



2022 LTSA Update

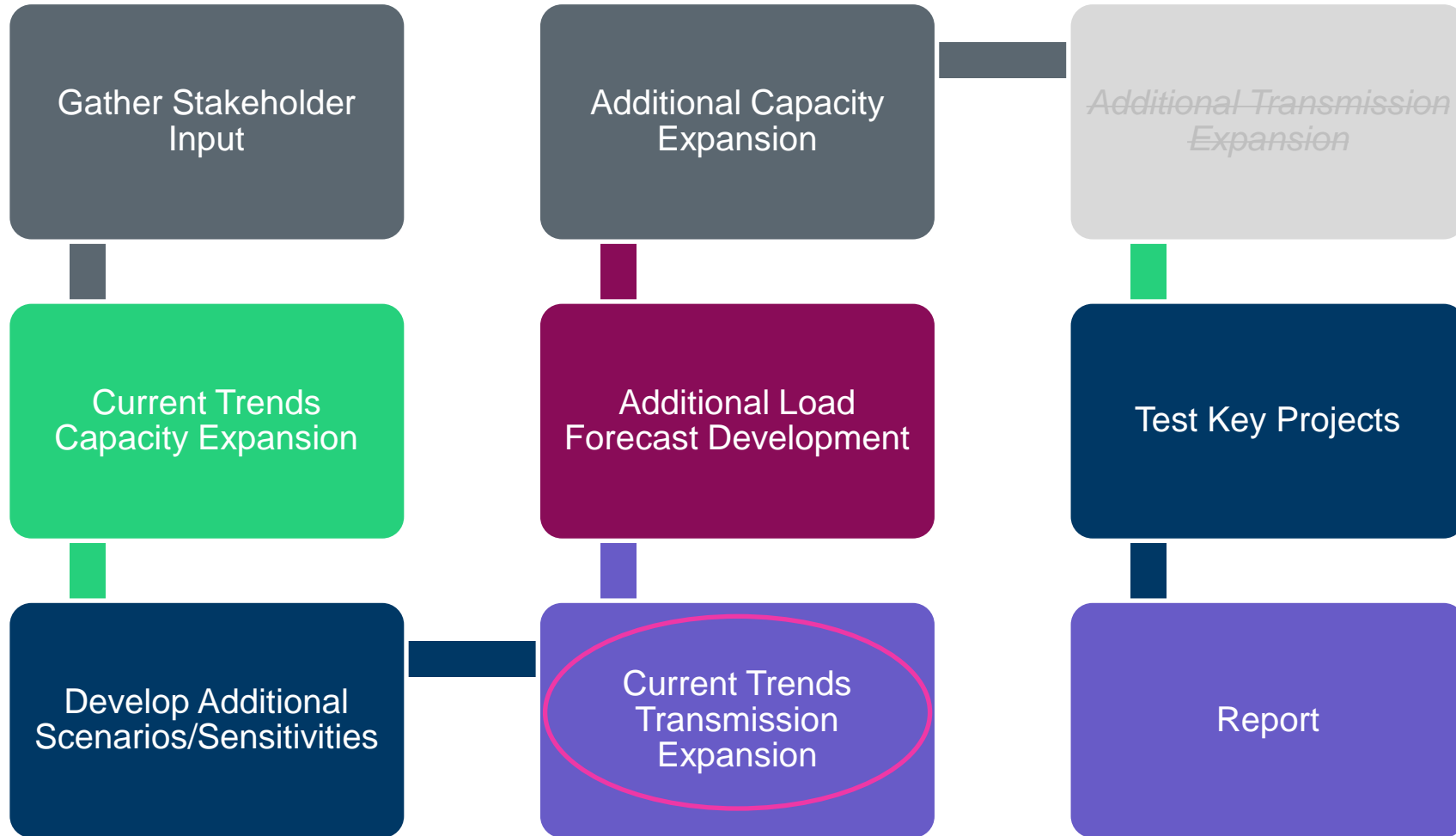
ERCOT Staff

August 9, 2022

2022 LTSA Status Update

- Demand-Side Evolution capacity expansion complete
- Current Trends iteration 1 transmission expansion underway
- Scope modification for remaining process
 - Current Trends scenario will consist only of iteration 1
 - Only one transmission expansion will be performed this LTSA cycle, for Current Trends iteration 1
 - Examples of additional ERCOT Planning responsibilities
 - PUCT's SB1281 rulemaking support
 - NERC Reliability Standard TPL-001-5.1 implementation
 - Analysis of large loads new to this year's Planning models

2022 LTSA Process



2022 LTSA Scenarios

Current Trends

Expanded System Outlook

Demand-Side Evolution

Single Node Model (Iteration 1)

Zonal Model (Iteration 2)

Expanded Starting Capacity

Include Existing Roadmaps

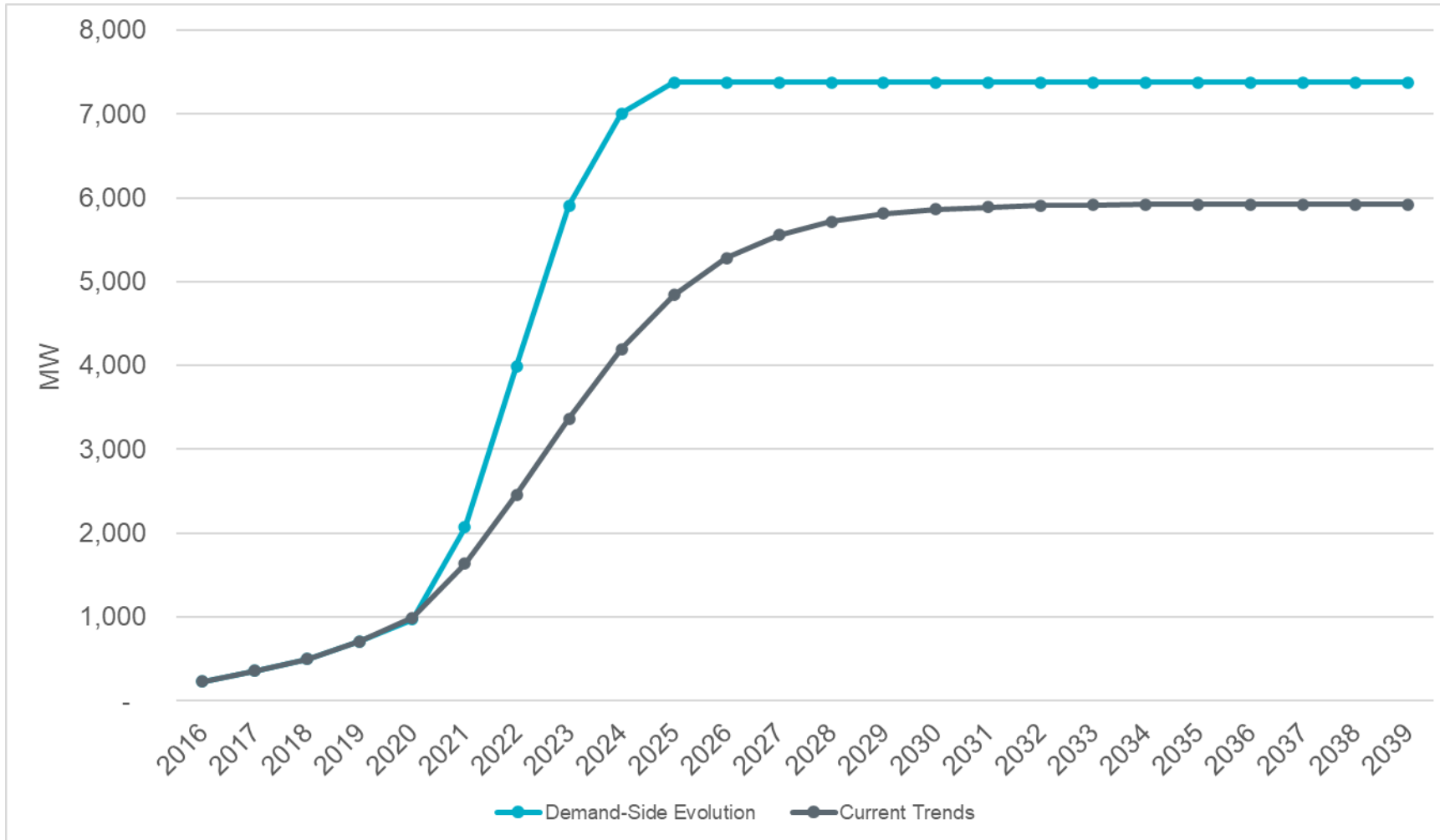
2022 LTSA Capacity Expansion Update

Julie Jin

Demand-Side Evolution

- Input assumptions:
 - High rooftop solar adoption
 - High EV adoption
 - Managed EV charging
 - Large flexible load additions
- Initial results

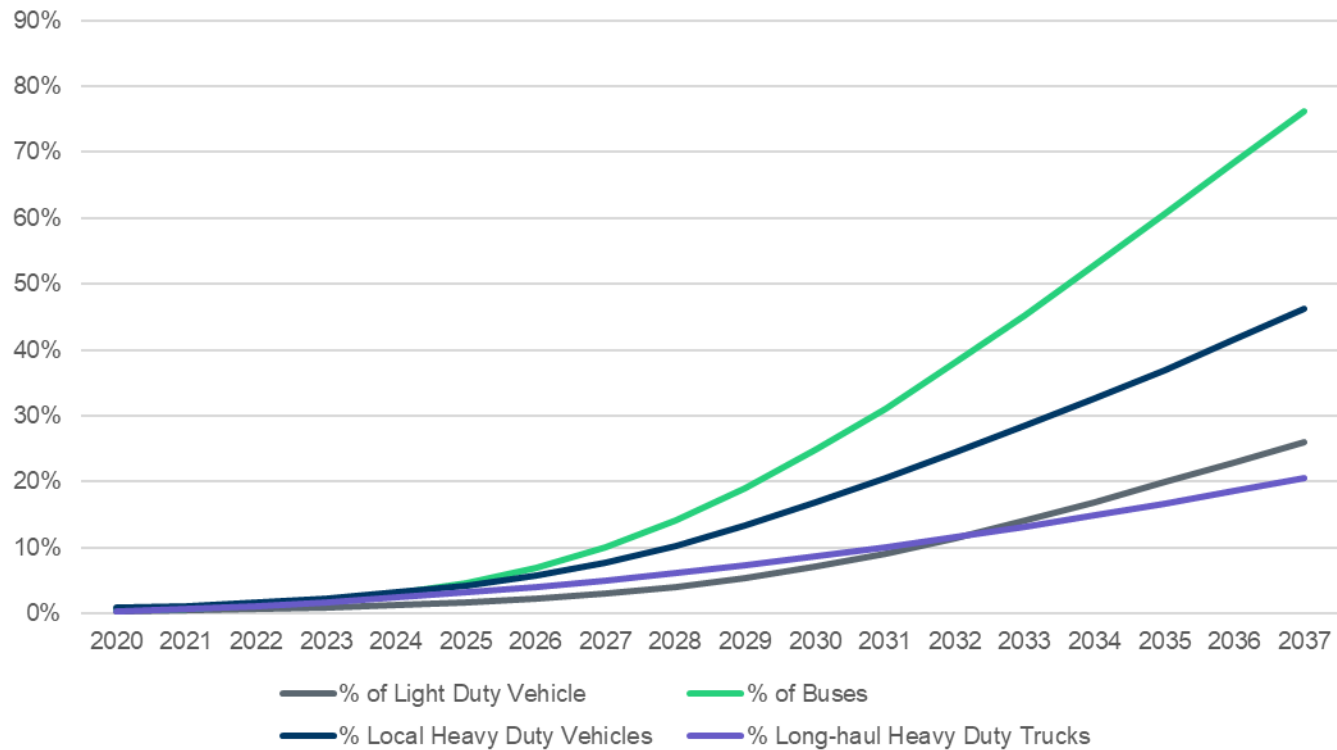
High Rooftop Solar Adoption



Source: https://www.ercot.com/files/docs/2021/05/18/SAWG_Meeting_5-18-2021_Updated_Rooftop_Solar_Growth_Projectionsv3.pptx

High EV Adoption and Managed EV Charging

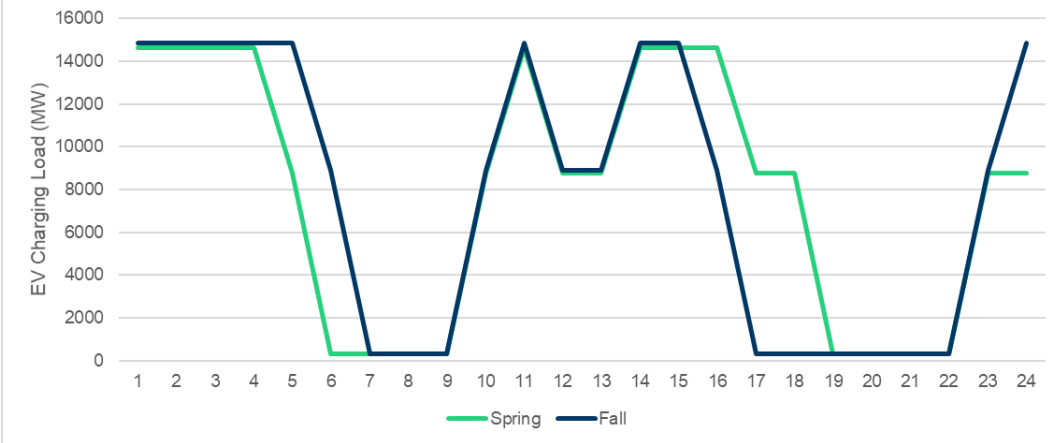
Electric Vehicles on the Road by Type



Hourly Charging Load for 2037 Summer and Winter



Hourly Charging Load for 2037 Spring and Fall



Large Flexible Load (LFL) Additions

- 16 GW LFL based on loads that TSPs identified as “likely,” “near certain,” or “contracts signed” in the informal RFI that was put out in early 2022.
- These loads will be curtailed when energy price is \$100/MWh or above.

15-Year Capacity Expansion Comparison (2023-2037)

	Operational Resources	2022LTSA - Current Trends Iteration 1 (CT It. 1) (MW)			Demand Side Evolution	
		Total Planned	Capacity Expansion	Total Resources	Capacity Expansion	Total Resources
Battery	235	1,807	4,557	6,598	370	2,411
Combined Cycle	37,478	86	19,494	57,058	30,324	67,888
CT & IC	12,616	860	474	13,950	0	13,476
Gas Steam	11,620	60	0	11,680	0	11,680
Solar	4,095	13,332	5,800	23,227	1,100	18,527
Wind	25,203	11,821	27,100	64,124	19,800	56,824
Coal	13,630	0	0	13,630	0	13,630
Hydro	536	0	0	536	0	536
Nuclear	5,153	0	0	5,153	0	5,153
Other	920	0	0	920	0	920
Total	111,485	27,965	57,425	196,875	51,594	191,044

Average Running Hours Comparison for 2023

- The running hours of coal, combined cycle, CT & IC and gas steam increase significantly in Demand-Side Evolution scenario.
- The simulated annual average energy price increases about 36%, from 25.4 \$/MWh in the Current Trends scenario to 34.7 \$/MWh in the Demand-Side Evolution scenario.
- LFL curtailment is around 1-3 % of total LFLs.

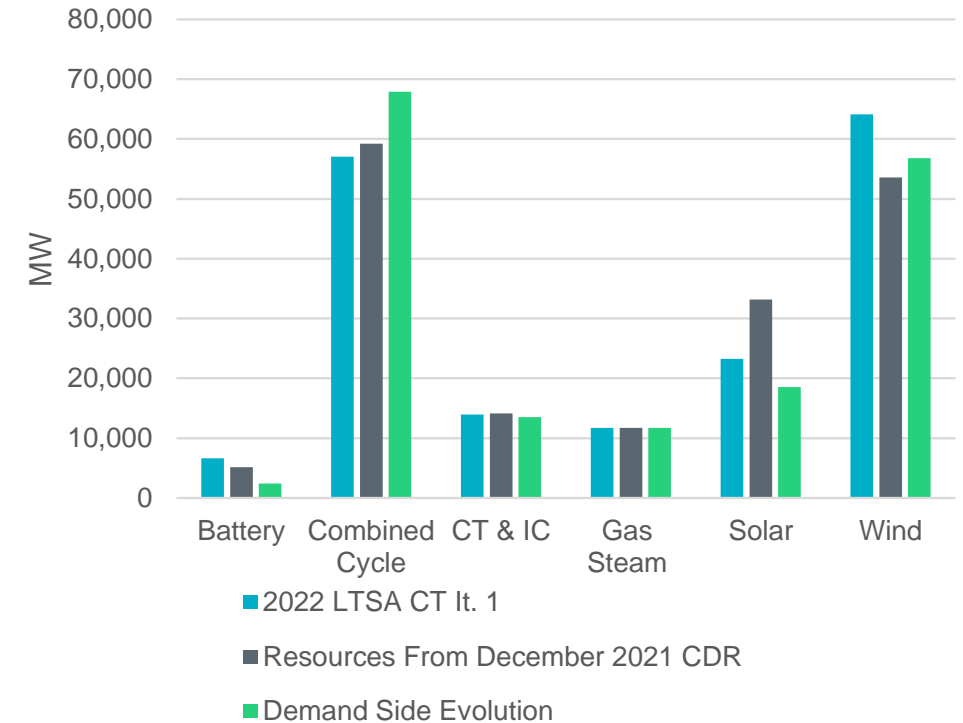
Table 1: Average Running Time of Generator by Type

Table 2: LFL Curtailment

Generation Type	Demand-Side Evolution	Current Trends		GWh Curtailed	Hours Curtailed	% of Energy Curtailed
Battery	43%	38%	2023	2086	514	1%
Coal	76%	58%	2027	2617	589	2%
Combined Cycle	83%	67%	2032	2697	652	2%
CT & IC	41%	29%	2037	4362	927	3%
Gas Steam	43%	19%				
Nuclear	94%	94%				

15-Year Capacity Expansion Comparison (2023-2037)

	2022LTSA - Current Trends Iteration 1 (CT It. 1)	Resources From December 2021 CDR	Demand Side Evolution
Battery	6,598	5,111	2,411
Combined Cycle	57,058	59,224	67,888
CT & IC	13,950	14,139	13,476
Gas Steam	11,680	11,680	11,680
Solar	23,227	33,146	18,527
Wind	64,124	53,577	56,824
Coal	13,630	13,630	13,630
Hydro	536	536	536
Nuclear	5,153	5,153	5,153
Other	920	920	920
Total	196,875	197,115	191,044



Questions / Comments

- Please send questions or comments to
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Appendix

2022 LTSA Status Update References

- **April 2021 RPG**
 - *2022 Long-Term System Assessment-Update*
 - https://www.ercot.com/files/docs/2021/03/31/2022_LTSA_Planning_April2021.pdf
- **August 2021 RPG**
 - *2022 Long Term System Assessment (LTSA) Update*
 - https://www.ercot.com/files/docs/2021/08/12/2022_LTSA_Update_InputAssumptions_August2021.pdf
- **October 2021 RPG**
 - *2022 Long-Term System Assessment Update*
 - https://www.ercot.com/files/docs/2021/10/13/2022_LTSA_CurrentTrendsUpdate_ScenarioDevelopment_10152021.pdf
- **February 2022 RPG**
 - *2022 LTSA Update*
 - https://www.ercot.com/files/docs/2022/02/14/2022_LTSA_Update_02152022.pdf