Order Code RL34116

CRS Report for Congress

Renewable Energy Portfolio Standard (RPS): Background and Debate Over a National Requirement

Updated September 6, 2007

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Prepared for Members and Committees of Congress

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Summary

Under a renewable energy portfolio standard (RPS), retail electricity suppliers (electric utilities) must provide a minimum amount of electricity from renewable energy resources or purchase tradable credits that represent an equivalent amount of renewable energy production. The minimum requirement is often set as a percentage share of retail electricity sales. More than 20 states have established an RPS, with most targets ranging from 10% to 20% and most target deadlines ranging from 2010 to 2025. Most states have established tradable credits as a way to lower costs and facilitate compliance. State RPS action has provided an experience base for the design of a possible national requirement.

RPS proponents contend that a national system of tradable credits would enable retail suppliers in states with fewer resources to comply at the least cost by purchasing credits from organizations in states with a surplus of low-cost production. Opponents counter that regional differences in availability, amount, and types of renewable energy resources would make a federal RPS unfair and costly.

In Senate floor action on H.R. 6 in the 110th Congress, S.Amdt. 1537 proposed a 15% RPS target. The proposal triggered a lively debate, but was ultimately ruled non-germane. In that debate, opponents argued that a national RPS would disadvantage certain regions of the country, particularly the Southeastern states. They contended that the South lacks a sufficient amount of renewable energy resources to meet a 15% renewables requirement. They further concluded that an RPS would cause retail electricity prices to rise for many consumers.

RPS proponents countered by citing a study by the Energy Information Administration (EIA). The report examined the potential impacts of the 15% RPS proposed in S.Amdt. 1537. It indicated that the South has sufficient biomass generation, both from dedicated biomass plants and existing coal plants co-firing with biomass fuel, to meet a 15% RPS. EIA noted further that the estimated net RPS requirement for the South would not make it "unusually dependent" on other regions and was in fact "below the national average requirement...." Regarding electricity prices, EIA estimated that the 15% RPS would likely raise retail prices by slightly less than 1% over the 2005 to 2030 period. Further, the RPS would likely cause retail natural gas prices to fall slightly over that period.

In House floor action on H.R. 3221, an RPS amendment (H.Amdt. 748) was added by a vote of 220 to 190. The bill subsequently passed the House by a vote of 241 to 172. The RPS amendment would set a 15% target for 2020, and would allow up to 4 percentage points of the requirement to be met with energy efficiency measures. Key points and counter-points of the Senate debate were repeated. On the House floor, RPS opponents also contended that biomass power technologies were not yet ready for commercial use and that certain usable forms of biomass were excluded. Proponents acknowledged that there is a need to expand the definition of biomass resources, and offered to do so in conference committee.

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Background

The RPS Mechanism

Under a renewable energy portfolio standard (RPS), retail electricity suppliers (electric utilities) must either provide a minimum amount of electricity from renewable energy resources or purchase tradable credits that represent an equivalent amount of renewable energy production. The minimum requirement is often set as a percentage share of retail electricity sales, which is usually expressed in terms of kilowatt-hours (kwh).[1] Many RPS programs use tradable credits, sometimes referred to as renewable energy certificates, to increase flexibility and reduce the cost of compliance with the purchase mandate, and to facilitate compliance tracking.[2]

State RPS Action

In the late 1990s, many states began to restructure their electric utility industries to allow for increased competition. Some of the states with this newly "restructured" system established an RPS as a way to create a continuing role for renewable energy in power production.[3] Some states without a restructured industry also began to adopt an RPS. The total number of states with an RPS has grown steadily. In June 2007, the Federal Energy Regulatory Commission (FERC) reported that 23 states and

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[1] Most states use the percentage requirement. The only exceptions are Texas and Iowa, which have chosen to specify the minimum requirement in terms of installed capacity, measured in terms of millions of watts (megawatts). Department of Energy (DOE). Lawrence Berkeley National Laboratory (Berkeley Lab). Renewables Portfolio Standards: A Factual Introduction to Experience from the United States. (LBNL-62569) April 2007. p. 3.

[2] DOE. Lawrence Berkeley National Laboratory (LBNL). *Weighing the Costs and Benefits of State Renewables Portfolio Standards: A Comparative Analysis of State-Level Policy Impact Projections,* March 2007. p. 1.

[3] Section 210 of the Public Utility Regulatory Policies Act (PURPA) of 1978 had guaranteed a market for the purchase of electric power produced from small renewable energy facilities. PURPA let states determine the avoided cost pricing of the electricity production from renewable energy facilities. The effectiveness of this mechanism lessened with the advent of electric industry restructuring. Provided that certain conditions are met in any given state, Section 1253 of the Energy Policy Act of 2005 terminates the PURPA requirements.

the District of Columbia had an RPS in place,[4] collectively covering about 40% of the national electric load.[5] Mandatory state RPS targets range from a low of 2% to a high of 25%. However, most targets range from 10% to 20% and are scheduled to be reached between 2010 and 2025. Although this emerging "tapestry of state programs" continues to spread to more states, the majority of recent actions have been to increase and accelerate previously established standards.[6] Most states have a similar definition of eligible renewable resources that covers wind, solar, geothermal, biomass, and several forms of water-based power, including hydropower, current, wave, tidal, and ocean power.[7] At least 19 of the 23 states allow some form of credit trading. Non-compliance penalties range from about one cent per kwh to 5.5 cents per kwh. There are significant regional differences in resource availability. As shown in the previously cited FERC map, most states in the Southeast and Midwest regions do not have an RPS requirement. Several states have broadened their RPS provisions to allow certain energy efficiency measures and technologies to help satisfy the requirement.[8]

Electricity Production Targets. Most state RPS programs employ an annual renewable energy target that is set as a percentage of total projected electricity production.[9] With a percentage requirement, the amount of mandated renewable energy will increase or decrease in proportion to changes in end-use electricity sales. In general, the targets increase gradually, in a step-wise fashion, over a period of several years. The scheduled rise of the annual target, and its peak value, are intended to create predictable long-term purchase obligations that drive new development and economies of scale. The graduated schedule is intended to allow time for competition to emerge among eligible resources. Also, to create stability that allows for long-term contracts and financing that can help keep renewable energy costs down, the peak target often is designed to remain in place for several years after

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[4] DOE. FERC. *Renewable Energy Portfolio Standards (RPS)*. This is a map showing the status of state action on RPS. Updated June 7, 2007. [http://www.ferc.gov/market-oversight/mkt-electric/overview/2007/elec-ovr-rps.pdf]. Also, DOE's Office of Energy Efficiency and Renewable Energy (EERE) has posted a map showing the status of state RPS action. EERE notes that four additional states (Illinois, Missouri, Vermont, and Virginia) have enacted non-binding "goals" for renewable electricity production. [http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm].

[5] Berkeley Lab, Renewable Portfolio Standards.

[6] The Pew Center on Global Climate Change reviewed the status of state RPS policies in 2006. See *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*. 2006. 36 p. [http://www.pewclimate.org/global-warming-in-depth/all_reports/race_to_the_top/index.cfm].

[7] Details about eligible resources and other provisions of state RPS programs are available from the online Database of State Incentives for Renewable Energy and Energy Efficiency. [http://www.dsireusa.org/].

[8] The most frequently occurring energy efficiency measures are fuel cells and combined heat and power equipment.

[9] Some states use a variation of this target. For example, Texas uses a capacity development target converted annually into a percentage energy target.

it is reached. Most state targets include only generation from new renewable energy facilities, placed in service after the RPS standard is enacted.[10]

Tradable Credits. Many states have created tradable credits as a way to lower costs and facilitate compliance. Typically, the owner of a qualified renewable energy facility receives one credit for each kilowatt-hour of electricity produced. The credits are treated as a product separate from generated power. Credits are a purely financial product that represents the attributes of electricity generated from renewable energy sources. The owner may bundle the credits for sale with its electrical energy. Alternatively, the owner may sell the credits and power separately. The power would be sold in the electricity market, and the credits would be sold in a secondary credit trading market.[11]

Each year, RPS requires all retail suppliers to show that they have acquired a number of credits equivalent to the percentage target for the previous year. The retail suppliers have options for meeting this requirement. Suppliers can choose to build a renewable energy facility, purchase renewable power bundled with credits, or buy credits separately through the trading market. They are also free to choose the types of renewable energy to acquire, the price paid, and the contract terms offered. Further, they can choose whether to enter into long-term credit and/or renewable power purchase contracts or to purchase these commodities on the spot market. If a supplier cannot obtain sufficient credits through these means, it can achieve "alternative compliance" by purchasing additional credits from the state regulatory agency. For a supplier that otherwise fails to meet the credit target, most states require that it purchase additional credits at a higher penalty price.

Credit Flexibility Mechanisms. Spreading credit requirements over a longer time period can make a credit trading market more flexible. Many credit trading systems provide a "true-up" (reconciliation) period after the RPS compliance year. During this period, retailers that are short on their obligation can buy additional credits and those with excess credits can sell them.[12] "Credit banking" can reduce retailer risk and promote economies of scale by allowing credits to be carried forward to one or more future years. "Deficit banking" allows a retailer to defer making up a credit shortage to a future year.[13]

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[10] Many states exclude existing hydropower and certain other renewables. Several states place them in a separate "tier."

[11] Evolution Markets. *An Overview of the Renewable Energy Credit (REC) Markets.* January 30, 2006. p. 4.

[12] Reconciliation often employs a three-month period.

[13] Most states limit the "banking" period, to ensure compliance is not unduly deferred and to prevent credit hoarding from causing artificial shortages.

Federal RPS Action and Debate

Federal RPS Legislation

Legislative proposals to establish a federal RPS date back to the 105th Congress. During the 107th, 108th, and 109th Congresses, the Senate passed an RPS, but it did not survive conference committee action. Several bills introduced in the 110th Congress would create an RPS.[14] In Senate floor action on H.R. 6, S.Amdt. 1537 proposed a 15% RPS. The proposal triggered a lively debate, but was ultimately ruled non-germane. In House action during the 110th Congress, H.R. 969 was introduced with a proposal for a 20% RPS target. The House Leadership indicates that H.R. 969 may be offered as a floor amendment to H.R. 3221, the House energy independence legislation.[15]

Renewable Portfolio Standard (S.Amdt. 1537 to H.R. 6). During Senate floor debate on H.R. 6, S.Amdt. 1537 proposed to add an RPS title to the bill.[16] The proposal would have modified Title VI of the Public Utility Regulatory Policies Act of 1978 to establish an RPS for retail electric utilities that would be administered by the Department of Energy (DOE). For each retail supplier that sells more than four billion kwh per year,[17] the RPS would set a minimum electricity production requirement from renewable resources.

The standard would start at 3.75% in 2010, rising to 7.5% in 2013, 11.25% in 2017, and then reaching a peak of 15% in 2020. Resources eligible to meet the RPS would include wind, solar, geothermal, biomass, landfill gas, ocean (including current, wave, tidal, and ocean thermal), and incremental hydropower. Existing generation from hydroelectric and municipal solid waste facilities would not be eligible to meet the percentage standard, but could be excluded from the sales base used to calculate the RPS.

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[14] These bills include H.R. 969, H.R. 1133, H.R. 1945, H.R. 1590, H.R. 2950, and S. 309, S. 1554, S. 1567, and S. 1602. Descriptions of the RPS provisions in these bills are provided in CRS Report RL33831, *Energy Efficiency and Renewable Energy Legislation in the 110th Congress*, by Fred Sissine, Anne Gillis, Mark Gurevitz.

[15] During the House Energy and Commerce Committee's markup of draft energy independence legislation, a proposed amendment would have added H.R. 969 to the legislation, but it was later withdrawn. On July 31, 2007, the *EnergyWashington.com* online newsletter reported in *RPS Debate Is A Go in the House* that the Speaker of the House was supporting the effort for an RPS floor amendment that would be based on H.R. 969. [http://energywashington.com/blog/index.php].

A summary of the Senate-passed version of H.R. 6 and the House energy independence legislation are presented in CRS Report RL33831, *Energy Efficiency and Renewable Energy Legislation in the 110th Congress*, by Fred Sissine, Anne Gillis, and Mark Gurevitz.

[16] In Senate floor action on its proposed substitute (S.Amdt. 1502) to H.R. 6, S.Amdt. 1537 to the substitute was introduced, which proposed adding an RPS. S.Amdt. 1537 had not been considered when a successful cloture motion (65-27) on the substitute took place. S.Amdt. 1537 was subsequently ruled non-germane.

[17] This minimum production threshold was designed to exempt most non-profit utilities, such as rural electric cooperatives and municipal utilities.

To supplement direct generation, retail suppliers would be allowed to purchase power from other organizations, purchase tradable credits from suppliers with a surplus, and purchase credits from the government at an inflation-adjusted rate that would currently stand at 1.9 cents/kwh credit. Power generated on Native American lands would receive a double credit, and onsite distributed generation capacity smaller than one megawatt (mw) used to offset the requirement would receive a triple credit. An excess of tradable credits could be carried forward (banked) for up to two additional years into the future. A credit deficit would lead to a penalty that would be set as the greater of 2.0 cents/kwh or 200% of the average market value of the credits. A credit cost cap (adjusted for inflation) would be set at 2.0 cents/kwh.

States would be allowed to have stronger RPS requirements. Funds gathered from alternative compliance and penalty payments would be used for state grants to support renewable energy production, particularly in states that have a low current capacity for renewable energy production.

Federal Renewable Portfolio Standard (H.Amdt. 748 to H.R. 3221). During the House Energy and Commerce Committee's markup of draft energy independence legislation, a proposed amendment would have added H.Amdt. 748 to the legislation, but it was later withdrawn. Similar to S.Amdt. 1537, H.Amdt. 748 would modify Title VI of the Public Utility Regulatory Policies Act of 1978 to establish an RPS for retail electric utilities that would be administered by DOE. For each retail supplier that sells more than one billion kwh per year,[18] the RPS would set a minimum electricity production requirement from renewable resources.[19] The standard would start at 2.75% in 2010 and then rise annually until reaching a peak of 15% in 2020. Electricity savings from energy efficiency measures would be allowed to compose a maximum of 25% of the standard in any given year, rising to a peak of 4% of the 15% total in 2020.

Renewable energy resources eligible to meet the RPS would include wind, solar, geothermal, biomass, landfill gas, ocean, tidal, and incremental hydropower. Existing generation from hydroelectric facilities would not be eligible to meet the percentage standard, but could be excluded from the sales base used to calculate the RPS.

To supplement direct generation, retail suppliers would be allowed to purchase power from other organizations, purchase tradable credits from suppliers with a surplus, and purchase credits from the government at an initial rate of 1.9 cents/kwh credit that would be inflation-adjusted. Power generated on Native American lands would receive a double credit, and onsite generation used to offset the requirement would receive a triple credit. An excess of tradable credits could be carried forward (banked) for up to four years, and a deficit of credits could be "borrowed" from anticipated generation up to three years into the future. A credit deficit would lead to a penalty that would be set as the lesser of 4.5 cents/kwh or 300% of the average

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[18] However, the amendment specifically exempts all retail suppliers in Hawaii.

[19] As with S.Amdt. 1537, this minimum production threshold, although substantially lower, was designed to exempt most non-profit utilities, such as rural electric cooperatives and municipal utilities.

market value of the credits. A credit cost cap (adjusted for inflation) would be set as the lesser of 3.0 cents/kwh or 200% of the average market value of the credits.

The governor of a state may petition DOE to allow up to 25% of a retail supplier's requirement to be met by submitting federal energy efficiency credits associated with eligible ("qualifying") electricity savings. Eligible electricity savings from end-use energy efficiency actions would include customer facility savings, reductions in distribution system losses, output from new combined heat and power systems, and recycled energy savings obtained from commercial and industrial systems. In each case, the electricity savings would have to meet the measurement and verification requirements that would be set out in DOE regulations.

States would be allowed to have stronger RPS requirements. DOE would be required to engage the National Academy of Sciences to evaluate the RPS program.

Comparing H.Amdt. 748 with S.Amdt. 1537. As **Table 1** shows, S.Amdt. 1537 and H.Amdt. 748 have some similarities but differ in several important aspects. The two proposals have nearly identical conditions for overall target percentage, eligible resources, base amount, multiple credits, and state policy coordination. However, the proposals have notable differences in the exemption criterion, inclusion of 4% energy efficiency in target percentage, sunset date, tradable credit cost cap, and flexibility mechanisms. H.Amdt. 748 includes a program evaluation provision and S.Amdt. 1537 did not. Both proposals have a state grant provision. The grant provision in S.Amdt. 1537 had an additional focus on states with a low renewable energy resource capacity. The grant provision in H.Amdt 748 allows funding to be used for grants, production incentives, and other state-approved mechanisms for renewable energy and energy efficiency.

Table 1. H.Amdt. 748 Compared with S.Amdt. 1537

Policy Design Element	H.Amdt. 748	S.Amdt. 1537
Electric Utility/ Retail Supplier	1 billion kwh (1 million mwh) or more; all suppliers in Hawaii excluded	4 billion kwh (4 million mwh) or more
Energy Target *- Initial Date* *- Initial Value* *- Peak Start Date* *- Peak Value* *- Sunset Date*	 2010 2.75% 2020 15% 2039	 2010 3.75% 2020 15% 2030
Eligible Resources (includes new facilities and incremental production from pre-existing facilities)	solar, wind, ocean, tidal, geothermal, biomass, landfill gas, incremental hydro	solar, wind, ocean (current, wave, tidal, and thermal), biomass, geothermal, landfill gas, incremental hydro
Base Amount	Excludes pre-existing hydropower and MSW-generated power	Excludes pre-existing hydropower and MSW-generated power
Tradable Credits: *- Native American Land* *- On-Site Offset* *- Cost Cap/ Alternative Compliance* *- Flexibility* *++carry forward* *++borrow from future*	 - double credit - triple credit - lesser of 3 cents/kwh or 200% of AMV - 3 years - 3 years	 - double credit - triple credit (less than 1 mw) - 2 cents/kwh - 2 years - none specified
Coordination with State Policies	states can have higher standards	states can have higher standards
NAS Program Evaluation	yes, within 8 years	none specified
Non-Compliance Penalty	the lesser of 4.5 cents/kwh (inflation adjusted) or 300% AMV	the greater of 2.0 cents/kwh (inflation adjusted) or 200% AMV
Use of funds from Alternative Compliance and Penalties	grants to states for renewable energy production, low income energy assistance, and weatherization services; in each state, at least 75% must go to grants and production incenties for renewables and efficiency	state grants for renewable energy production; priority for states with low renewable energy capacity

Note on acronyms: The term kwh stands for kilowatt-hours; mwh stands for megawatt-hours; MSW stands for municipal solid waste; and AMV stands for average market value.

Senate RPS Debate (S.Amdt. 1537 to H.R. 6)

The following discussion describes some key aspects of the Senate floor debate over S.Amdt. 1537 to H.R. 6, which proposed a 15% national RPS requirement.

Resource Availability and Electricity Price Impacts. In the Senate RPS debate, opponents argued that regional differences in availability, amount, and types of renewable energy resources could make a federal RPS unfair. To support this point, a letter was introduced from the Southeastern Association of Regulatory Utility Commissioners that stated:

> The reality is that not all States are fortunate enough to have abundant traditional renewable energy resources, such as wind, or have them located close enough to the load to render them cost-effective. This is especially true in the Southeast and large parts of the Midwest.... Our retail electricity customers will end up paying higher electricity prices, with nothing to show for it.[20]

Further, a fact sheet prepared by the Edison Electric Institute (EEI) elaborated on the point about the potential impact on electricity prices:

> A federal RPS requirement could cost electricity consumers billions of dollars in higher electricity prices, but with no guarantee that additional renewable generation will actually be developed. Because many retail electric suppliers will not be able to meet an RPS requirement through their own generation, they will be required to purchase higher cost renewable energy from other suppliers or purchase renewable energy credits. Thus a nationwide RPS mandate will mean a massive wealth transfer from electric consumers in states with little or no renewable resources to the federal government or states where renewables happen to be more abundant.[21]

Proponents counter-argued that a national system of tradable credits would enable retail suppliers in states with less abundant resources to comply at the least cost by purchasing credits from organizations in states with a surplus of low-cost production. Also, supporters pointed out that S. Amdt 1537 provided that funds collected from payments for alternative compliance and penalties would be used to provide grants:

> ... to states in regions which have a disproportionately small share of economically sustainable renewable energy generation capacity ...[22]

The proponents also noted that in addition to many environmental and public interest groups, the RPS proposal was supported by some electric and natural gas utility

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[20] Congressional Record. Vol. 153, June 13, 2007. p. S7687.

[21] EEI. *EEI Raises Concerns About a Mandatory Federal Renewable Portfolio Standard.* June 12, 2007. [http://www.eei.org/newsroom/energy_news/rps.htm] See Fact Sheet entitled: *Protect Electricity Consumers and Existing State Renewable Power Programs: Congress Should Oppose a Mandatory Federal Renewable Portfolio Standard.* 3 p. [http://www.eei.org/industry_issues/electricity_policy/state_and_local_policies/rps.pdf].

[22] Congressional Record. Vol. 153, June 13, 2007. p. S7657.

companies as well as several corporations, including BP America and General Electric.[23]

Perhaps most importantly, RPS proponents countered by citing a study prepared by the Department of Energy's Energy Information Administration (EIA). The report examined the potential impacts of the 15% RPS proposed in S.Amdt. 1537.[24] Regarding resource availability, the report found that:

> Biomass generation, both from dedicated biomass plants and existing coal plants co-firing with biomass fuel, grows the most by 2030, more than tripling from 102 billion kilowatt-hours (kwh) in the reference case to 318 billion kwh with the RPS policy.[25]

In a follow-up fact sheet to that study, EIA noted that "the South has significant biomass potential."[26] Compared with other regions of the country, EIA found that the South would not be "unusually reliant on purchases of allowances from other regions or the federal allowance window...."[27] Further, EIA found that the net requirement for the core region of the South defined by the Southern Electric Reliability Corporation (SERC) — after subtracting exemptions for small retailers and adjusting the baseline generation for pre-existing hydropower and municipal solid waste facilities — was "below the national average requirement across all regions."[28]

Regarding electricity prices, RPS proponents also cited findings from the EIA study. EIA estimated that, relative to its base case projections for retail electricity prices, the 15% RPS would likely raise retail prices by slightly less than 1% over the 2005 to 2030 period. Further, the report estimated that relative to its base case

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[23] The list of supporters is available on the Web at [http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=235300&Month=5&Year=2007&Party=0].

[24] DOE. EIA. *Impacts of a 15-Percent Renewable Portfolio Standard*. June 2007. 24 p.

[25] EIA, *Impacts of a 15% RPS*, p. 7.

[26] EIA. Supplemental Results to "Impacts of a 15-percent Renewable Portfolio Standard." Provided to Senator Bingaman, July 26, 2007. 17 p. Also, a map of biomass resource potential prepared by DOE's National Renewable Energy Laboratory (NREL) is available on the Web at [http://www.nrel.gov/gis/images/biomass.jpg].

[27] EIA defined "the South" broadly to include four regions of the National American Electric Reliability Corporation (NERC). They are: Southern Electric Reliability Corporation (SERC), Florida Reliability Coordinating Council (FRCC), Southwest Power Pool (SPP), and Electric Reliability Council of Texas (ERCOT). A map of the NERC regions is available at [http://www.nerc.com/regional/].

[28] As shown by the NERC map cited in the previous footnote, the SERC region includes the states of Mississippi, Alabama, Georgia, North Carolina, South Carolina, Tennessee, and parts of Florida, Illinois, Missouri, Arkansas, Louisiana, and Virginia.

projections for retail natural gas prices, the RPS would likely cause retail natural gas prices to fall slightly over the 2005 to 2030 period.[29]

EIA qualified the report's findings on potential electricity price impacts. It noted that projected impacts of an RPS on expenditures for electricity and natural gas in end-use sectors are sensitive to assumptions about the projected baseline generation fuel mix in its reference case. A higher share of natural gas in the generation mix would allow an RPS to displace proportionally more natural gas. Thus, to the extent that natural gas contributes a larger share of the future generation mix, the 15% RPS would have more economically favorable impacts. To the extent that natural gas contributes a smaller share, the opposite effect would be more likely.[30]

Transmission Constraints. Opponents also contended that the proposed 15% RPS could impose indirect costs for transmission. EEI stressed that costly new high-voltage transmission lines would be needed, especially for wind turbines, which are often located far from population centers.[31] EEI further notes that delays are likely and transmission infrastructure issues have posed significant challenges to the growth of renewable generation.[32] Some analysts have suggested that even if plans and financing were in place now to develop the national transmission capacity needed to meet a 15% (or higher) RPS, the construction could not take place quickly enough to meet the 2020 target date.[33]

The American Wind Energy Association (AWEA) has acknowledged the transmission issue, pointing to ongoing efforts to address it.[34] For example, the Texas RPS is driving a boom in wind development. To address transmission constraints there, the state recently established "competitive renewable energy zones," and directed the Electric Reliability Council of Texas (ERCOT) to develop transmission plans for up to 25,000 megawatts of new wind capacity.[35]

RPS proponents note that transmission may be much less of an issue for biomass power development in the South. For co-firing in existing coal plants, new biomass generation may not require any new transmission infrastructure. Even for new biomass plants, transmission needs may involve shorter distances, smaller

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[29] EIA, *Impacts of a 15% RPS*, p. iv and v.

[30] EIA, *Impacts of a 15% RPS*, p. v.

[31] EEI, *Protect Electricity Consumers*, p. 3.

[32] EEI, *Protect Electricity Consumers*, p. 3.

[33] For more on this issue, see CRS Report RL33875, *Electric Transmission: Approaches for Energizing a Sagging Industry*, by Amy Abel. Also see Tripp, Jennifer B. *Transmission Access and Delivering the Wind Power*. Presentation developed for R. W. Beck, Inc. (Available from CRS. Not available on the Web.)

[34] AWEA reports both regulatory and legislative efforts underway to address the transmission issue. [http://www.awea.org/policy/regulatory_policy/transmission.html].

[35] AWEA. *Windletter*. July 2007. p. 7. [http://www.awea.org/windletter/073107_AWEA_WL.pdf].

volumes, and lower costs than that which may be required for more remote wind farm locations in the Midwest regions.

An Alternative Proposal: The "Clean Energy" Portfolio Standard. Opponents of RPS brought an alternative measure to the Senate floor that they argued would address their concerns about resource hardship, transmission needs, and electricity price increases. That measure, S.Amdt. 1538, proposed expanding the RPS concept to include energy efficiency measures and other energy production facilities.[36] The "Clean Portfolio Standard," or CPS, would have started the requirement at 5% in 2010 and increased to 20% by 2020. Eligible resources would have been expanded beyond renewables to include energy efficiency, fuel cells, new nuclear power plants, and new coal power plants that include carbon dioxide capture and storage equipment.

RPS proponents argued against the CPS proposal. They asserted that the main purpose of the RPS was to stimulate the market development of new pre-commercial and near-commercial renewable energy equipment. The CPS, they said, would not require any real change in the energy mix, and would mainly add an incentive to expand the use of conventional nuclear energy and fossil energy with carbon capture. In conclusion, RPS proponents contended that the CPS proposal would eliminate any real requirement to produce additional power from renewables.[37] S.Amdt. 1538 was tabled by a vote of 56 to 39.[38]

House RPS Debate (H.Amdt. 748 to H.R. 3221)

In House floor action on H.R. 3221, an RPS amendment (H.Amdt. 748) was added by a vote of 220 to 190. The bill subsequently passed the House by a vote of 241 to 172. The RPS amendment would set a 15% target for 2020, and would allow up to 4 percentage points of the requirement to be met with energy efficiency measures. The issues in debate, and the constellation of proponents and opponents, were similar to the elements of the preceding Senate floor debate over S.Amdt. 1537.

The arguments in opposition to H.Amdt. 748 echoed those raised in the Senate RPS floor debate. The National Association of Manufacturers (NAM) and the Edison Electric Institute (EEI) expressed their opposition to RPS.[39] Both NAM and EEI stated that the RPS could create hardship for states and regions with low amounts of renewable resources, impose burdens for electricity transmission and reliability, and raise electricity prices for consumers. Both also stated support for a long-term extension of federal tax credits for renewables, which they contended would be the most effective form of support. On the House floor, RPS opponents

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[36] Congressional Record. Vol. 153, June 13, 2007. p. S7658-S7659.

[37] Congressional Record. Vol. 153, June 14, 2007. p. S7690.

[38] Congressional Record. Vol. 153, June 14, 2007. p. S7691.

[39] The NAM letter of opposition is available at [http://www.energywashington.com/secure/data_extra/dir_07/ew2007_2360.pdf]. Also, EEI's opposition is noted at [http://www.energywashington.com/secure/energy_docnum.asp?f=ew_2002.ask&docnum=ew2007_2330].

decried the absence of support for nuclear power facilities and said the RPS proposals would undermine coal facilities. They contended that it was unfair to exempt electric cooperatives, municipal utilities, and the state of Hawaii. Opponents to RPS argued further that some states with fewer resources would be burdened with additional electricity costs. Opponents also contended that biomass power technologies were not yet ready for commercial use and that certain usable forms of biomass had been left out of the definition of eligible biomass resources.

The American Wind Energy Association stated that a national RPS is needed "to fully reap the benefits of renewable energy," and cited broad support for RPS.[40] Also, the Union of Concerned Scientists (UCS) said it used EIA's computer model to examine the potential effects of an RPS and found somewhat larger savings for cumulative electricity and natural gas bills than EIA's study.[41] An EIA report observed that in the early years after its creation in 1992, the federal renewable energy electricity production tax credit (PTC) "had little discernable effect on the wind and biomass industries it was designed to support."[42] In a subsequent report, EIA found that, after the late 1990s, the combined effect of the PTC with state RPS programs had been a major spur to wind energy growth.[43] On the House floor, RPS proponents argued that all states have sufficient renewable energy resources and that the RPS had been recalibrated to include energy efficiency measures to make it even more flexible. Supporters also cited a study by Wood Mackenzie Corporation that showed RPS would lead to a net reduction in natural gas an electricity prices.[44] They contended that cooperatives and municipal utilities had been excluded in order to make the target easier to achieve. Proponents acknowledged that there is a need to expand the definition of biomass resources, and offered to do so in conference committee.

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[40] AWEA. Statement of the American Wind Energy Association on a National Renewable Portfolio Standard (RPS). July 31, 2007. 2 p. AWEA notes support from the National Venture Capital Association, League of Conservation Voters, National Farmer's Union, and United Steelworker's Union. [http://www.awea.org/newsroom/releases/AWEA_statement_on_national_RPS_061207.html].

[41] UCS. *A 20 Percent National Renewable Electricity Standard Will Save Consumers Money and Reduce Global Warming Emissions.* May 2007. 2 p. (Not available on the Web.) UCS also found that a 20% RPS would have greater environmental and job development benefits than a 15% standard.

[42] EIA. Annual Energy Outlook 2005. p. 58.

[43] EIA. *Annual Energy Outlook 2006.* (Section on "State Renewable Energy Requirements and Goals: Update Through 2005.") p. 27. Further discussion of the importance of the interaction between PTC and RPS is presented in the section under Renewable Portfolio Standard entitled "Federal Support for State RPS Policies."

[44] Wood Mackenzie. *The Impact of a Federal Renewable Portfolio Standard.* February 2007. 17 p. The Corporation has a history of energy industry consulting, including studies on oil, natural gas, and electric power generation. (The report is not available on the Web.)