



# Nuclear Decision

July 31, 2017

# 2005/2006 Decision Making Climate



**High System Load  
Growth Projections**

**Rising Natural Gas &  
Coal Forecasts**

**Increased Discussions of  
CO2 Legislation with  
Significant Cost Impacts**

**Interest in Nuclear for  
Fuel Diversity**

**Energy Policy Act of  
2005 Providing  
Incentives for Nuclear**

# Reasons Not to Build Coal

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- In 2007, Congress was considering several bills that would increase regulations on greenhouse gas emissions and make operating coal plants more expensive
  - Waxman: Safe Climate Act of 2007 (141 Cosponsors)
  - Bingaman-Specter: Low Carbon Economy Act of 2007
  - Lieberman-Warner: Climate Security Act of 2007
  - Lieberman-McCain: Climate Stewardship Act of 2007
  - Lieberman-Alexander: Clean Air/Climate Change Act of 2007
  - Lieberman-Sanders: Clean Power Act of 2007
  - Sanders-Boxer: Global Warming Pollution Reduction Act of 2007
  - Feinstein-Carper: Electric Utility Cap-and-Trade Act of 2007
  - Carper-Collins: Clean Air Planning Act of 2007
  - Kerry-Snowe-Kennedy: Global Warming Reduction Act of 2007
- Barack Obama campaigned against coal-fired generation in 2007-2008.
  - Jan 2008 Obama quote: “If somebody wants to build a coal-fired power plant, they can. It’s just that it will bankrupt them.”

# Reasons Not to Build Natural Gas

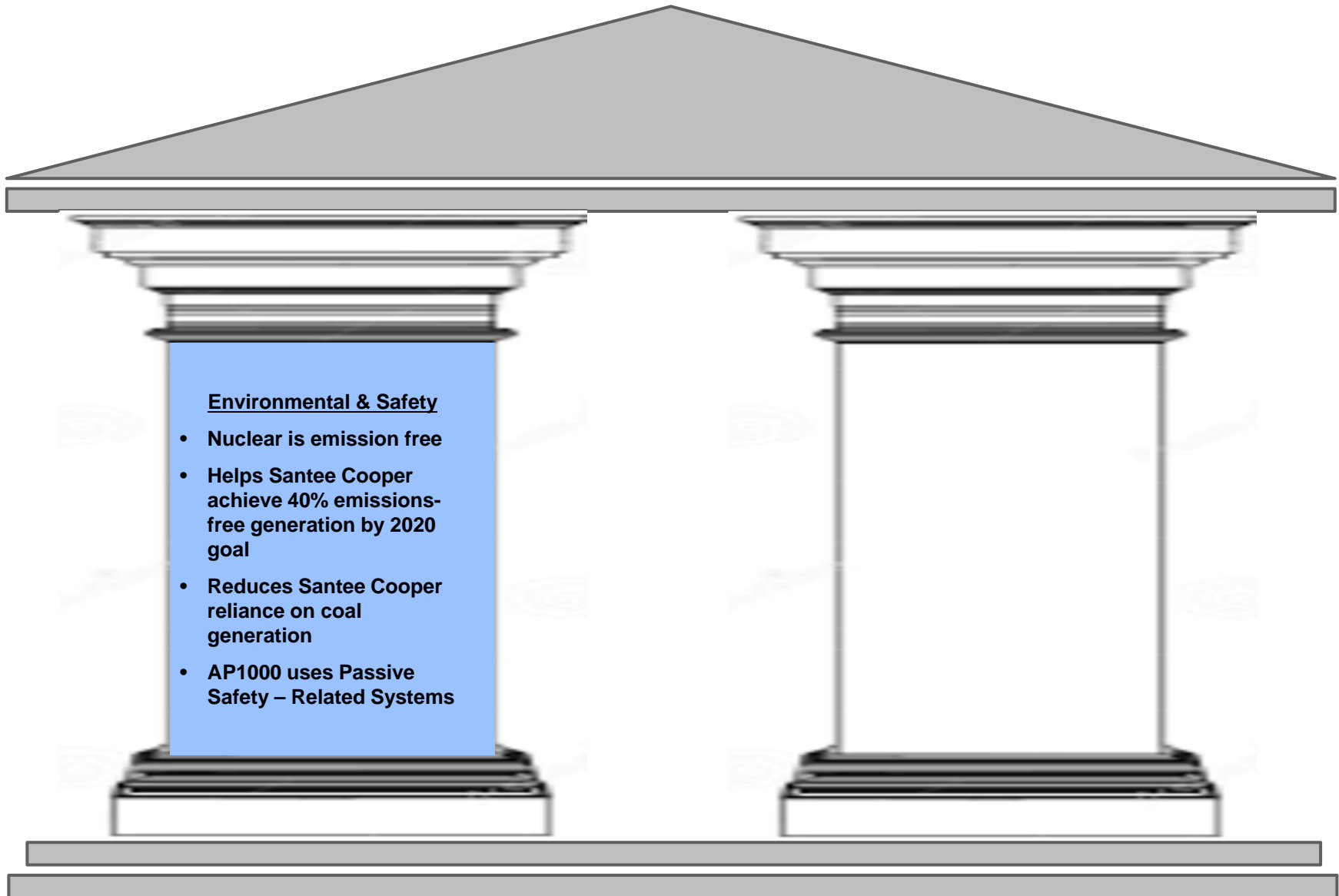
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- Natural Gas prices – Henry Hub, \$14.84 in Sept 2005 (and 2008 Forward Curve showed it staying between \$10 -\$12 through 2017)
- Extremely volatile history
- Still emits greenhouse gases
- No pipeline transmission close to Santee Cooper's load

# Decision to Build Nuclear

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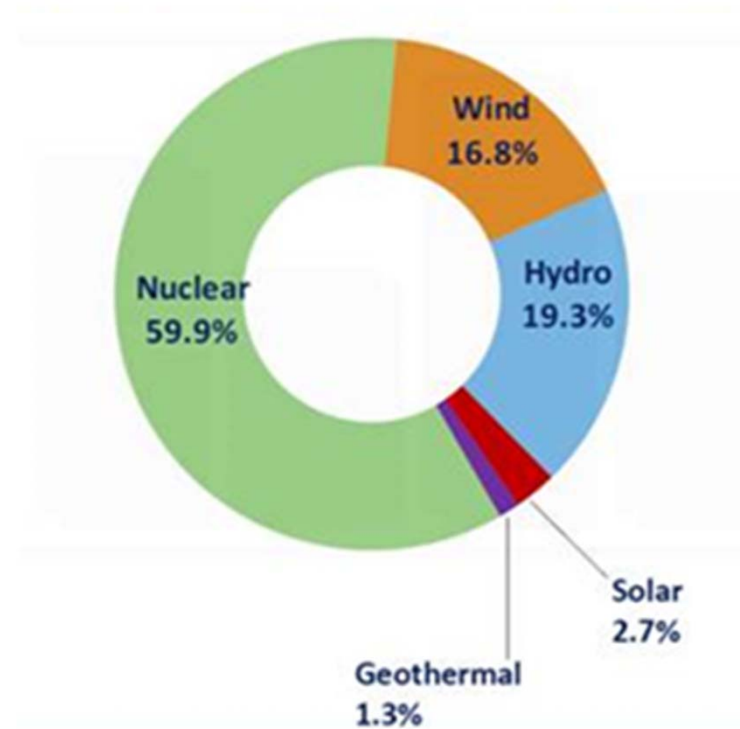
# Nuclear Power – Emission Free Energy



- Nuclear energy is the largest source of emission-free electricity.
- 99 reactors in 30 states provide nearly 20% of America's electrical power.

U.S. Electricity Sources Which Do Not Emit Greenhouse Gases During Operation

2016

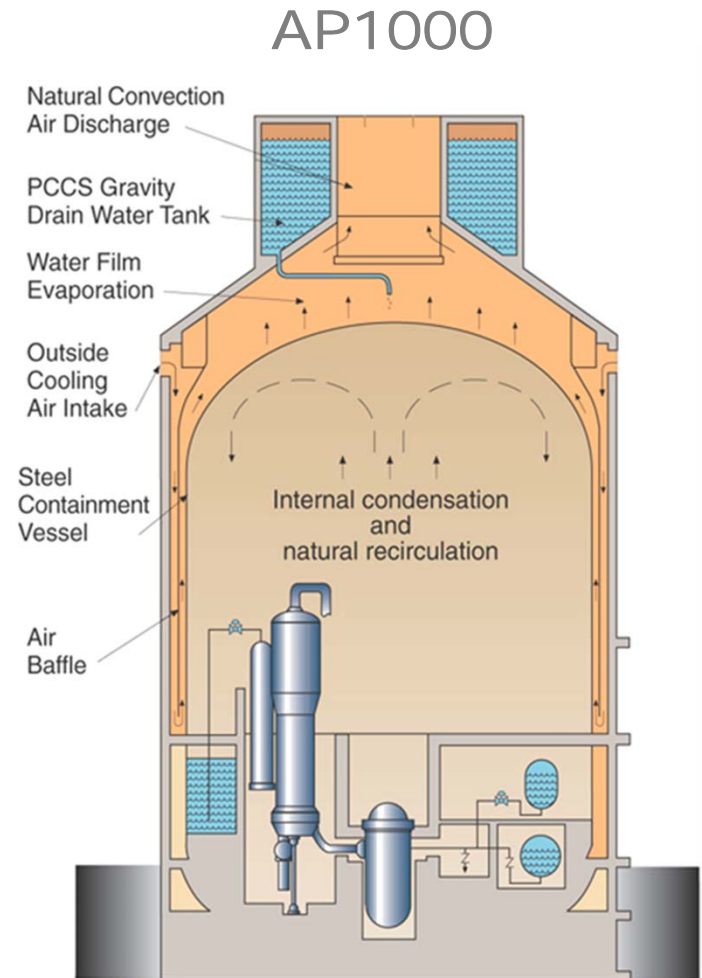


Nuclear Energy Institute

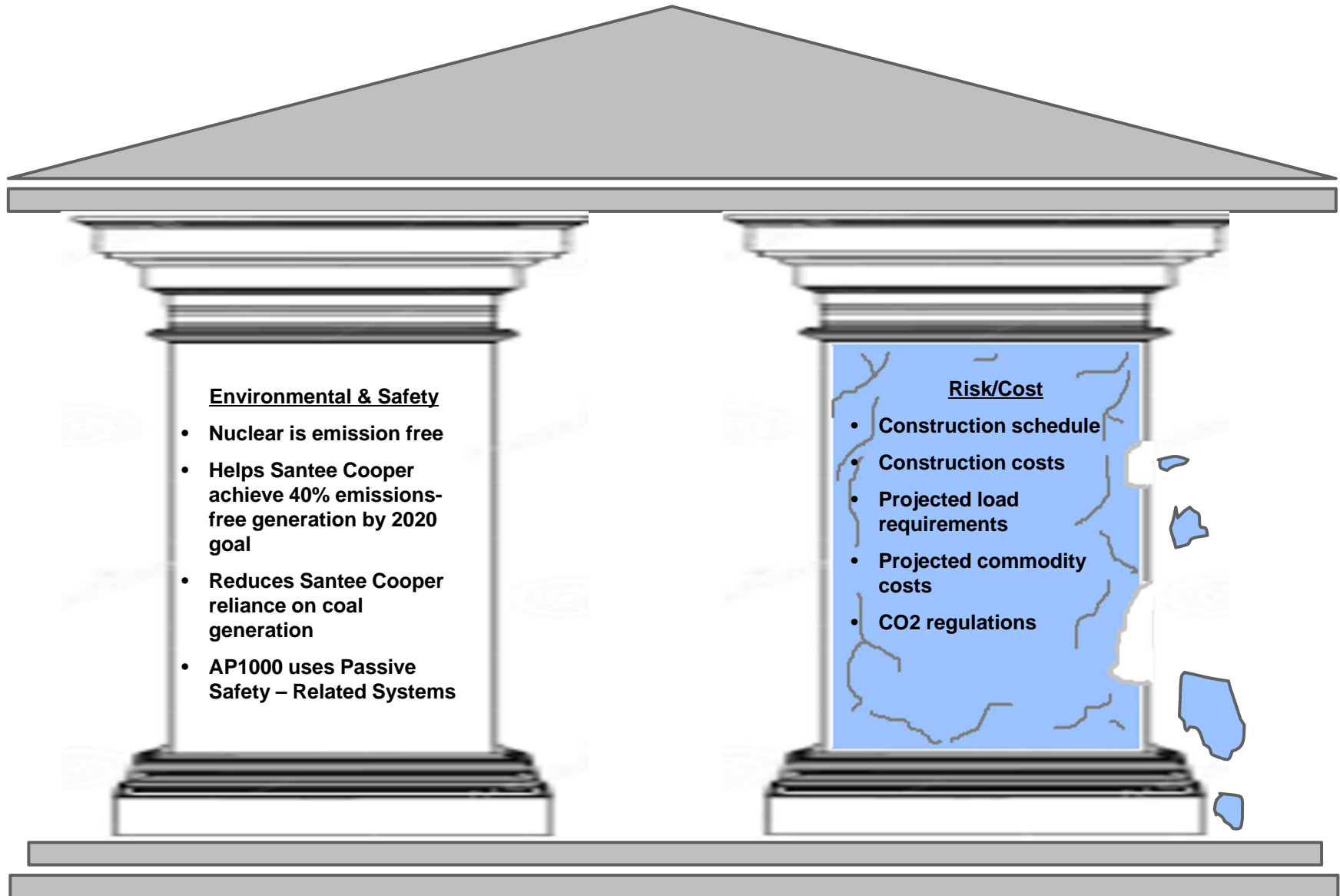
# AP1000 Approach to Safety

## Advanced Passive Safety Systems

- Containment Vessel & Fuel Core protected automatically
  - No operator intervention required
  - No AC power required
  - Safe shutdown can be achieved & maintained for 3 days
- Redundant backup systems can sustain safe shutdown indefinitely



# Decision to Build Nuclear





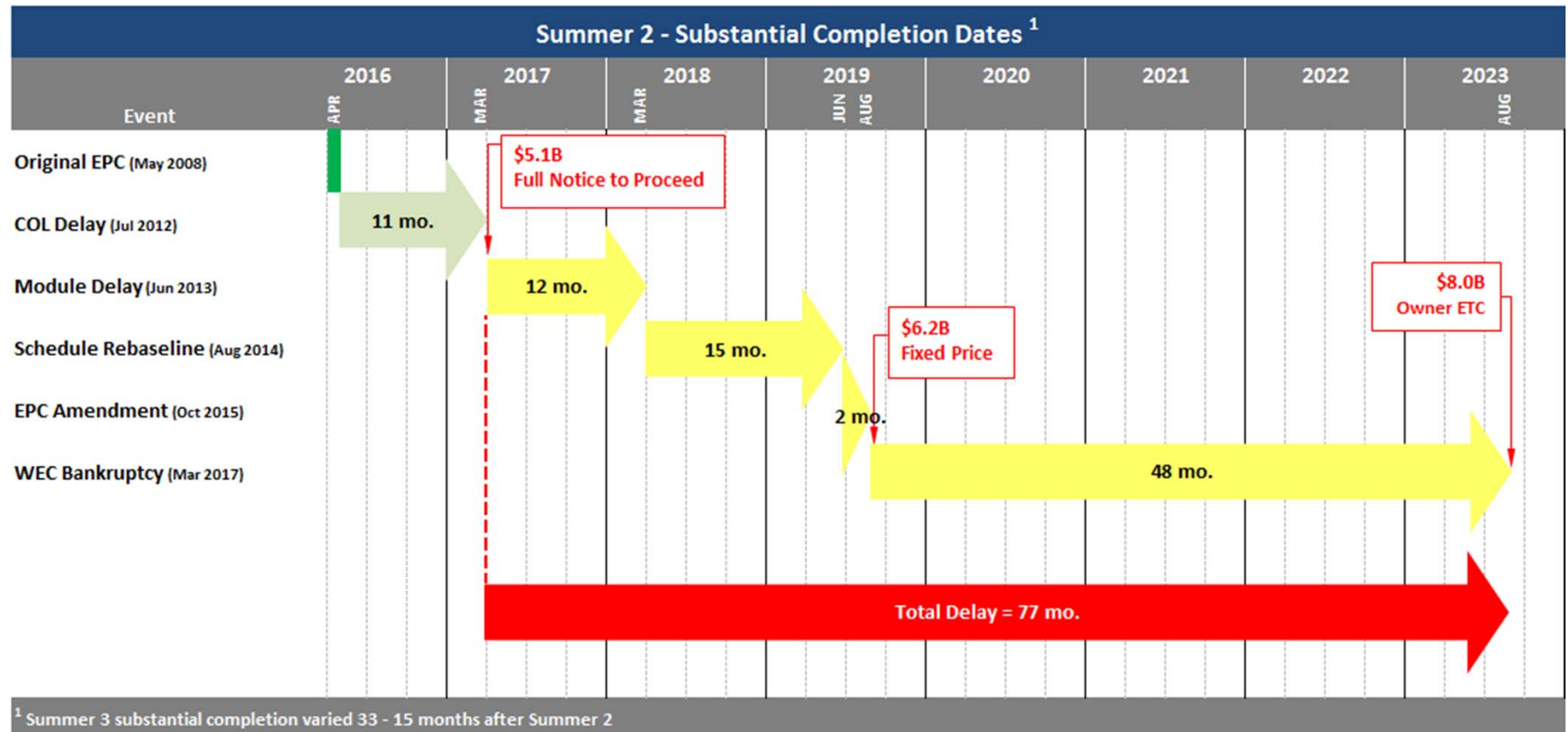
# Consortium Performance

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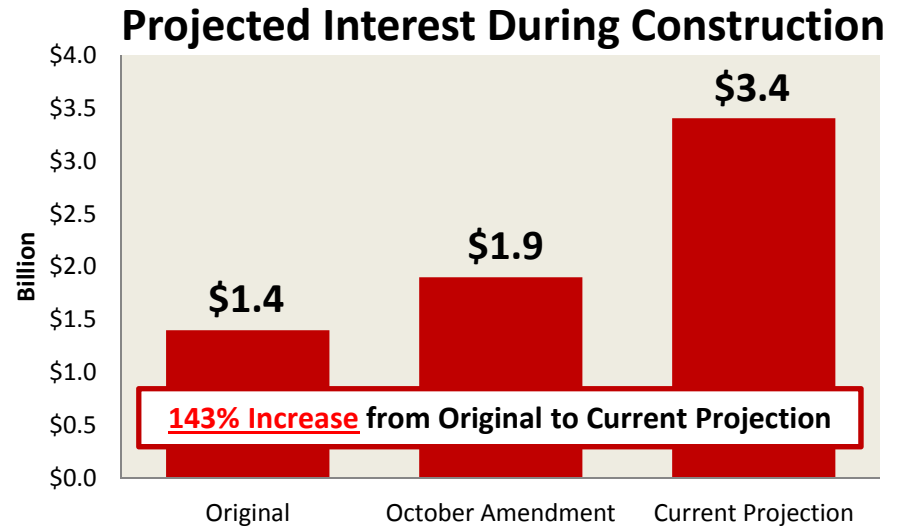
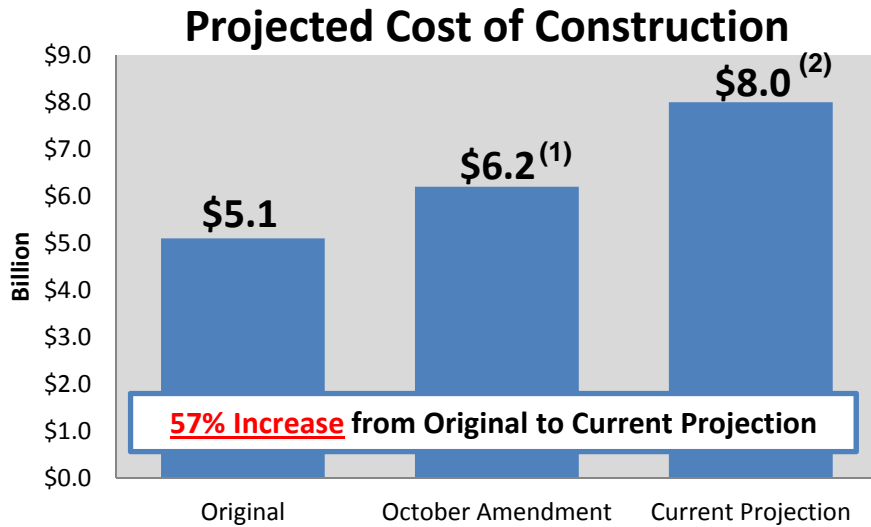
- WEC Performance
  - Design issues/delays
  - Leadership lack of transparency
  - Leadership turnover
  - Failure to complete design
  - Failure to coordinate module design/build
  - Failure to develop fully resourced schedule & budget
  - Poor work site coordination

# Summer 2 & 3 Project Schedule Delays

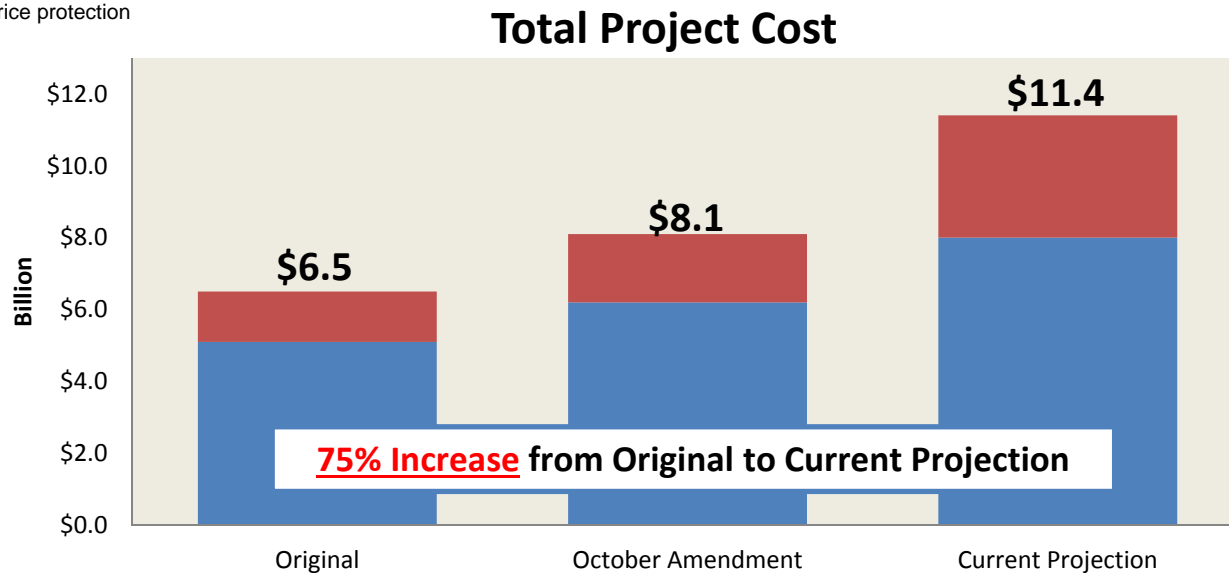


**Approximately 6.5 years delay,  
subsequent to COL delay**

# Economic History Impacting Summer 2 & 3 Project

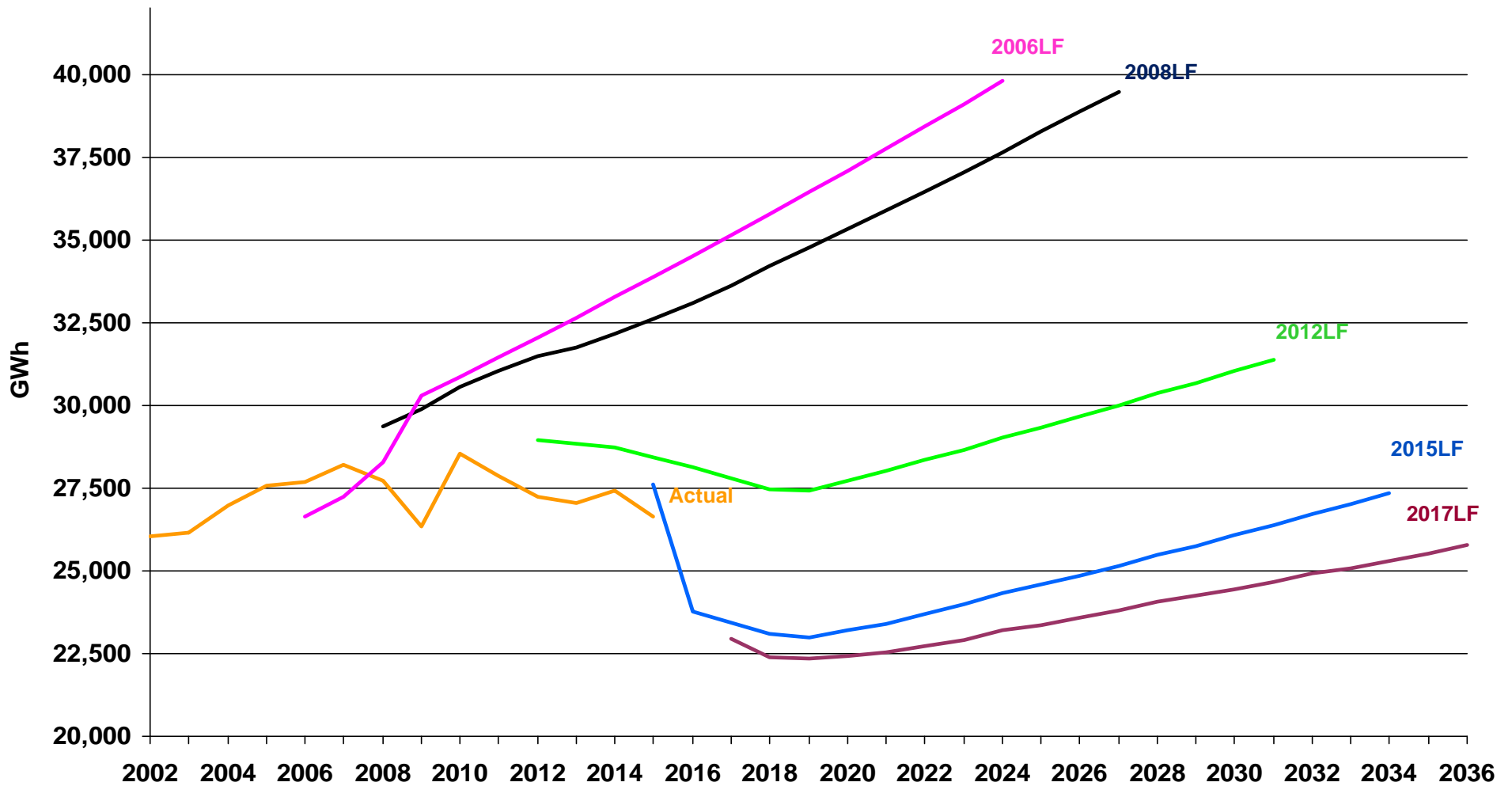


- (1) Includes fixed price protection
- (2) Has no fixed price protection



# System Energy (GWh)

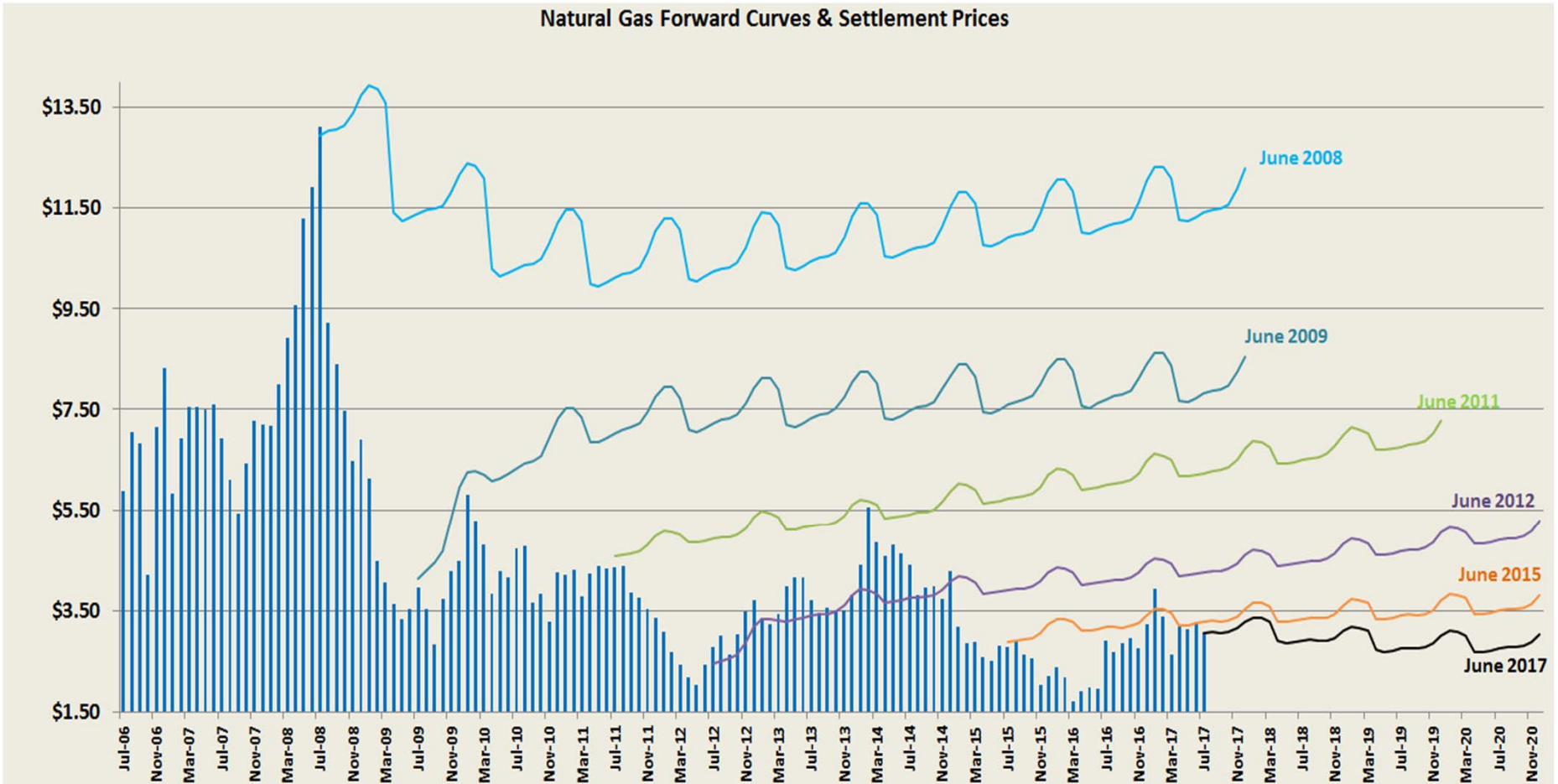
Generation Level<sup>(1)</sup>



(1) Generation Level Excluding Off-System Sales

# Natural Gas (MMBtu)

## Price Curves & Historical Settlements

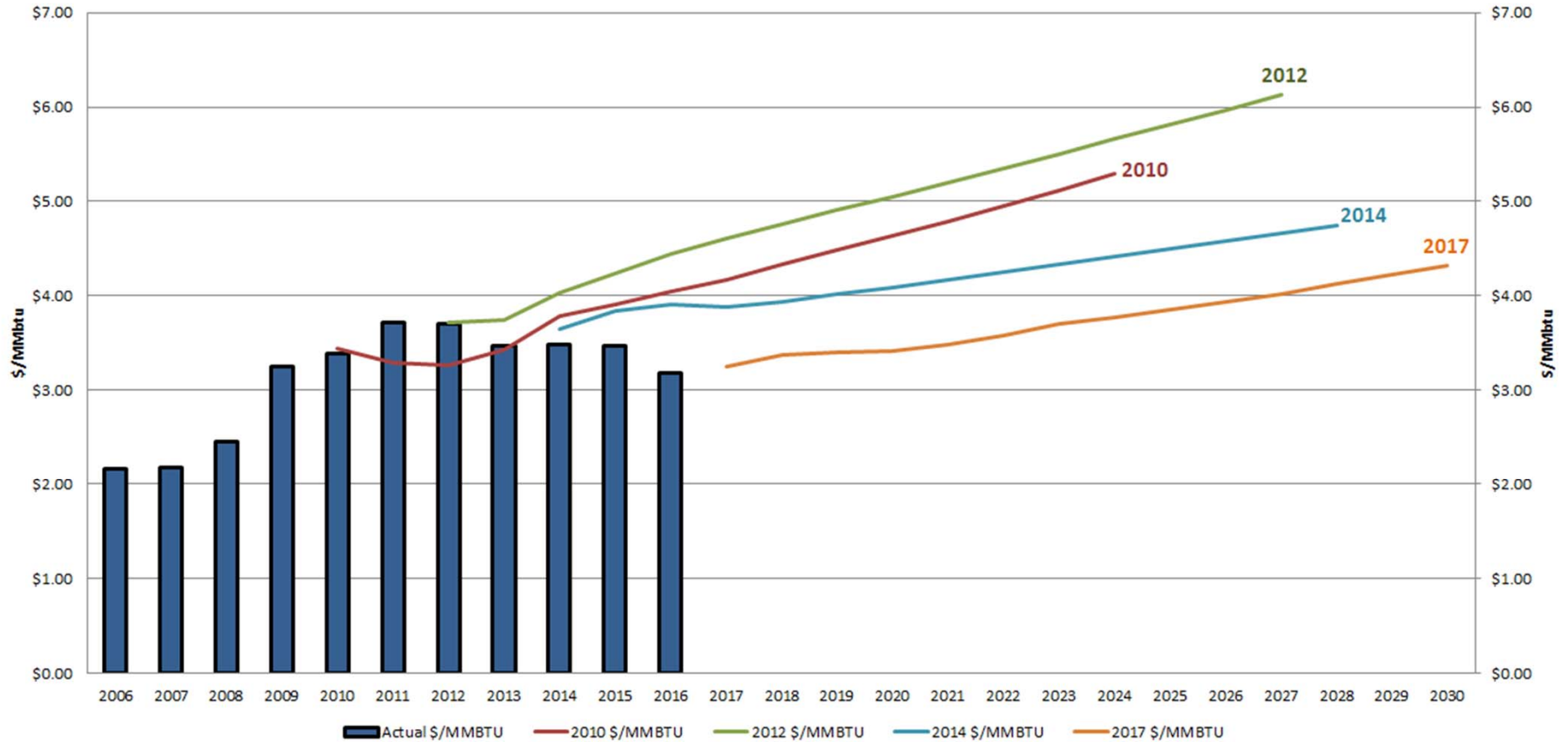


# Coal (MMBtu)

## Coal Projections & Historical Settles



Coal \$/MMbtu Forecast Projections



# Summer 2 & 3 Power Supply Costs

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- Performed a study to compare the projected cost of power with a natural gas alternative
- Examined uncertainties such as:
  - Completion Costs
  - CO2 regulation
  - Natural gas prices
- Concluded, under current reasonable assumptions, the projected costs of power resulting from completing Summer 2 & 3 or completing Summer 2 only are projected to be significantly higher than a natural gas alternative

## Conditions Under Which Summer 2 & 3 Costs are Comparable to a Natural Gas Alternative

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- With CO<sub>2</sub> Regulation:
  - All three must occur
    - Most optimistic cost assumptions
    - Significant high carbon regulation costs
    - Natural gas prices significantly higher than base case assumptions
- Without CO<sub>2</sub> Regulation:
  - Natural gas prices 2 to 4 times higher than base case assumptions
- At this time, it would not be reasonable to base a decision to proceed with Summer 2 & 3 on the assumption that these scenarios would occur



## Summer 2 & 3 Risks & Uncertainties

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- Higher than projected construction costs
- Higher than projected operating costs
- AP1000 design not yet in commercial operation
- Lack of nuclear industry economies of scale
- Customer rates could be significantly higher if load is lower than currently projected

# System Power Cost Impact (as of 2030)



	1. Complete Summer 2 & 3 1,005 MW	2. Complete only Summer 2; add one NGCC unit 1,044MW	3. Suspend construction on Summer 2 & 3; add NGCC unit(s) 1,081 MW
System Cost 2030 (¢/ kWh) <i>2017 Projected Cost: ~7.5 ¢/kwh</i>	10.6	10.3	9.7
Cumulative System Cost Increase 2017- 2030	41%	37%	29%
Cumulative System Base Cost (Excludes Fuel) Increase 2017 - 2030	41%	30%	15%

**Notes:**

- a. Source: Santee Cooper Projections
- b. Nuclear go forward Scenarios 1 and 2 assume 45% ownership
- c. Parental Guaranty proceeds benefit all scenarios
- d. Scenarios 2 and 3 assume no salvage proceeds

**Questions?**