Exhibit 15

Energy Information Administration's Analysis of the Lieberman-Warner Bill

Howard Gruenspecht, Deputy Administrator, Energy Information Administration, "EIA Analysis of the L-W Climate Security Act of 2007," PowerPoint Presentation to the Edison Electric Institute (May 7, 2008).

EIA Analysis of the L-W Climate Security Act of 2007

for:
Edison Electric Institute

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May 7, 2008

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

S. 2191 Title I Cap and Trade Provisions

- The cap covers 87% of inventoried GHG emissions in 2006: most CO_2, methane, and nitrous oxide related to energy production and use, plus several classes of fluorinated gases. The HFCs used as substitutes for ozone depleting substances are regulated under a separate Title X cap.

- Exempt sources include non-energy CO_2, methane and nitrous oxide from agriculture, and methane from coal mining, landfills, and waste management.

- Natural gas and petroleum GHG emissions regulated upstream (producers and importers submit allowances), while coal-related CO_2 emissions regulated downstream (consumers submit allowances)

- Some of the allowance obligation may be satisfied by offsets: 15 percent domestic (including bio-sequestration) and 15 percent international (only allowances from comparable programs)

- Allowances are tradable and can be banked for future use. Borrowing is allowed but limited.

- Quantity of allowances issued per year declines gradually from 2012 to 2050.

2012	5775 million metric tons CO_2 equivalent	=	7% below the 2006 level
2030	3860 "	=	39% below 2006 level
2050	1732 "	=	72% below 2006 level

- 73.5% of the 2012 allowances are distributed for free as incentives and for transition assistance, some directly to covered entities, and the remainder is auctioned: the auction share grows from 26.5% in 2012 to 69.5% in 2031, then is unchanged through 2050.

- Proceeds from allowance auctions and sales by non-covered recipients, including state governments, are used to fund technology development programs, promote energy efficiency, offset consumers' energy bills, and fund international forestry protection.

- Bonus allowances are provided for plants with carbon capture and sequestration (CCS). The bonus starts at 4.5 per ton sequestered in 2012, falls to 0.9 per ton sequestered in 2030, and ends in 2039 at 0.5 per ton sequestered. The bonus pool is limited to 4 percent of total allowances.

- 5% of allowances are set aside as incentives for bio-sequestration (as an offset alternative and supplementary program).

- Provisions not addressed in analysis:
  - Title III - Section 3902 allocation of allowances to new entrant fossil fuel-fired power generating facilities
  - Title X – Control of Hydrofluorocarbon Consumption
  - Title XI – Section 11003, Low Carbon Transportation Fuel Standard

Analysis Cases

Case Name	Assumptions
Reference	• Updated *AEO2008* Reference case, which includes H. R. 6, the Energy Independence and Security Act of 2007, and assumes a continuance of other current laws and regulation • Non-CO_2 emissions growth based on the Environmental Protection Agency "with measures" and "voluntary technology adoption" cases
Policy Cases	
S. 2191 Core	• Cap and trade policy from Title I capping the emissions of Group I greenhouse gases (carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, and perfluorocarbons) and Group II gases (hydrofluorocarbons) emitted from HCFC production) • Key low-emissions technologies, including nuclear and coal with carbon capture and sequestration (CCS), are developed and deployed in a timeframe consistent with the emissions reduction requirements without encountering any major obstacles, even with rapidly growing use on a very large scale. • Bonus credit incentives for CCS • Non-energy GHG abatement supply, as a function of allowance costs, derived from information provided by the Environmental Protection Agency • The Title X program for hydrofluorocarbons not emitted from HCFC production is not represented
No International Offsets	S. 2191 Core case with the compliance option from international offsets assumed to be unavailable
S. 2191 High Cost	S. 2191 Core case with assumed higher costs for key electricity generating technologies • CCS, nuclear and biomass plant costs 50 percent higher than in S. 2191 Core case
S. 2191 Limited Alternatives	S. 2191 Core case with assumed limits on several carbon reduction technologies for electric power generation and limits on LNG imports: • CCS not available by 2030 • Nuclear and biomass power plant additions limited to *AEO2008* Reference case level • LNG imports limited to *AEO2008* Reference case level
S. 2191 Limited / No Int'l	Combines the assumptions in the Limited Alternatives and No International Offsets cases.
S. 1766 Update	Updated evaluation of the Low Carbon Economy Act of 2007 (S. 1766) using AEO2008 Reference case assumptions. Key assumptions include: • S. 1766 cap and trade policy • S. 1766 bonus credit incentives for CCS • S. 1766 technology accelerator payment (TAP) price establishes a limit on the allowance price, growing at 5 percent per year in real dollars

Key Findings

- Impacts depend on the availability and costs of low-carbon electricity technologies, such as nuclear and CCS, the prospects for their rapid deployment on a significant scale, and the availability of international offsets. Allowance prices and energy price increases are much higher in cases when these options are assumed more costly or unavailable.
  - One key question: the degree to which current energy infrastructure cost increases reflect a temporary "bubble" or a permanent shift.
- Between 80% and 90% of CO_2 reductions through 2030 are achieved through the electricity-related reductions, requiring a rapid expansion of low- and no- carbon generation.
- The reduction in GDP from reference case levels in the S.2191 cases is between 0.3% and 0.9% in 2020 and between 0.3% and 0.8% in 2030. The reduction in real consumption is between 0.4% and 1.2% in 2020 and between 0.5% and 1.1% in 2030. The range of GDP and consumption impacts reflects alternative assumptions about the availability of low-carbon electricity technologies.
- Manufacturing impacts are significantly higher than GDP impacts. Total manufacturing output is 1.5% to 5.4% lower than the Reference case in 2020 and 3.0% to 9.5% lower in 2030.

Additional Insights

- Besides changing the projected mix of new electricity generation capacity, the S.2191 program significantly increases the total amount of new electric capacity that must be added between now and 2030.
  - This outcome reflects the retirement of many existing coal-fired power plants that would be expected to continue operating beyond 2030 absent GHG limitation requirements.

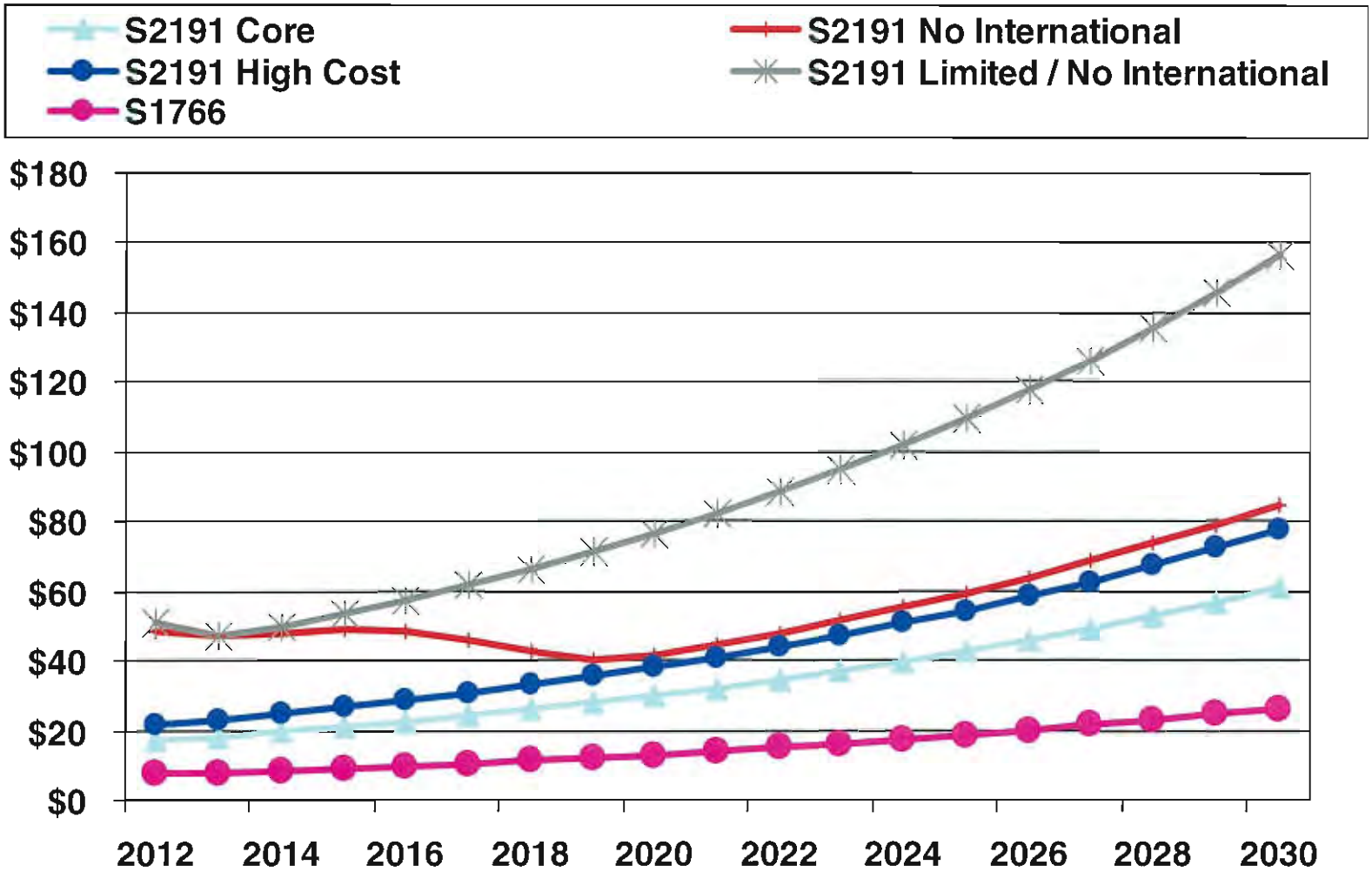
- Both technical and acceptance barriers to key technologies can be directly influenced by policy design choices.

- Although not reflected in the Reference Case, public and industry awareness of climate change as a major policy issue can potentially impact energy investment decisions even if no specific policy change actually occurs.
  - Since policy impacts are measured in terms of the difference between cases that incorporate policy changes and the Reference Case baseline, the use of modeling adjustments to reflect such an effect would generally be to reduce, rather than increase, the estimated impact of a given policy response on delivered energy costs.

- Post-2030 emissions targets may be very challenging because opportunities for further reductions in the power sector are limited.

Projected Allowance Prices

(2005 dollars per metric ton carbon dioxide equivalent)



Allowance prices vary significantly with assumptions about the cost and availability of low-carbon generating technologies and offsets

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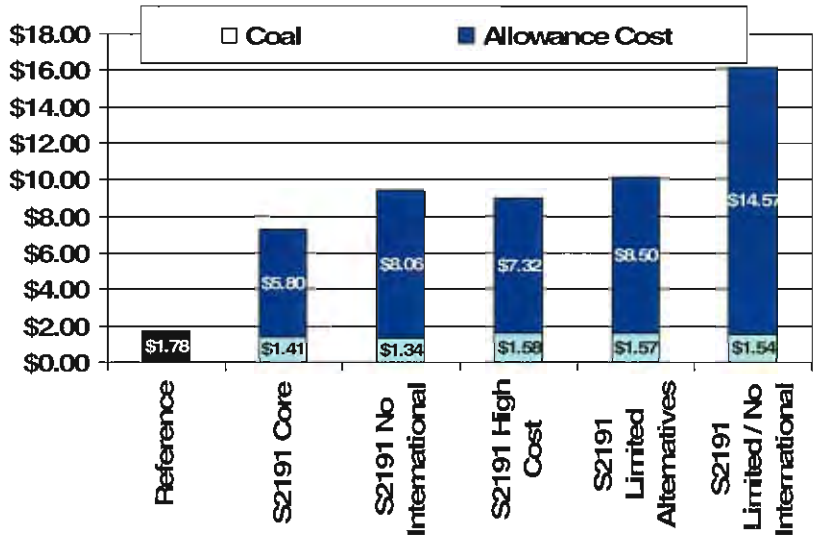
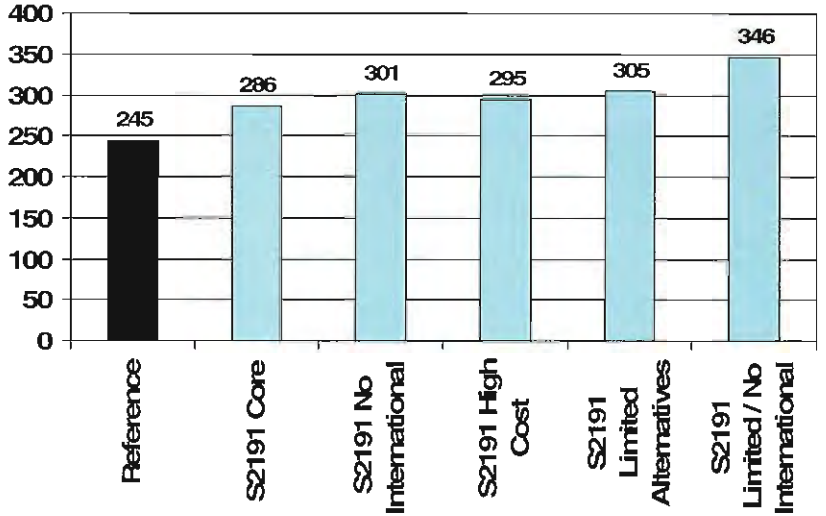
Energy Prices

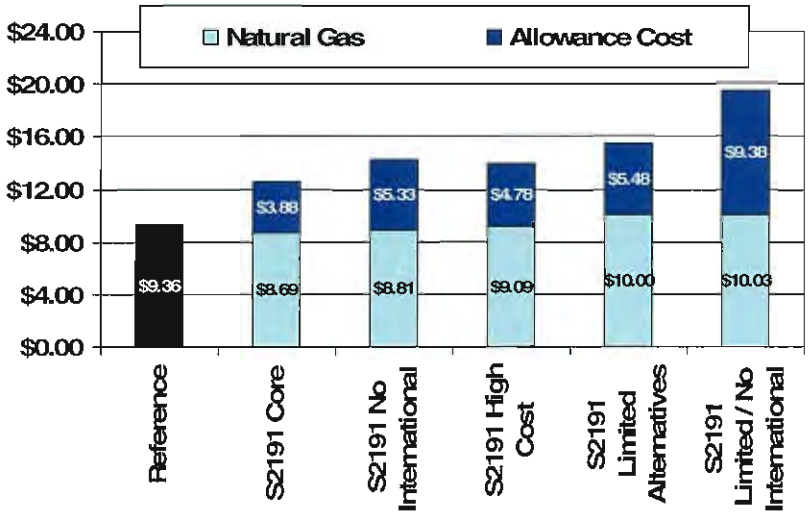
2030 Delivered Coal Costs (2006 $ per million Btu)



2030 Motor Gasoline Pump Prices (2006 cents per gallon)



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



- Among the S. 2191 cases, the delivered price of coal in 2030 in 2006 dollars, including allowances, increases dramatically, with increase ranging from 405 percent to 804 percent.
- The delivered price of natural gas in 2030 in 2006 dollars, including allowances, also increases, with increase ranging from 34 percent to 107 percent.
- The increase in the retail price of gasoline in 2030 in the S. 2191 cases varies from 41 cents per gallon to 101 cents per gallon (17 percent to 41 percent).

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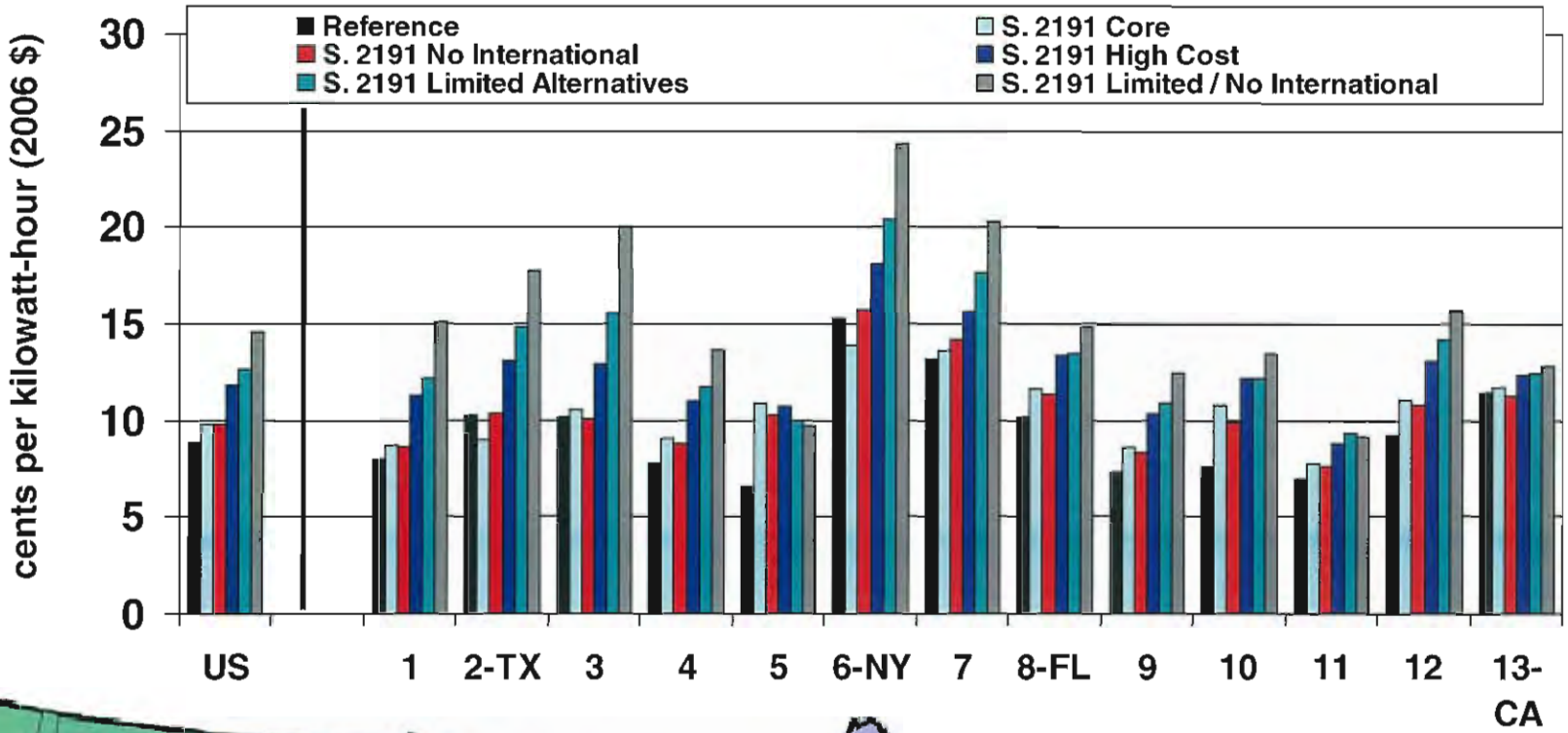
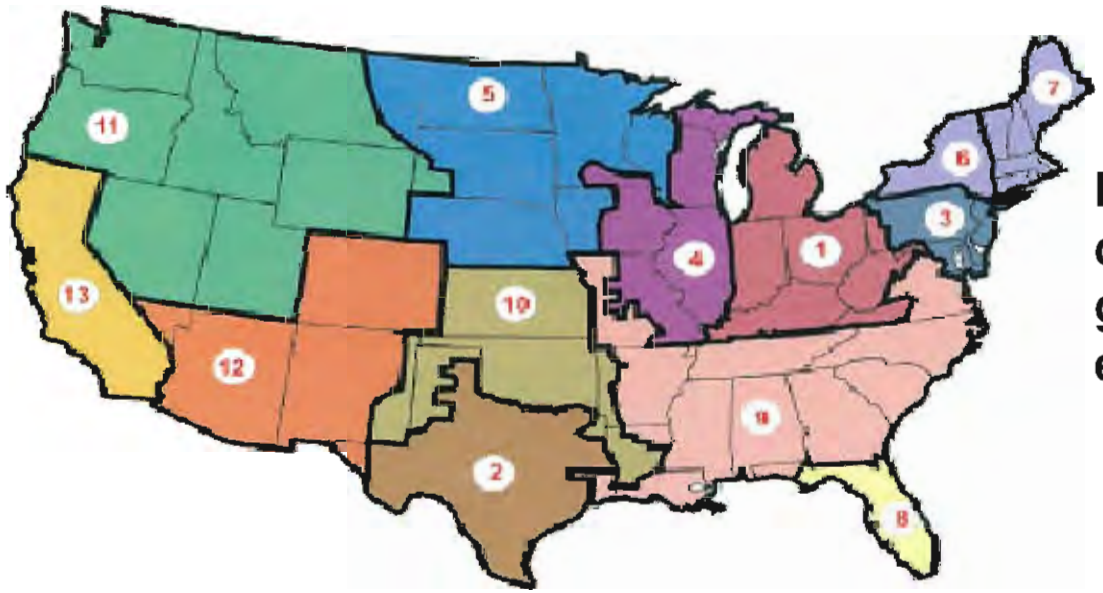
2030 National and Regional Electricity Price Impacts





Regions that rely on coal and competitive power markets generally see the largest electricity price impacts

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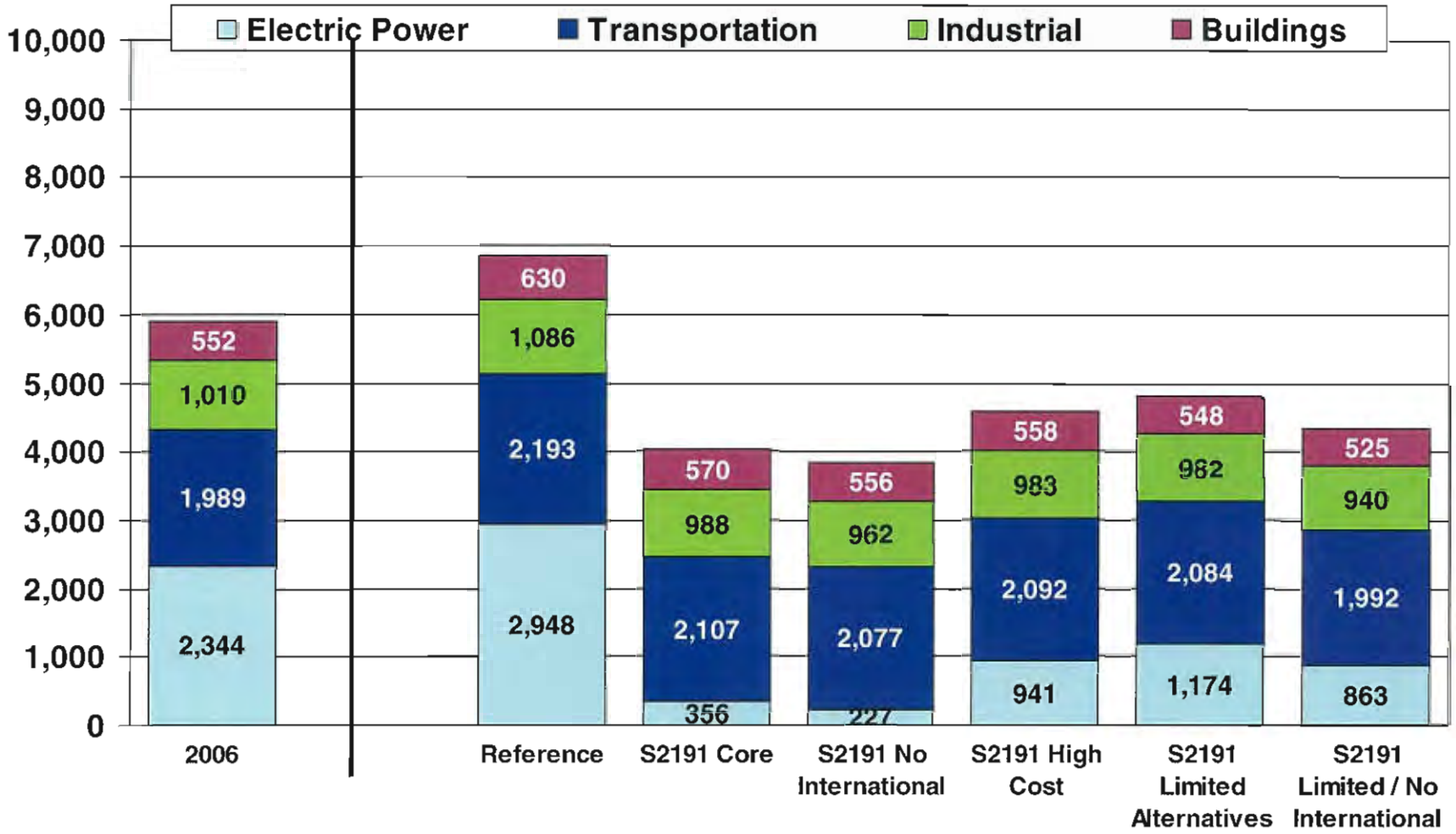
2030 Energy-Related CO_2 Emissions
(million metric tons)



- The electric power sector dominates energy-related CO_2 emission reductions in all S.2191 cases.
- Other sectors play a relatively small role, except in cases with the highest allowance prices.

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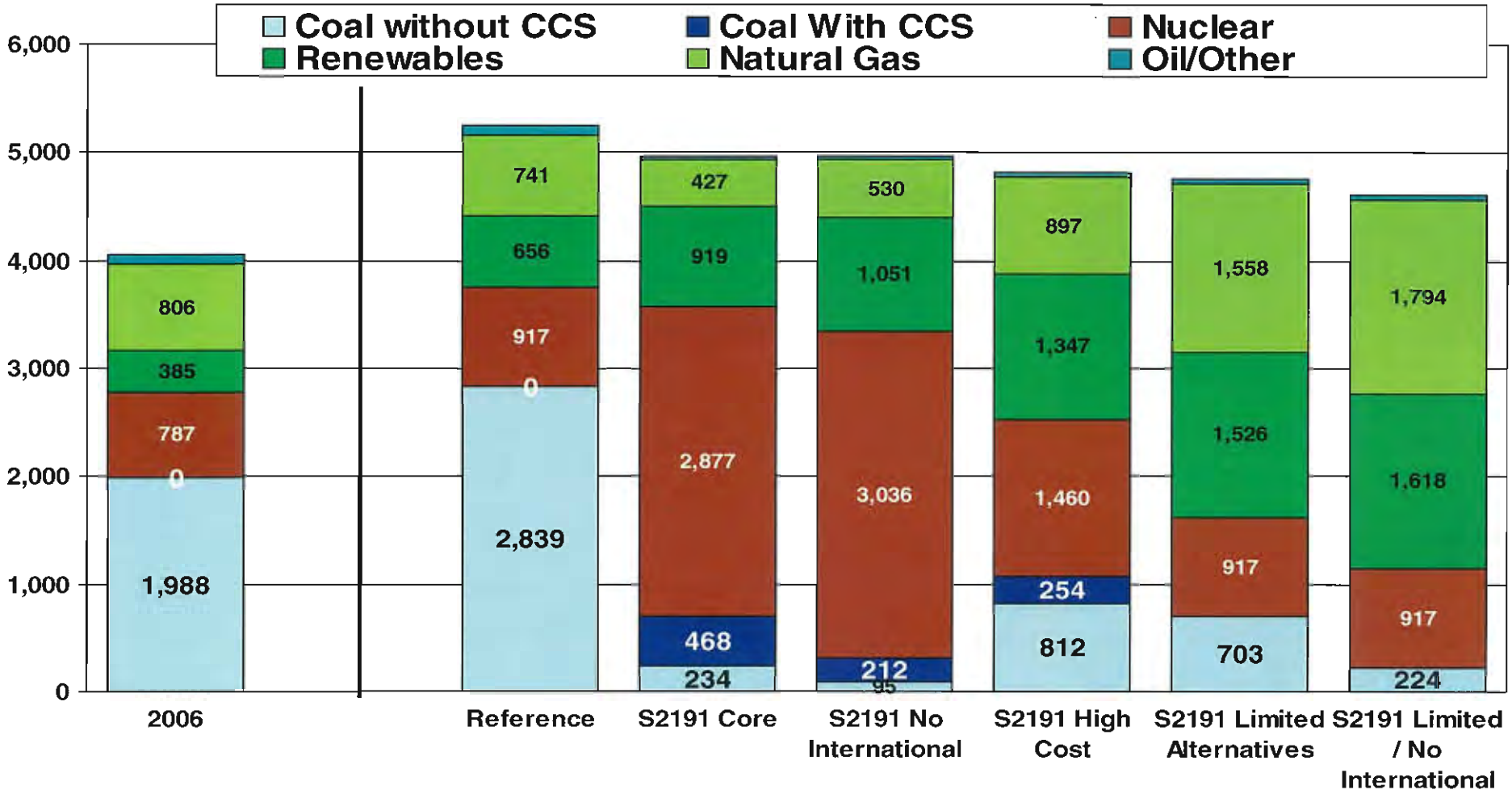
2030 Electricity Generation by Fuel

(billion kilowatthours)



- Coal generation declines significantly in all cases, while nuclear, renewables, and coal with CCS grows.
- Natural gas generation more than doubles if nuclear, renewables and coal with CCS are limited.

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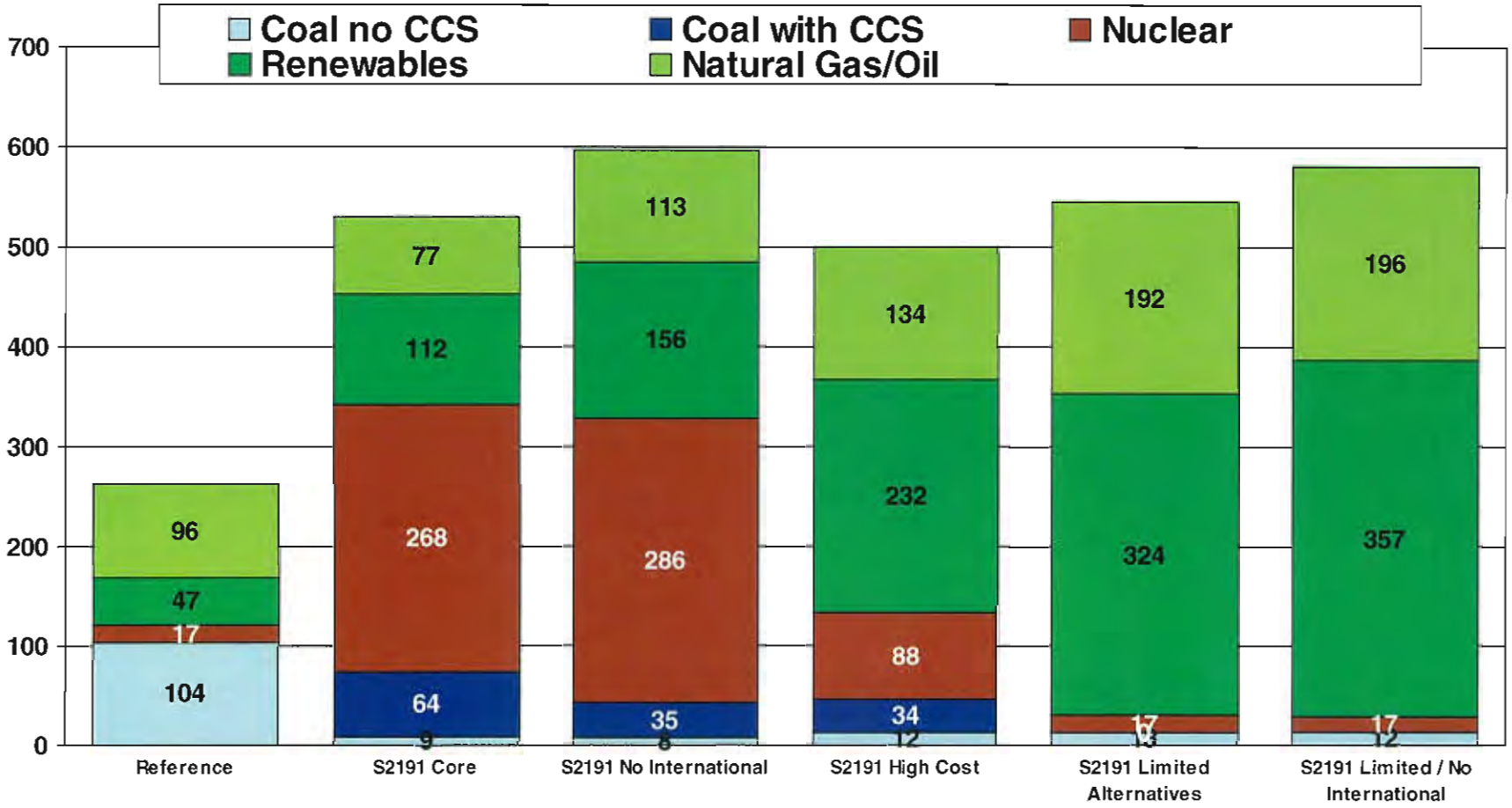
Cumulative Electric Capacity Additions,2007-2030

(gigawatts)



Additions of coal plants without CCS are virtually eliminated in the S. 2191 cases.

When nuclear, renewables and coal with CCS are all available at an economical cost, these technologies are used for new capacity and to replace existing conventional coal plants.

When the capital costs of these options are higher or other alternatives are limited, more natural gas plants are added.

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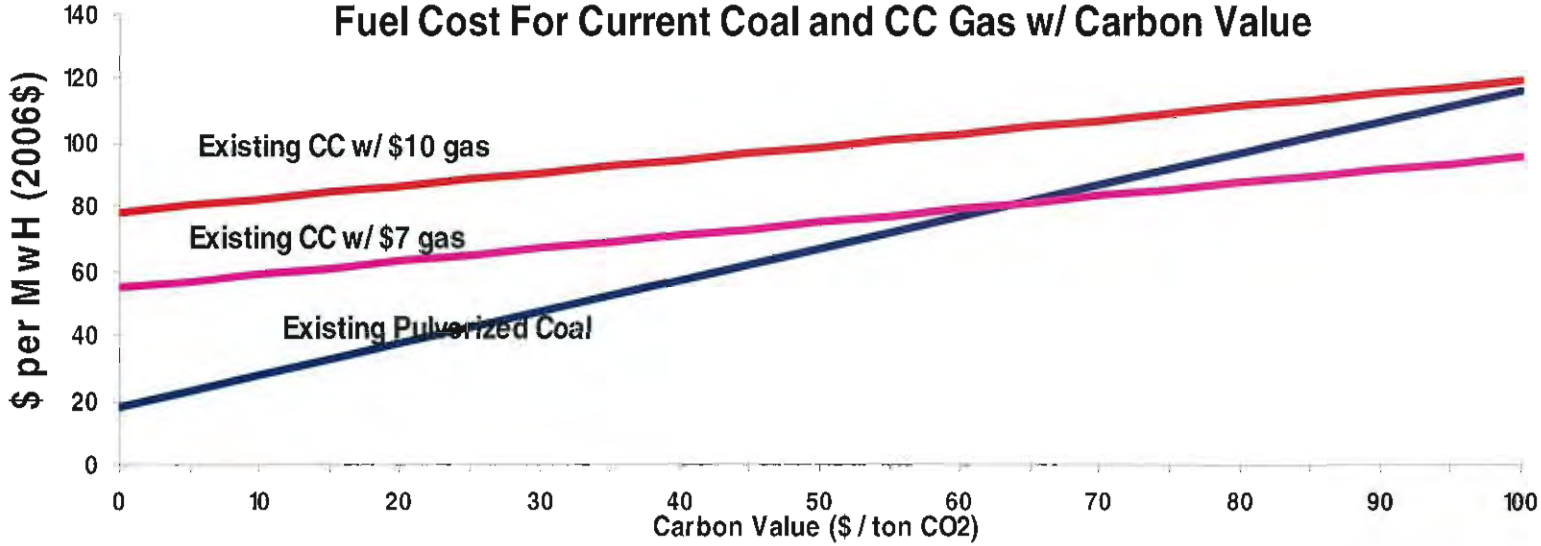

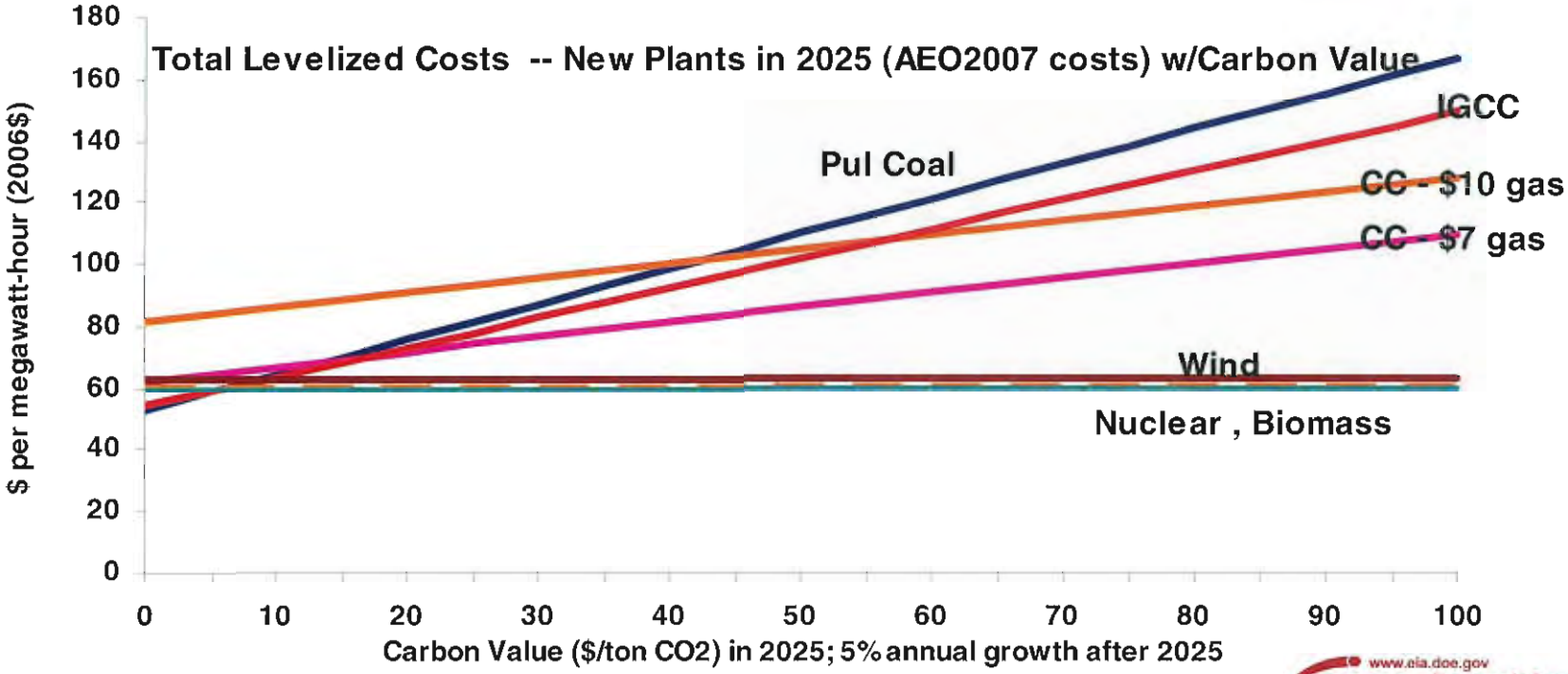

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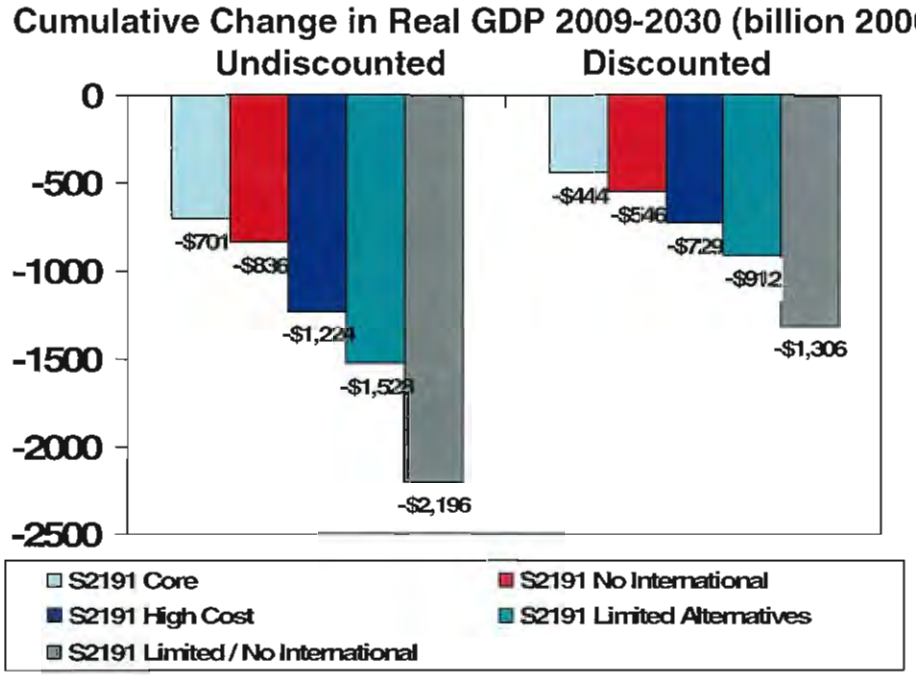
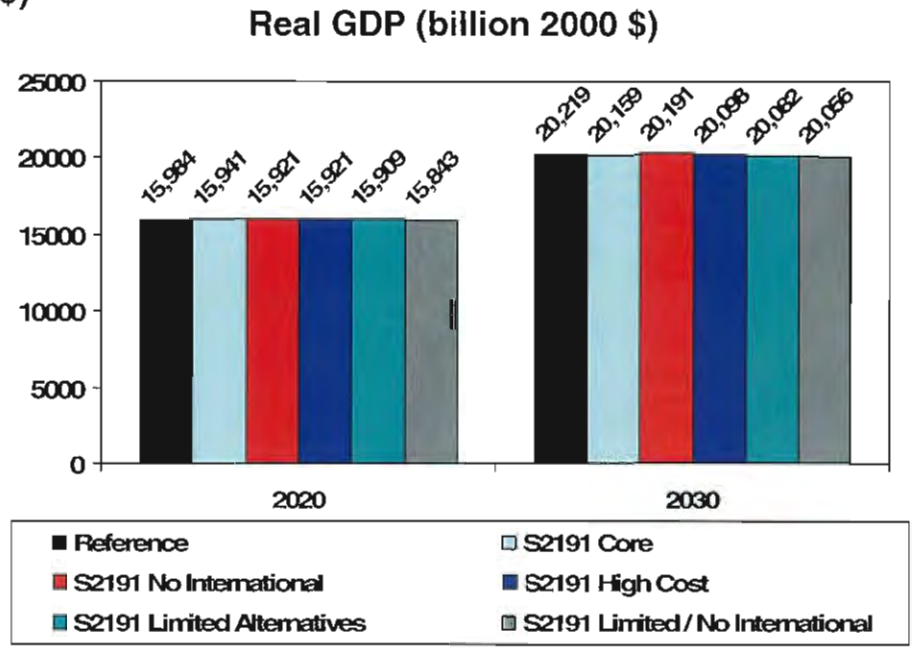
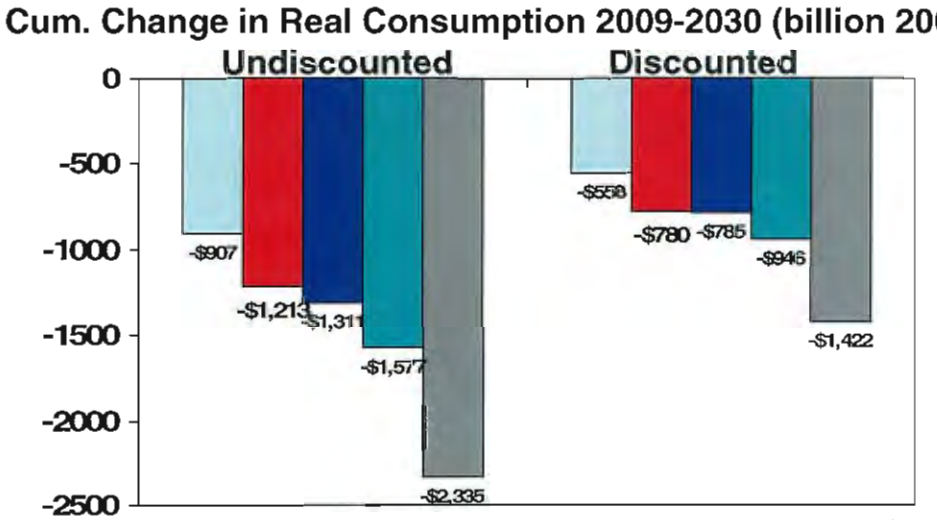
Real GDP And Consumption







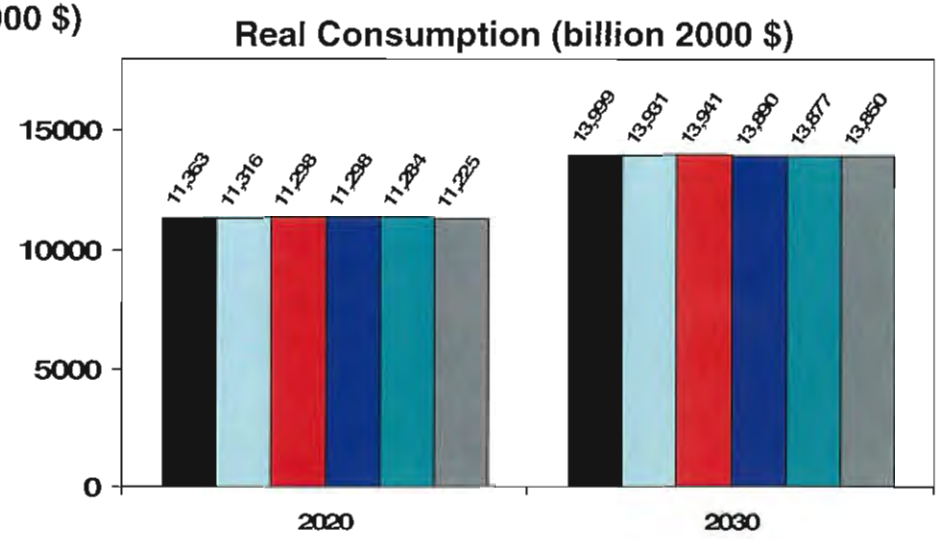


Exhibit 16

Summary of the Lieberman-Warner Bill

Vicki Arroyo, Director of Policy Analysis, Pew Center on Global Climate Change, "Primer on Lieberman-Warner Climate Security act (S. 2191) – as Reported out of Senate EPW Committee," PowerPoint Presentation (May 2008), < www.pewclimate.org/docUploads/Arroyo-PPT.pdf >.

Primer on Lieberman-Warner Climate Security Act (S. 2191) – as reported out of Senate EPW Committee

Vicki Arroyo
Director of Policy Analysis
Pew Center on Global Climate Change

May 2008

Overview

Lieberman-Warner Climate Security Act of 2007 (S. 2191)

- **October 18, 2007** - Introduced by Senators Lieberman and Warner
- **November 1, 2007** – Reported out of Senate Subcommittee by vote of 4-3
- **December 5, 2007** – Reported out of Senate Environment and Public Works Committee to the full Senate by vote of 11-8
  - First time bill requiring economy-wide reductions in GHG emissions has been reported out of committee in the Senate or the House
  - Modeling runs discussed here based on this version
- **May 19, 2008** – Summary of new version released
- **June 2008** – Consideration by the full Senate?

S. 2191 – Title I – Capping GHG Emissions

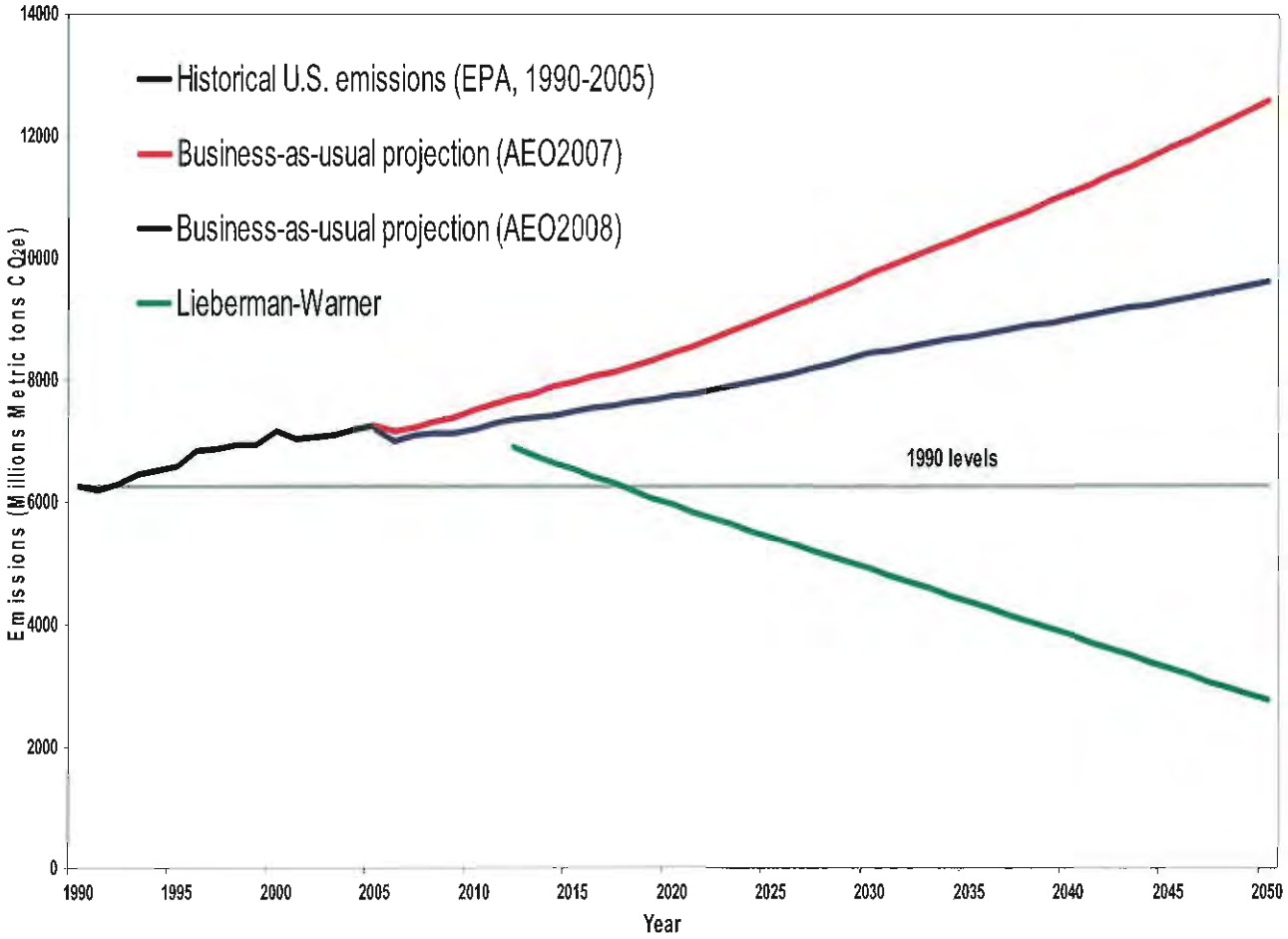
PEW CENTER on Global CLIMATE CHANGE

- Covered sectors represent over 87% of total U.S. emissions
  - Downstream on coal (power plants and industries using over 5,000 tons of coal per year)
  - Upstream (producers and importers) on natural gas, petroleum, or coal-based liquid or gas fuels (assuming no sequestration or destruction)
  - Manufacturers or importers of >10K t/CO_2e of GHGs (e.g., SF_6, PFCs) assuming no sequestration/destruction
  - Facilities that emit HFCs (>10K tons) as byproduct of HCFC production (note: separate cap for HFC consumption)

  But…
  - Many industrial process emissions are not covered (e.g., cement, lime, and aluminum production) totaling roughly 104 MtCO_2e (1.4% US emissions)
  - Emissions from agriculture, landfills, etc. not covered – 826 MtCO_2e (11% US emissions)

S. 2191 – Title I – Capping GHG Emissions

- Emissions caps require reductions across covered sectors below 2005 levels as follows:
  - 2012: 4%
  - 2020: 19%
  - 2050: 71%
- Reductions in total U.S. emissions would depend on the growth in uncovered sectors, use of offsets, etc.



S. 2191 – Title II – Cost Containment

- Trading – Anyone can buy, hold, sell, and retire emission allowances
- Banking – Unlimited banking of allowances
- Borrowing – 15% of annual compliance obligation can be borrowed from future years (10% interest rate)
- Offsets –15% of annual compliance obligation can be met by domestic offsets
- International Emission Allowances – 15% of annual compliance obligation can be met by credits from foreign trading programs of "comparable integrity and stringency"
- Carbon Market Efficiency Board (CMEB) – Authorized to increase offsets, borrowing, adjust loan periods and interest rates

S. 2191 – Title III – Allocating Allowances

- Total available allowances (targets) decline in each year
  - 2012: 5,775 $MtCO_2e$
  - 2020: 4,924 $MtCO_2e$
  - 2030: 3,860 $MtCO_2e$
  - 2050: 1,732 $MtCO_2e$

- Initial allocation in 2012
  - Freely allocated allowances: 73.5%
  - Auction: 26.5%

S. 2191 – Title III – Allocating Allowances

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- Freely allocated allowances in 2012 (% of total allowances)
  - Fossil fuel-fired power plants: 19%*
  - Energy intensive manufacturing: 10%*
  - Companies that took early action: 5%*
  - Bonus allowances for CCS: 4%*
  - Petroleum importers and refiners: 2%*
  - HFC producers and importers: 2%*
  - Rural electric cooperatives: 1%*
  - Electricity consumers (rebates/efficiency): 9%
  - Natural gas consumers: 2%
  - States and tribes: 11%
  - Set aside for agriculture, forestry sequestration: 5%
  - Fund program to reduce methane from landfills and coal mines:1%
  - International forest protection: 2.5%

*these phase out by 2031

S. 2191 – Title III – Allocating Allowances

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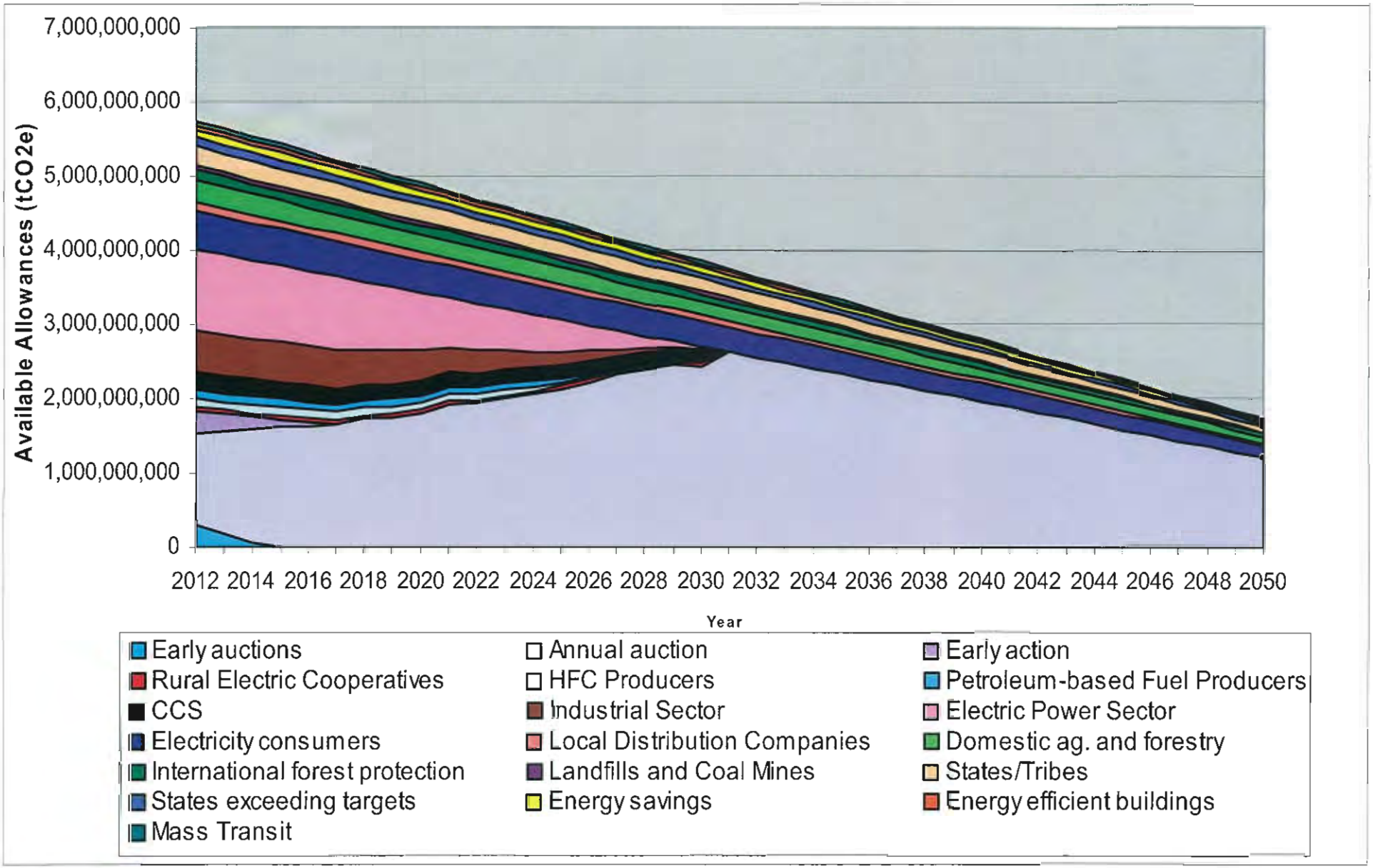

S. 2191 – Title IV – Use of Auction Proceeds

- Establishes Climate Change Credit Corporation (CCCC)

- Distribution of auctions revenue (% of auction revenue)*
  - Energy technology deployment: 52%
  - Energy consumers: 18%
  - Worker training program: 5%
  - U.S. adaptation: 18%
  - International adaptation and national security: 5%
  - Advanced energy research: 2%

*Proceeds from the auction are first used to fund EPA and other agency activities required by S. 2191 and to ensure adequate funds for Bureau of Land Management (capped at $300 million) and Forest Service (capped at $800 million) emergency firefighting programs

S. 2191 – Title V – Efficiency

- Appliance efficiency (water heaters, space heating/AC)
- Building efficiency (updating bldg. codes)

  Note: Some overlap with EISA

S. 2191 – Title X – HFC Consumption

- Separate declining cap on consumption and importation of HFC
  - Starts in 2010 and declines 70% by 2050
  - Combination of free allocation and auction of allowances in early years
  - Transitions to 100% auction by 2031
  - May not be traded with larger cap-and-trade program

S. 2191 – Title XI – CAA Amendments

- Low carbon fuel standard
  - 5% reduction in lifecycle GHG emissions by 2010
  - 10% reduction by 2020
- Recycling and emission reduction program
- Servicing of motor vehicle air conditioners

For More Information

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