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# **Panhandle Renewable Energy Zone Study**

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RPG Meeting  
3-26-2013

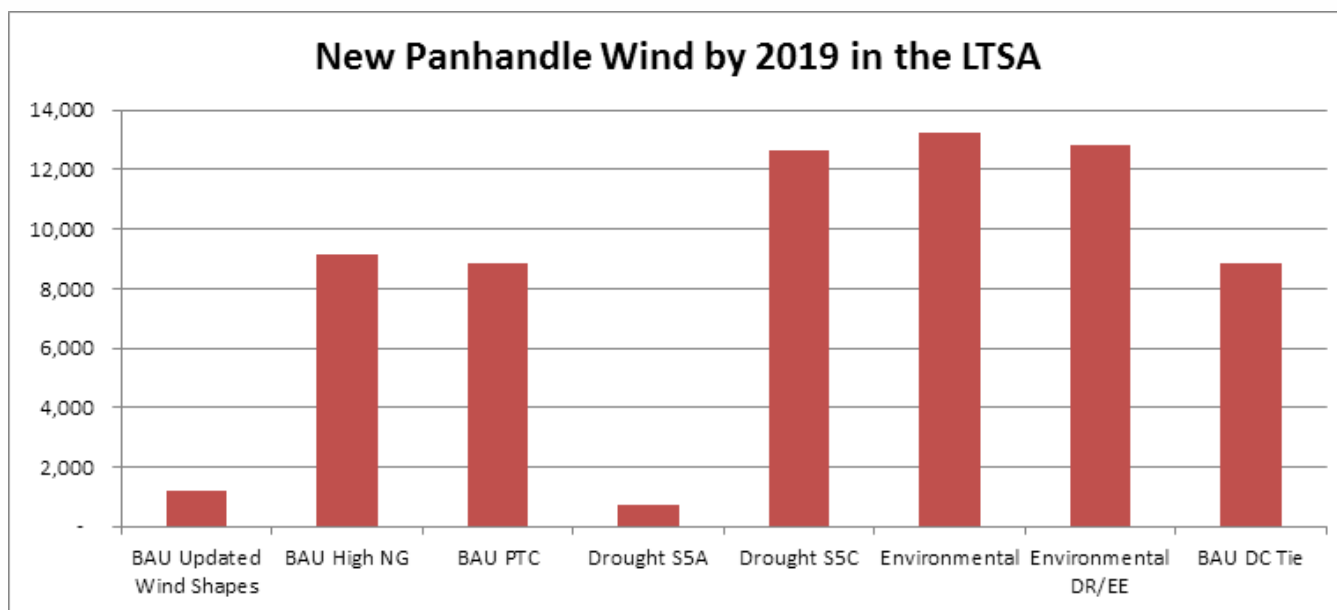
# Outlines

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- Needs of Panhandle Renewable Energy Zone (PREZ) Study
- Study Scope and Schedule

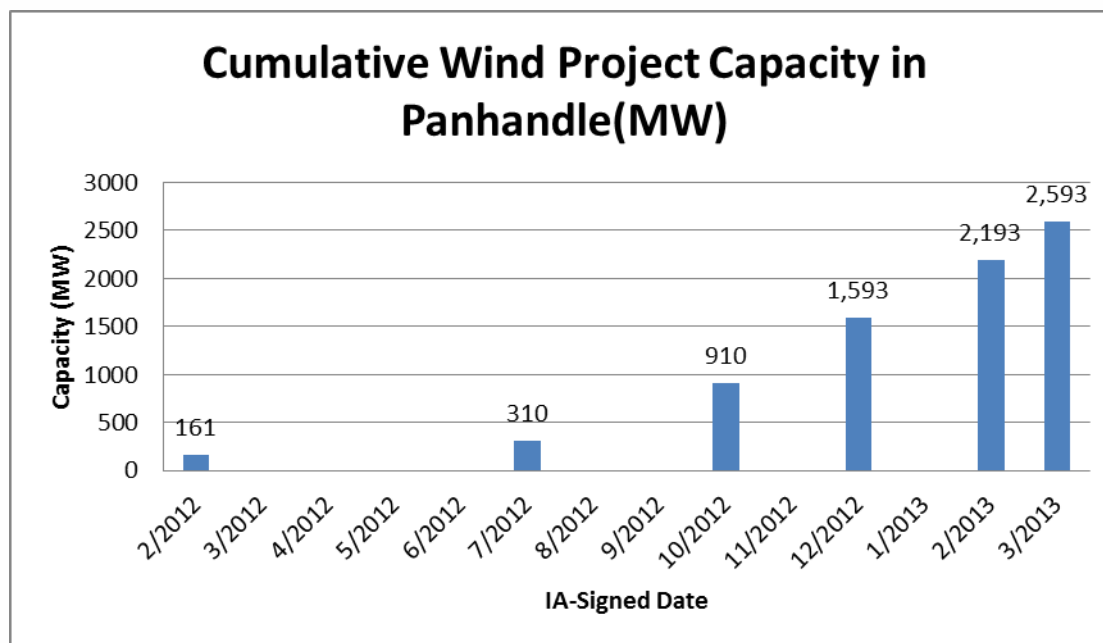
# Needs of PREZ Study

- 2012 Long Term System Assessment
  - Indicated significant expansion of wind resources in the Panhandle under a range of future outcomes.
  - If the northwestern-most portion of the Panhandle CREZ system becomes over-subscribed, voltage stability limits will constrain wind power delivery to the rest of the ERCOT system.



# Needs of PREZ Study (continue)

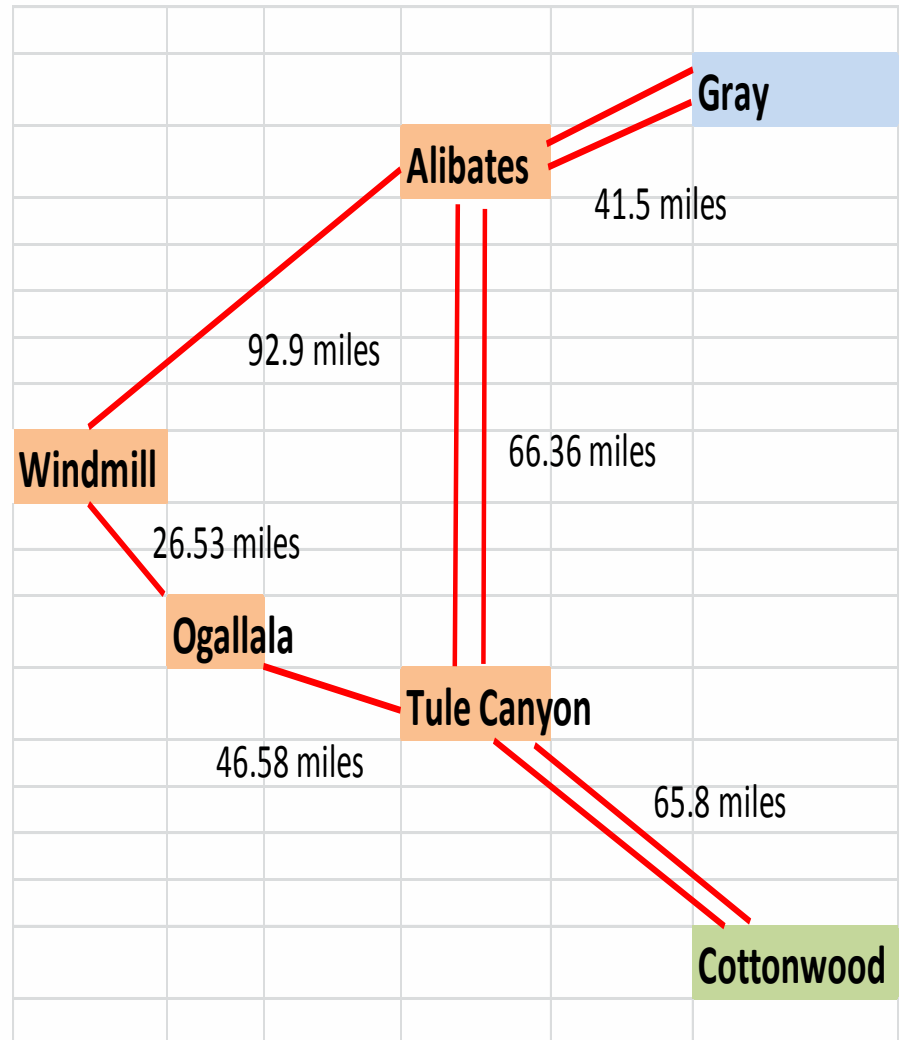
- The approved CREZ projects will be in-service by 2013
  - The implemented CREZ reactive compensation (based on the CREZ Reactive Study “Initial Build” recommendations) will accommodate 2.4 GW wind generation in the Panhandle area.



All projects except one with 200 MW are proposed to be in service by 2015.

# CREZ Panhandle

- TSPs: Sharyland, WETT and CTT
- Substations:
  - Gray
  - Alibates (White Deer)
  - Windmill (Hereford)
  - Ogallala (Nazereth)
  - Tule Canyon (Silverton)
  - Cotton Wood



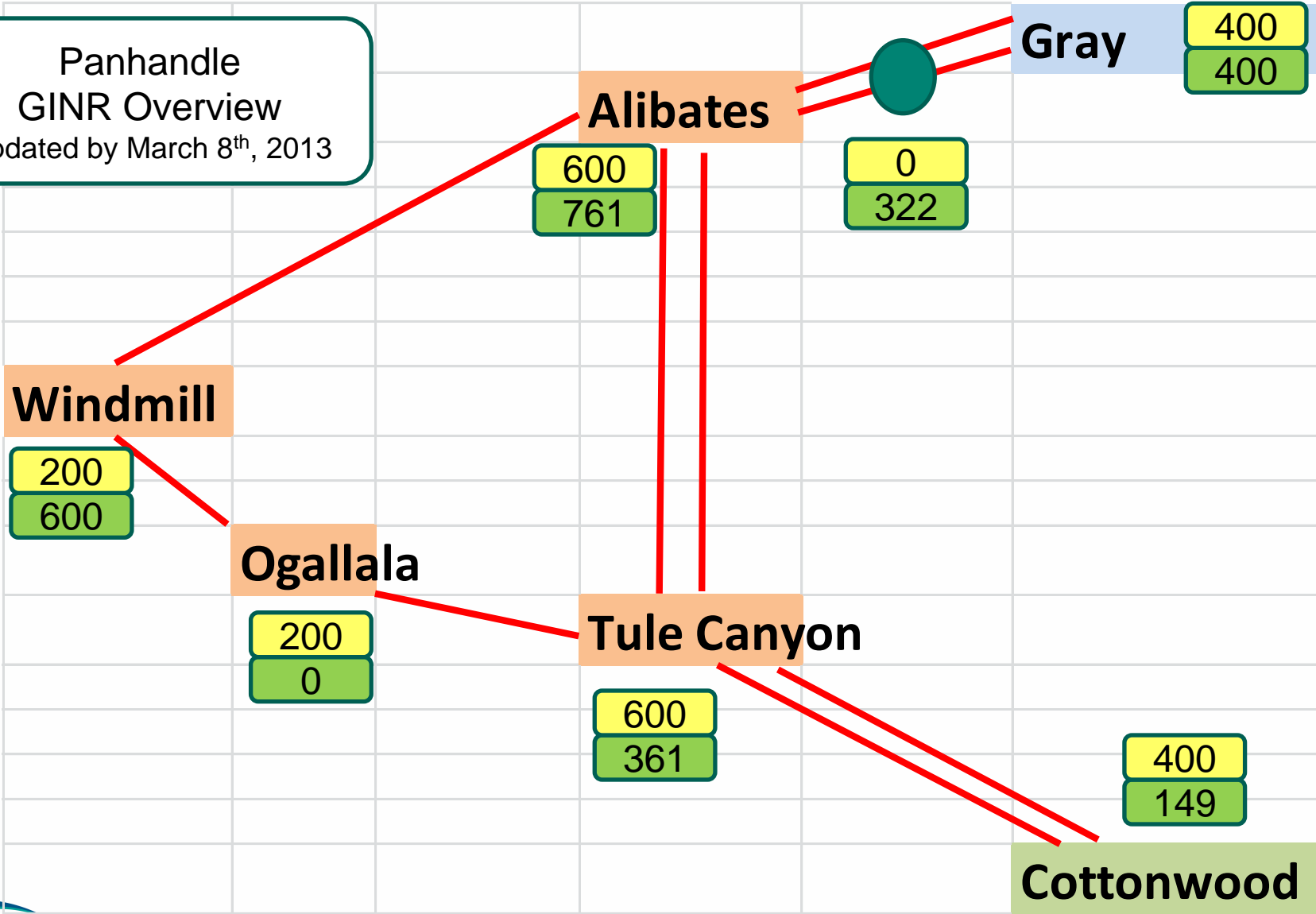
Initial Build  
(2400 MW)

IA  
(2593 MW)

FIS-Complete  
(2550 MW)

FIS Study  
(5409 MW)

Panhandle  
GINR Overview  
Updated by March 8<sup>th</sup>, 2013



# Needs of PREZ Study

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- Generation projects will exceed the existing CREZ design capacity (based on the CREZ Reactive Study “Initial Build” recommendations) in the Panhandle area.
- ERCOT will perform the Panhandle study to identify system constraints and improvements required to accommodate future wind generation projects.
- The analysis will identify system constraint and provide a roadmap for both ERCOT and TSPs to accommodate additional generation resources in the study area.
  - List of potential system improvement projects.
  - Triggers for when those projects will be recommended.

# Study Scope and Schedule

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- Study Approach:
  - Reliability Analysis
    - Steady State and Dynamic Stability Analysis
    - Base case: SSWG 2016 HWLL
  - Economic Analysis
    - The 2017 UPLAN case from 2012 Five-Year Transmission Plan
- Study Scenario:
  - Scenario I: IA-Signed + FIS Complete
  - Scenario II: Additional wind generation
- Delivery:
  - Present the study results to RPG by December, 2013
  - A full study report by January, 2014



# Study Scenarios

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- SSWG 2016 HWLL(high wind low load) case
  - Wind output dispatch: 8,946 MW (10,785 MW installed capacity)
  - Load: 36.5 GW
  - Wind penetration: 24.5 %
- Generation Capacity in the scenario I and II.
  - Scenario I: Add 5,143 MW of Panhandle wind at 95% output
    - Wind penetration: 37.8% (13.8GW wind output / 36.5 GW load)
  - Scenario II: Add 2,700 MW of Panhandle wind (50% of 5,409 MW) at 95% output to scenario I (a total of 7,843 MW capacity)
    - Wind penetration: 45% (16.4GW wind output / 36.5 GW load)