# The Dow Chemical Company

**STATEMENT FOR THE RECORD**

**SUBCOMMITTEE ON ENERGY AND ENVIRONMENT**
**COMMITTEE ON ENERGY AND COMMERCE**

**HEARING ON**

The American Clean Energy Security Act of 2009

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The Dow Chemical Company appreciates the opportunity to submit these written comments to the Subcommittee on Energy and Environment, Committee on Energy and Commerce on the competitiveness provisions of the American Clean Energy Security Act of 2009.

Dow was founded in Michigan in 1897 and is one of the world's leading manufacturers of chemicals and plastics. We supply products to customers in 160 countries around the world, connecting chemistry and innovation with the principles of sustainability to help provide everything from fresh water, food, and pharmaceuticals to paints, packaging, and personal care products

Dow is committed to sustainability. We have reduced our absolute levels of greenhouse gas (GHG) emissions 22% since 1990, and we are committed to do even better in the future. Our ambitious 2015 sustainability goals underscore this commitment.[1]

Dow is an energy-intensive company. We use energy, primarily natural gas and natural gas liquids, as a feedstock material to make a wide array of products. For its global operations, Dow uses the energy equivalent of 850,000 barrels of oil every day. This amount is more than the oil consumption of some countries, such as The Netherlands or Australia.

Because roughly half of our operating costs are energy costs, Dow is actively investigating and moving forward on alternate feedstock materials such as glycerin to propylene glycol (for use in antifreeze) and soy to polyols (for use as cushioning in furniture).

Despite being energy-intensive, Dow products help consumers save energy and reduce GHG emissions. For the home or business, our insulation and polyurethane foam sealants can reduce home and business energy costs by 20%-30%. In 2008, a third-party validated lifecycle assessment found that the avoided emissions from the use of Dow insulation products in service are about seven times greater than our company's total annual emissions.[2] For saving energy on the road, our new diesel particulate filter technology enables improved environmental performance and fuel efficiency. We offer amines technology to capture carbon dioxide emissions from the power sector. We also offer plastics, composites, and adhesives to help make cars stronger and lighter, while improving overall gas mileage. For the industrial sector, we have saved energy by down-gauging industrial stretch film, a process of making a plastic film thinner but stronger, so that less plastic (and feedstock energy) can be used while getting the same benefits in use.

This testimony describes the challenges faced by an energy-intensive, trade-exposed company under a US policy to control greenhouse gas (GHG) emissions. Specific focus is on the competitiveness provisions of the March 31, 2009 draft energy and climate bill developed by Chairman Waxman and Rep. Markey. This testimony also identifies other important provisions of the bill that will have a significant impact on competitiveness.

[1] To learn more about Dow's commitment to sustainability, go to our website at www.dow.com.
[2] To learn more, see our 2008 annual report at www.dow.com/financial/pdfs/161-00722.pdf

**USCAP Perspective**

As a member of the U.S. Climate Action Partnership (USCAP), Dow supports prompt enactment of environmentally effective, economically sustainable and fair climate change legislation to reduce U.S. greenhouse gas emissions sharply by mid-century. The centerpiece of legislation should be an economy-wide cap and trade program. This market-based approach is the best way to put a price on carbon and ensure that short- and long-term emissions targets are met.

USCAP launched its landmark report, titled *A Call for Action*[3], in January 2007, which lays out a legislative framework for climate protection. Most recently, USCAP released *A Blueprint for Legislative Action*, which provides consensus recommendations for climate protection legislation. USCAP includes a total of 30 businesses and environmental organizations.[4] The coalition recognizes that the United States faces an urgent need to reinvigorate our nation's economy, make the country more energy secure, and take meaningful action to slow, stop, and reverse GHG emissions to address climate change. Thoughtful and comprehensive national energy and climate policy will help secure our economic prosperity and provide American businesses and the nation's workforce with the opportunity to innovate and succeed.

According to USCAP, manufacturers and industries that deal with certain commodity products that are both energy-intensive and trade-exposed will be particularly challenged by US climate policy if they face competition from countries that have not committed to an internationally recognized GHG-emission-reduction path. In such cases, there is a risk of "leakage", by which we mean the shifting of production (and jobs) and GHG emissions from the US to these other countries.

To remedy this situation, USCAP recommends that an adequate amount of allowance value be provided to US manufacturers facing such competition (determined by objective criteria). USCAP recommends that these allowances be tied to any GHG-related competitive imbalance and reduced or eliminated when the GHG-related competitive imbalance is reduced or disappears. USCAP also believes that any provisions designed to address competitiveness should be consistent with World Trade Organization rules.

[3] *A Call for Action* and *A Blueprint for Legislative Action* can be found at www.us-cap.org.

[4] The current members of USCAP are: Alcoa; Boston Scientific Corporation; BP America, Inc.; Caterpillar Inc.; Chrysler LLC; ConocoPhillips; Deere & Co.; Dow; Duke Energy; DuPont; Environmental Defense Fund; Exelon Corporation; Ford Motor Company; FPL Group; General Electric; General Motors Corporation; Johnson & Johnson; Marsh, Inc.; Natural Resources Defense Council; NRG Energy; PepsiCo North America; Pew Center on Global Climate Change; PG&E Corporation; PNM Resources; Rio Tinto; Shell Oil Company; Siemens Corporation; The Nature Conservancy; World Resources Institute; and Xerox Corporation.

**Maintaining US Competitiveness**

The draft bill (Title IV, Subtitle A, Part I) includes provisions to provide compensation to energy-intensive, trade-exposed sectors that are at risk of leakage under a US program to control greenhouse gases. Representatives Inslee and Doyle have long championed this approach (as embodied in their bill, H.R.1759, the EMPLOY Act) , which Dow believes is the best way to address the competitiveness issue prior to an international agreement among major emitting countries or a global sectoral agreement.

The Inslee-Doyle approach proceeds in two steps. In the first step, EPA would identify energy-intensive, trade-exposed sectors that are at risk of leakage based on clear and objective criteria. In the second step, EPA would award rebates to eligible facilities to compensate them for some portion of their direct and indirect GHG emissions. The Inslee-Doyle approach is generally consistent with the approach outlined in the USCAP Blueprint for Legislative Action in that (1) the definition of energy-intensive and trade-exposed sectors is based on objective criteria, and (2) there are provisions to eliminate or reduce the rebates when the potential for leakage has been reduced or eliminated.

Dow would like to offer one word of caution, and recommend two changes, to this provision of the draft bill.

First, we offer a word of caution. It is critical that the rebate be adequate to compensate the sectors that meet the criteria for eligibility. If Congress implements this provision by awarding free allowances, but does not set aside enough allowances to address the leakage issue, then it will fail to protect American jobs in the critically important US manufacturing sector.

As for our recommended changes, we believe it is critical that the compensation not be reduced or eliminated until the competitive disadvantage is reduced or eliminated. The March 31 draft bill envisions a phase-down starting in 2021, which may precede creation of an internationally level playing field. Targeted assistance to energy-intensive industries should be terminated only when the carbon leakage problem is solved through an international agreement. And, it should be phased down only in proportion to progress made in reducing the cost differentials between trading partners in a fashion that demonstrably reduces the disadvantage to domestic producers—not according to an arbitrarily defined timeline.

We also believe that the compensation should address more than just direct and indirect emissions. Consider a chemical company that meets the eligibility criteria. It is likely that the largest increase in cost to such a company will be an increase in the price of fossil energy purchased as a feedstock material. To the extent that the increase in feedstock cost is not addressed elsewhere in the legislation (e.g., in the compensatory allowance provision in the draft bill, see the next section of this testimony), the facility should receive compensation to offset the increase in feedstock cost.

**Protecting Feedstock Use of Fossil Energy**

Dow would be remiss if we did not acknowledge that other provisions of the draft bill will impact competitiveness, and that care must be taken to ensure these other provisions are designed to protect American manufacturing jobs.

The bill imposes a point of regulation not just on those who emit GHGs, but also on those who produce fossil energy (i.e., petroleum products). This means that there will be a price signal imposed not just on fossil energy that is combusted, but also on fossil energy that is used as a feedstock material to make carbon-based products that are not designed to be combusted and many of which help people save energy.

To minimize the price signal imposed on fossil energy used as a feedstock, the draft bill (Title III, Section 721f) would provide compensatory allowances to those who use fossil energy in non-emissive ways, such as a feedstock material. Unfortunately, the definition of "non-emissive use" is so restrictive that, in our opinion, no company would be able to claim a single compensatory allowance. In addition, such compensatory allowances would not be bankable, and the timing of the issuance of such compensatory allowances is unclear.

Dow recommends four changes to this section: (1) allow compensatory allowances to be bankable, (2) require EPA to provide compensatory allowances within the first 90 days of the year immediately following the feedstock use, (3) change the definition of non-emissive use to refer to the extent to which the carbon content of the fossil energy remains in the substance created through the manufacturing process, and (4) require that EPA provide free allowances equal to the tons of $CO_2$(e) sequestered. Such changes would compensate chemical companies for using fossil energy not as a fuel, but as a feedstock, thereby preventing GHG emissions from entering the atmosphere. This issue is likely the most critical issue to the chemical sector in the March 31, 2009 version of the draft bill.

**Preventing a "Dash to Gas"**

One of the easiest, and most likely, ways to meet aggressive, short-term emission reduction targets, such as those in the draft bill, is through fuel switching from coal to natural gas in the power sector. Too strong a price signal on carbon would exacerbate such a movement, which is already underway even in the absence of a US program to reduce GHG emissions. If fuel switching is excessive, demand for US natural gas will rise, and US manufacturers that depend on natural gas will suffer.

The fuel-switching solution could be economically ruinous for those industrial businesses and consumers dependent on affordable natural gas, if natural gas supply does not keep pace with rising demand, or if natural gas supply lags significantly behind demand. Recent US history suggests this is a plausible scenario.

Natural gas prices have skyrocketed by more than 460% over the last eight years. The increase in price volatility has significantly contributed to the US manufacturing sector losing over 3.7 million jobs, the chemical industry losing nearly 120,000 jobs[5], and the permanent loss of nearly half of the US fertilizer production capacity. The manufacturing sector, which has limited fuel switching ability, has become the shock absorber for high natural gas costs. For the forest products industry, energy is the third largest manufacturing cost—up fifty percent in recent years for pulp and paper mills. For some mills, the cost has eclipsed employee compensation.

Dow first expressed alarm about high natural gas prices in 2002. At that time, our total annual energy and feedstock bill was $8 billion. In 2008, our energy bill was $27 billion. Our energy expenditures are by far the largest component of our production costs, and equate to about half of our total revenues.

Congress has been enticed into over-reliance on natural gas before. The Clean Air Act Amendments of 1990 were enacted with the belief that natural gas would be the clean fuel of the future and would be cheap and plentiful. Unfortunately, Congress did not anticipate the run-up in natural gas prices and the resulting demand destruction in the industrial sector.

We view the recent softening of natural gas prices to be associated with the weakening economy. We do not believe the current market prices for natural gas are indicative of the future. Congress must anticipate the future demand for natural gas as the economy rebounds. According to EPA/DOE analyses, cap and trade legislation will increase the demand for natural gas at least in the near-term (prior to 2030), as power companies find it economical to fuel switch from coal to less-$CO_2$-intensive natural gas. In the longer-term, fuel switching is of less concern as new technology is deployed to cost-effectively address GHG emissions from coal-fired power plants.

In designing a cap and trade program, several different elements (targets and timetables, cost containment, and complementary policies for coal and energy efficiency) will impact the degree of fuel switching, and Congress should keep all of these in mind as it develops a climate policy. Dow recommends that any US climate policy be designed in ways to minimize fuel switching. We commend the complementary policies for energy efficiency in the draft bill, which will help to reduce the degree of fuel switching that would otherwise occur in the absence of such complementary policies.

Dow recommends that the following changes be made to the March 31 draft bill to minimize the possibility of fuel switching in the power sector: (1) follow the USCAP recommendation of grants for the first 5 GW of coal-fired, CCS-enabled, power by 2015,

[5] The chemical industry uses 1.93 trillion cubic feet (TCF) of natural gas annually, representing 8% of US natural gas consumption. The majority of steam boilers and cogeneration units in the manufacturing sector are powered by natural gas. The remainder is for feedstock purposes. Due to the historic abundance and low cost of natural gas in the USA, natural gas has been vital to domestic chemical production.

(2) increase the maximum limit on offsets from 2 billion per year to between 2-3 billion per year (in keeping with another USCAP recommendation), (3) change the ratio of offsets to allowances from 1.25:1 to 1:1, and (4) change the price trigger for releasing offsets or allowances from the strategic reserve from a set formula to an approach that gives a duly–qualified entity the ability to adjust the trigger so that it prevents undue economic harm (e.g., to prevent excessive fuel switching). These changes will lessen the degree of fuel switching that would otherwise occur.

**Conclusions**

Dow strongly supports the framework developed by Inslee and Doyle to address competitive pressures facing energy-intensive, trade-exposed sectors of the economy. It is imperative that the set-aside of allowances be adequate to address this issue, and that these allowances not be phased-down before the competitiveness issue has been addressed. Incremental increases in the cost of fossil energy used as a feedstock and are otherwise uncompensated under this bill should be part of the calculation of energy-intensity and should also be part of the rebate (i.e., free allowances) to prevent leakage.

Dow strongly recommends that the compensatory allowance provision be altered to ensure allowances are provided to the US chemical sector for its use of fossil energy as a feedstock. The bill should allow banking of such compensatory allowances, provide for prompt delivery of such allowances, and define "non-emissive use" so as to reward companies for using fossil energy in value-creating ways rather than as a fuel to be combusted into GHG emissions.

Dow also recommends changes to the bill to avoid excessive fuel switching in the power sector. These changes ought to include grants for the first 5 GW of CCS-enabled coal-fired power by 2015, establishing a 1:1 offset to allowance ratio (rather than 1.25:1), and increasing the maximum amount of offsets from 2 billion to between 2 and 3 billion annually.

In Dow's opinion, the draft bill borrows heavily from the recommendations of USCAP, including the treatment of energy-intensive, trade-exposed sectors. However, the recommended changes described in this testimony are necessary to ensure that US manufacturing jobs are not lost due to leakage.

**Appendix—Dow's Progress and Commitment To Reduce Its Climate "Footprint"**

Dow accepts the Intergovernmental Panel on Climate Change (IPCC) conclusion that it is very likely that human activities are causing global warming. We recognize the serious nature of the threat and that it warrants bold action.

We understand that it is not enough to agree with consensus scientific opinion. Our commitment to sustainability requires that we act upon such information responsibly. To that end, Dow has made considerable progress in reducing its climate "footprint":

- From 1995 to 2005, in keeping with its publicly announced sustainability goals, Dow reduced its energy intensity (BTU per pound of product) by 22%, resulting in energy saving of 900 trillion BTUs, which is enough to power all the homes in the entire state of California for a year.
- Since 1990, Dow reduced its absolute greenhouse gas (GHG) emissions since to a level that exceeds Kyoto targets. Overall, emissions of Kyoto GHGs were reduced by more than 20% during this time period.
- GHG emission reductions achieved through the use of Dow products more than offset the GHGs produced during the manufacture of those products.

Although this record is positive, we are committed to continued improvement and reduction of our environmental footprint. In order for Dow to contribute even more to climate change solutions, we have developed a clear vision and key milestones for the years 2015 and 2025. Our vision will guide our decisions today and into the future, and based on this vision, we pledge to reach a number of far-reaching objectives:

- Our vision is to have contributed to the achievement of a world in carbon equilibrium, a target described by Princeton University professors Robert Socolow and Stephen Pacala in the September 2006 edition of *Scientific American*. We will have set the industry benchmark through our own performance. We will apply our innovation and expertise to help solve the world's GHG and energy challenges.

- Our key milestones:

    - By 2015, Dow will reduce its energy intensity by another 25% compared to base year 2005.
    - By 2015, Dow will reduce its GHG emissions intensity (tons of $CO_2$ per pounds of production) 2.5% per year.
    - By 2025, Dow will stop the growth of absolute emissions of GHG within the company. Our absolute emissions will remain below the 1990 baseline, and we will begin on a journey of year-over-year reduction in GHG emissions.
    - By 2025, Dow aims to have non greenhouse gas emissive energy provide at least 400 MW equivalents, or 10% of Dow's global electrical demand.
    - By 2050, at least 50% of the energy consumed by Dow globally will be non-carbon emitting.