SOUTHERN COMPANY

Southern Company Transmission

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2012 National Transmission Congestion Study

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2012 National Transmission Congestion Study

Based on the questions posed to panelists, there are two areas upon which I would like to offer comment:

- Metrics To Be Used In The Study
- Present / Future Congestion

I'll then end with a few brief remarks focused on a third topic

- EIPC Experience

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

#2 What factors should DOE look at when evaluating congestion and identifying congestion areas?

2009 Transmission Congestion Study defines congestion as,

> *"The condition that occurs when transmission capacity in a specific location is not sufficient to enable safe delivery of all scheduled or desired wholesale electricity transfers simultaneously."*

"All … transfers" is inclusive of Firm and Non-Firm schedules.

Overall, we feel the evaluation and identification of congestion should only be based on Firm schedules.

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Three Elements Used As Congestion Metrics in 2009 Study

- Transmission Reservations
- Transmission Schedules
- Real-Time Operations

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Transmission Reservations

- Congestion = AFC / ATC = 0.
- Does not recognize schedule flows – it is possible to have AFC / ATC = 0 with no schedule flowing.
- Unclear as to how the priority tiering of transmission reservations is recognized in evaluating congestion.
- Of the three congestion metrics used in past studies, we feel this one is the least telling as it describes very little with respect to transmission congestion.

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Transmission Schedules

- Evaluates utilization of a flowgate or interface.
- Utilizes a flow duration curve approach – accumulated flow over time.
- Should only examine firm usage utilization when identifying congestion.
- We encourage the continued use and refinement of this metric .

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Real Time Operations

- Transmission Loading Relief (TLR) Procedures.
- Recognizes the Frequency and Duration of a TLR event.
- Identifies the Magnitude of the TLR in MW's Curtailed.
- Can Be Converted to Curtailed Energy (MWh) to Better Define Impact of Curtailment.
- Stratifies the Priority Level of the Curtailment.
- We Encourage the Continued Use of this Metric and Urge that It Be Used In Conjunction with TLR Level 5 and 6 (Firm Schedule Curtailments).

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Additional Points to Consider With Respect to the Identification of Congestion:

- When a flowgate or interface is operating at its maximum allowable capacity or limit, is this congestion or is the facility performing as it was designed?
- For a flowgate or interface that is fully utilized, there are planning processes in place (impact studies, facilities studies) that allow for moving beyond limits.

2012 National Transmission Congestion Study – *Metrics To Be Used In The Study*

Additional Points to Consider With Respect to the Identification of Congestion:

- We can only identify congestion when we can properly define it. Congestion can only be properly defined once the expectations of the power grid are known and understood.
- The metrics based on schedules/utilization and real time operations are a step in the right direction. In our opinion, these metrics become less defining when they consider non-firm energy flows in the identification of congestion.

2012 National Transmission Congestion Study – *Present / Future Congestion*

#3 Is there current or conditional congestion in your area or region today?

#4 If current of conditional condition exists in your area, what are its consequences in terms of reliability

- No, Southern is currently experiencing no areas of congestion within its footprint.
- The 2009 study stated that the Southeast or “SERC region has a unique philosophy with respect to electric system planning and construction” in that “the transmission system within SERC has been planned, designed and is operated such that utilities’ generating resources with firm contracts to serve load are not constrained.”

2012 National Transmission Congestion Study – *Present / Future Congestion*

- Southern continues to integrate its transmission planning with its integrated resource plan so that least cost planning can be performed using the total costs of a particular resource.
- There does exist real future risk of congestion, or worse, within our system due to the given compliance deadlines for the recently proposed EPA regulations. It is our position that the deadline of three years is much too tight and that a compliance deadline of at least six years is needed for industry to meet the requirements of the regulations as proposed.

2012 National Transmission Congestion Study – *Present / Future Congestion*

Southern Company Background:

- Southern Company's public utility subsidiaries operate a vertically integrated and closely coordinated system of generation, transmission and distribution assets reliably serving 4.4 million customers throughout a 120,000 square mile territory in Alabama, Florida, Georgia and Mississippi.
- We own and operate a diverse generation fleet comprising approximately 47,000MW of generating capacity and a robust transmission system with over 27,000 miles of transmission lines.
- Southern Company has over 20,000MW of coal-fired generating capacity.

2012 National Transmission Congestion Study – *Present / Future Congestion*

Southern Company Background:

- 12,000MW of this capacity is in large, efficient coal units that have been equipped with state of the art environmental controls (SCR and FGD) at a cost of about $8.5 billion. Because of the uncertainty in the final rules, we do not know today which, if any, of these units will be permitted to operate in 2015.
- Based on the outcome of our preliminary engineering work, it is not likely that a single additional unit of these 12,000 MW can be equipped with a new baghouse by the January 1, 2015 deadline.
- It will take at least six years to complete the work expected.

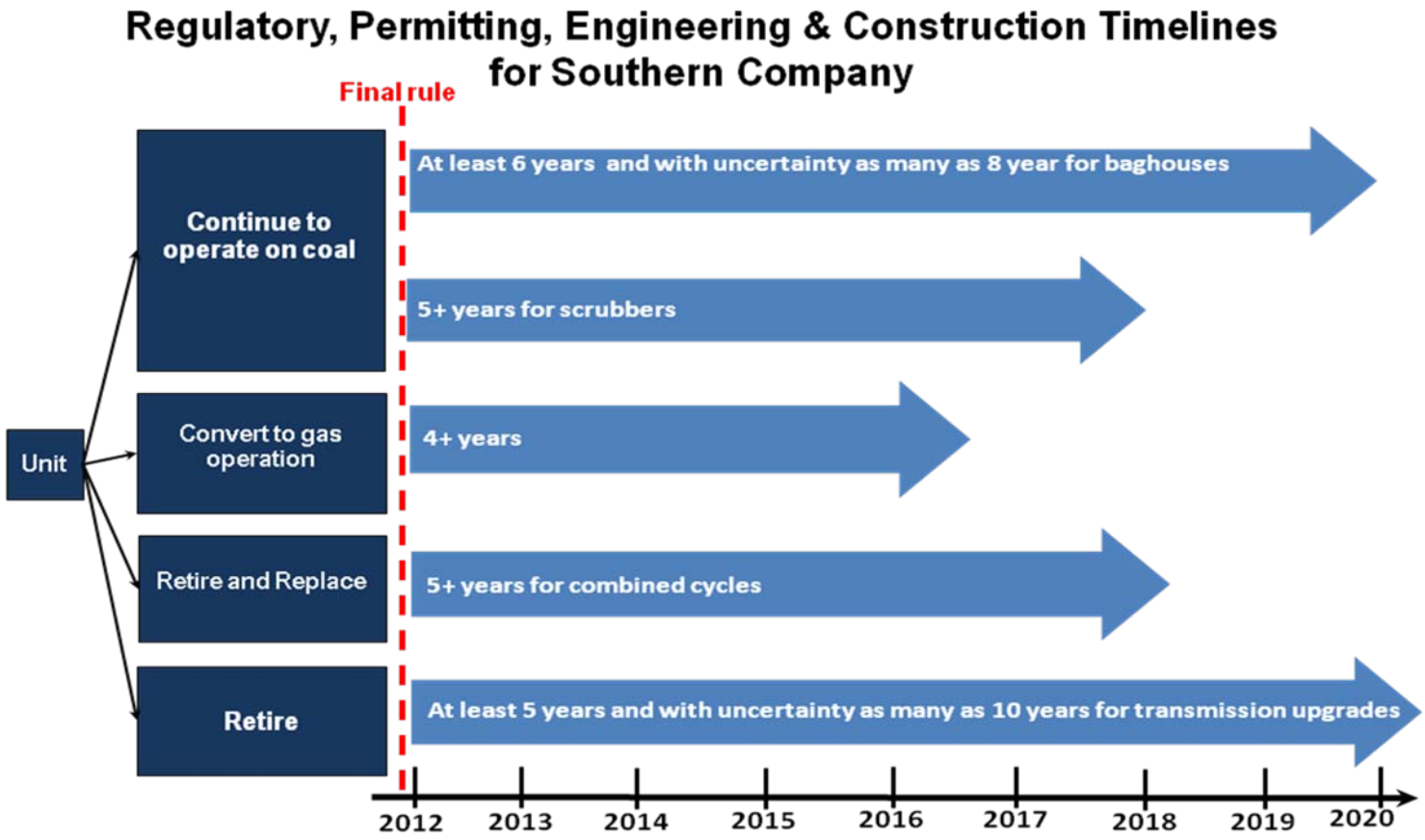
2012 National Transmission Congestion Study – *Present / Future Congestion*

- Of the remaining 8,000 MW of coal-fired generation, our assessment of the proposed Utility MACT rule, along with other expected rulemakings due in the near future, indicates that about 4,000 MW would be retired. The majority of the remaining units would be converted to natural gas.
- The impact to Southern Company, and to industry, of this three year compliance deadline creates a risk to the reliability of the power grid.
- These proposed rules will require a significant change in terms of operation, construction and costs on about 80 percent of all coal capacity Southern Company currently operates.

2012 National Transmission Congestion Study – *Present / Future Congestion*

- We project a need for 60 percent more craft labor than the maximum Southern Company has ever employed in its history.
- This explosive demand increase in labor, equipment and materials will create delays and cost increases that have not been accounted for.
- Our estimation is that the implementation of environmental controls will take up to six years to complete.
- New generation will take three to five years.
- Transmission upgrades will take three to seven years.
- Natural gas pipeline expansions will take more than three years.
- Outage scheduling on a regional and inter-regional basis will be the most challenging that the industry has ever experienced.

2012 National Transmission Congestion Study – *Present / Future Congestion*



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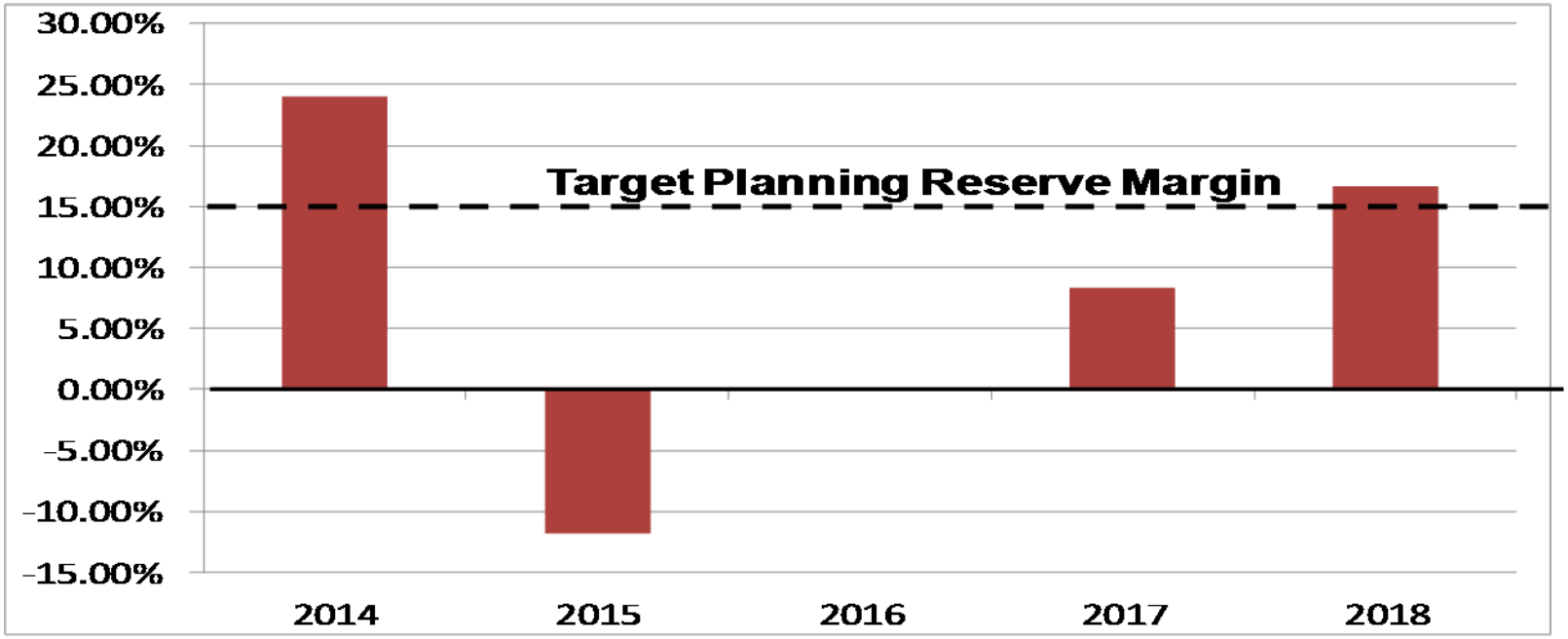
NOTE: Schedules based on unproven and questionable timeliness of equipment and materials availability.

2012 National Transmission Congestion Study – *Present / Future Congestion*

- Southern has conducted a reserve margin study for our region that takes into account both retirement and unavailability of generation due to retrofits and re-powering to meet proposed environmental standards.
- In 2015, absent any compliance extension for units that cannot be controlled by 2015, Southern Company will have negative reserve capacity and would have to use load shedding to maintain compliance with NERC reliability standards.
- The following graphic shows the dramatic impact of the EPA regulations on Southern's reserve margins between 2015 and 2017.

2012 National Transmission Congestion Study – *Present / Future Congestion*



Assumes no MACT extension available

2012 National Transmission Congestion Study – *Present / Future Congestion*

- We cannot err on the side of putting the reliability of the power system at risk.
- DOE should make appropriate findings and recommend that EPA invoke all available statutory authority under the Clean Air Act to protect electric reliability by providing the electric generators an extended compliance period.

2012 National Transmission Congestion Study – *EIPC Experience – DOE Award Project*

#6 How should DOE take advantage of the expertise and insight offered by EIPC in preparing the 2012 report?

- The project is a “first of its kind” effort with participation by Planning Coordinators, regulators and stakeholders from across the Eastern Interconnection
- The product of the study is not a transmission plan but rather to examine transmission options that would be needed to support generation resources resulting from public policy scenarios chosen by the EIPC stakeholder group

2012 National Transmission Congestion Study – *EIPC Experience – DOE Award Project*

- We find the concept of “rolling up” models on an inter-regional basis, evaluating the model and then folding that information back into the various Planning Coordinators’ planning processes to be of value
- We are at the midway point in the project; the study will not be concluded until the end of 2012