

Colorado Long Range Transmission Planning Group 2008 Study Progress

Stakeholder Update Meeting
June 10, 2008



2018 Study Progress

- Previous Study Progress
- Status of Case Development
- Scenario A High Injection Topology
- Schedule Review



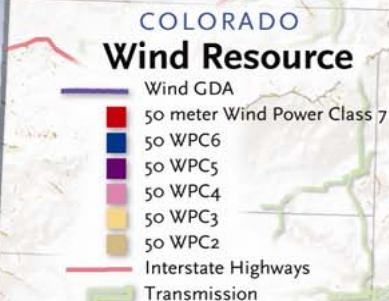
Previous Study Progress

(3/25/08)

- Nearing Completion of Case Development for 2018 Timeframe
 - Using 2018 WECC Review Case
 - Case Released 3/14/08
- Scenario Definitions Finalized
 - Four Scenarios
 - Subject to Adjustments As Scenarios are Being Analyzed



Scenario A with High Renewable Injections



GDA 1
4 GW

GDA 2
6 GW

GDA 3
15 GW

GDA 4
2 GW

GDA 7
4 GW

GDA 5
23 GW

GDA 8
2 GW

GDA 6
37 GW

55 MW

910 MW

100 MW

600 MW
Baseload

445 MW
Solar

0 MW

770 MW
wind

Scenario B

Inject significant Wyoming generating Resources via the proposed Wyoming-Colorado Intertie Project.

Move Pawnee injections of Scenario A into Wyoming

910 MW

GDA 1
4 GW

55 MW

0 MW

GDA 2
6 GW

GDA 3
15 GW

GDA 4
2 GW

GDA 7
4 GW

0 MW

GDA 5
23 GW

600 MW
Baseload

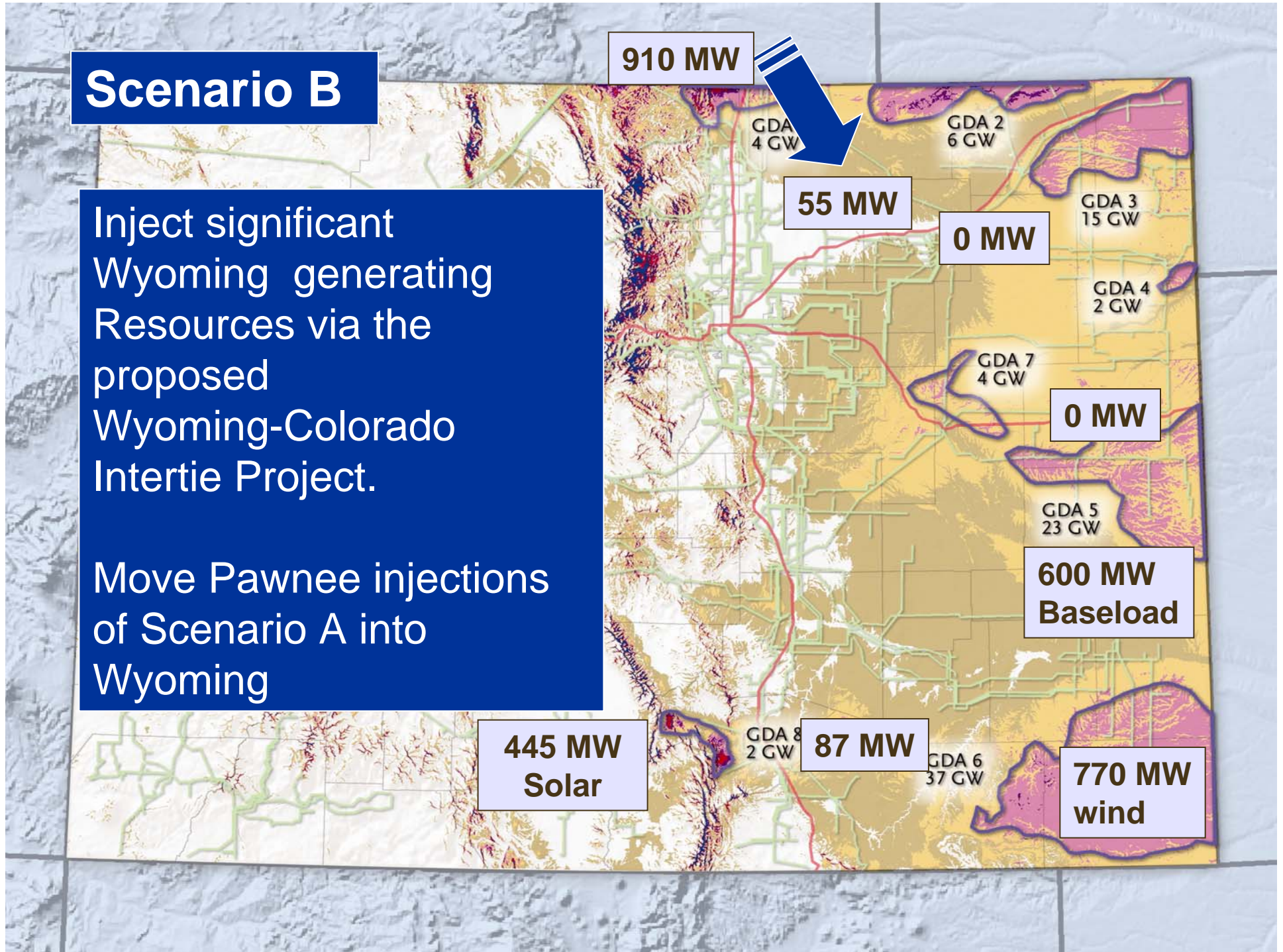
445 MW
Solar

GDA 8
2 GW

87 MW

GDA 6
37 GW

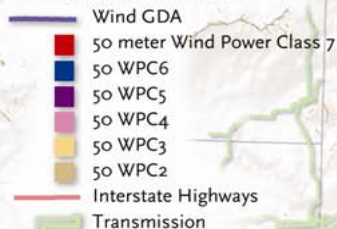
770 MW
wind



Scenario C

Inject Up To 5% of
Wind GDA capacity

COLORADO Wind Resource



GDA 1
4 GW

GDA 2
6 GW

GDA 3
5 GW

GDA 4
2 GW

GDA 7
4 GW

1150 MW

GDA 5
23 GW

600 MW
Baseload

445 MW
Solar

GDA 8
2 GW

100 MW

GDA 6
37 GW

1770 MW
wind

5315 MW total capacity beyond present levels

Scenario D

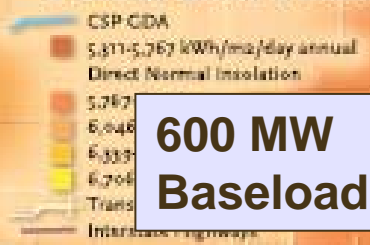
Inject 1,000 MW from the San Luis Valley GDA and 1,000 MW from the GDA south of Pueblo

0 MW

100 MW

0 MW

COLORADO Central Solar Power



600 MW
Baseload

The two combined GDAs would equal 26 GW if 2% of the area had CSP

GDA San Luis Valley

1000 MW
Solar

1000 MW

GDA South and Southeast of Pueblo

230 MW
wind

Previous Study Progress

(5/6/08)

- Case Development
 - Case Review Continuing
 - Study Work Proceeding
- Scenario A
 - Adjusted Injections
 - Problem Areas: Pawnee, Lamar
- Potential Solutions
 - Several Being Analyzed in Problem Areas



Case Development

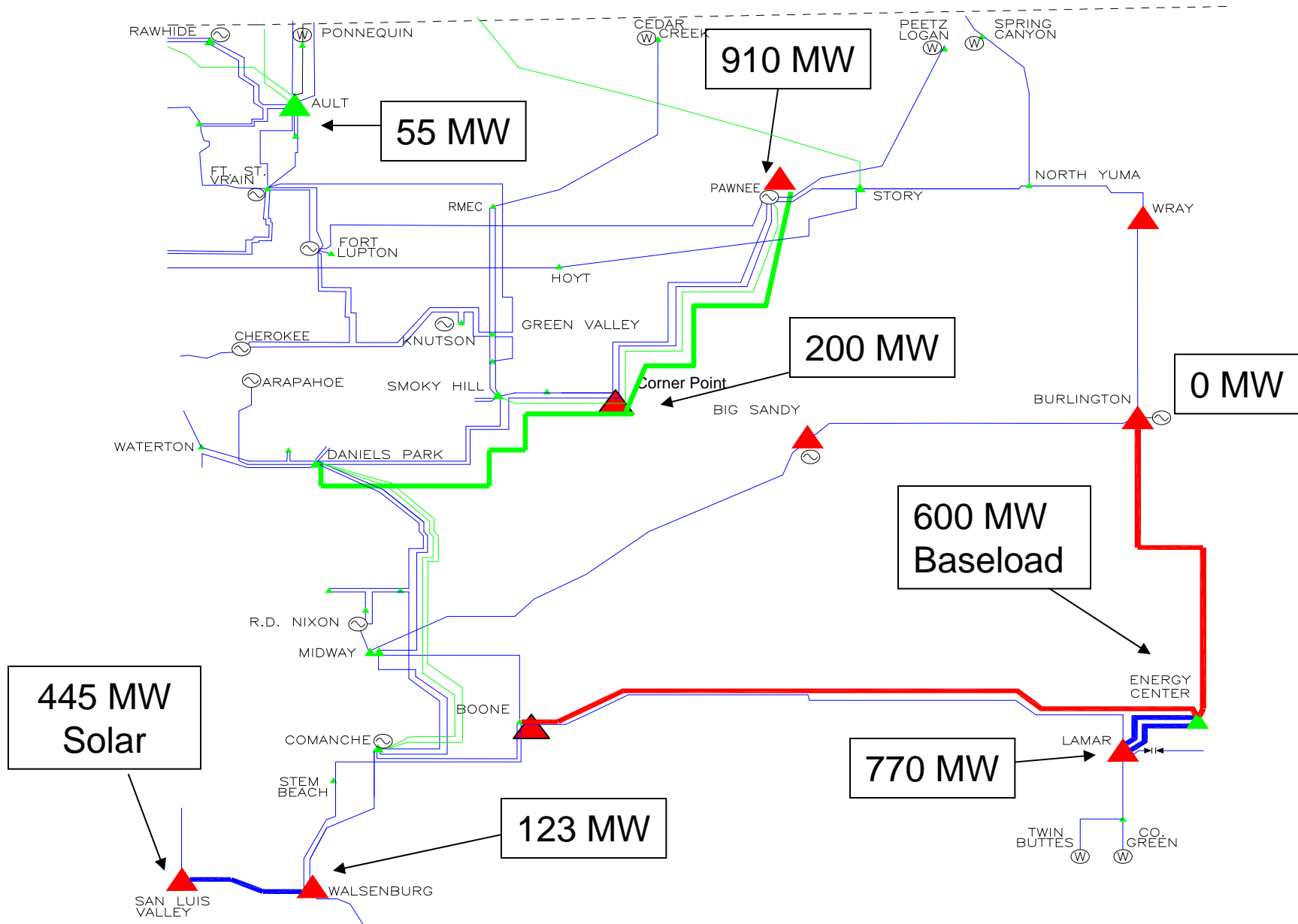
- Approach Hasn't Changed
 - Case Review and Development Continues
 - Each LSE Reviewing Their System Impacts
- Study Work on Scenarios Proceeding
 - Comparison of Cases to Detect Impacts of Resource Injections



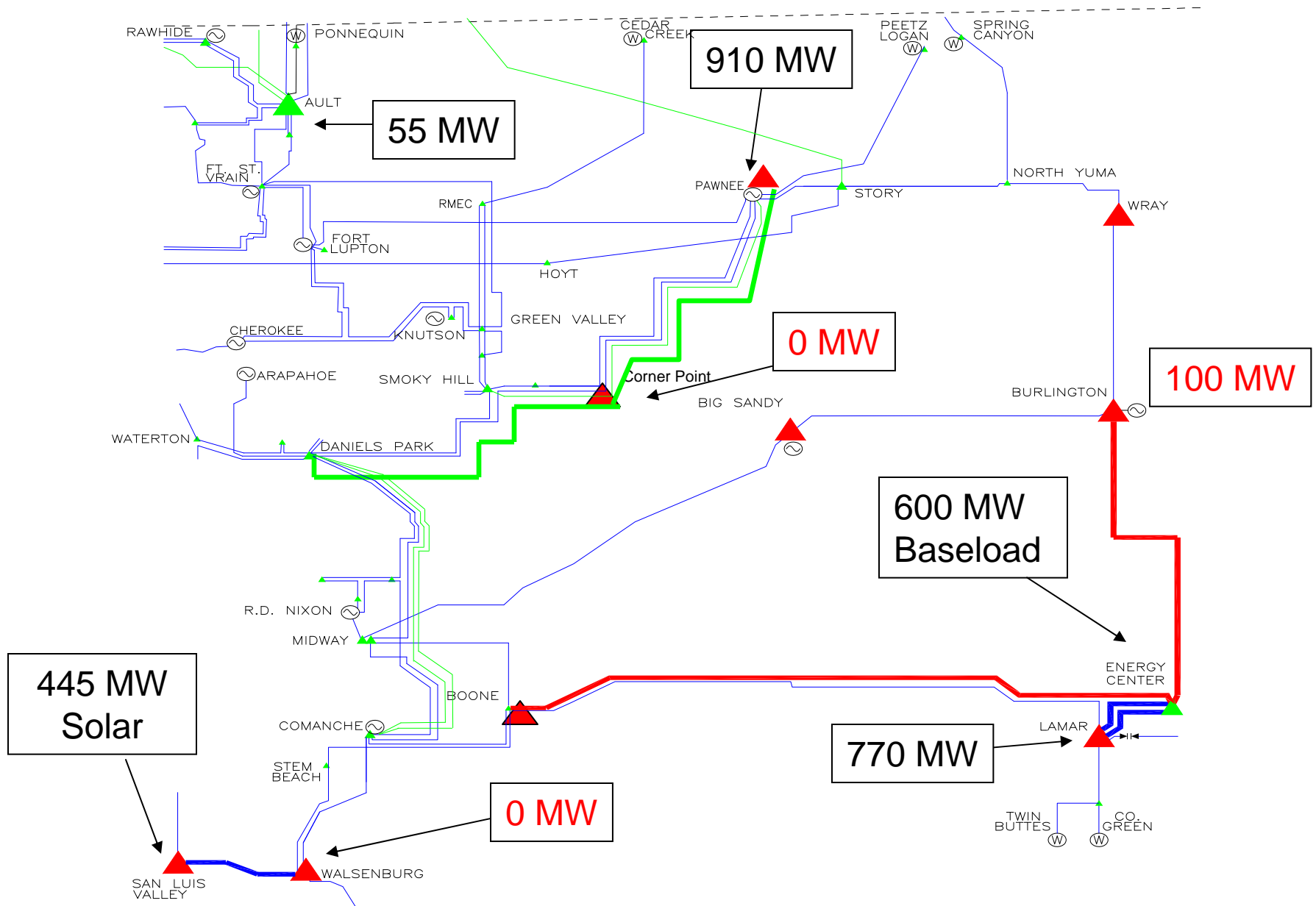
Scenario A High Injection Findings



Scenario A High Wind Injections



Scenario A High Wind Injections



Scenario A High Injection Findings

- LEC – Burlington 500 kV Line & Lamar – Boone 500 kV Line
 - Provided Paths For High Level of Zone 3 Injections Near Energy Center



Scenario A High Injection Findings

- LEC – Burlington 500 kV line & Lamar – Boone 500 kV Line
- Lamar – Boone Second 230 kV Line
 - Additional Path For High Injections Near Lamar



Scenario A High Injection Findings

- LEC – Burlington 500 kV Line & Lamar – Boone 500 kV Line
- Lamar – Boone Second 230 kV Line
- Lamar – Comanche 500 kV Line
 - or Lamar - Boone – Comanche 500 kV
 - Connection to Boone is optional, but Connection to Comanche is Required

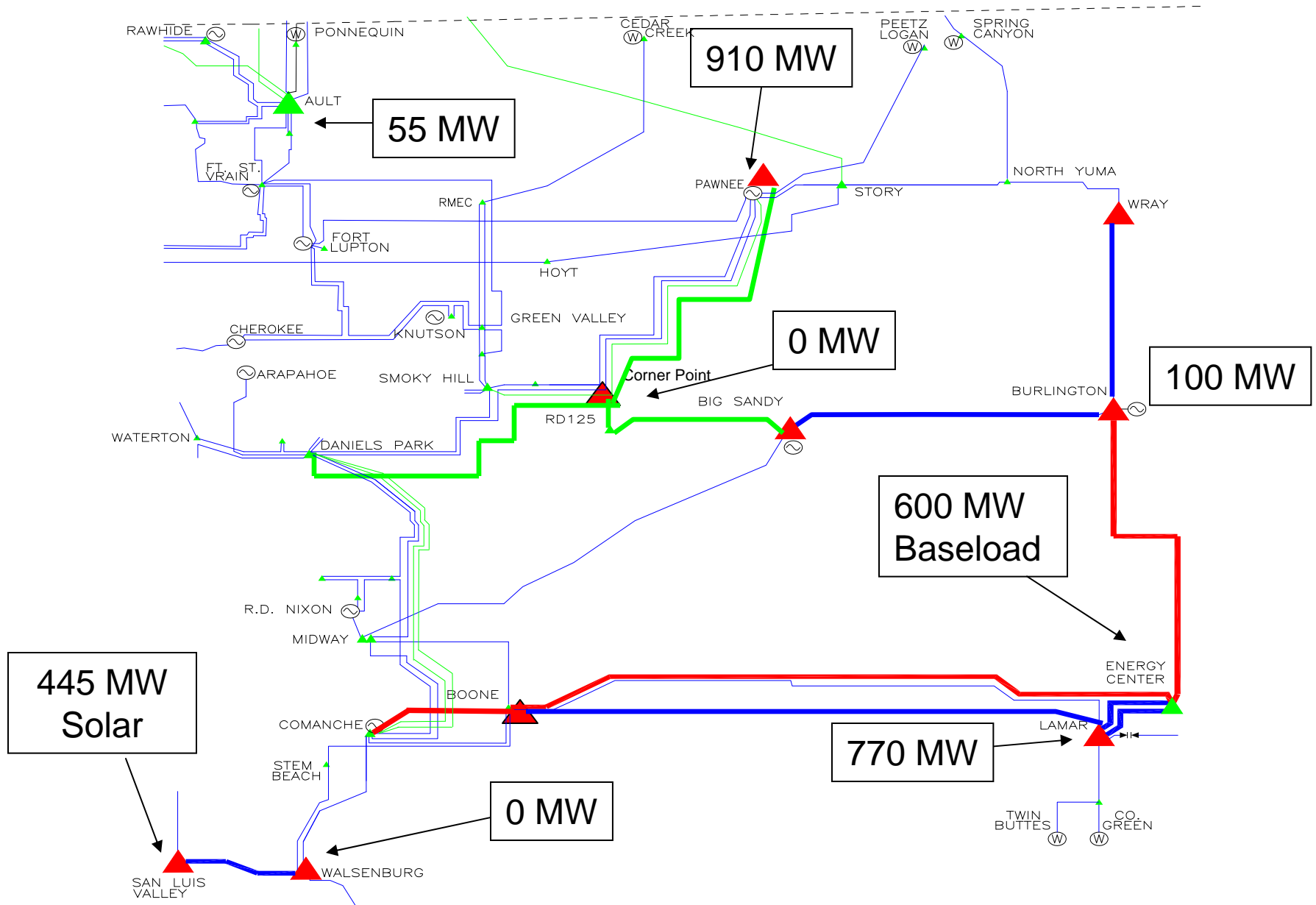


Scenario A High Injection Findings

- LEC – Burlington 500 kV Line & Lamar – Boone 500 kV Line
- Lamar – Boone Second 230 kV Line
- Lamar – Comanche 500 kV Line, with optional tie at Boone
- Upgrade Burlington - Big Sandy 230kV
 - Avoid Overloads On This Line For Several Outages



Scenario A High Wind Injections

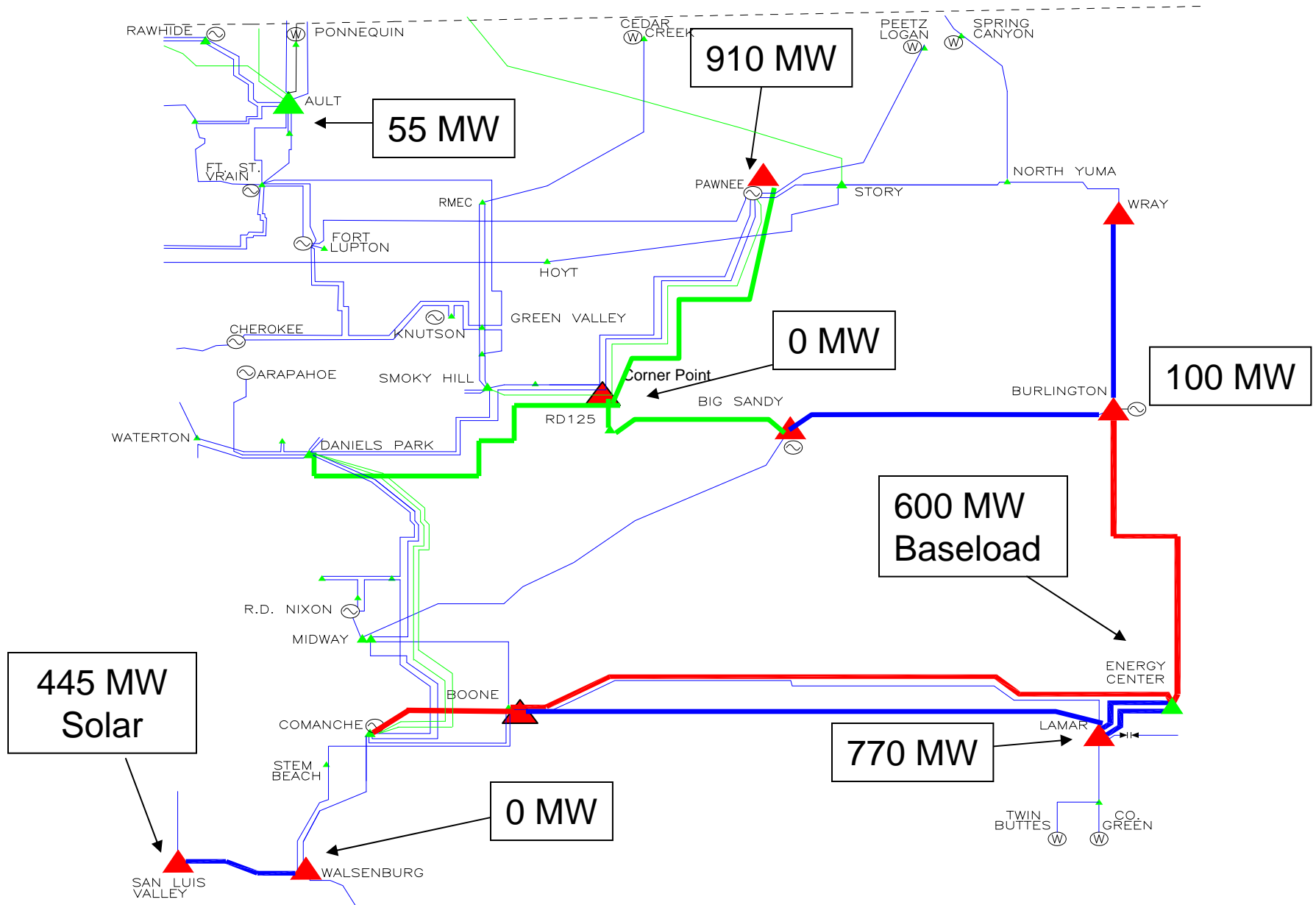


Scenario A High Injection Findings

- Big Sandy – 125 Road 345kV Line & 125 Road – Corner Point 345kV Line
 - Additional Path to Deliver Power Out of Big Sandy Into Denver



Scenario A High Wind Injections



Scenario A High Injection Findings

- LEC – Burlington 500 kV Line & Lamar – Boone 500 kV Line
- Lamar – Boone Second 230 kV Line
- Lamar – Comanche 500 kV Line, with optional tie at Boone
- Upgrade of Burlington - Big Sandy 230kV
- Big Sandy – 125 Road 345kV Line & 125 Road – Corner Point 345kV Line



Substations

- 500/230
 - Boone?
 - Burlington
 - (2) Lamar
- 500/345
 - Comanche
 - Big Sandy?



Schedule Review

- Delay in Review Case Release
- Final 2018 Case Release Date Scheduled for May 30, 2008
 - Not Released Yet
 - Use for Dynamic Studies
- Goal Timeframe:
 - Study Work Complete by End of June
 - Report by End of August



Questions or Comments?

