



WORLD RESOURCES INSTITUTE

WRI Brief Summary of the Waxman-Markey Discussion Draft

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This summary provides a concise overview of the Discussion Draft released by Chairmen Markey and Waxman on March 31, 2009.² The American Clean Energy and Security Act of 2009 (here in referred to as the Waxman-Markey Discussion Draft or just “draft”) is a draft comprehensive energy and greenhouse gas (GHG) reduction bill consisting of four titles:

- Title I, Clean Energy
- Title II, Energy Efficiency
- Title III, Reducing Global Warming Pollution
- Title IV, Transitioning to a Clean Energy Economy

This summary roughly follows the structure of the bill. In some cases this summary deviates from this structure and groups together related components in a more orderly fashion. For more information on specific components of the draft, please refer to the actual legislative language as referenced by section and page number in this document. In addition, as this is a discussion draft some sections are intentionally left blank or multiple potential options for legislative language are included.

CLEAN ENERGY

- **Federal renewable electricity standard:** 25% renewable by 2025. Eligible resources are wind, solar, geothermal, biomass or landfill gas, qualified (incremental) hydropower, marine and hydrokinetic renewable energy. Hydro and MSW generation are not included in base sales. States may petition to opt out of 1/5th of obligation if utilities are in compliance with EERS. (Sec. 101, pg. 7)
- **Clean transportation**
 - Low carbon fuel standard: Sets life-cycle emission standards for transportation fuels. Between 2014 and 2022, fuels must be below the emissions baseline (2005 lifecycle GHG emissions per unit of energy). Between 2023-2029, fuels must drop 5 percent below baseline; after 2030 fuels must be 10 percent below baseline. Fuels used to meet existing renewable fuel standard (RFS) are excluded from this standard (and calculation of fuel emission levels).
 - Electric vehicles: Requires utility planning for the integration of electric vehicles. Creates a program to fund broad demonstration of electric vehicle integration into the grid. Also provides financial assistance for electric drive vehicle and battery manufacturing. (Sec. 122-124, pg. 71)
- **State Energy and Environment Development (SEED) Funds** are created for each state to manage and account for federal funds given to states to support state clean energy, energy efficiency and climate change programs (Sec. 139, pg. 82).
- **Transmission and distribution**
 - Smart grid: Incorporates smart grid considerations into the ENERGY STAR program. Requires states or load-serving entities to establish peak demand reduction goals. Expands rebate and public information programs to include smart grid equipment. (Sec. 141-145, pg. 90)
 - Transmission planning: Calls for a regional transmission planning process to be coordinated by FERC. However, draft does not give FERC siting authority, as called for in other similar proposals. (Sec. 151, pg. 104)

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² This summary applies only to the discussion draft released on 3/31/2009 and not subsequent iterations

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- **Federal RE purchasing:** Allows federal government to enter into long-term renewable energy purchase contracts. (Sec. 161, pg. 110)
- **Technical corrections to energy laws:** Makes a variety of amendments to 2007 EISA and 2005 EPACT. (Sec. 171, pg. 111)

ENERGY EFFICIENCY

- **Building efficiency:** Requires government to update national model building codes every three years in line with specific efficiency targets. Incentives are provided to states for implementing and complying with building codes. Establishes program to facilitate energy efficient retrofits. Provides for rebates to purchasers of energy efficient manufactured homes. Establishes a federal building efficiency labeling program. (Sec. 201-204, pg. 158)
- **Lighting and appliance efficiency:** Provides a series of new appliance and lighting efficiency standards and makes changes to standards-setting process. (Sec. 211-214, pg. 211)
- **Transportation efficiency**
 - Vehicle performance standards: Creates new performance standards for light-duty vehicles and other emissions sources. See “interaction with EPA authority” section for more details.
 - State planning: States must create transportation emissions reduction goals incorporating strategies such as new public transit, land use and zoning policies etc (Sec. 841, pg. 274)
 - Smartway transport efficiency program: Measures and designates energy-efficient, low-greenhouse gas “SmartWay” technologies and strategies. Provides incentives for the adoption of SmartWay technologies. (Sec. 223, pg. 283)
- **Federal energy efficiency resource standard:** Calls for an EERS to achieve 15 percent cumulative electricity savings and 10 percent cumulative natural gas savings by 2020. Retail electricity distributors and natural gas distributors are regulated entities. (Sec. 611, pg. 289)
- **Industrial efficiency programs:** Requires DOE to establish industrial plant energy efficiency certification standards. Provides awards for electric and thermal energy efficiency. (Sec. 241-242, pg. 314)

GLOBAL WARMING POLLUTION REDUCTION TARGETS AND TIMETABLES

- **Emissions cap.** The draft sets both a non-binding economy-wide GHG emission reduction goal (Sec. 702, pg. 326) as well as a mandatory cap on covered greenhouse gases (Sec. 703, pg. 327). Both targets are:
 - 2012: 3 percent below 2005 emission levels (~12 percent above 1990 emission levels)
 - 2020: 20 percent below 2005 (~7 percent below 1990)
 - 2030: 42 percent below 2005 (~33 percent below 1990)
 - 2050: 83 percent below 2005 (~80 percent below 1990)The cap brings in sources in three phases from 2012 through 2016 (see Point of Regulation).
- **A consumption³ cap on all HFCs.** This cap is established by extending Title VI of the CAA to apply to HFCs and represents the maximum annual allowable amount of consumption. Reduction amounts are relative to average US HFC consumption levels between 2004 and 2006 (Sec. 619, pg. 491).
 - 2012: 4 percent below
 - 2020: 28 percent below
 - 2030: 58 percent below
 - 2039 and onward: 85 percent below
- **Scientific and programmatic review.** The draft requires the National Academies of Science (NAS) to conduct a review of climate science, technology options and U.S. progress towards meeting the economy-wide emission reduction goals set by the proposal. The President is authorized to exercise all statutory authority to act on recommendations made by the NAS and recommend to Congress additional actions that may be necessary to meet U.S. and global GHG reduction commitments (Sec. 705, 706, pg. 329).

POINT OF REGULATION, EMISSIONS REPORTING AND COVERAGE

- **Covered gases:** 5 Kyoto gases (not HFCs) plus NF₃ with EPA authorized to add additional GHGs in the future (Sec. 711, pg. 339)

³ Consumption = Production + Imports – Exports.



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- **Mandatory reporting:** Required by 2011 for all prior years through 2007. Quarterly reporting is required beginning in 2011. All covered entities plus other types of entities are required to report (Sec. 713, pg. 348)
- **Point of regulation:** A hybrid approach is used with sources phased in over a 5-year time frame (see definitions Sec. 700, pg. 461 and Sec. 722 pg. 368):
 - Covered in 2012: The draft assumes it covers 68.2 percent of total US emissions during this phase.
 - All electric power generators (downstream)
 - Natural gas liquid-, petroleum- and coal-based liquid fuel producers/importers (upstream) whose products when combusted emit over 25,000 tonnes annually.
 - Producers and importers of fluorinated gases (upstream) except HFCs
 - Geologic storage sites
 - Added to coverage in 2014: The draft assumes it covers 75.7 percent of total US emissions during this phase.
 - Industrial sources (downstream) that annually emit 25,000 tonnes or more, not including emissions from petroleum and biomass combustion; plus all sources (regardless of size) in select energy intensive sectors (e.g. glass, ceramics).
 - Added to coverage in 2016: The draft assumes it covers 84.5 percent of total US emissions during this phase.
 - Natural gas Local Distribution Companies (LDCs) (midstream) that deliver more than 460,000,000 cubic feet of gas annually to non-covered entities. Emissions that result from sales are regulated with measures to prevent double counting.

CARBON MARKET ASSURANCE AND OVERSIGHT

- **FERC:** The Federal Energy Regulatory Commission is given regulatory authority over allowance and offset markets and allowance derivative markets (Sec. 761, pg. 449). The President is also delegated authority to instruct agencies to take on pieces of market regulation based on existing authority as long as regulations are consistent with this section. The draft makes it a federal crime to commit fraud or manipulate any carbon market. In addition, the regulations facilitate and maintain market oversight and transparency and require market monitoring to prevent fraud, manipulation and excessive speculation.

ALLOWANCE VALUE DISTRIBUTION

- **Auction procedure:** Quarterly auctions will be held to sell a (undesignated) portion of allowances beginning in March 2011. Auctions will be open to any individuals. (Sec. 791, pg. 478) All entities in possession of allowances may request the Administrator to sell their allowances on consignment. (Sec. 792, pg. 483) No minimum reserve or maximum price is required for the auction of allowances.
- **Distribution of value:** Draft leaves almost all allocation decisions to future negotiations. The only exception is an allocation to fund supplemental emission reductions from forestry programs (see International Issues). Draft does include frameworks and/or placeholders for expenditures on:
 - **Consumer assistance:** To be added through committee process. (Sec. 431, pg. 568)
 - **Green jobs and worker transition:** Provides for a variety of workforce training and education programs but does not outline funding levels/sources. (Sec. 421, pg. 562)
 - **International support:** Provides frameworks for clean technology export fund and adaptation program but does not outline funding levels/sources. See "international issues" section for more details.
 - **Carbon intense manufacturers:** Output-based rebating used to address competitiveness/leakage concerns is likely to require a share of allowances. See "international issues" section for more details.

COST CONTAINMENT (OTHER THAN OFFSETS)

- **Trading.** Unlimited trading of allowances is permitted by any party (not restricted to owners and operators of covered entities). All allowances will be tracked in an allowance tracking system. (Sec. 724, pg. 378-9)
- **Banking and borrowing:**
 - Banking is unlimited. (Sec. 725, pg. 379)

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- Borrowing without interest: Allowances can be used for compliance for emissions in the calendar year preceding the vintage year, e.g. for compliance in 2015 a covered entity could use an allowance from 2016. (Sec. 725, pg. 380)
- Borrowing with interest: Up to 15% of an entity's compliance obligation can be met through submission of allowances with a vintage year 1-5 years later than that calendar year. (Sec. 725, pg. 380). There is no limit on this type of borrowing. For each borrowed allowance, the borrower needs to submit additional allowances to meet an 8 percent annual interest fee. (Sec. 725, pg. 381)
- **Strategic Reserve:** Quarterly auctions will be held to auction strategic reserve allowances. Only covered entities will be eligible to purchase allowances from the auction. The following percentage of allowances will be held annually by the Administrator for the auction:
 - 2012-2019: 1% of allowances for that year
 - 2020-2029: 2% of allowances for that year
 - 2030-2050: 3% of allowances for that yearThe reserve will also contain allowances not sold in previous auctions.
- Minimum Reserve Price: (Sec. 726, pg. 384)
 - 2012 minimum price will be twice the EPA modeled amount for 2012 (not yet determined).
 - 2013 and 2014 price will be the price set for 2012, plus 5%, plus the rate of inflation
 - 2015 on: minimum price will be 100% above a rolling 36 month average of the daily closing price for that year's allowance vintage.
- Quantity of Allowances Sold at auction: (Sec. 726, pg. 385)
 - 2012-2016: no more than 5% of allowances established for that year can be sold
 - 2017-2050: not more than 10% of allowances established for that year can be sold
- Purchase limits: Not more than 10% of a covered entity's compliance obligation can come from allowances or credits purchased from the strategic reserve
- Auction Proceeds: Proceeds from auction will be placed in a strategic reserve fund. The fund will be used to purchase international offset credits from reduced deforestation. The Administrator will retire those credits and establish emissions allowances equal to 80% of the number of offset credits retired. These allowances will be placed back in to the strategic reserve to fill it to its original size.
- **Excess allowances from the regular auction** will be assigned a vintage no earlier than the year in which the allowance is established from the international offset credits, or retired if a vintage year can't be assigned. (Sec. 726, pg. 387-8) Also includes provisions for additional offsets to be auctioned upon petition by the holder of such credits. (Sec. 726, pg. 388-393)
- **International emission allowances:** Administrator may rule to allow allowances from other trading programs that are at least as stringent as the US program. (Sec. 728, pg. 396)

OFFSETS

- **Entity-level offset limits:** Covered entities may satisfy a percentage of their compliance obligation with offsets each year. This percentage limit varies year to year and is determined by the Administrator by dividing the number 2 billion by the sum of 2 billion plus the number of emission allowances in the previous year allowance budget and multiplying that number by 100 (for example the 2013 limit will be 30% of an entity's compliance obligation). Of this total percentage not more than one half can come from domestic offsets and not more than one half can come from international offsets (for example in 2013 no more than 15% of a given entity's compliance obligation could be met through domestic and 15% through international offset credits (Sec. 722 pg. 372)
- The President may make a recommendation to Congress regarding whether the 2 billion number should be increased or decreased (Sec. 722, pg. 373).
- For every tonne of an entity's compliance obligation that is covered by an offset, an entity must turn in 1.25 offsets.
- **Advisement:** Establishes an independent "Offsets Integrity Advisory Board" to provide guidance to Administrator (Sec. 731, pg. 399)
- **Registration:** Calls for establishment of an offset registry by the Administrator (Sec. 732, pg. 403)

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- **Offset Project Types:** Within 2 years Administrator must determine which project types are eligible for use under the offset program, giving priority to those identified by the offset integrity advisory board.
- **Additionality** is determined by the following criteria: 1) not required by law or regulation, 2) not commenced prior to Jan.1, 2009 (except as provided under early offset supply in section 740(a)), and 3) based on activity baselines based on a standardized baseline that reflect “a conservative estimate of business as usual” performance or practice. (Sec. 734, pg. 407)
- **Offset Reserve:** Before the issuance of offset credits the Administrator shall subtract and reserve an unspecified quantity of credits based on the risk of reversal and hold and register these credits (Sec. 734, pg.410)
- **Reversals:** The Administrator shall establish policies to report, assign liability for and mitigate reversals of sequestration projects, potentially including: 1) an offset reserve, 2) insurance, 3) another mechanism. If a reversal occurs the Administrator will cancel credits equal to reversal.
 - Intentional reversals are the responsibility of the offset project representative who will be required to replace credits with either offset credits or allowances.
 - Un-intentional reversals the offset project representative will be required to surrender offset credits or allowances equal to the number that were reserved for that project, or the number of reserve offset credits that were cancelled, whichever is less. (Sec. 734, pg. 408-9).
- **Crediting Periods.** No less than 5 and no more than 10 years for any project type other than sequestration (not specified for sequestration projects).
 - A project representative may petition for new crediting period to commence after termination of a crediting period, no more than 18 months in advance of the end of a crediting period. Administrator should consider pre-existing methodologies when establishing crediting periods. (Sec. 734, pg. 412)
- **Early Offset Supply.** One offset credit shall be issued for each ton of CO₂e registered under a government established program as long as: 1) the project was started after Jan.1, 2001, 2) has developed methodologies through a public consultation process, 3) has publicly published standards that ensure emission reductions are real, additional, verifiable, and enforceable, 4) requires that all credits issued are registered in a publicly accessible registry with individual serial numbers for each ton, 5) there is no conflict of interest between the offset project representative and the registry. (Sec. 740, pg. 420-21)
 - Retired and expired credits are not eligible.
 - Credits will only be issued for emission reductions that occur after Jan. 1, 2009 and only for 3 years after the date of enactment of the act.
- **Ownership.** Ownership of offset credits lies with the entity represented by the offset project representative, unless otherwise specified by contract.
- **General offset provisions.** Includes provisions for project approval, verification, verification accreditation, credit issuance, and auditing (Sec. 734, pg. 413-419). Calls for the incorporation of environmental considerations for forestry-based offset projects (Sec. 741, pg. 422). Calls for establishment of provisions by Administrator for leakage, uncertainty, and variances from methodologies (Sec. 734, pg. 408)
- **Program Review.** Program will be reviewed at least once every 5 years, and revised if necessary (Sec. 734, pg. 419)

INTERNATIONAL OFFSETS

- **Authority.** The Administrator, in consultation with the Secretary of State, may issue international offset credits based on projects that avoid, reduce or sequester emissions in developing countries. (Sec. 742, pg. 423)
- **Regulation.** International offset credits may be issued only if: 1) the U.S. is a party to a bilateral or multilateral agreement that includes the country in which the project has occurred, 2) such a country is a developing country, 3) the agreement ensures all requirements of legislation apply and provides for appropriate disposition of offsets. (Sec. 742, pg. 424)
- **Sector-based credits:** Approves the issuance of offset credits based on sectoral crediting mechanism targeted at sectors in countries that 1) have comparatively high emissions or greater levels of economic development, 2) would be subject to a compliance obligation under section 722 if it were located in the U.S.. Also outlines factors that should be taken into consideration

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including GDP, GHG emissions, international competitiveness, risk of leakage, etc. (Sec. 742, pg. 425)

- **Recognition of other protocols:** Administrator can issue credits in exchange for credits issued by an international body established by the UNFCCC, a protocol to such convention or a treaty that succeeds such a convention, as long as those credits were generated through a program that creates equal or greater assurance of the environmental integrity of the U.S. program (Sec. 742, pg. 429)
- **Offsets from Reduced Deforestation.** International offset credits allowed only if the activity occurs in a country identified by the Administrator pursuant to their ability to participate in such a program as established by this act. Provides guidance on the quantity of credits issued, how to establish a national deforestation baseline, how to avoid double counting and which countries are eligible to participate (Sec. 743, pg. 431-6)

INTERACTION WITH EPA AUTHORITY UNDER THE CLEAN AIR ACT

- **Extension of CAA Title VI** (stratospheric ozone protection) to include HFCs (Sec. 619, pg. 491).
 - Sets a cap on consumption of HFCs with most allowances auctioned and the rest sold to producers, importers and consumers of HFCs (see targets and timetables section above) (Sec. 619, pg. 496)
 - Imposes other requirements restricting commerce of HFCs (Sec. 619 pg. 514)
- **Prohibits EPA from:**
 - Classifying GHGs as criteria pollutants on the basis of their climate impacts (Sec. 831, pg. 490)
 - Designating any GHG as a hazardous air pollutant on the basis of its climate impacts (Sec. 832, pg. 490)
 - Setting New Source Review standards for GHGs on the basis of their climate impacts (Sec. 833, pg. 490)
 - Considering the climate impacts of GHG emissions when issuing operating permits under Title V of the CAA (Sec. 834, pg. 490)
- **Standards:** Requires EPA to:
 - Regulate Black Carbon or decide that any regulations set under the CAA are adequate (Sec. 851, pg. 523)
 - Set Performance Standards for GHGs from uncapped stationary emission sources that emit greater than 10k tonnes. Sources of methane from enteric fermentation are exempt from standards (Sec. 811, pg. 485).
 - Set light-duty vehicle emission standards through existing authority under CAFE and the CAA (Sec. 221, pg. 268). Standards must be at least as stringent as and not preempt California rules and be harmonized across CAFE, CAA and California rules and requirements.
 - Set emission standards for other mobile sources based on costs and available technology (Sec. 821, pg. 269). Covered sources include heavy-duty trucks not covered under existing CAA authority, marine vehicles and engines, locomotives, off-road vehicles, aircraft.
 - Set standards for CCS geologic storage site and coal fired power plant (see coal provisions)

INTERACTION WITH STATE PROGRAMS

- **Temporarily prohibits States from running their own cap and trade programs.** This prohibition expires after 2017. The prohibition does not apply to state LCFs or vehicle fleet standards such as CA cars. (Sec. 861, pg. 527).
 - Those who hold CA or RGGI allowances can be compensated with allowances from the federal program. Compensation is based on the cost of holding allowances not the amount of allowances held. (see allowance distribution)
 - States are permitted to require federal allowances for compliance with state air regulations that reduce GHGs.
- **Requires harmonized motor vehicle standards** between federal standards and California. There are also requirements for state transportation efficiency planning. (see interaction with EPA Authority under the CAA).

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- **State cooperation on energy programs** established or changed through the clean energy and energy efficiency titles of the draft are required or encouraged. States also receive Federal funds for clean energy, energy efficiency and climate change programs (see Clean Energy and Energy Efficiency).

INTERNATIONAL ISSUES

- **Forestry**
 - Supplemental emissions reductions from reduced deforestation: Achieve supplemental emissions reductions of at least 720 million tons in 2020 (cumulative amount of 6 billion tons by 2025) through forestry projects in developing nations. Also calls to build capacity for international forest credits and preservation of existing forest carbon stocks at risk of international leakage. (Sec. 751, pg. 436)
 - Allowances for reduced deforestation: In order to achieve the reductions called for in section 751, the draft allocates: 2012-2025: 5 percent; 2026-2030: 3 percent; 2031-2050: 2 percent (Sec. 781, pg. 476).
- **Adaptation**: Establishes a framework for an international adaptation program with no explicit levels or sources of funding in the draft. The program would be administered by USAID, although 40-60 percent of funding should be distributed to international funds that meet specific eligibility criteria. (Sec. 491, pg. 632)
- **Clean technology transfer**: Establishes a framework for an international tech transfer fund with no explicit levels or sources of funding in the draft. Developing countries that have ratified international climate treaty and have undertaken nationally appropriate mitigation activities (in ways that are consistent with Measurement Reporting and Verification guidelines in the UNFCCC) are eligible to receive support. Secretary of State will disburse funding either directly, through World Bank agreements or through UNFCCC funds. (Sec. 451, pg. 569)
- **Competitiveness/leakage**:
 - Rebates: Follows Inslee-Doyle Output Based Rebating (OBR) model of providing rebates to carbon-intense manufacturers as primary mechanism for dealing with competitiveness. Sectors are presumed eligible if they meet 5% energy or GHG intensity threshold and 15% trade intensity. Each sector is rebated at 85% of sector average direct and indirect emissions cost. Rebates are phased out beginning in 2020, unless Presidential review determines that other countries have not yet taken substantial action and leakage concerns persist. (Sec. 401, pg. 537)
 - International reserve allowance program: By June 2017, President will report on competitiveness implications of climate policy and effectiveness of OBR provisions. If called for within report, EPA must create international reserve allowance regulations within 24 months. Scaled down version of the AEP/IBEW international reserve allowance proposal included in most climate legislation from the 110th Congress. (Sec. 411, pg. 555)
 - International negotiations: Recognizes that competitiveness concerns can be most effectively dealt with through internationally negotiated agreements. (Sec. 413, pg. 557)

PROVISIONS FOR COAL

- **Legal and regulatory issues around Carbon Capture and Storage (CCS)**
 - Interagency report that identifies legal and regulatory barriers to commercial CCS deployment. Report must provide recommendations to the President and Congress for new legislation and regulations that would address these barriers (Sec. 111, pg. 26). A task force study to design a legal framework for geologic storage sites is also established (Sec. 113, pg. 31)
 - CO2 geologic storage site regulations: Amends the CAA and the Safe Drinking Water Act (SDWA) to establish standards (Sec. 813, pg. 28) Standards must include rules on financial responsibility of injected CO2, monitoring, record keeping, public participation and certification rules, among other things. Rules must minimize redundancy between CAA and SDWA authority. Certified and uncertified geologic storage sites are covered entities under the cap and trade program (see Point of Regulation above).
- **R&D and early deployment of CCS**

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- Carbon Storage Research Corporation: Established to oversee and direct R&D of CCS capture and storage technologies by issuing grants and financial assistance. This program is identical to Rep. Rick Boucher's (D-VA) recently introduced proposal (Sec. 114, pg. 35).
- Funding: Secured through assessments on utility sales of electricity from fossil fuels with annual nationwide limit of \$1 billion per year for no more than 10 years.
- Financial assistance eligibility: Commercial-scale projects undertaken by private, public, academic and non-profit organizations are eligible with an emphasis on supporting a diversity of technologies and fuels.
- Other provisions deal with governance, government oversight, sharing of information and intellectual property.
- **Incentives and Standards for commercial deployment of CCS**
 - Incentives: Provides fixed payments to facilities for tonnes of CO₂ captured and sequestered (Sec. 115, pg. 57) Amount per tonne to be determined by Administrator based on incremental cost of CCS and other factors over a fixed amount of years. To be eligible, facilities must be a coal- or petroleum coke-fired electric generating unit with 250MW or greater nameplate capacity or be an industrial source that will emit more than 250,000 tonnes of CO₂ per year absent any emissions capture.
 - Performance standards: Amends the CAA to require new coal fired power plants to meet performance standards (Sec. 812, pg. 61). The Administrator must review standards and may tighten them depending on the performance of commercially available technology. Details include:
 - Standards apply to all plants permitted after Jan. 1, 2009 where 30% or more of their fuel is coal and/or petroleum coke. Standards vary based on the year in which the plant is permitted along with other factors.
 - Plants permitted from 2009 through 2014 must emit no more than 1,100 lbs/MWh by no later than 2025 and potentially earlier depending on the level of commercial deployment of CCS technology.
 - Plants permitted from 2015 through 2019 must emit no more than 1,100 lbs/MWh at start
 - Plants permitted from 2020 onward must emit no more than 800 lbs/MWh at start

DOMESTIC ADAPTATION

- Establishes **National Climate Change Adaptation Council** that will include the heads of 17 different federal agencies. (462, pg. 478-580)
- Establishes **National Climate Change Adaptation Program** that will develop reports and provide advice to key federal agencies. (463, pg. 580)
- Calls for establishment of a **National Climate Change Vulnerability Assessment** by NOAA to be conducted and published every 4 years. (464, pg. 581-586)
- Establishes a **National Climate Service** to serve as a clearinghouse for information. (465, pg. 586-588)
- Calls for development of climate change adaptation plans by each federal agency on the **Climate Change Adaptation Council**. (466, pg. 588-591)
- Establishes a **National Climate Change Adaptation Fund** in the U.S. Dept. of Treasury with "such sums as may be necessary" to assist regions and states in taking mitigation and adaptation actions. (467, pg. 591-595)
- **Adaptation and Public Health**: Will assist states, regions and tribes to incorporate measures to adapt health systems to address impacts of climate change. (471, pg. 595-597)
- **Authorization of appropriations**: Section authorizes appropriations to fund programs established in this act. (473, pg. 597)
- **Natural Resources Adaptation**: Establishes an integrated federal program to assist natural resources to become more resilient and adapt to and withstand the impacts of climate change and provides financial support to programs that assist in that adaptation. (481 and 482, pg. 598)