



**AEPSC - Corpus Christi North Shore
Project – ERCOT Independent Review
Status Update**

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Regional Planning Group

March 10, 2020

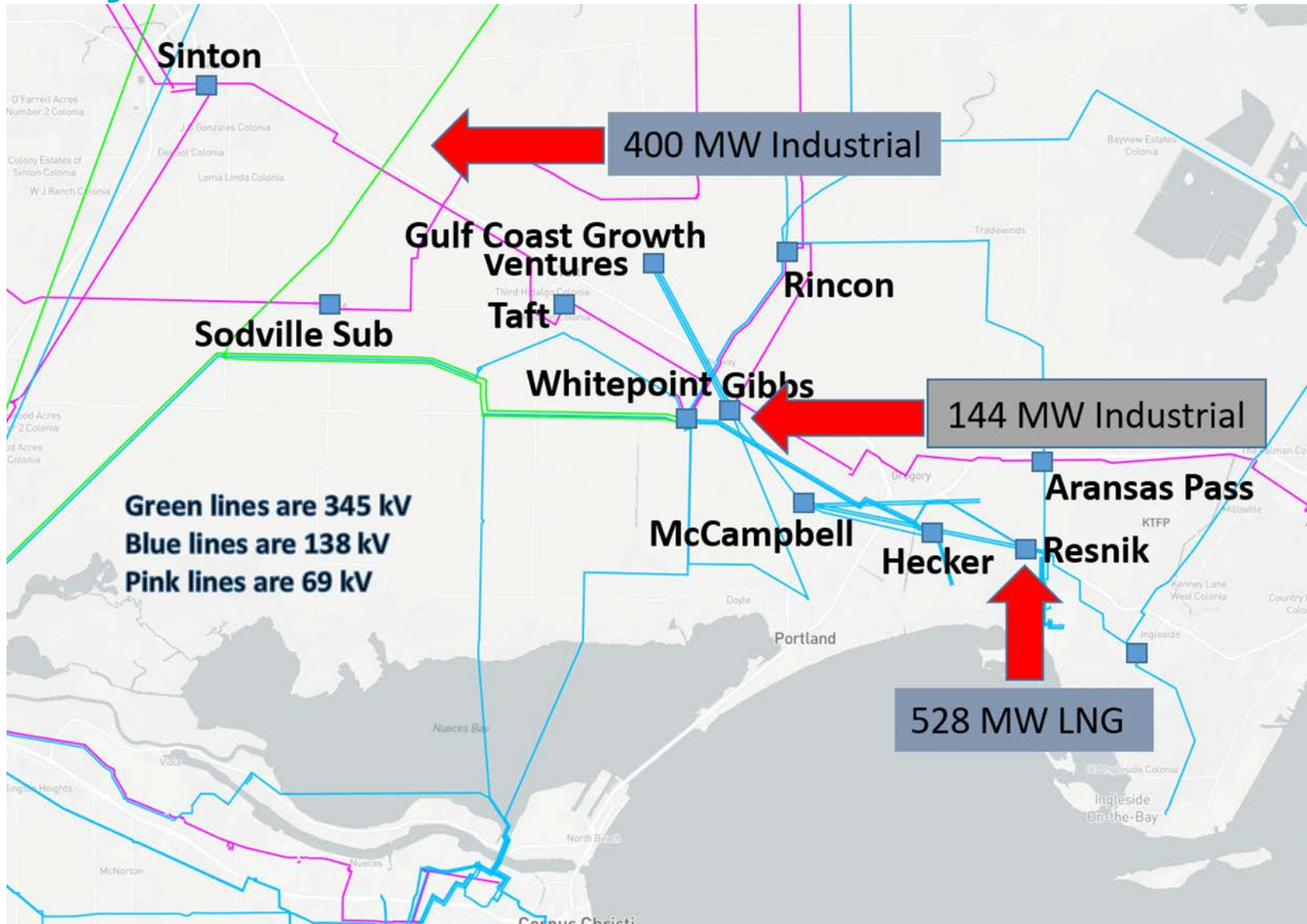
Introduction

American Electric Power Service Corporation (AEPSC) submitted the Corpus North Shore Transmission Improvement Project for Regional Planning Group review in September 2019. This is a Tier 1 project that is estimated at \$259.57 million.

AEPSC is requesting ERCOT designate these upgrades “critical” to the reliability of the system.

- Provide sufficient transmission capacity and address the reliability needs by
 - Adding 345 kV bus work and two 345/138 kV transformers to Resnick substation
 - Adding approximately 44 miles of double-circuit 345 kV transmission lines
 - Reconductoring approximately 1.5 miles of 138 kV transmission lines

Study Area and New Load Addition



Recap

Scope for ERCOT independent review November 2019 RPG:

<http://www.ercot.com/calendar/2019/11/12/165310-RPG>

December Status Update:

[http://www.ercot.com/content/wcm/key_documents_lists/165315/AEPSC
Corpus North Shore Study StatusUpdate 12 17 2019.pdf](http://www.ercot.com/content/wcm/key_documents_lists/165315/AEPSC_Corpus_North_Shore_Study_StatusUpdate_12_17_2019.pdf)

January Status Update:

[http://www.ercot.com/content/wcm/key_documents_lists/189694/EIR_AEP
SC Corpus Christi North Shore Study StatusUpdate 01 21 2020.pdf](http://www.ercot.com/content/wcm/key_documents_lists/189694/EIR_AEP_SC_Corpus_Christi_North_Shore_Study_StatusUpdate_01_21_2020.pdf)

February Status Update:

[http://www.ercot.com/content/wcm/key_documents_lists/189700/EIR_AEP
SC Corpus Christi North Shore Study StatusUpdate 02 18 2020.pdf](http://www.ercot.com/content/wcm/key_documents_lists/189700/EIR_AEP_SC_Corpus_Christi_North_Shore_Study_StatusUpdate_02_18_2020.pdf)

Recent Updates Requested by AEP

AEP provided updates in February in the study area that include

- Requirement for new location (Naismith Substation) for 345 kV bus-work formerly proposed at Resnik
- Angstrom not feasible for reactive compensation
- Identifying feasible locations within the Corpus Christi North Shore area to address reactive improvements
- Developing dynamic load models

Next Steps

- ERCOT will incorporate AEP's updates and then complete the independent review
- Updated Tentative Timeline
 - ERCOT Independent Review recommendation to TAC
 - May 27, 2020
 - Seek ERCOT Board of Directors Endorsement
 - June 9, 2020



Stakeholder Comments Also Welcomed to Sun Wook Kang:
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APPENDIX A

Results of Reliability Assessment without Upgrades

	Unsolved Power Flow	Thermal Overloads	Bus Voltage Violation
N-1	0	10 miles 69 kV 32 miles 138 kV	0
(G-1)(N-1)	0	10 miles 69 kV 80 miles 138 kV	32 138 kV Buses
(X-1)(N-1)	0	10 miles 69 kV 34 miles 138 kV	0
Total	0	10 miles 69 kV 80 miles 138 kV	32 138 kV Buses

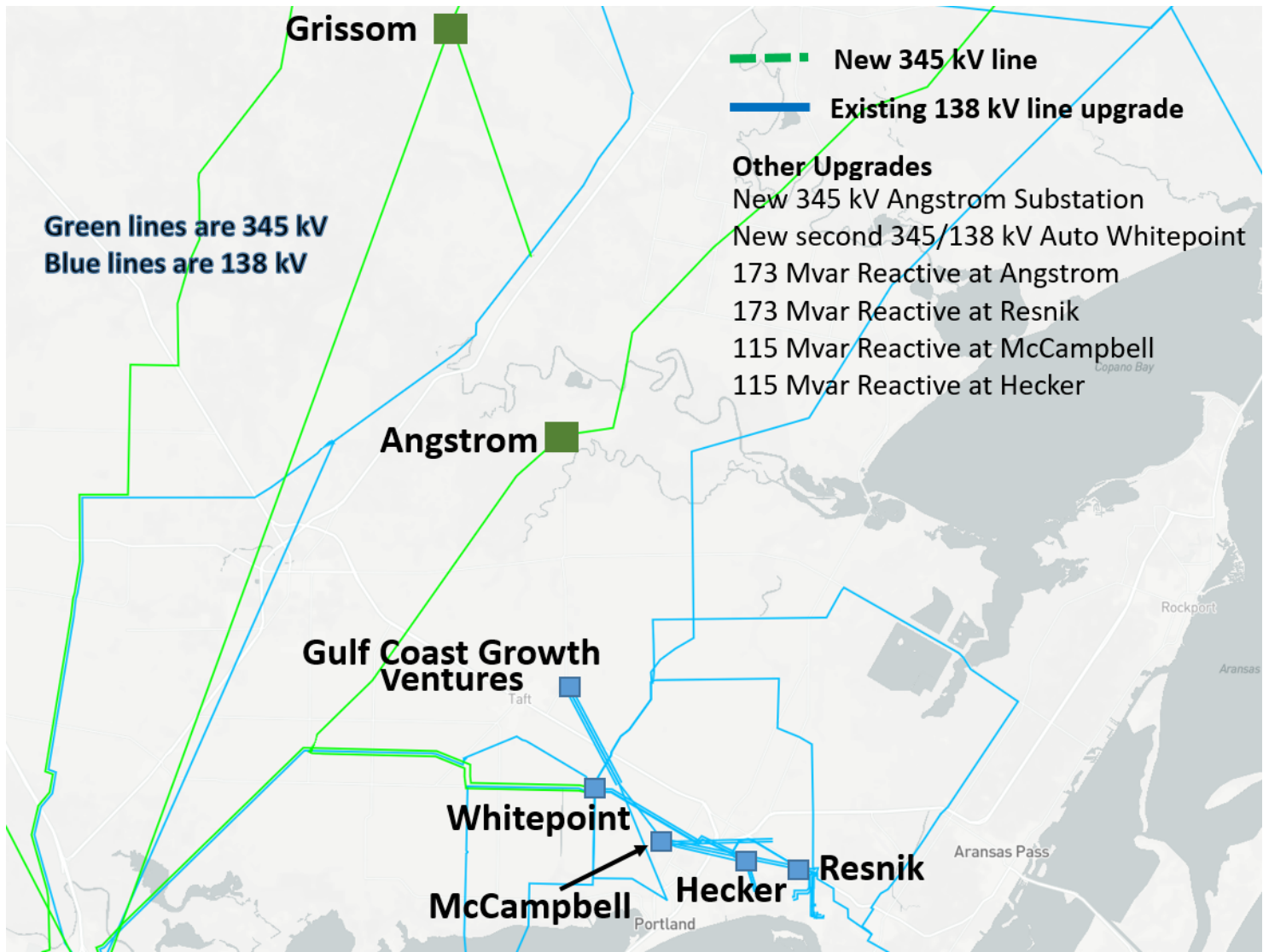
G-1 Tested: Gregory LGE Combined Cycle Plant (CC); Nueces Bay CC; Ingleside CC

X-1 345/138 kV Tested: Whitepoint; Lon Hill

Project Options

- ERCOT presented 5 key options that are shown in this appendix.
- Operation flexibility in terms of maintenance/planned outage impacts and load serving capability were evaluated and the short-listed options were selected

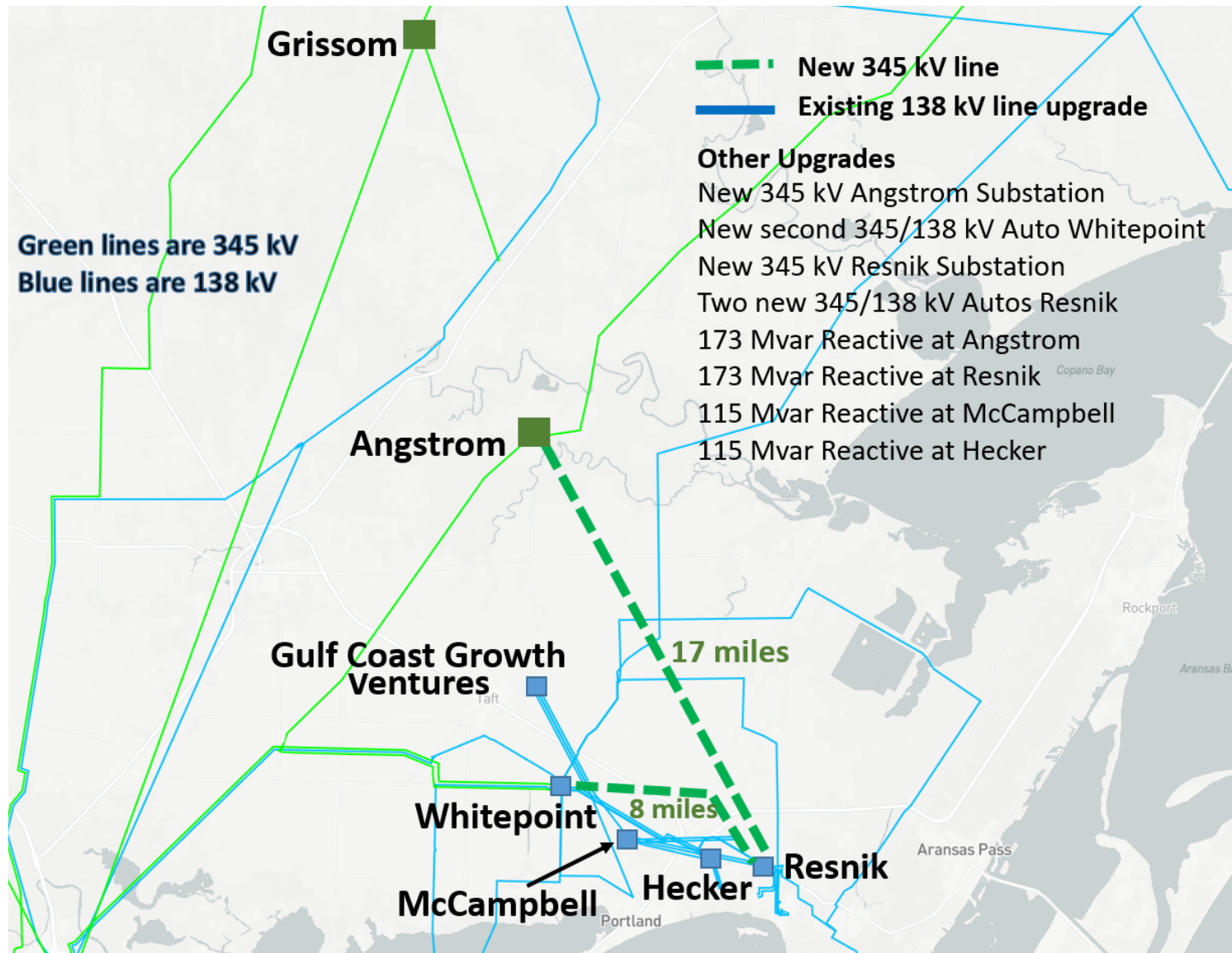
Option 1



Option 1

- New 345 kV Angstrom substation
- New second 345/138 kV transformer at Whitepoint
- Reconductor 69 kV line from Blessing to Palacios (2.9 Miles)
- 172.8 Mvar reactive device at Angstrom
- 172.8 Mvar reactive device at Resnik
- 115.2 Mvar reactive device at McCambell
- 115.2 Mvar reactive device at Hecker

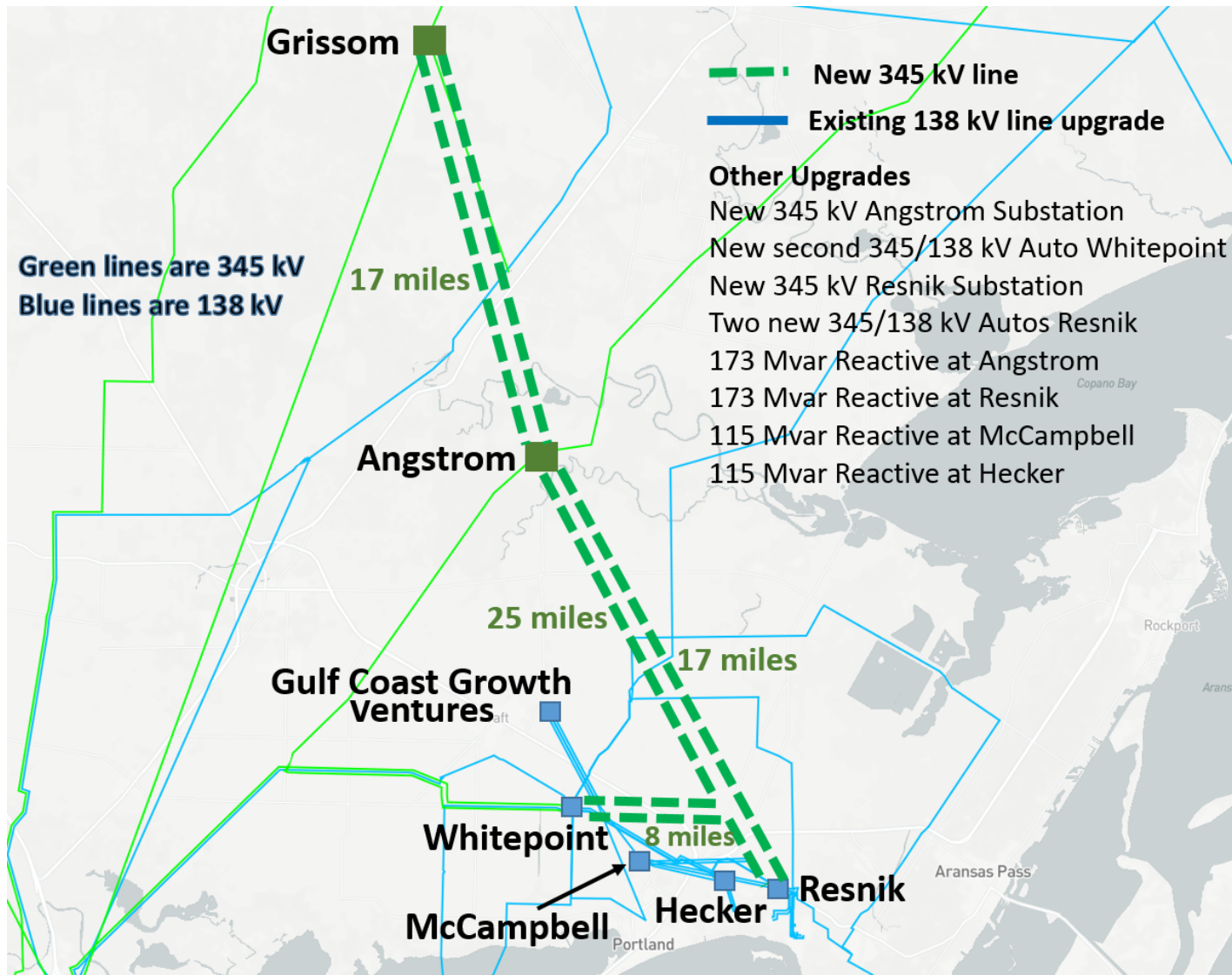
Option 2



Option 2

- New 345 kV Resnik substation
- Two new 345/138 kV transformers at Resnik
- New 345 kV Angstrom substation
- New 345 kV line from Angstrom to Resnik (17 Miles)
- New 345 kV line from Resnik to Whitepoint (8 Miles)
- New second 345/138 kV transformer at Whitepoint
- 172.8 Mvar reactive device at Angstrom
- 172.8 Mvar reactive device at Resnik
- 115.2 Mvar reactive device at McCambell
- 115.2 Mvar reactive device at Hecker

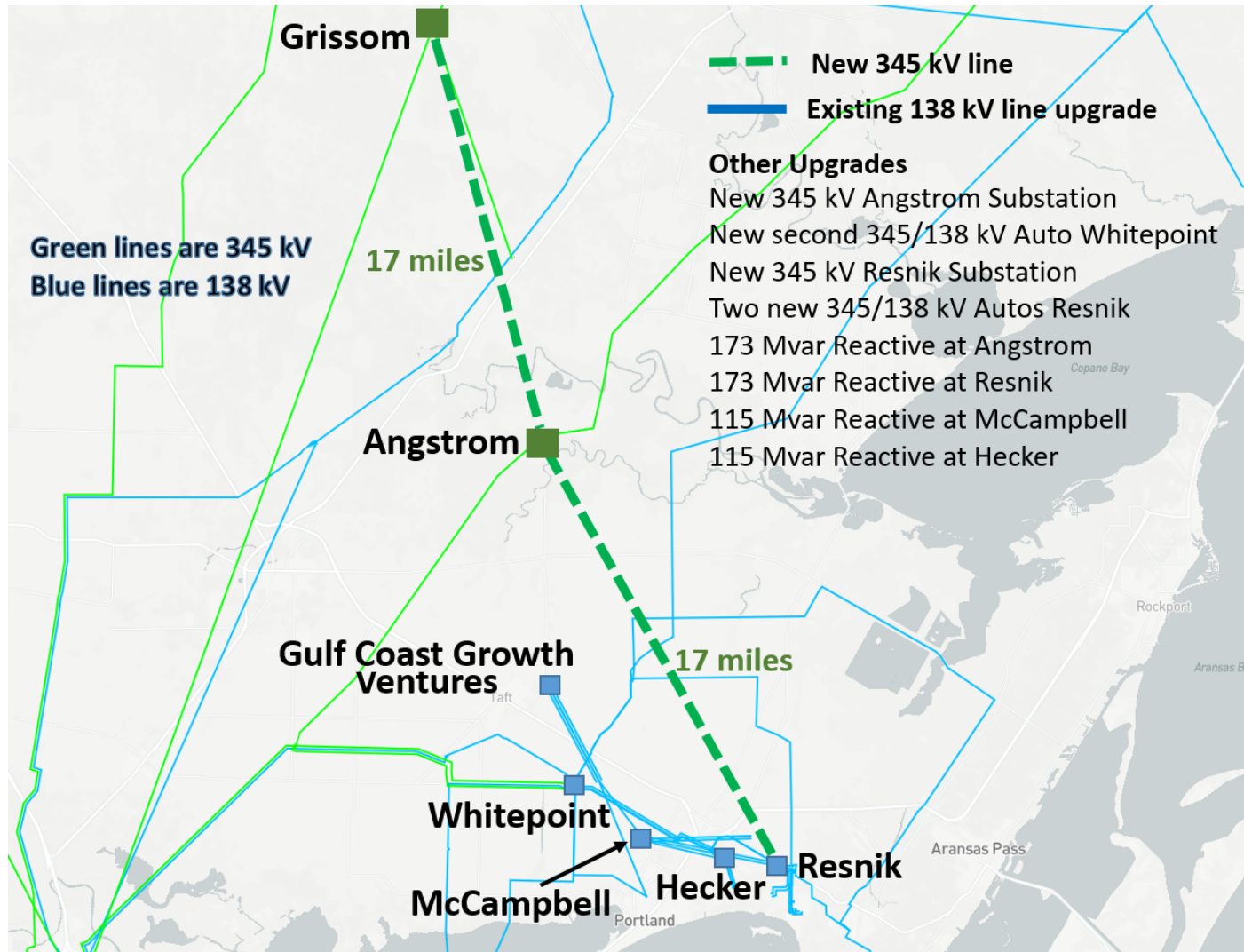
Option 3



Option 3

- New 345 kV Resnik substation
- Two new 345/138 kV transformers at Resnik
- New 345 kV Angstrom substation
- New double-circuit 345 kV line from Angstrom to Grissom (17 Miles)
- New 345 kV line from Angstrom to Resnik (17 Miles) on double-circuit tower with New (2nd) 345 kV Angstrom to Whitepoint (25 Miles)
- New 345 kV line from Resnik to Whitepoint (8 Miles) on double-circuit tower with remainder of New (2nd) 345 kV Angstrom to Whitepoint (25 Miles)
- New second 345/138 kV transformer at Whitepoint
- 172.8 Mvar reactive device at Angstrom
- 172.8 Mvar reactive device at Resnik
- 115.2 Mvar reactive device at McCambell
- 115.2 Mvar reactive device at Hecker

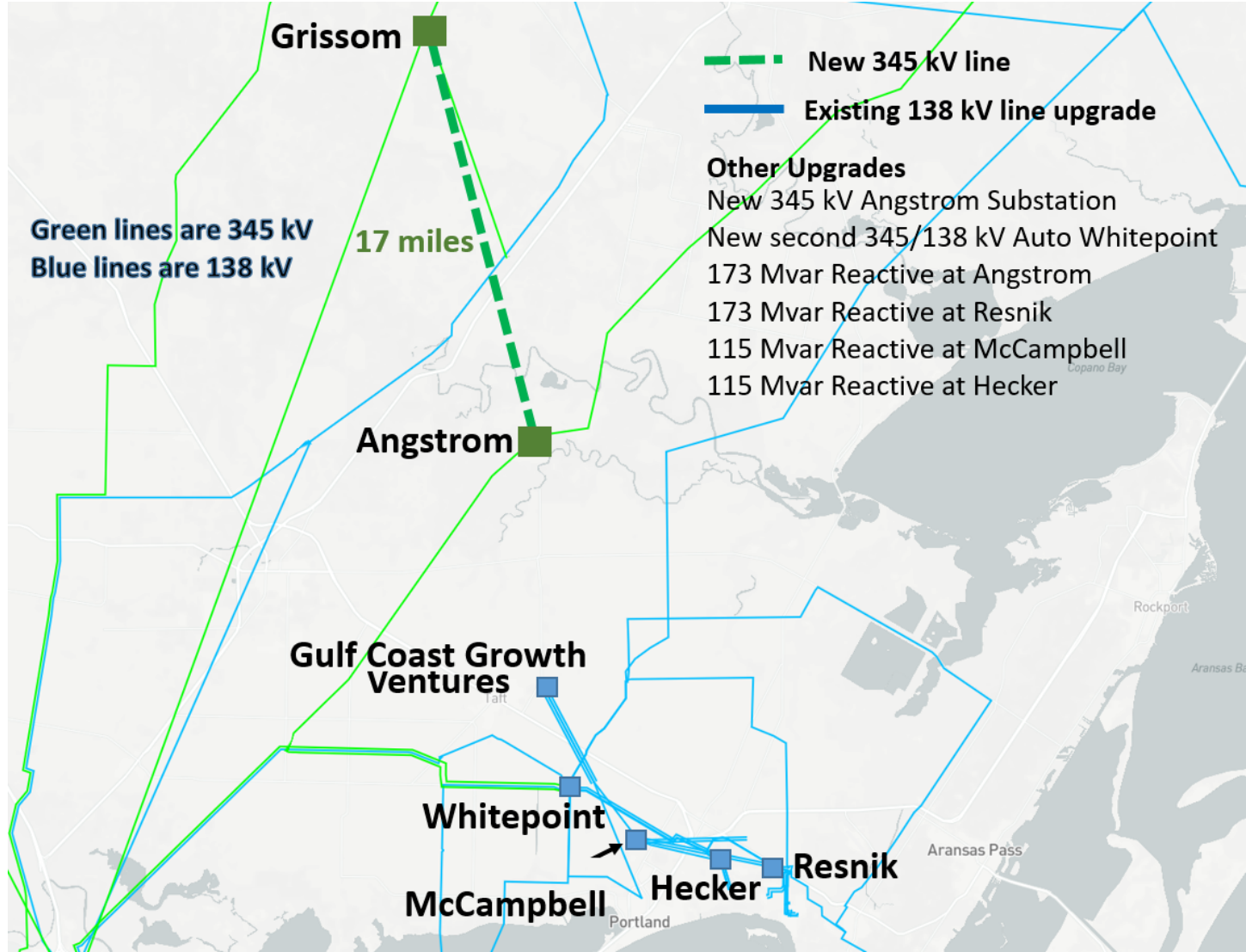
Option 4



Option 4

- New 345 kV Resnik substation
- One new 345/138 kV transformer at Resnik
- New 345 kV Angstrom substation
- New 345 kV line from Grissom to Angstrom (17 Miles)
- New 345 kV line from Angstrom to Resnik (17 Miles)
- New second 345/138 kV transformer at Whitepoint
- 172.8 Mvar reactive device at Angstrom
- 172.8 Mvar reactive device at Resnik
- 115.2 Mvar reactive device at McCambell
- 115.2 Mvar reactive device at Hecker

Option 5



Option 5

- New 345 kV Angstrom substation
- New 345 kV line from Grissom to Angstrom (17 Miles)
- New second 345/138 kV transformer at Whitepoint
- Reconductor 69 kV line from Blessing to Palacios (2.9 Miles)
- 172.8 Mvar reactive device at Angstrom
- 172.8 Mvar reactive device at Resnik
- 115.2 Mvar reactive device at McCambell
- 115.2 Mvar reactive device at Hecker

Options short-listed by Planned Maintenance Results

	Unsolved Power Flow	Planned Maintenance Outages Study	
		Thermal Violations	Voltage Violations
Option 1	0	39 miles 69 kV 153 miles 138 kV	>50
Option 2	0	10 miles 69 kV 59 miles 138 kV	No
Option 3	0	No	No
Option 4	0	No	No
Option 5	2	68 miles 138 kV	>50

Reliability Assessment for Short-listed Options

	N-1		X-1 N-1		G-1 N-1	
	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations
Option 3	No	No	No	No	No	No
Option 4	No	No	No	No	No	No

	Unsolved Power Flow	Planned Maintenance Outages Study	
		Thermal Violations	Voltage Violations
Option 3	0	No	No
Option 4	0	No	No

	Incremental Load Serving Capability (Import Limits) (MW)	
	Thermal	Voltage Stability
Option 3	72	1,216
Option 4	426	1,035