GHG Policy and the Electricity Capacity Challenge
A View from The Energy Information Administration

for

GREENHOUSE GAS POLICY AND UTILITY REGULATION: EMERGING CHALLENGES AT THE INTERFACE
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Washington DC

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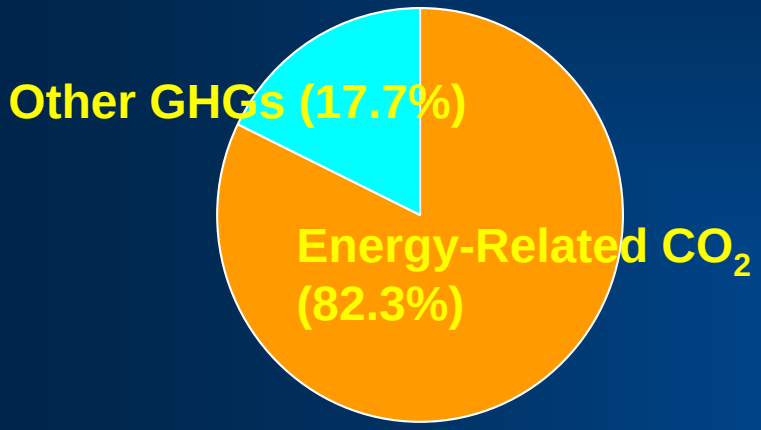
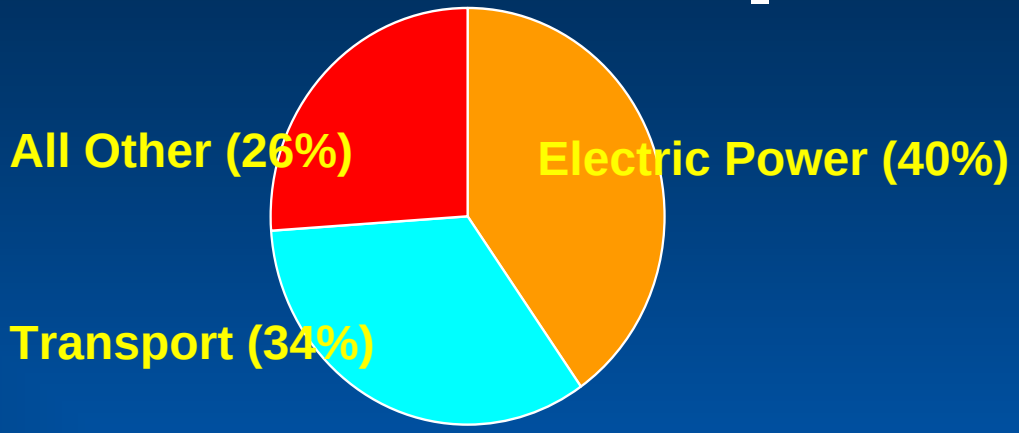
Energy Information Administration
Official Energy Statistics from the U.S. Government

Coal Use in Electricity Generation is a Major Source of U.S. GHG Emissions

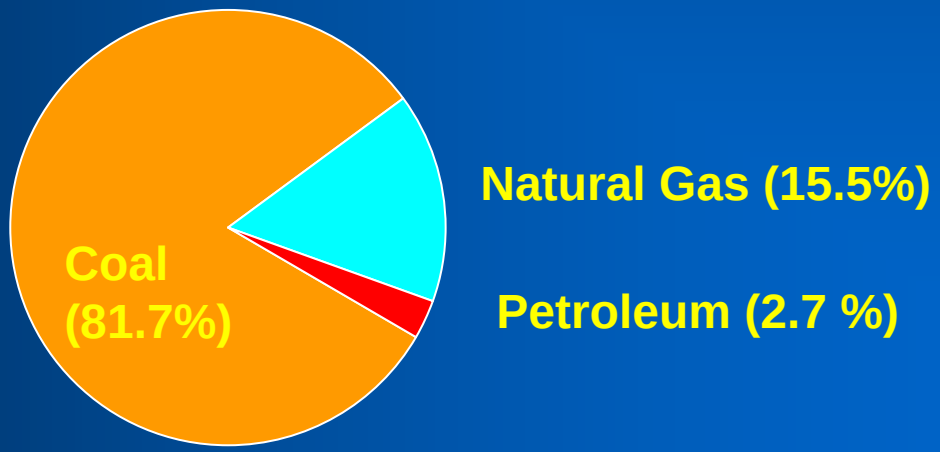
A: U.S. GHG Emissions (2006)



B: Energy-Related CO_2 (2007)

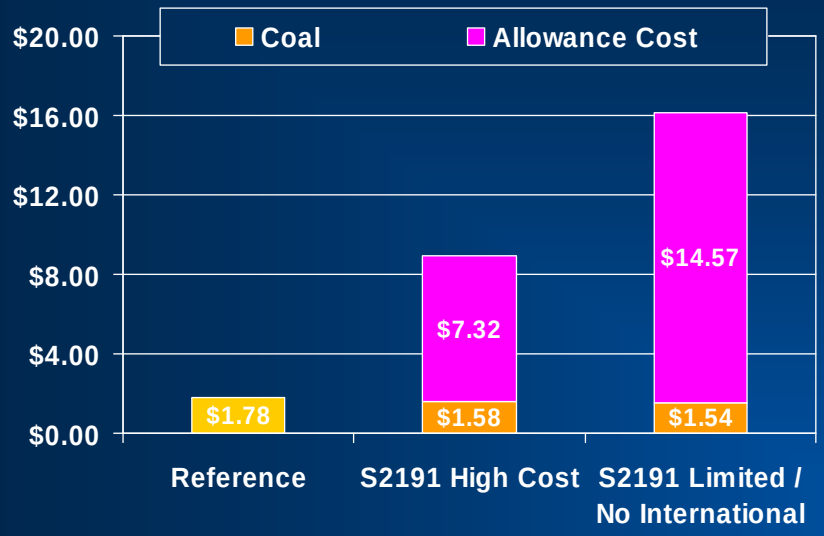


C: Electric Power CO_2 by Fuel

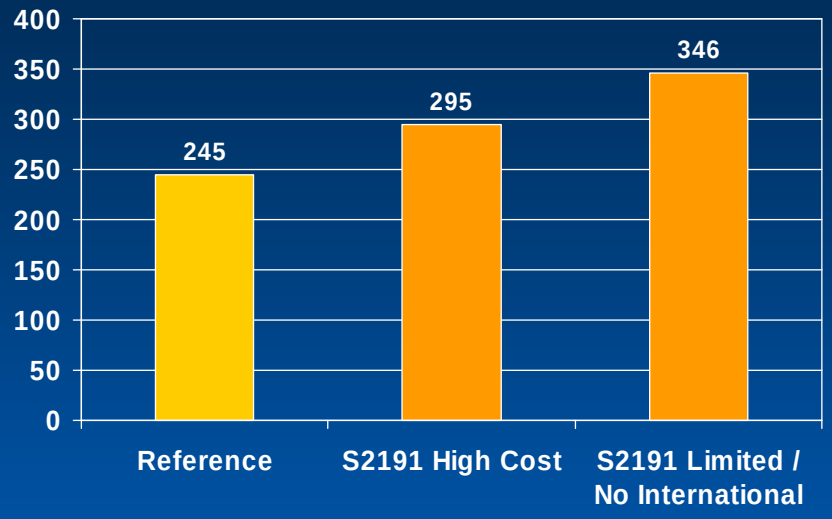


Energy Prices: Lieberman-Warner Cases

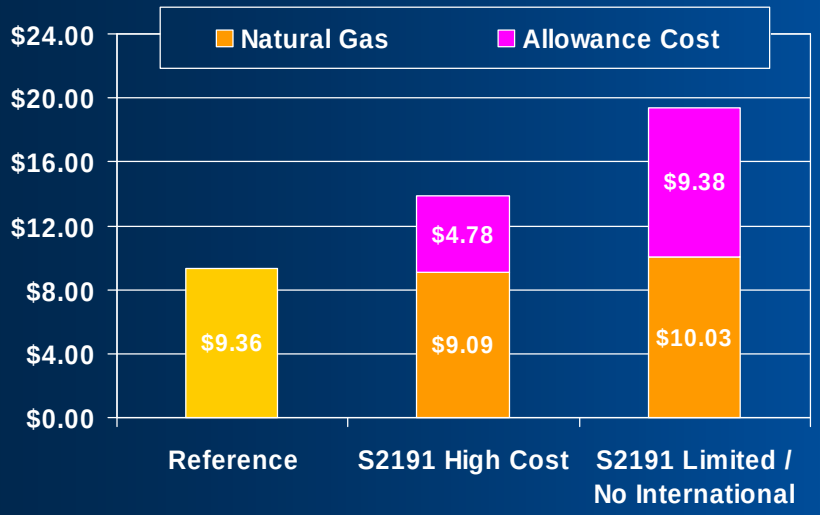
2030 Delivered Coal Costs (2006 $ per million Btu)



2030 Motor Gasoline Pump Prices (2006 cents per gallon)

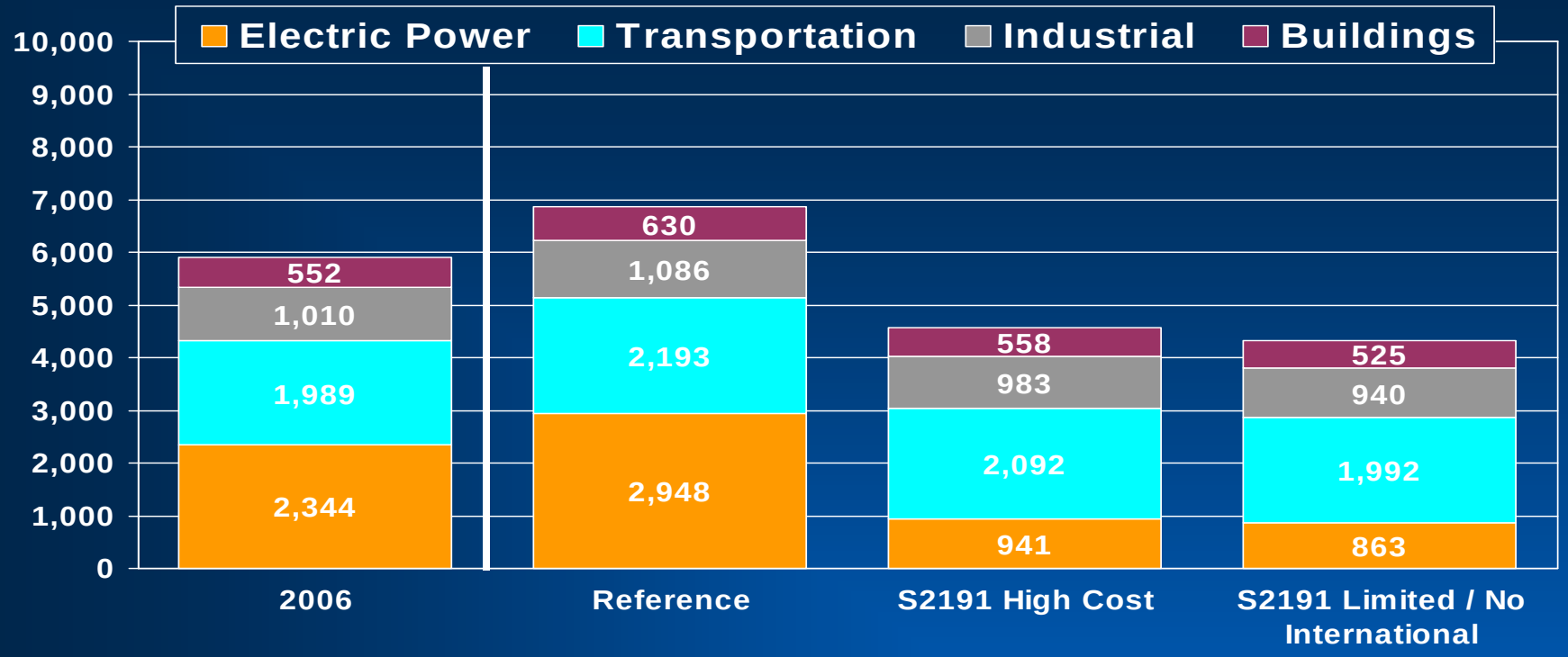


2030 Delivered Natural Gas Prices (2006$ per million Btu)



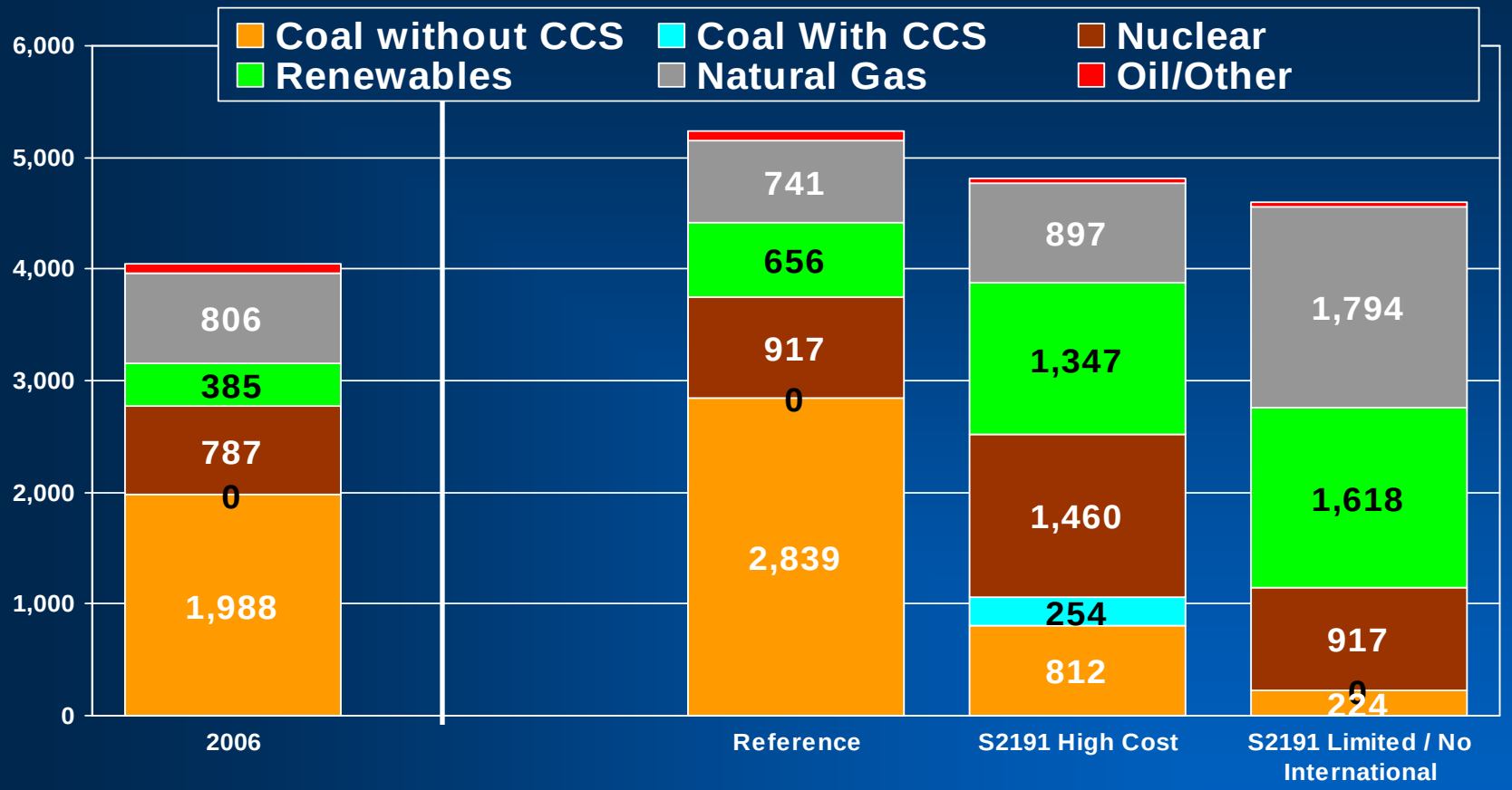
- The delivered price of coal in 2030 in 2006 dollars, including allowances, increases dramatically across the L-W cases, with an increase over 800 percent in the most pessi,istic case.
- The delivered price of natural gas in 2030 in 2006 dollars, including allowances, also increases, with an increase of 107 percent in the most pessimistic case.
- The increase in the retail price of gasoline in 2030 ranges up to $1 per gallon (41 percent) in the most pessimistic case.

Electricity Sector is the Main Source of Reductions under L-W



- Over 90 percent of coal, the fuel most heavily impacted by cap-and-trade is used is in the electricity sector
- Several alternative no- and low-emission generation technologies exist , and others are being developed.
- Changes in electricity generation fuels do not require large changes in distribution infrastructure or electricity-using equipment.
- Recent experience in the U.S. and elsewhere suggests that transportation technology alternatives are not likely to be induced by the impact of cap-and-trade on the price of petroleum fuels.

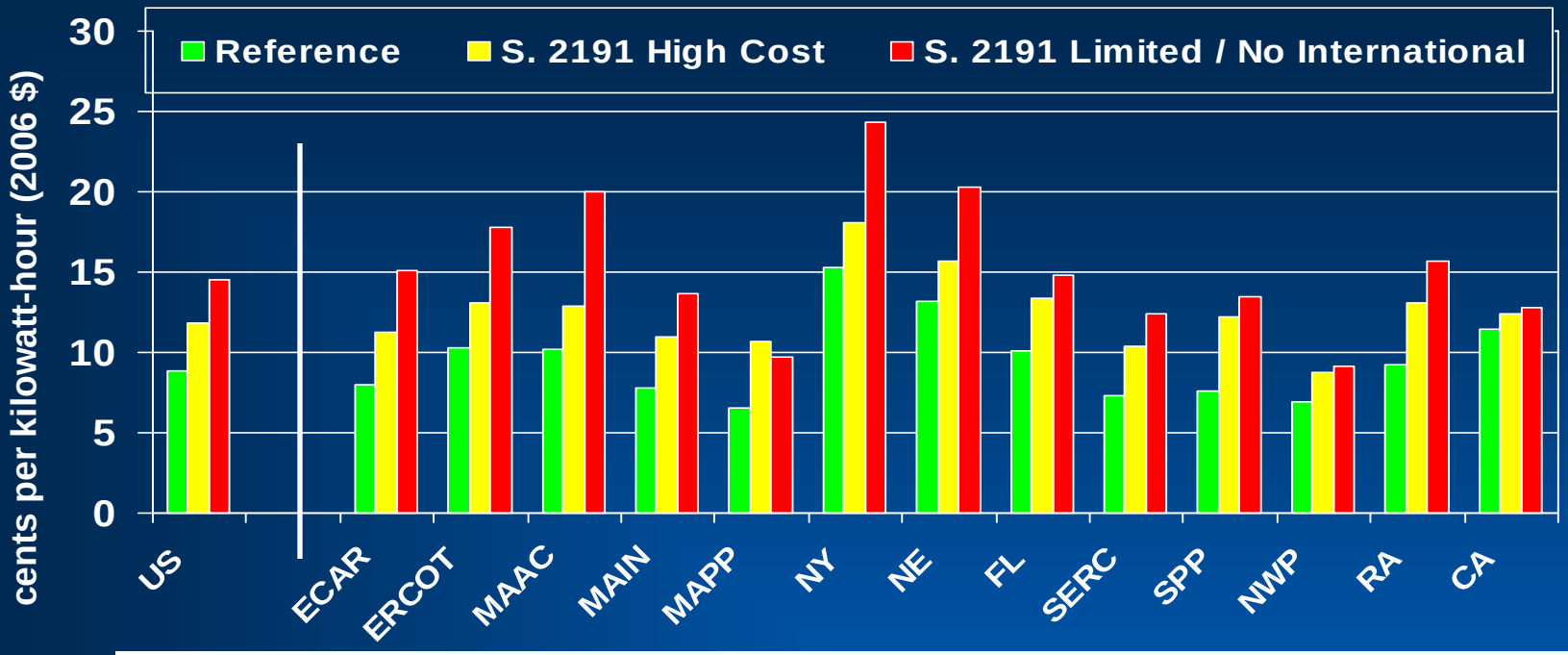
Projected Impacts of L-W Climate Policy on Electricity Generation by Fuel in 2030 (billion kilowatthours)

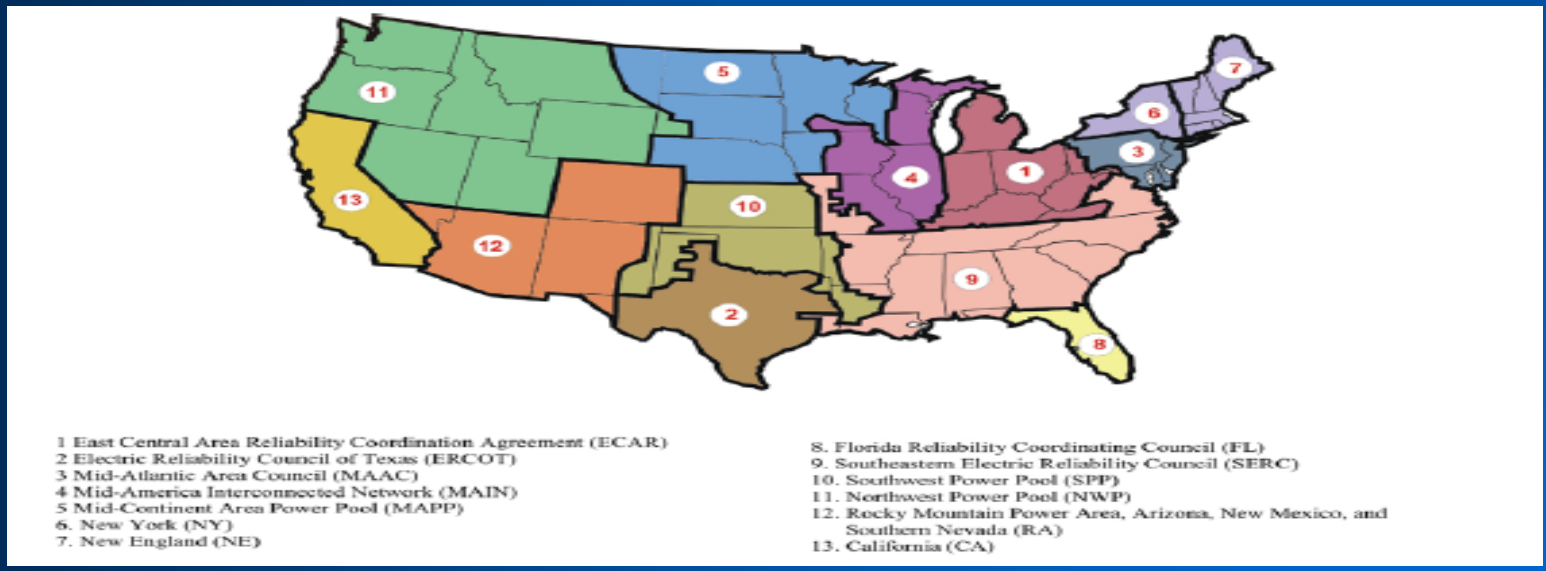


- Coal generation declines significantly in all cases. Major emissions reductions in electricity generation require existing coal capacity to be retired in favor of NEW generation capacity
- Generation using natural gas more than doubles if nuclear, renewables and coal with CCS are limited.

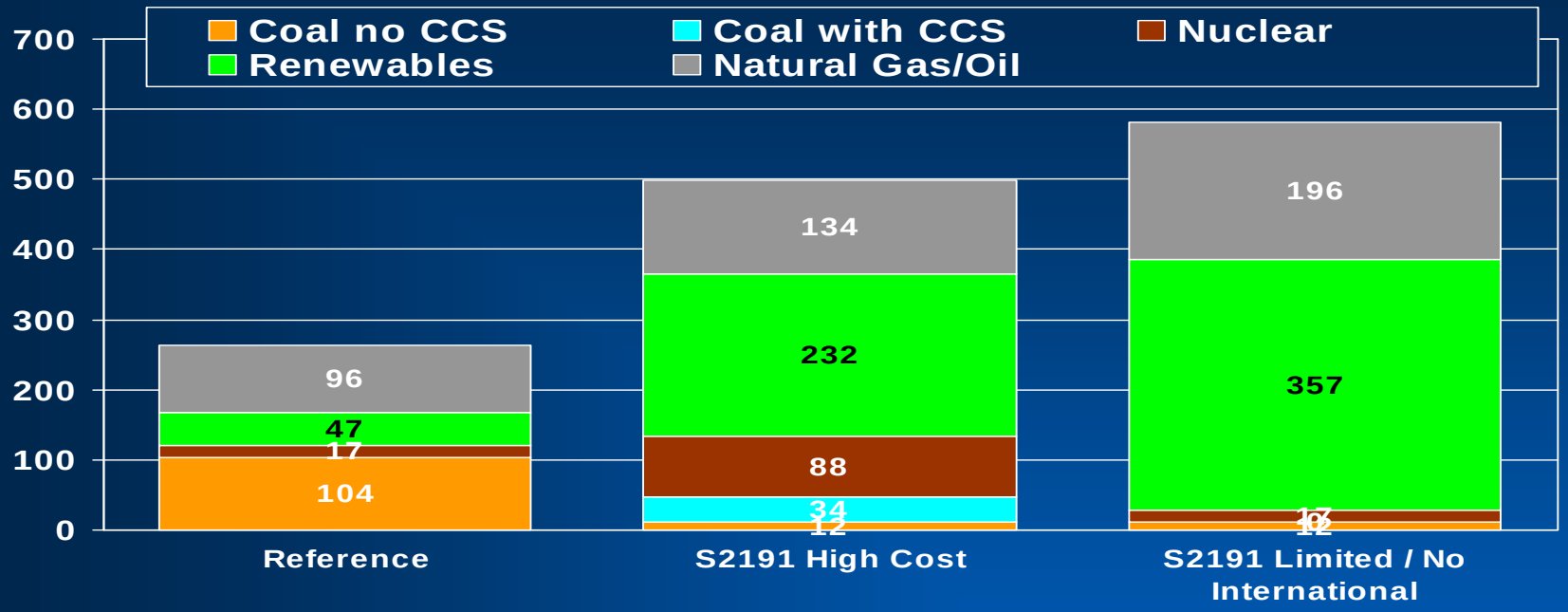
Energy Bar Association, H. Gruenspecht, 11/14/2008

Regional Electricity Price Impacts in 2030: L-W Cases





Projected Impacts of L-W Climate Policy on Cumulative Electric Capacity Additions,2007-2030 (Gigawatts)



- Additions of coal plants without CCS are virtually eliminated in the S. 2191 cases.
- When nuclear and coal with CCS are available, they are used for new capacity and to replace existing conventional coal plants. When they are not available, more natural gas plants are added.
- Regardless of technology assumptions, an aggressive policy to reduce greenhouse gas emissions increases the requirement for total NEW capacity additions in order to make up for the retirement of existing coal capacity.

Thank You

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