

AEO 2013 Electricity Working Group

1st Presentation for stakeholders



Electricity Analysis Team

August 9th, 2012 | Washington, DC

**WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES
DO NOT QUOTE OR CITE AS RESULTS ARE SUBJECT TO CHANGE**

AEO 2013 Working Group Meetings

- Macroeconomic/Industrial
- Buildings - Residential/Commercial
- Oil and Gas
 - Petroleum Markets
 - Natural Gas Production/Natural Gas Markets
- Renewables
- Coal
- Electricity
- Transportation

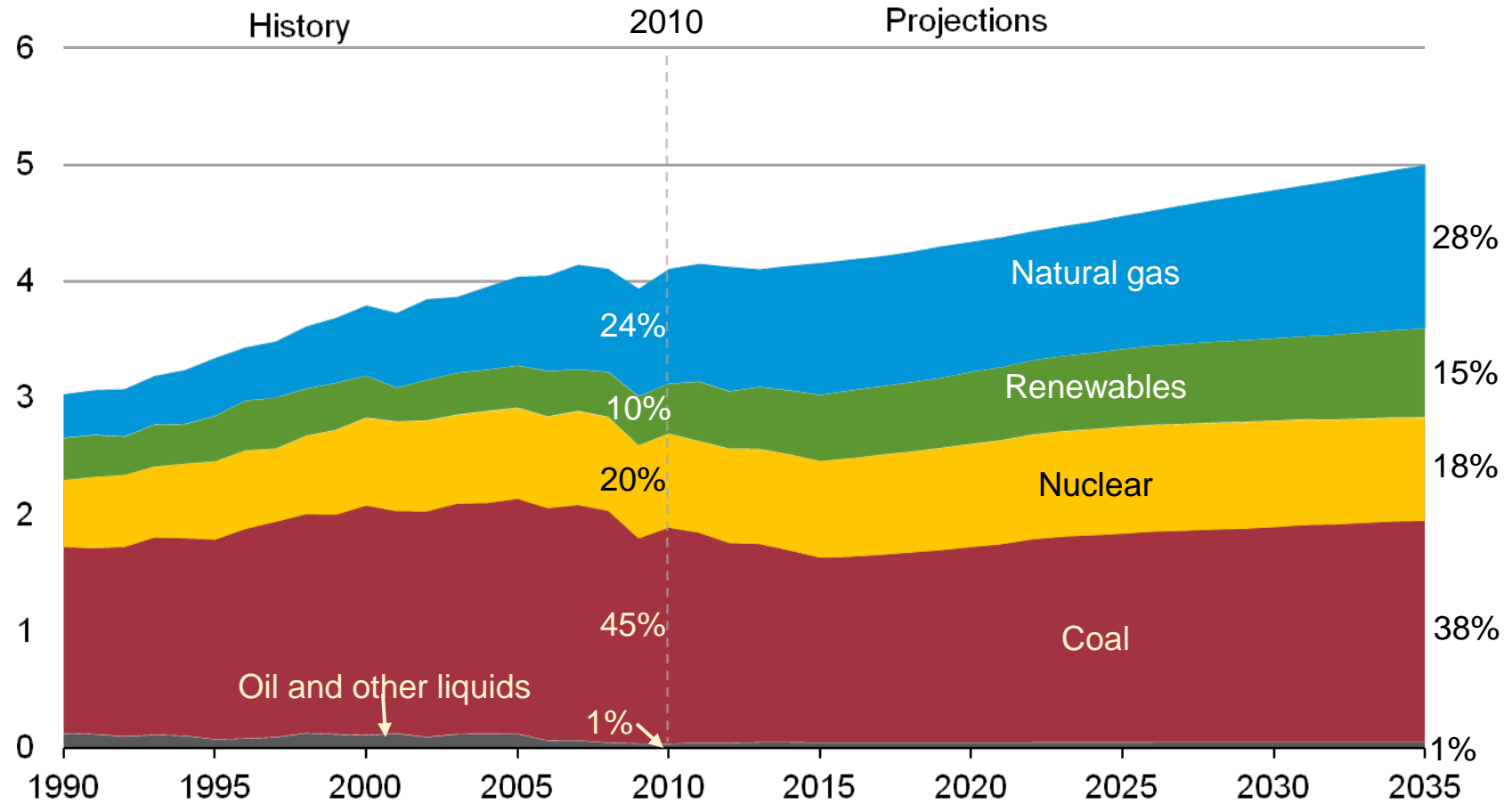
AEO 2013 - Expected timeline

- Compressed timeline
 - *AEO 2012* (full version) was released in late June, 4 months latter than planned
 - As a result, the *AEO 2013* development cycle got off to a late start
- 1st electricity working group meeting (Today)
 - to discuss key modeling and assumption changes, and cases we are considering for inclusion.
- 2nd electricity working group meeting (Mid Sept – Early October)
 - Second meeting, date to be determined, to present preliminary results.
- Early release (Mid November)
- Full release (February 2013)

A look back to AEO 2012 - Electricity mix through 2035

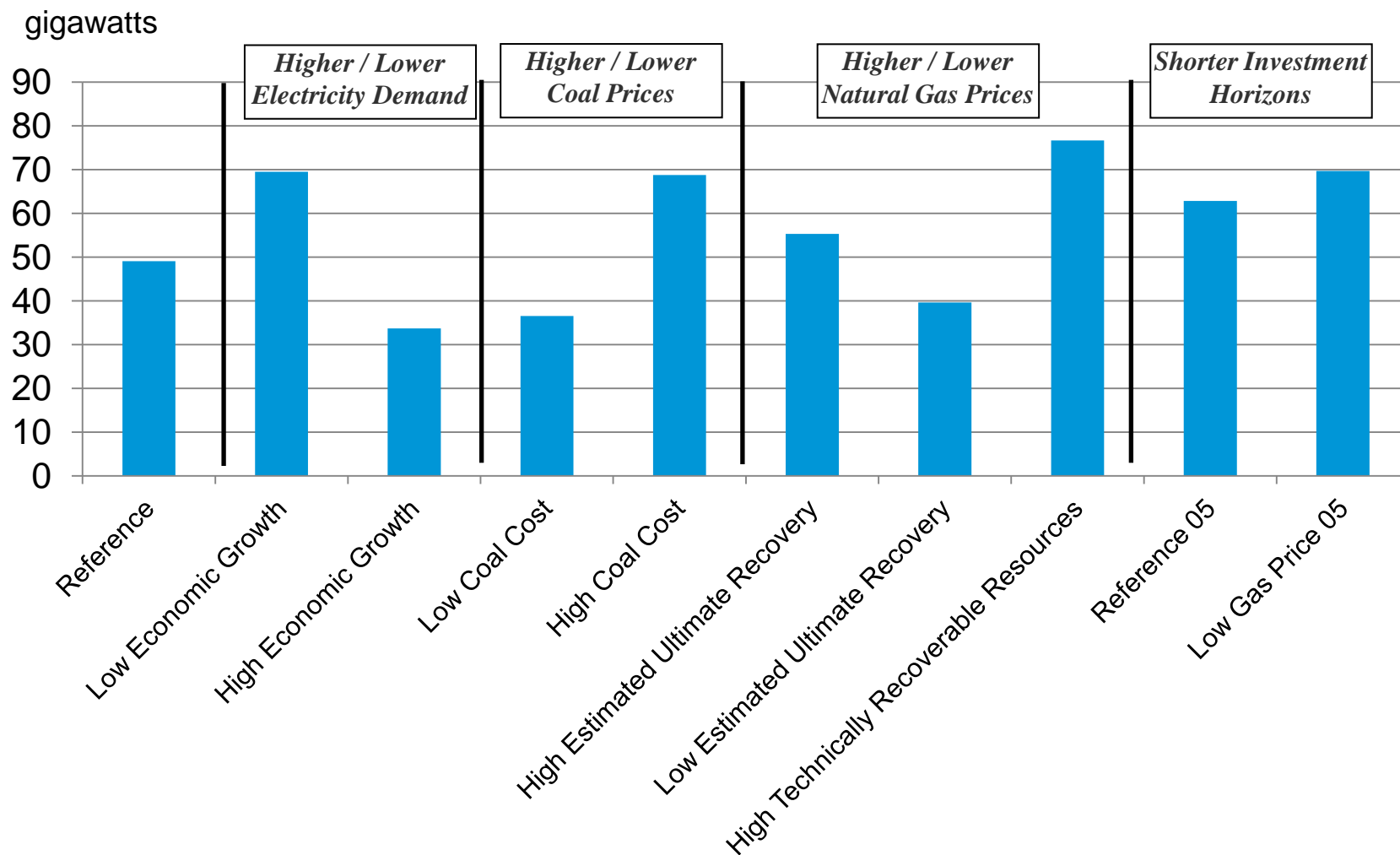
electricity net generation

trillion kilowatthours per year



Source: EIA, Annual Energy Outlook 2012

Coal plant retirements through 2020 in side cases



Source: EIA, Annual Energy Outlook 2012

Key electricity related modeling issues for *AEO 2013*

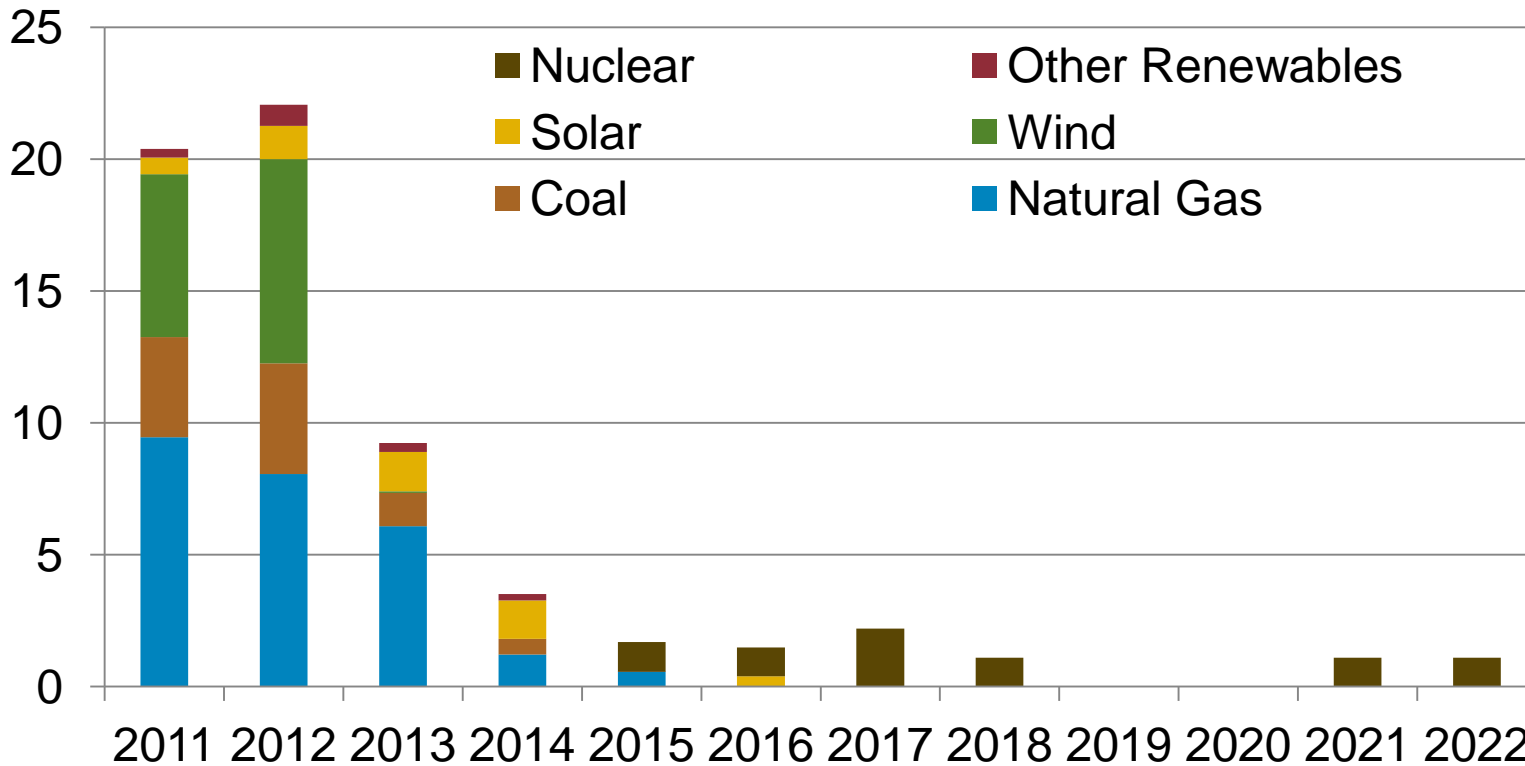
- Environmental regulations
- Projection horizon extended to 2040
 - Evaluate the potential for new technologies
 - Evaluate whether any new resource or operational constraints may be introduced for existing technologies
- Reported coal retirements and capacity expansion
- Fuel prices and electricity demand growth
 - The electricity market module (EMM) takes these as inputs from other NEMS modules

Environmental Regulations in *AEO 2013*

- Mercury and Air Toxics Rule - **Yes**
- Cross State Air Pollution Rule - **Yes**
- Cooling Water Intake 316b - **No**
- Coal Combustion Residuals - **No**
- GHG New Source Performance Standards - **Maybe**
- California AB 32 - **Yes**
 - Integrated with other NEMS modules

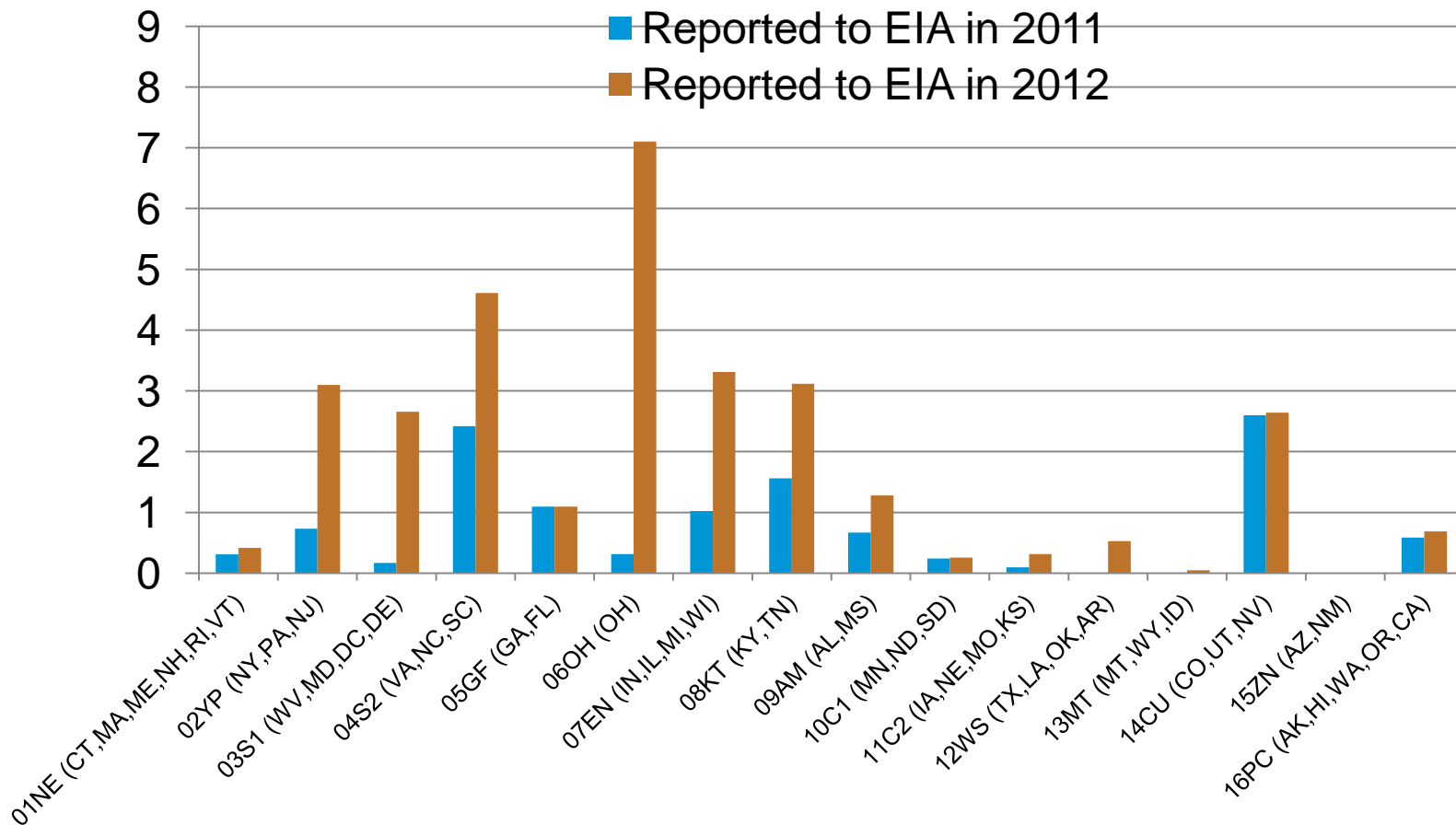
Planned Capacity Additions

gigawatts, net summer



Reported coal-fired capacity retirements in the electric power sector by coal demand region, 2011-2035

gigawatts, net summer



Source: U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2012*, Reference Case; and EIA, Form EIA-860, "Annual Electric Generator Report"

Updated capital costs

- EIA has funded a task with R.W. Beck/SAIC (now SAIC Energy, Environment & Infrastructure, LLC) to update technology costs used in the electric power sector
 - R.W. Beck did a similar report for EIA in 2010, which serves as the basis for *AEO 2011* and *AEO 2012* capital costs
 - The contract was recently awarded, and work should be substantially completed by mid September
 - We will try to prioritize preliminary data to focus on technologies that have seen the biggest changes in cost over the past 2 years
- Refining methodology for calculating Dry Sorbent Injection, Fabric Filter, and Activated Carbon Injection costs
 - Better representation of costs for MATS compliance

Focus on nuclear

- Uprates – No Change from *AEO 2012*
 - No change from *AEO 2012*
- Retirements – No Change from *AEO 2012*
 - Limited amount of capacity is retired that is meant to represent older, smaller, costly plants to operate.
 - Between 2036 and 2040, 13 additional units reach their 60 year operating mark. However, these units are relatively younger & are already equipped with post – TMI retrofits. Therefore, we assume they will cross the 60 year hurdle
- New plants
 - Levy Project is added to planned capacity
 - Joins Vogtle, VC Summer, Watts Bar 2 & Bellefonte 1

Planned Additions for *AEO 2013*

- Planned additions are power plants that have reported to EIA as being in the process of planning and construction
 - Our model cannot pick-up very near-term demand for new plants, but is able to make projections for most plants types over the next 2 to 5 years
 - The planned additions are intended to account for growth during this “blind spot” in model coverage
- In general, EIA only includes plants that have started construction in the AEO projections
 - Past experience suggests a high degree of uncertainty over plants that report earlier planning milestones
 - For nuclear we relax these assumptions to reflect the long lead times and regulatory steps involved in new nuclear power plant construction

Feedback from the Working Group

- Issues with Prior AEO Studies
 - Assumptions
 - Results
- Suggestions for AEO2013 Analyses
 - Input Assumptions
 - Scenarios/Sensitivity Analyses
- Questions/Comments
 - Provide Name, Organization
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