



TNMP Galveston Region Project – ERCOT Independent Review Status Update

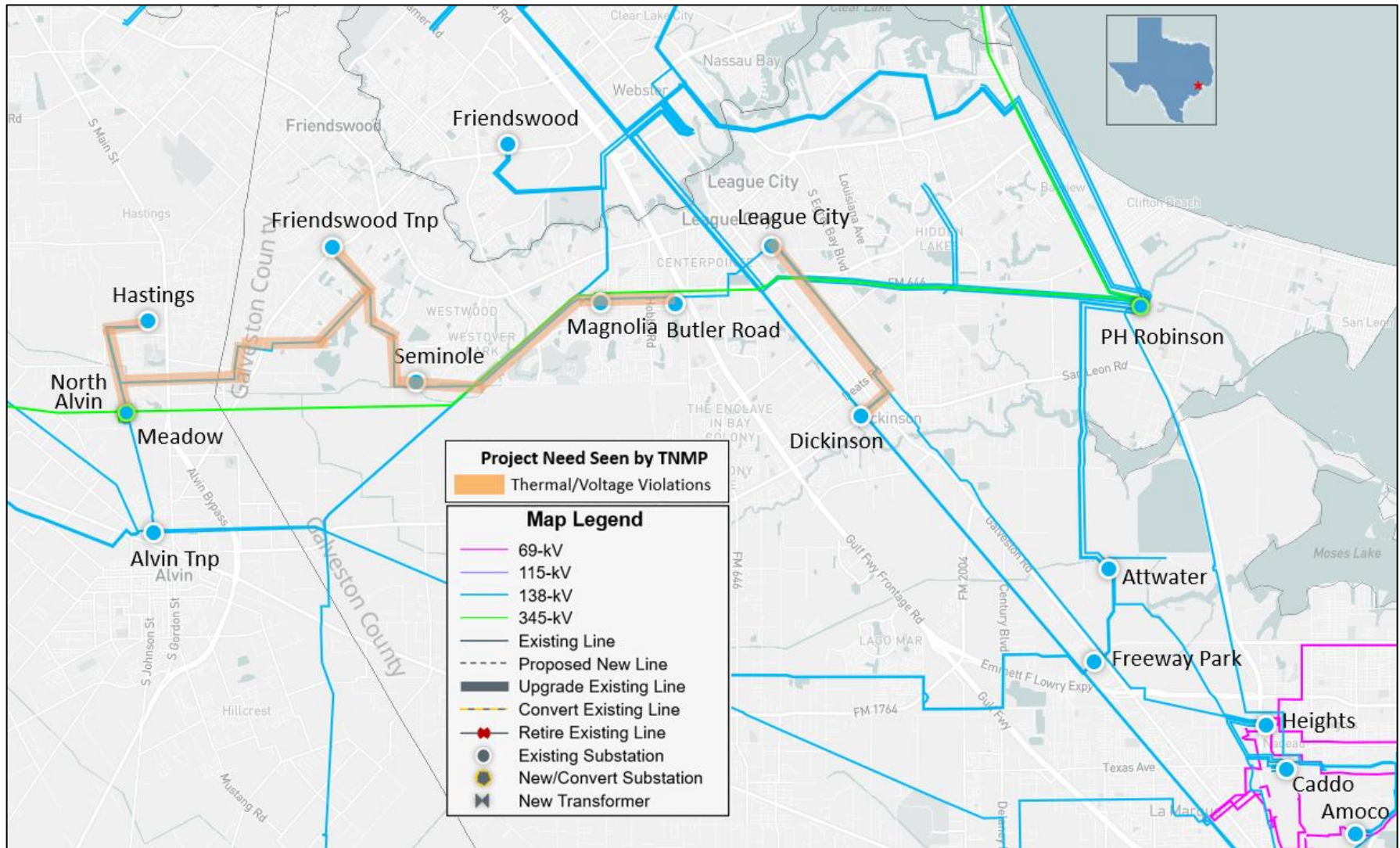
Ying Li

RPG Meeting
November 11, 2025

Introduction

- Texas New Mexico Power (TNMP) submitted the Galveston Region Project for Regional Planning Group (RPG) review in December 2024
 - This Tier 1 project is estimated to cost \$133.73 million and will not require a Certificate of Convenience and Necessity (CCN) filing
 - Estimated in-service date is June 2028
 - Addresses the thermal overloads and voltage violations under planned maintenance outage condition in the Galveston and nearby counties in the Coast Weather Zone
- TNMP provided an overview presentation and ERCOT provided the study scope at the February 2025 RPG Meeting
 - <https://www.ercot.com/calendar/02242025-RPG-Meeting--Webex>
- TNMP provided ERCOT the load agreement contracts and Officer Letter to assert the load additions in September 2025
- This project is currently under ERCOT Independent Review (EIR)

Recap – Study Area Map with Violations Seen by TNMP



Study Assumptions – Update

- Study Region
 - Coast weather zone, focusing on the transmission elements in the Galveston and Brazoria Counties
- Steady-State Base Cases
 - Summer Peak: Final 2024RTP_2030_SUM_12202024
 - Maintenance: Final 2024RTP_2030_MaintenanceOutage_12202024
- Transmission (based on June 2025 TPIT report)
 - See Appendix A for the list of transmission projects that was added
 - See Appendix B for the list of placeholder projects that were removed
- Generation (based on August 2025 GIS report)
 - See Appendix C for the list of generation projects added
- Load
 - Additional 303.9 MW of load was added to the study base case

Year	4% Annual Growth Rate*	Agreement Contracts	TSP Attestation Letter	Total
2030	194.9 MW	92 MW	17 MW	303.9 MW

* 194.9 MW load addition under 4% Annual Growth Rate was provided through TSP Attestation Letter.

Preliminary Results of Reliability Assessment – Need Analysis

- ERCOT conducted steady-state load flow analysis for the study base case according to the NERC TPL-001-5.1 and ERCOT Planning Criteria

Contingency Category	# of Unsolved Contingencies	# of Thermal Overloads	# of Bus Voltage Violations
N-0 (P0)	None	None	None
N-1 (P1, P2-1, P7)	None	None	None
G-1+N-1 (P3)*	None	None	None
X-1+N-1 (P6-2)**	None	None	None

* G-1 Generator tested: Amoco Oil Combined Cycle Train 2

** X-1 Transformers tested: PH Robinson 345/138-kV T2 and Meadow 345/138-kV T2

Preliminary Results of Reliability Assessment – Need Analysis under Planned Maintenance Outage Condition

- The project is submitted to address the reliability violations under planned maintenance outage condition, as such, ERCOT also conducted the planned maintenance outage analysis to identify any reliability needs
 - The final 2024 RTP 2030 maintenance outage case was updated, reflecting the transmission, generation, and load (load additions were scaled down to 85% from the summer peak load for conforming loads) updates to perform this analysis
 - Battery units in the study area were online only providing reactive support
 - Based on the review of system topology of the area, ERCOT tested N-2 contingency combinations, and then tested all applicable contingency violations with system adjustments (N-1-1)
- Preliminary need analysis results under planned maintenance outage condition

Contingency Category	# of Unsolved Contingencies	# of Thermal Overloads	# of Bus Voltage Violations
N-1-1 (P6-1, P6-3)	None	3	None

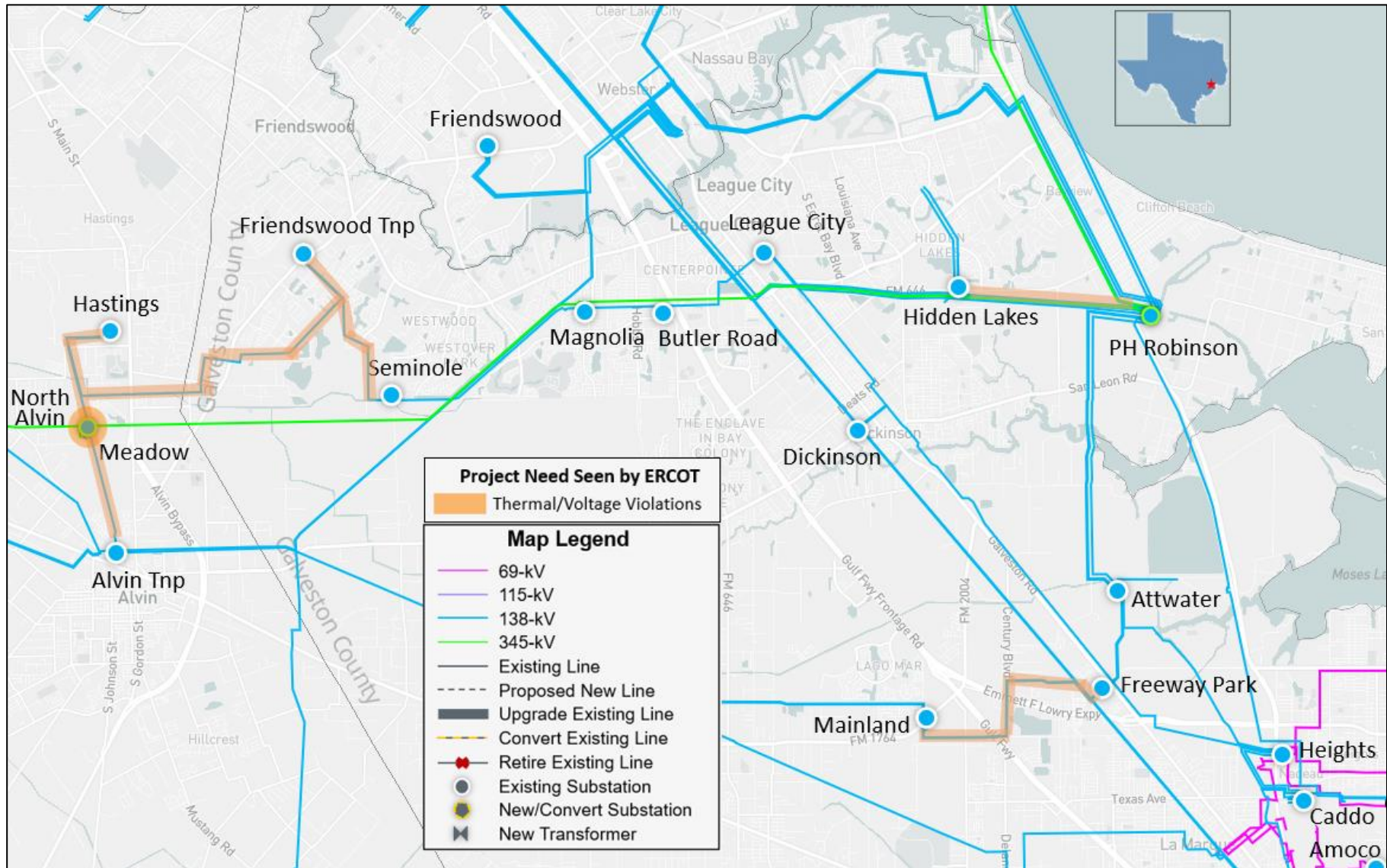
Preliminary Results of Reliability Assessment – Need Analysis under Minimum Deliverability Criteria

- Significant amount of Battery units in Galveston region met Planning Guide Section 6.9(1) condition with COD before June 2030
- Assessed potential reliability concerns under Planning Guide Section 4.1.1.7
 - The minimum percentage of capacity is set to 100% for any Generation Resource utilizing combined cycle, steam turbine, combustion turbine, hydro, or reciprocating engine technology
 - The minimum duration threshold for Energy Storage Resources (ESRs) is set to 2 hours (100% minimum percentage of capacity for ESRs with duration greater than or equal to 2 hours); and lower duration Resources will be prorated to their continuous real power capability for 2 hours
- Preliminary need analysis results under Minimum Deliverability Criteria

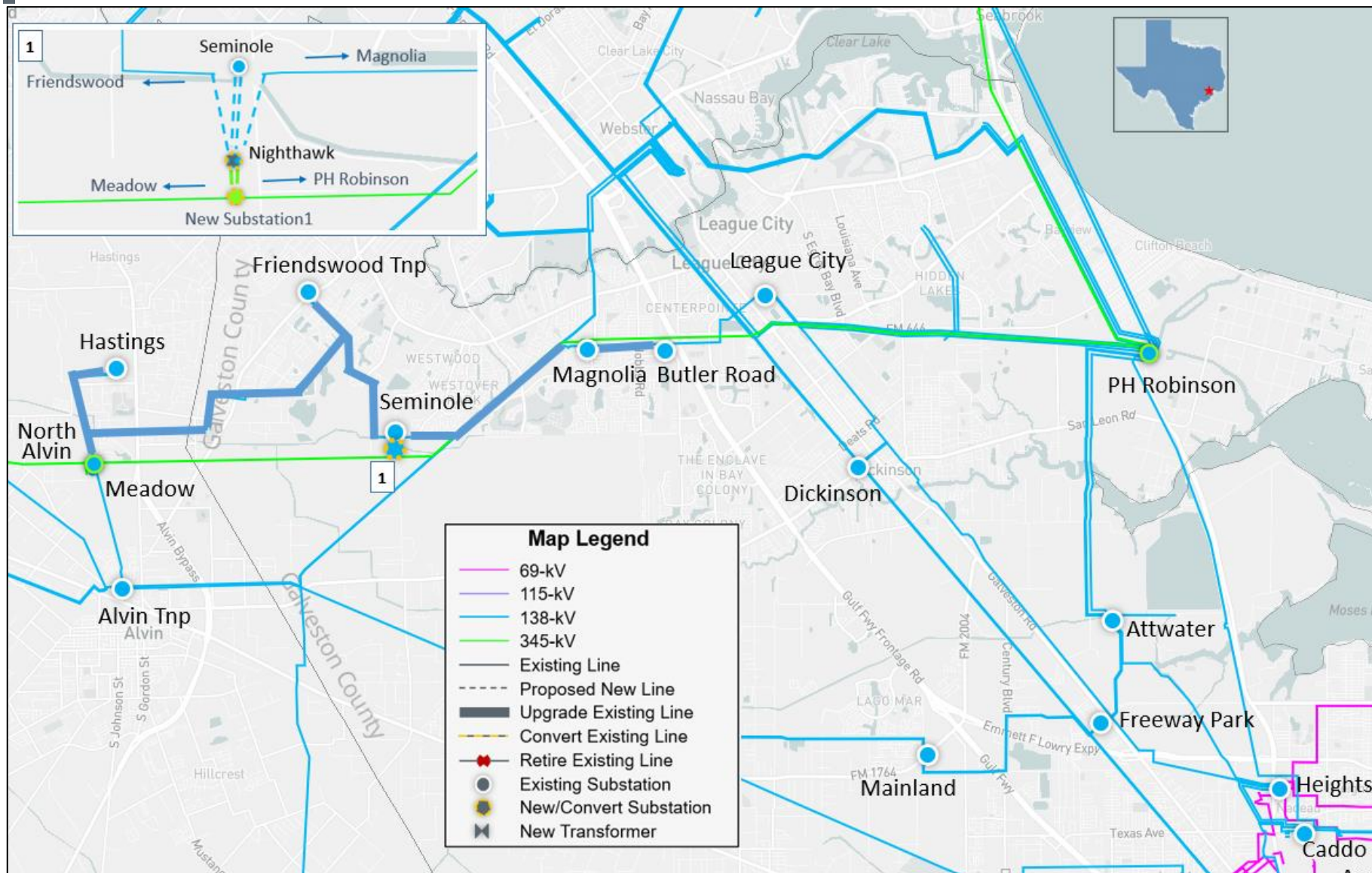
Contingency Category	# of Unsolved Contingencies	# of Thermal Overloads	# of Bus Voltage Violations
N-0 (P0)	None	1	None
N-1 (P1, P2-1, P7)	None	1	None
X-1+N-1 (P6-2)*	None	2	None

*X-1 Transformers tested: PH Robinson 345/138-kV T2 and Meadow 345/138-kV T2

Study Area Map with Violations Seen by ERCOT



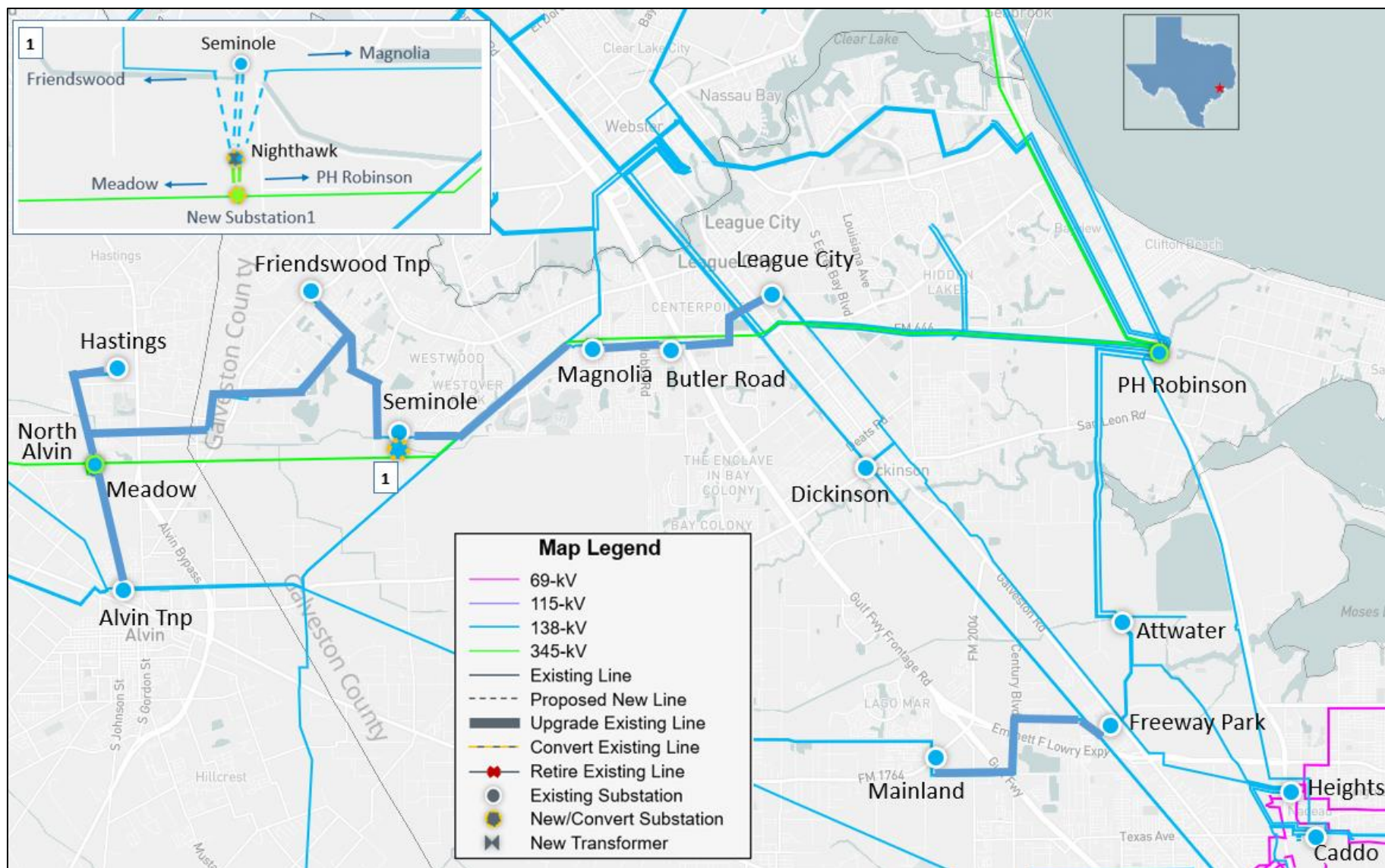
Option 1 – Project Proposed by TNMP



Option 1 – Project Proposed by TNMP

- Build a new 345-kV New Substation 1 approximately 12.49-mile from the existing PH Robinson 345/138-kV substation. The New Substation 1 will be designed with six 345-kV, 5000 A breakers in breaker-and-a-half bus arrangements and interconnected by cutting the substation into the existing PH Robinson to Meadow 345-kV transmission line
- Build a new Nighthawk 345/138-kV substation near the New Substation 1. The Nighthawk 345/138-kV substation will be designed with four 345-kV, 5000 A breakers and ten 138-kV, 3200 A breakers in breaker-and-a-half bus arrangements
 - Install two 345/138-kV autotransformers with normal and emergency ratings of at least 800 MVA and 1067 MVA, respectively, for each transformer
- Install two new 345-kV tie-lines to connect the New Substation 1 and new Nighthawk on separate structures with normal and emergency ratings of at least 2987 MVA for each tie-line, approximately 0.12-mile
- Re-configure the existing Seminole to Friendswood Tnp and Seminole to Magnolia 138-kV transmission lines to be routed through the new 138-kV Nighthawk substation
- Build a new double-circuit jumper from the new 138-kV Nighthawk substation to the existing Seminole substation with normal and emergency ratings of at least 717 MVA, approximately 1.69-mile
- Rebuild the existing Butler Road to Magnolia to Seminole (Nighthawk) to Friendswood Tnp to Hastings to North Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 17.27-mile

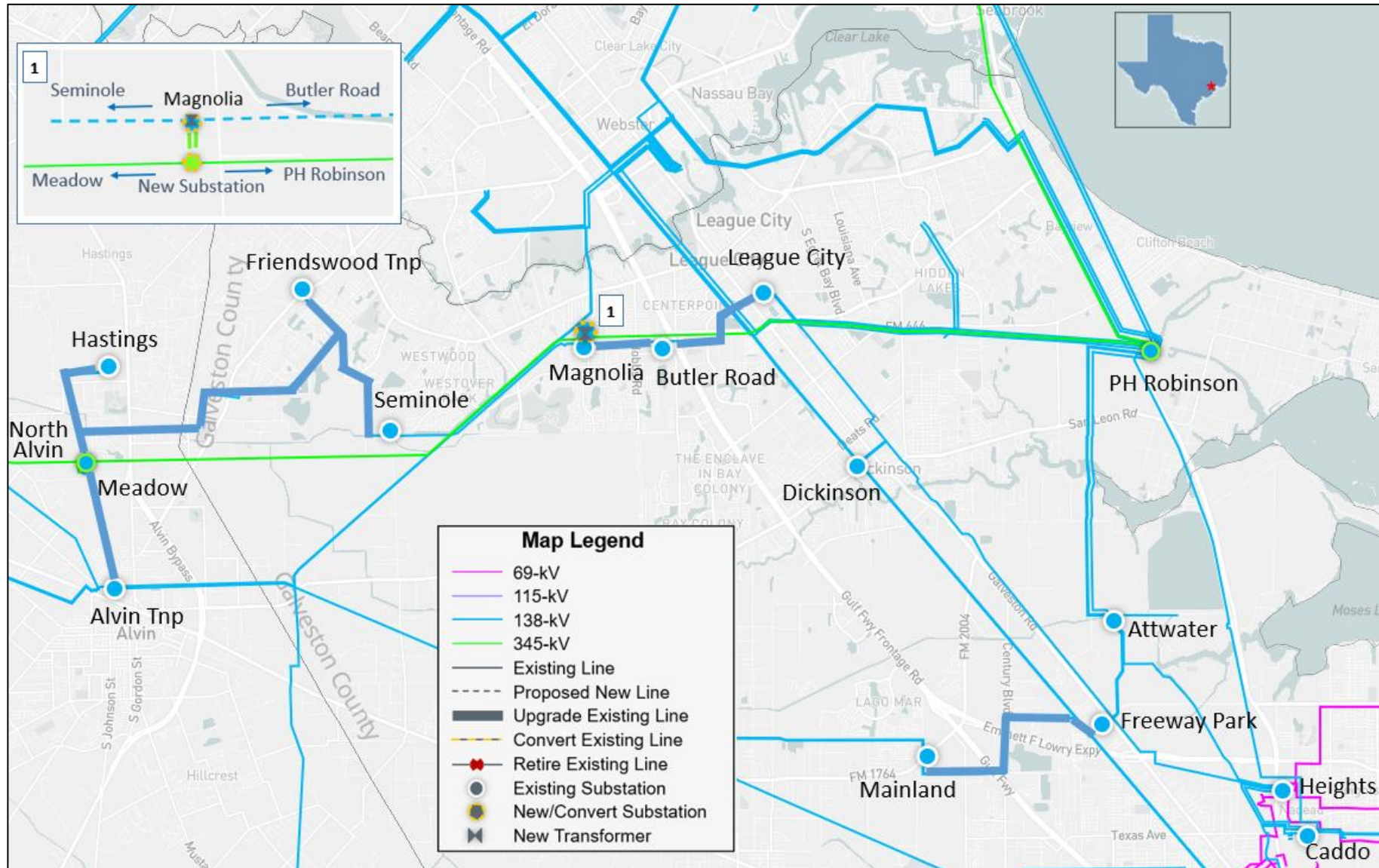
Option 1A – Modification to Option 1



Option 1A – Modification to Option 1

- Build a new 345-kV New Substation 1 approximately 12.49-mile from the existing PH Robinson 345/138-kV substation. The New Substation 1 will be designed with six 345-kV, 5000 A breakers in breaker-and-a-half bus arrangements and interconnected by cutting the substation into the existing PH Robinson to Meadow 345-kV transmission line
- Build a new Nighthawk 345/138-kV substation near the New Substation 1. The Nighthawk 345/138-kV substation will be designed with four 345-kV, 5000 A breakers and ten 138-kV, 3200 A breakers in breaker-and-a-half bus arrangements
 - Install two 345/138-kV autotransformers with normal and emergency ratings of at least 800 MVA and 1067 MVA, respectively, for each transformer
- Install two new 345-kV tie-lines to connect the New Substation 1 and new Nighthawk on separate structures with normal and emergency ratings of at least 2987 MVA for each tie-line, approximately 0.12-mile
- Re-configure the existing Seminole to Friendswood Tnp and Seminole to Magnolia 138-kV transmission lines to be routed through the new 138-kV Nighthawk substation
- Build a new double-circuit jumper from the new 138-kV Nighthawk substation to the existing Seminole substation with normal and emergency ratings of at least 717 MVA, approximately 1.69-mile
- Rebuild the existing League City to Butler Road to Magnolia to Seminole (Nighthawk) to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 21.40-mile
- Rebuild the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.0-mile

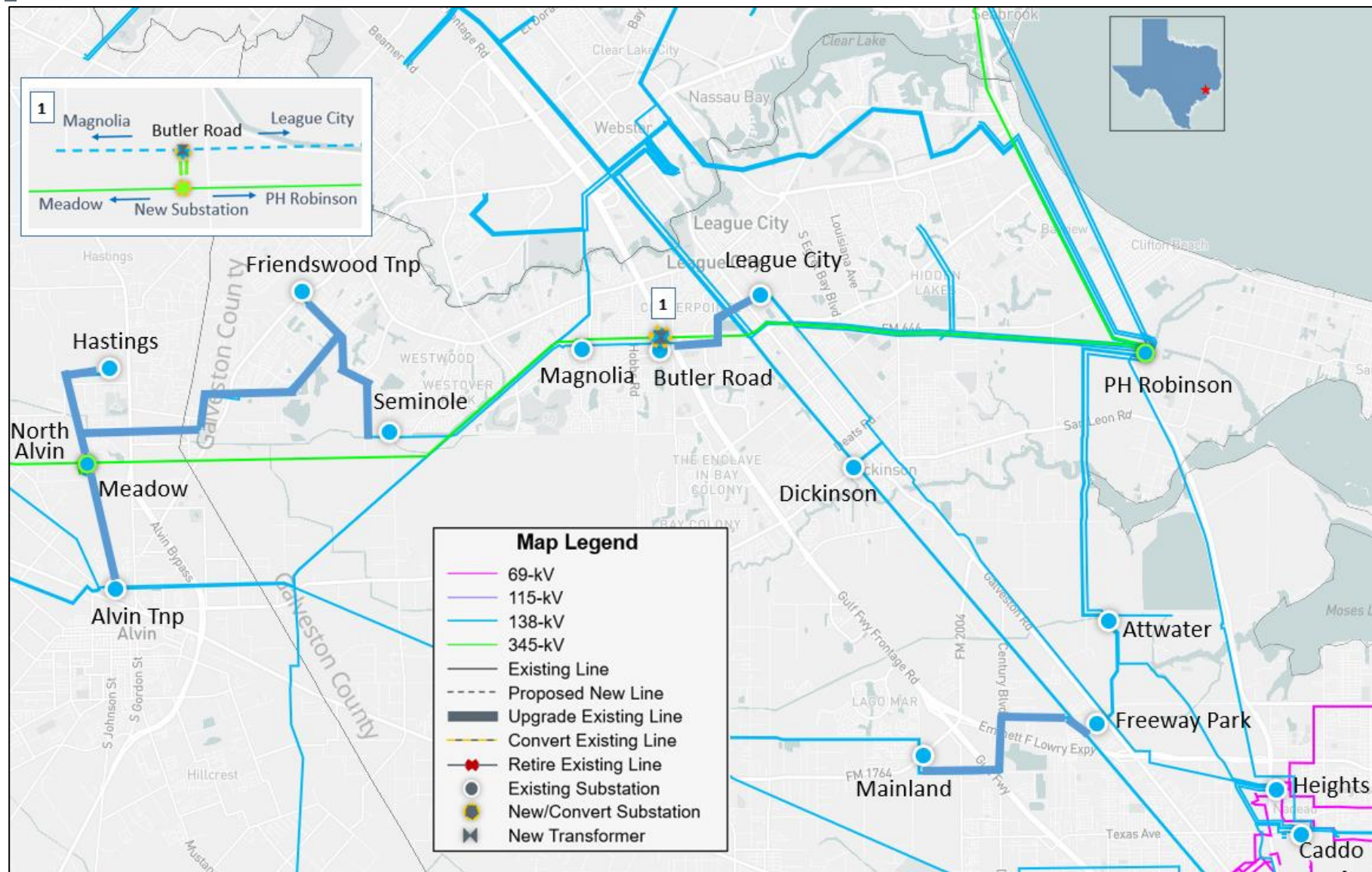
Option 2 – 345-kV Source to Magnolia



Option 2 – 345-kV Source to Magnolia

- Build a new 345-kV New Substation approximately 9.28-mile from the existing PH Robinson 345/138-kV substation. The New Substation will be designed with six 345-kV, 5000 A breakers in breaker-and-a-half bus arrangements and interconnected by cutting the substation into the existing PH Robinson to Meadow 345-kV transmission line
- Rebuild the existing Magnolia 138-kV substation to a 345/138-kV substation. The Magnolia 345/138-kV substation will be designed with four 345-kV, 5000 A breakers and ten 138-kV, 3200 A breakers in breaker-and-a-half bus arrangements
 - Install two 345/138-kV autotransformers with normal and emergency ratings of at least 800 MVA and 1067 MVA, respectively, for each transformer
- Install two new 345-kV tie-lines to connect the New Substation and Magnolia 345/138-kV substation on separate structures with normal and emergency ratings of at least 2987 MVA for each tie-line, approximately 0.01-mile
- Rebuild the existing League City to Butler Road to Magnolia and Seminole to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 18.10-mile
- Rebuild the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.00-mile

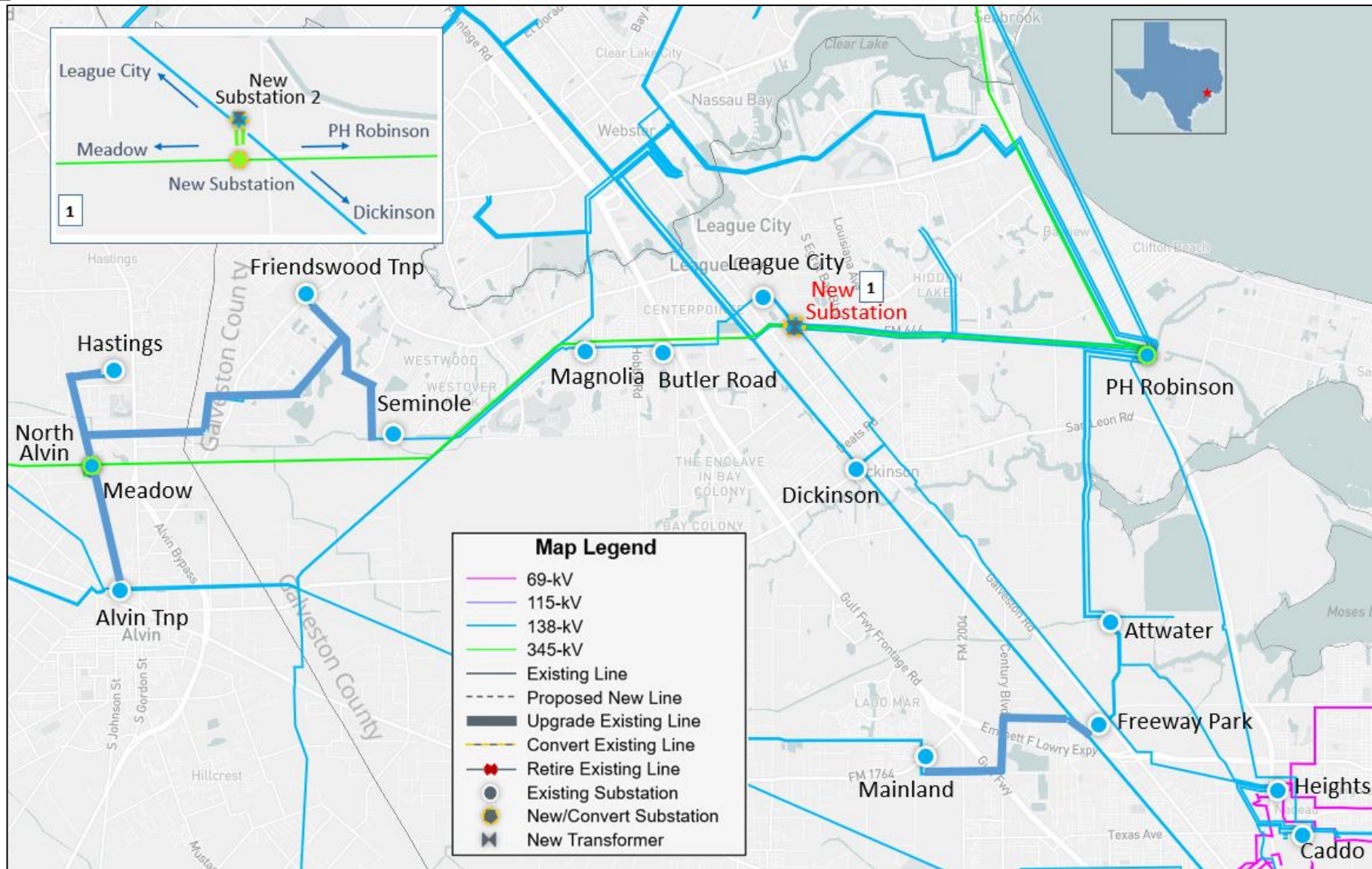
Option 3 – 345-kV Source to Butler Road



Option 3 – 345-kV Source to Butler Road

- Build a new 345-kV New Substation approximately 7.80-mile from the existing PH Robinson 345/138-kV substation. The New Substation will be designed with six 345-kV, 5000 A breakers in breaker-and-a-half bus arrangements and interconnected by cutting the substation into the existing PH Robinson to Meadow 345-kV transmission line
- Rebuild the existing Butler Road 138-kV substation to a 345/138-kV substation. The Butler Road 345/138-kV substation will be designed with four 345-kV, 5000 A breakers and ten 138-kV, 3200 A breakers in breaker-and-a-half bus arrangements
 - Install two 345/138-kV autotransformers with normal and emergency ratings of at least 800 MVA and 1067 MVA, respectively, for each transformer
- Install two new 345-kV tie-lines to connect the New Substation and Butler Road 345/138-kV substation on separate structures with normal and emergency ratings of at least 2987 MVA for each tie-line, approximately 0.01-mile
- Rebuild the existing League City to Butler Road and Seminole to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 16.64-mile
- Rebuild the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.0-mile

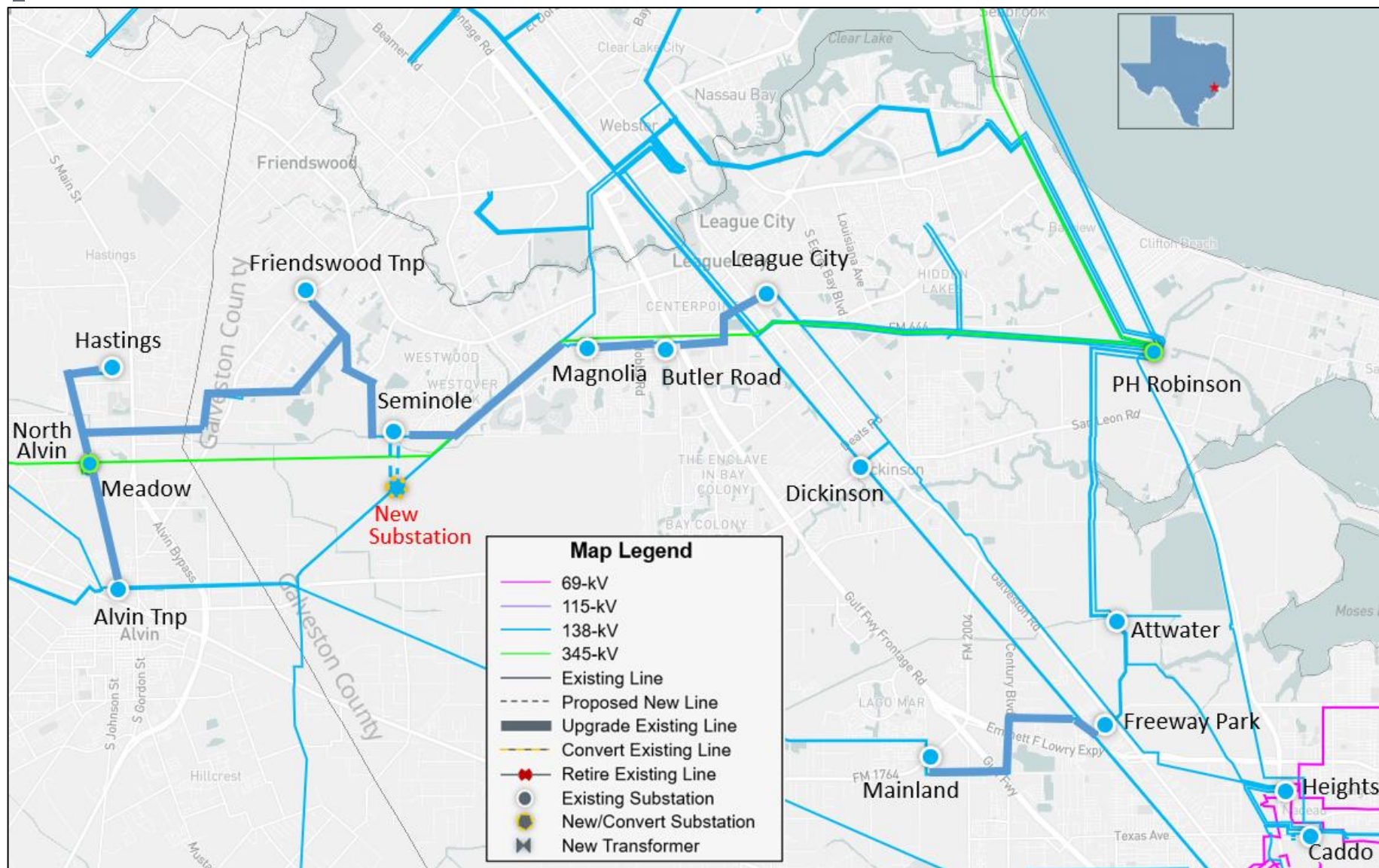
Option 4 – 345-kV Source to League City



Option 4 – 345-kV Source to League City

- Build a new 345-kV New Substation 1 approximately 5.58-mile from the existing PH Robinson 345/138-kV substation. The New Substation 1 will be designed with six 345-kV, 5000 A breakers in breaker-and-a-half bus arrangements and interconnected by cutting the substation into the existing PH Robinson to Meadow 345-kV transmission line
- Build a new 345/138-kV New Substation 2, next to the New Substation 1, cutting into the existing League City to Dickinson 138-kV transmission line, approximately 0.70-mile southeast of the existing League City 138-kV substation. The New Substation 2 will be designed with four 345-kV, 5000 A breakers and ten 138-kV, 3200 A breakers in breaker-and-a-half bus arrangements
 - Install two 345/138-kV autotransformers with normal and emergency ratings of at least 800 MVA and 1067 MVA, respectively, for each transformer
- Install two new 345-kV tie-lines to connect the New Substation 1 and New Substation 2 on separate structures with normal and emergency ratings of at least 2987 MVA for each tie-line, approximately 0.01-mile
- Rebuild the existing Seminole to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 14.45-mile
- Rebuild the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.0-mile

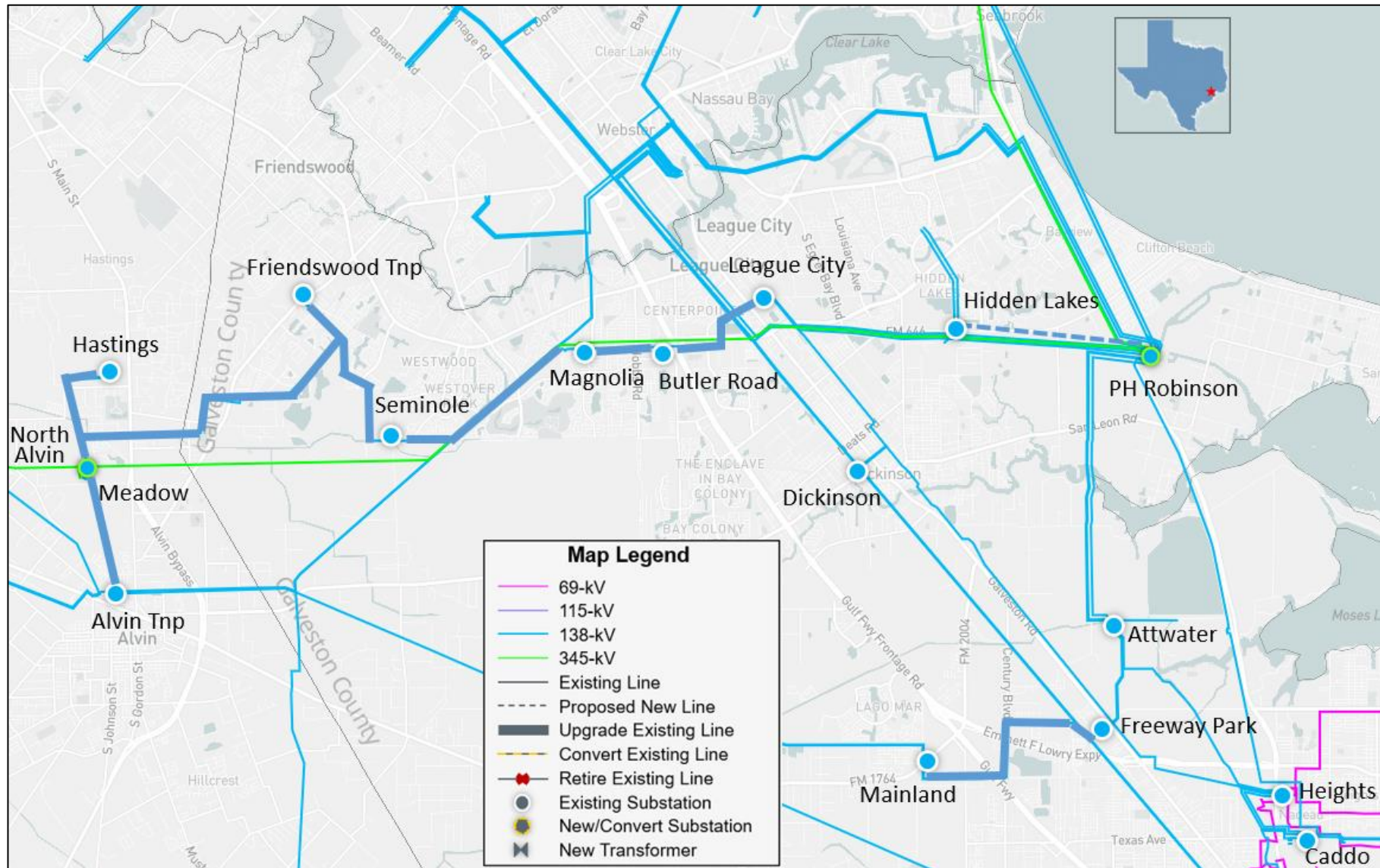
Option 5 – 138-kV Source to Seminole



Option 5 – 138-kV Source to Seminole

- Build a new 138-kV New Substation at the junction of the existing 138-kV transmission lines of Alta Loma to PH Robinson (approximately 12.67-mile from PH Robinson), Webster to Mustang Bayou (approximately 7.80-mile from Webster) and Webster to Limburg (approximately 7.80-mile from Webster)
- Build a new 138-kV double-circuit transmission line connecting the new 138-kV New Substation to the existing Seminole 138-kV substation with normal and emergency ratings of at least 717 MVA for each circuit, approximately 0.74-mile
- Rebuild the existing League City to Butler Road to Magnolia to Seminole (Nighthawk) to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 21.40-mile
- Rebuild the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.0-mile

Option 6 – New 138-kV Line



Option 6 – New 138-kV Line

- Upgrade the existing League City to Butler Road to Magnolia to Seminole (Nighthawk) to Friendswood Tnp to Hastings to North Alvin to Alvin 138-kV transmission lines with normal and emergency ratings of at least 717 MVA, approximately 21.40-mile
- Upgrade the existing Freeway Park to Mainland 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 4.0-mile
- Upgrade the existing Meadow 345/138-kV transformer with normal and emergency ratings of at least 600 MVA and 717 MVA, respectively
- Add a 138-kV second circuit on the existing PH Robinson to Hidden Lakes 138-kV transmission line with normal and emergency ratings of at least 717 MVA, approximately 3.1-mile

Preliminary Results of Reliability Assessment – Options

	N-1		G-1*+N-1		X-1**+N-1	
Option	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations
1	None	None	None	None	None	None
1A	None	None	None	None	None	None
2	None	None	None	None	None	None
3	None	None	None	None	None	None
4	None	None	None	None	None	None
5	1	None	1	None	None	None
6	None	None	None	None	None	None

* G-1 Generator tested: Amoco Oil Combined Cycle Train 2

** X-1 Transformers tested: PH Robinson 345/138-kV T2 and Meadow 345/138-kV T2

Planned Maintenance Outage Scenario Analysis

– Options

- Preliminary results of planned maintenance outage analysis

Option	Unsolved Power Flow	Thermal Overloads	Voltage Violations
1	None	None	None
1A	None	None	None
2	None	None	None
3	None	None	None
4	None	None	None
5	None	None	None
6	None	None	None

Minimum Deliverability Analysis – Options

- Preliminary results under Minimum Deliverability Criteria

Option	Unsolved Power Flow	Thermal Overloads	Voltage Violations
1	None	4	None
1A	None	None	None
2	None	None	None
3	None	None	None
4	None	None	None
5	None	None	None
6	None	None	None

Summary of Reliability Assessment – Options

- Preliminary results under NERC TPL-001-5.1 and ERCOT Planning Criteria

Option	Unsolved Power Flow	Thermal Overloads	Voltage Violations
1	None	4	None
1A	None	None	None
2	None	None	None
3	None	None	None
4	None	None	None
5	None	2	None
6	None	None	None

Next Steps and Tentative Timeline

- ERCOT will continue to evaluate options and provide status updates at December RPG meeting
 - Long-term load-serving capability assessment
 - Cost estimates and feasibility assessment
- Generation and Load Scaling Sensitivity Analyses
 - Planning Guide Section 3.1.3(4)
- Subsynchronous Resonance (SSR) Assessment
 - Nodal Protocol Section 3.22.1.3(2)
- Congestion Analysis
 - Congestion analysis may be performed based on the recommended transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area
- Tentative Timelines
 - Status update at future RPG meeting
 - Final Recommendation – Q1 2026

Thank you!



Stakeholder comments also welcomed through:

Ying.Li@ercot.com

Robert.Golen@ercot.com

Appendix A – Transmission Projects

- List of transmission projects added to study base case based on June 2025 TPIT report

RPG/TPIT No	Project Name	Tier	Project ISD	From County
87594	Rebuild League City-Dickinson 138kV with 2-795 ACSS	Tier 4	Nov-24	TNMP
87889	Install 2x 40 MVAR Cap bank at League City	Tier 4	May-25	TNMP
91285	TNMP Lago Mar Substation	Tier 4	Sep-25	TNMP

Appendix B – Transmission Projects

- List of transmission projects removed from the study base case

RTP Project ID	Project Name	County
2024-MORC-C3	Choctaw Tap TNP (39095) to Texas City Main TNP (39140) 69-kV Line Upgrade	Galveston

Appendix C – Generation Projects

- List of generation projects added to study base case based on August 2025 GIS report

GINR	Project Name	Fuel	Projected COD	Capacity (~MW)	County
19INR0042	Long Point Solar	SOL	04/01/2026	120.7	Brazoria
21INR0443	Cottonwood Bayou Storage	OTH	12/03/2025	153.0	Brazoria
22INR0546	Enchanted Rock NEWPP	GAS	06/06/2025	30.0	Harris
22INR0558	Callisto II Energy Center	OTH	07/01/2026	203.2	Harris
23INR0150	Cradle Solar	SOL	12/31/2025	200.9	Brazoria
23INR0290	Zeya BESS	OTH	12/01/2026	255.3	Galveston
23INR0358	Castor BESS	OTH	12/31/2025	205.4	Brazoria
24INR0128	Desna BESS	OTH	03/31/2026	205.5	Brazoria
24INR0329	XE Murat [Adlong] Storage	OTH	07/24/2025	60.1	Harris
24INR0405	Crowned Heron BESS	OTH	09/30/2025	154.2	Fort Bend
24INR0456	FRIENDSWOOD ENERGY GENCO	GAS	08/29/2025	143.7	Harris
24INR0460	Evelyn Battery Energy Storage System	OTH	08/21/2025	221.3	Galveston
24INR0482	NRG THW GT 345 (TEF -Due Diligence)	GAS	05/01/2026	456.0	Harris
24INR0493	Crowned Heron BESS 2	OTH	03/31/2026	154.2	Fort Bend
24INR0584	Houston IV BESS	OTH	06/03/2026	164.6	Harris

Appendix C – Generation Projects (Cont.)

- List of generation projects added to study base case based on August 2025 GIS report (cont.)

GINR	Project Name	Fuel	Projected COD	Capacity (~MW)	County
25INR0102	Austin Bayou Solar	SOL	06/01/2027	502.5	Brazoria
25INR0103	Elio BESS	OTH	08/05/2027	317.2	Brazoria
25INR0262	Shepard Energy Storage	OTH	07/01/2027	256.4	Galveston
25INR0300	Wizard BESS	OTH	10/21/2025	150.8	Galveston
25INR0421	Aldrin 138 BESS	OTH	07/01/2027	207.0	Brazoria
25INR0425	Aldrin 345 BESS	OTH	12/01/2027	362.0	Brazoria
25INR0467	Bocanova Power	OTH	08/15/2025	150.5	Brazoria
26INR0189	Skipjack Energy Storage	OTH	04/05/2027	150.6	Brazoria
26INR0226	First Capitol BESS	OTH	05/01/2026	257.5	Brazoria
26INR0333	VERTUS ENERGY STORAGE	OTH	02/01/2026	207.3	Galveston
26INR0405	Buffalo Creek BESS	OTH	06/01/2026	251.4	Fort Bend