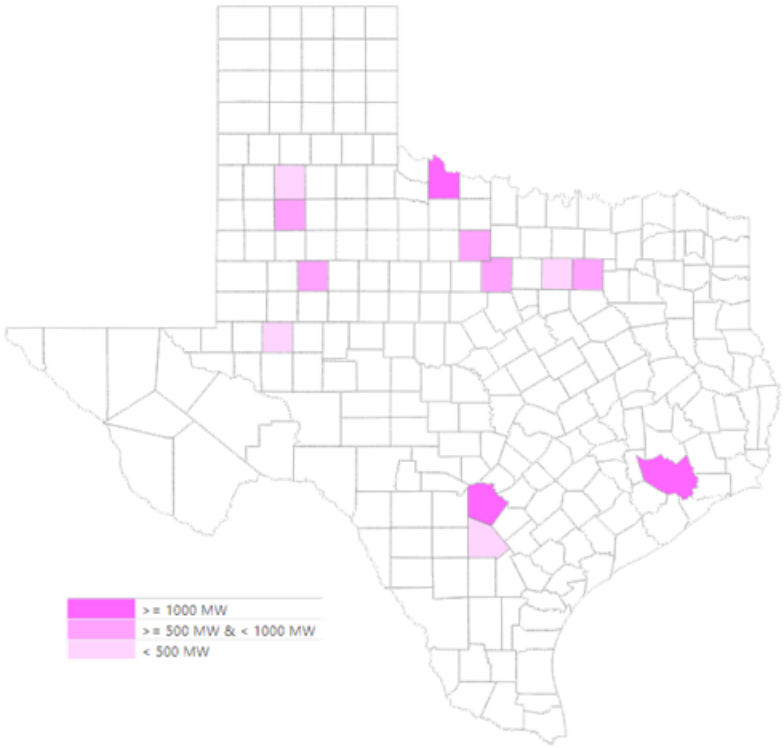
	Current Trends-2nd Iteration (MW)	High Large Load Adoption (MW)	High Load Growth and Environmental Regulations (MW)
Storage	17,514	26,911	79,307
Combined Cycle	15,162	28,158	16,965
Combustion Turbine	9,951	83,187	100,962
Utility-Scale Solar	28,800	125,368	116,994
Wind	16,300	22,200	45,000

Generator Siting for Current Trends Scenario (2nd iteration)

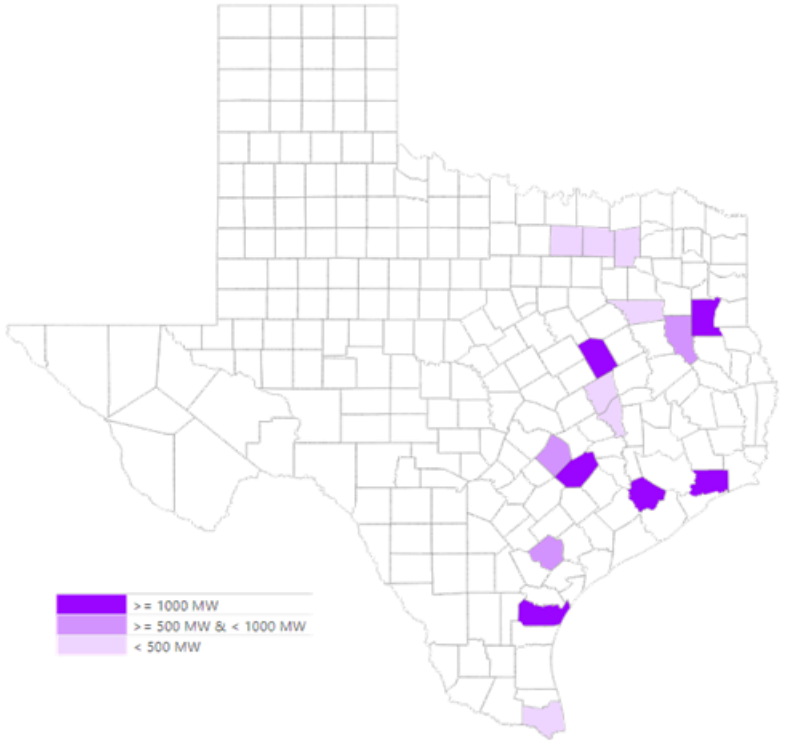
- Wind and solar sites are dictated by the wind and solar profiles used in capacity expansion and retirement analysis.
- Dispatchable generation resources and batteries are distributed to zones (Panhandle, West/Far West and others) as identified in the capacity expansion plan, and the specific site is determined based on factors such as
  - Resource availability and limitations
  - Future development sites with signed Standard Generation Interconnection Agreement (SGIA), but do not otherwise meet Planning Guide Section 6.9(1) requirements
  - Brownfield sites (recent retirements)
  - Locations evaluated as a potential site to have a high nodal price

	Battery (MW)	Nature Gas (MW)	Solar (MW)	Wind (MW)	Total (MW)
COAST	201	7,043		1,600	8,844
EAST		3,689	500		4,189
FAR WEST	7,499	453	12,200	2,000	22,152
NORTH	4,899	3,206	2,900	3,200	14,205
NORTH CENTRAL	533	4,151	6,000	3,600	14,283
SOUTH CENTRAL		4,326	1,000	200	5,526
SOUTHERN	753	2,246	5,300	3,000	11,298
WEST	3,629		900	2,700	7,229
Total	17,514	25,113	28,800	16,300	87,727

Dispatchable Generation Siting for Current Trends (2nd iteration)



Added Combustion Turbine Capacity by 2039: 9,951 MW

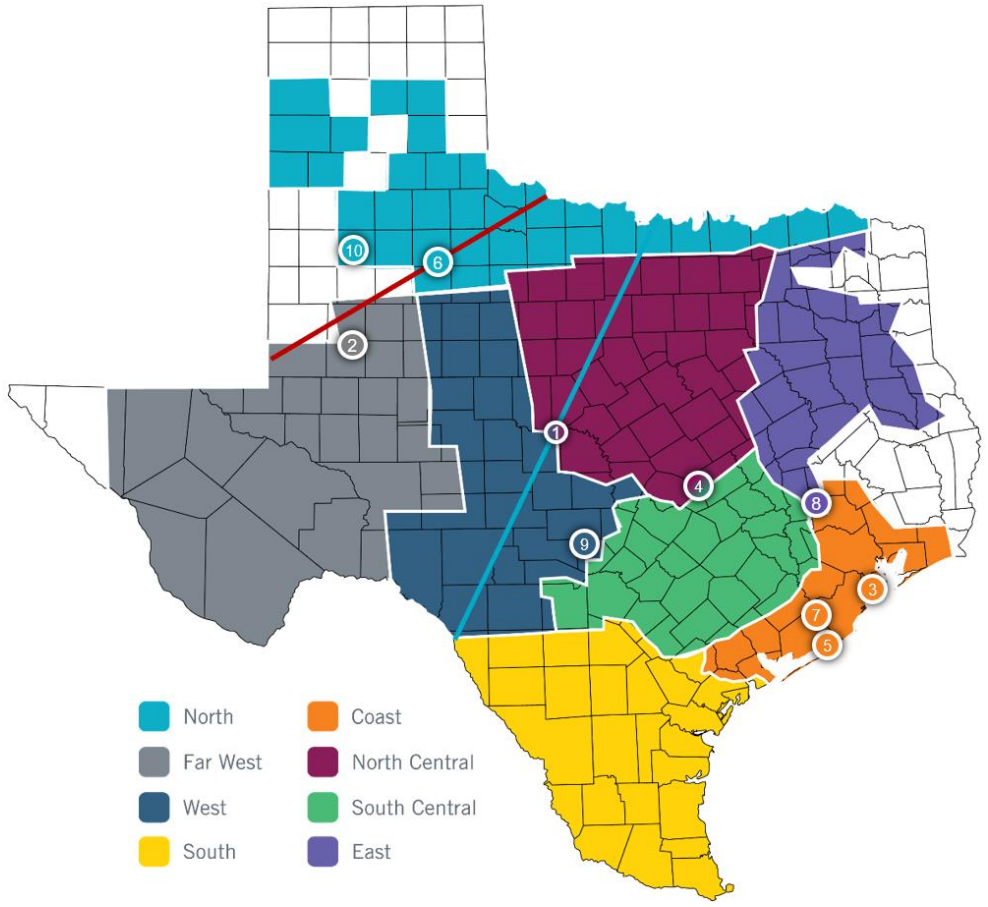


Added Combined Cycle Capacity by 2039: 15,162 MW

Top Congested Constraints from 2034 and 2039 Study Years

- The total congestion rent for 2034 and 2039 is $2.2B and $3.2B, respectively.

Index	Constraint	Congestion Rent* ($M) 2034	2039
1	West Texas Export Interface	556	821
2	Farmland - Wett Long Draw 345-kV Line	134	233
3	Meadow - PH Robinson 345-kV Line	162	155
4	Bell County East Switch - Sandow Switch 345-kV Line	121	153
5	South Texas Project - Jones Creek 345-kV Line	55	143
6	Panhandle Interface	142	140
7	Refuge - Jones Creek 345-kV Line	49	112
8	North - Houston Interface	60	108
9	Kendall - Welfare 138-kV Line	15	81
10	MacKenzie Substation - Northeast Substation 115 kV Line	55	79



*Congestion rent indicates areas of the system where economic transmission projects may be beneficial. It is not an indication of whether a project to reduce specific congestion would or would not meet the ERCOT economic planning criteria.

Questions

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