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GREGORI LEBEDEV
PRESIDENT AND
CHIEF EXECUTIVE OFFICER

American Chemistry Council
Good Chemistry Makes It Possible

December 24, 2002

The Honorable Spencer Abraham
Secretary of Energy
Department of Energy
100 Independence Avenue, SW
Washington, DC 20585

Dear Secretary Abraham:

On behalf of the American Chemistry Council (ACC) I am pleased to transmit the attached "US Chemical Industry Response to the President's Global Climate Business Challenge." This voluntary commitment has been approved by our Board of Directors, pursuant to President Bush's call for an American industrial response to the issue of global climate change. We applaud President Bush's leadership in harnessing the entrepreneurial spirit of the US private sector in addressing this significant issue.

American Chemistry Council (ACC) members are proud to do their share to help the President and the country achieve the overall 18 percent reduction in greenhouse gas intensity by 2012, as called for in the Business Challenge. In 2001, the US chemical industry had nearly half a trillion dollars in sales, and half of that was of products that are hydrocarbon-based. It's an energy-intensive industry, but it is unique because it uses energy both in the manufacturing process and also as a raw material. No other industry adds as much value to its energy inputs as the business of chemistry.

Energy efficiency and greenhouse gas intensity reduction are not new to the chemical industry. As you know, it has reduced the fuel and power energy it consumes per unit of output by 41 percent since 1974. Carbon emissions per unit of output have declined by more that 45 percent during the same period. The

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efficient use of energy has been an economic imperative of the chemical industry for decades, driven by the need to compete globally and the desire to constantly improve our operations.

The centerpiece of our 12-part response to the President's Global Climate Business Challenge is to pursue reductions in greenhouse gas intensity toward an overall target of 18 percent by 2012, using a baseline of 1990 emissions intensity as the President suggests. From 2003 through 2012, the ACC will collect data directly from members to measure progress. But that's not the only way our intensity will help the country achieve its intensity reduction target. We also pledge to continue to manufacture products and pursue innovative new ways to help other industries and sectors achieve the president's goal. We plan to work with the government; through the Department of Energy, to develop a credible methodology for estimating greenhouse gas efficiency improvements in sectors of the economy that use chemical industry products. Our response also highlights areas in which government policy can assist in achieving designated greenhouse gas intensity reductions.

We look forward to working with the Department of Energy and the Administration in implementing this commitment. If you have any questions, please feel free to contact ACC Vice President of Federal Relations, Mark Nelson, at (703) 741-5900.

Sincerely,

Greg Lebedev
President and
Chief Executive Officer

cc: The Honorable James L. Connaughton, Chairman
Council on Environmental Quality

U.S. Chemical Industry Response to the President's Global Climate Business Challenge

EXECUTIVE SUMMARY

On February 14, 2002, President George W. Bush committed the nation to "cutting greenhouse gas intensity – how much we emit per unit of economic activity – by 18 percent over the next 10 years." As part of that commitment, he challenged American businesses to further reduce emissions. This paper contains the response of the members of the American Chemistry Council to that challenge.

The U.S. chemical industry had $454 billion in sales last year, and half of that was of products that are hydrocarbon based. Obviously, it's an energy-intensive industry, but it's unique because it uses energy in the manufacturing process and also as a raw material. While using natural gas, natural gas liquids, oil, coal and electricity to power its plants and processes, it also draws upon those same energy sources as the primary ingredient in the products we use every day. No other industry adds as much value to its energy inputs as the business of chemistry.

The U.S. business of chemistry has reduced the fuel and power energy it consumes per unit of output by 41 percent since 1974. Carbon emissions per unit of output have declined by more than 45 percent during the same period. The efficient use of energy has been an economic imperative of the chemical industry for decades, driven by the need to compete globally and the desire to constantly improve our operations.

ACC members have had the opportunity to take part in a number of programs that have helped to achieve these savings since the mid-1970s. Among them:

- ACC's Climate Action Program – where each ACC member is encouraged to inventory and examine greenhouse gas emissions and take measures to reduce them.
- ACC's voluntary annual Energy Efficiency and Greenhouse Gas Emissions Survey – which collects data from members that ACC compiles yearly. ACC then shares aggregate indicators of energy consumption, efficiency and greenhouse gas intensity with the public through the Department of Energy.
- ACC's Energy Efficiency Awards Program – which recognizes companies for energy efficiency achievements.

Along with compiling their own record of energy efficiency and greenhouse gas intensity improvement, ACC's members also have been developing and bringing to market products that help other industries do the same. For example, refrigerators and other

appliances are far more energy efficient today than a generation ago. That's largely because insulation materials, made from chemicals derived from oil and gas, have dramatically reduced the electricity needed to run them. The same is true for automobiles, where parts and engine equipment made from the same type of chemicals, make them lighter, increasing their energy efficiency. Chemicals also make today's cars more durable.

The ways we heat and cool our homes are more efficient, economical and environmentally friendly thanks to chemical products. Chemical insulation material wrapped around houses as they're being built, along with paints and coatings, offer a protective envelope that keeps out water, moisture and air. The Department of Energy projects that the areas with the largest increases in associated CO2 emissions from 2000 to 2020 are the transportation and buildings sectors. Chemical industry products that improve the energy efficiency for these sectors will contribute greatly to U.S. efforts to achieve greater greenhouse gas intensity reductions.

While members of the American Chemistry Council have made and will continue to make their best efforts to achieve greenhouse gas intensity reductions, government can help by removing barriers that impede efficiency upgrades and by providing incentives for companies to implement state-of-the-art technology. Without an aggressive government role in removing barriers to progress and providing incentives, it will be difficult, if not impossible for the business of chemistry to do its share to reach the president's goal of reducing national greenhouse gas intensity by 18 percent during the 2002-2012 timeframe.

The Response

As its response to the president's Global Climate Business Challenge, members of the American Chemistry Council commit to:

1. Pursue additional reductions in greenhouse gas intensity toward an overall target of 18 percent by 2012, using 1990 emissions intensity as the baseline. Government data shows that from 1990 to 2000, with projection to 2002, the U.S. chemistry business will reduce its greenhouse gas intensity by 12 percent. From 2003 through 2012, ACC will collect data directly from members to measure progress. Greenhouse gas intensity for the business of chemistry is the ratio of net greenhouse gas emissions to production.

2. Continue to manufacture products and pursue innovative new ways to help other industries and sectors achieve the president's goal. ACC will work with the government to develop a credible methodology for estimating the greenhouse gas [illegible]

appliances are far more energy efficient today than a generation ago. That's largely because insulation materials, made from chemicals derived from oil and gas, have dramatically reduced the electricity needed to run them. The same is true for automobiles, where parts and engine equipment made from the same type of chemicals, make them lighter, increasing their energy efficiency. Chemicals also make today's cars more durable.

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2. Continue to manufacture products and pursue innovative new ways to help other industries and sectors achieve the president's goal. ACC will work with the government to develop a credible methodology for estimating the greenhouse gas efficiency improvements in sectors of the economy that use chemical industry products.

3. Provide valid and reliable data ensuring that greenhouse gas intensity reduction numbers are complete, transparent, and cover actual conditions. ACC also will work with the Department of Energy to develop consistent definitions and methodologies for its voluntary emission reduction and sequestration registration program under section 1605(b) of the 1992 Energy Policy Act. In addition, ACC will support efforts of the Administration to provide appropriate recognition to businesses and industries for voluntary actions that are taken in 2003 and beyond to reduce greenhouse gas intensity.

4. Provide regular reports to the public and the government on progress. Member-wide reports will be made annually to the Department of Energy and contain what we're doing, how we're doing, difficulties encountered and suggestions for improvement when reporting within the 1605(b) process. ACC will participate and provide data for the duration of the program and also encourage members to provide data directly to the government through the 1605 (b) voluntary emission reduction program.

5. Make participation in the ACC reporting program a condition of membership through the recently revamped Responsible Care® performance improvement initiative to strengthen energy efficiency and environmental performance. Among the proposed new "metrics" is public reporting of aggregated energy efficiency and greenhouse gas emissions.

6. Develop an ACC member education and mutual assistance program -- including open workshops -- to share methodologies and best practices to achieve greenhouse gas intensity reductions. This information also would be made available to other energy users.

7. Support activities that increase our understanding of greenhouse gas intensity as it relates to our products and processes by:

    - Participating in new and continuing research and development activities.
    - Providing expertise on priorities for taxpayer-funded research to assess the value of CO_2 and other greenhouse gases for new processes and products as well as sequestration opportunities.
    - Educating customers on greenhouse gas and energy emission reduction benefits of chemical products.

8. Encourage chemical manufacturers that are not members of ACC to join our program or to make their own commitment.

9. Work with and support the Administration and Congress to implement legislation and regulations that enhance industry's ability to install and operate new technologies and equipment that can increase energy efficiency and reduce greenhouse gas emissions and enhance industry's ability to compete in the global marketplace. An example of this cooperative effort is implementation of the Administration's New Source Review reforms.

10. Work with and support the Administration, Congress and the Federal Energy Regulatory Commission to implement legislation and regulations that enable even greater application of highly efficient CHP equipment without prohibitive market access restrictions.

11. Promote the further development and deployment of coal gasification technology. ACC members also will promote cost-effective, renewable energy resources, as well as bio-based processes and product recycling in the chemical industry.

12. Encourage our employees to practice energy conservation by stepping up education efforts concerning energy savings at work and at home.

U.S. Chemical Industry Response to the President's Global Climate Business Challenge

Background

The U.S. chemical industry agrees with President George W. Bush in his approach to address the challenge of global climate change. His method, "designed to harness the power of markets and technological innovation," fits perfectly with the philosophy of the business of chemistry, which is made up of problem-solving companies providing solutions to make a better, healthier and safer world through chemistry. This paper contains the industry's response to the president's Global Climate Business Challenge, issued February 14, 2002.

The U.S. chemical industry had $454 billion in sales last year, and half of that was of products that are hydrocarbon based. It is one of the nation's keystone industries. The industry uses the science of chemistry to produce tens of thousands of innovative products and services that make people's lives better, healthier and safer. Among those products are life-saving medicines, health improvement products, technology-enhanced agricultural products, improved foods, more protective packaging materials, synthetic fibers and permanent press-clothing, longer-lasting paints, stronger adhesives, faster microprocessors, more durable and safer tires, lightweight automobile parts, and stronger composite materials for aircraft and spacecraft.

Along with being the world's largest chemical manufacturer, the U.S. business of chemistry is also the nation's largest exporter and has consistently turned in a positive trade balance. It is a research and development-driven industry, and accounts for one out of every seven patents issued in this country each year. It employs more than a million workers directly, and also contributes to the employment of more than five million others in downstream industries. The industry is guided by Responsible Care®, a safety, health and environmental performance improvement initiative that represents the ethical framework for its operations.

The business of chemistry is an energy-intensive industry, but it's unique because it uses energy in the manufacturing process and also as a raw material. While using natural gas, natural gas liquids, oil, coal and electricity to power its plants and processes, it also draws upon those same energy sources as the primary ingredient in the products we use every day. No other industry adds as much value to its energy inputs as the business of chemistry.

Using energy natural resources as a raw material is essential to the U.S. economy. In fact, the chemical industry's use of these resources in its products has actually helped make other industries and the nation more energy efficient. For example, energy resource-derived materials from the chemical industry have made refrigerators and other appliances far more energy-efficient, automobiles lighter, and more energy efficient, and home heating and cooling more efficient, economical and environmentally friendly.

The U.S. business of chemistry has reduced the fuel and power energy it consumes per unit of output by 41 percent since 1974. Carbon emissions per unit of output have declined by more than 45 percent during the same period. The efficient use of energy has been an economic imperative of the chemical industry for decades, driven by the need to compete globally, and the desire to constantly improve our operations.

One important way the industry has accomplished these improvements is through the use of combined heat and power (CHP) technology, which was first used in the industry during the 1920s. CHP units produce steam and electricity together and attain double the fuel efficiencies of a typical electric utility power plant. Along with reducing the amount of energy used per unit of output, these facilities also have led to a large reduction in carbon emissions per unit of output. The industry also has been successful in reducing other greenhouse gases.

This paper looks at the industry's performance record to date in increasing energy efficiency and decreasing greenhouse gas intensity and also focuses on the enabling role the industry plays in creating products that help other industries attain the same objective. Government barriers and incentives also are examined.

Building on a Solid Performance Record of Energy Efficiency and Greenhouse Gas Reduction

U.S. chemical companies are not new to measuring and improving greenhouse gas reduction intensity and energy efficiency. While the American Chemistry Council has developed this response to make voluntary commitments in meeting the President's "Business Challenge" on climate change, ACC members have had programs in these areas since the mid-1970s.

ACC's Climate Action Program, started in 1994, is based on a premise that differing circumstances within companies warrant individual members' evaluation of which greenhouse gas emissions reduction measures are most appropriate and achievable. Through the Climate Action Program, each ACC member is encouraged to inventory and examine greenhouse gas emissions and take appropriate and economically sound measures to reduce them. The companies also are encouraged to report those reductions through the "Voluntary Reporting of Greenhouse Gases 1605(b)" program, established by the Energy Policy Act of 1992.

Since 1989, ACC also has conducted a voluntary annual Energy Efficiency and CO_2 Emissions Survey. That survey collects data from members on their energy consumption based on purchased energy used for fuel, power and steam, and related CO_2 emissions; consumption of "feedstock," energy used as a raw material to produce a product; on-site produced fuel energy (mostly from byproduct energy streams); and other greenhouse gas emissions. ACC compiles that data and produces yearly aggregate indicators of the companies' energy consumption, energy efficiency and greenhouse gas intensity. The summary results of the survey are shared with the Department of Energy and other government agencies.

ACC also makes available and encourages members to take part in an Energy Efficiency Continuous Improvement Program. ACC voluntary guidelines assist companies in participating in energy efficiency efforts.

Since 1994, companies also have been able to take part in the ACC Energy Efficiency Awards Program. This program recognizes companies for their outstanding energy efficiency achievements. It also offers other companies examples of actions they could take to increase efficiency.

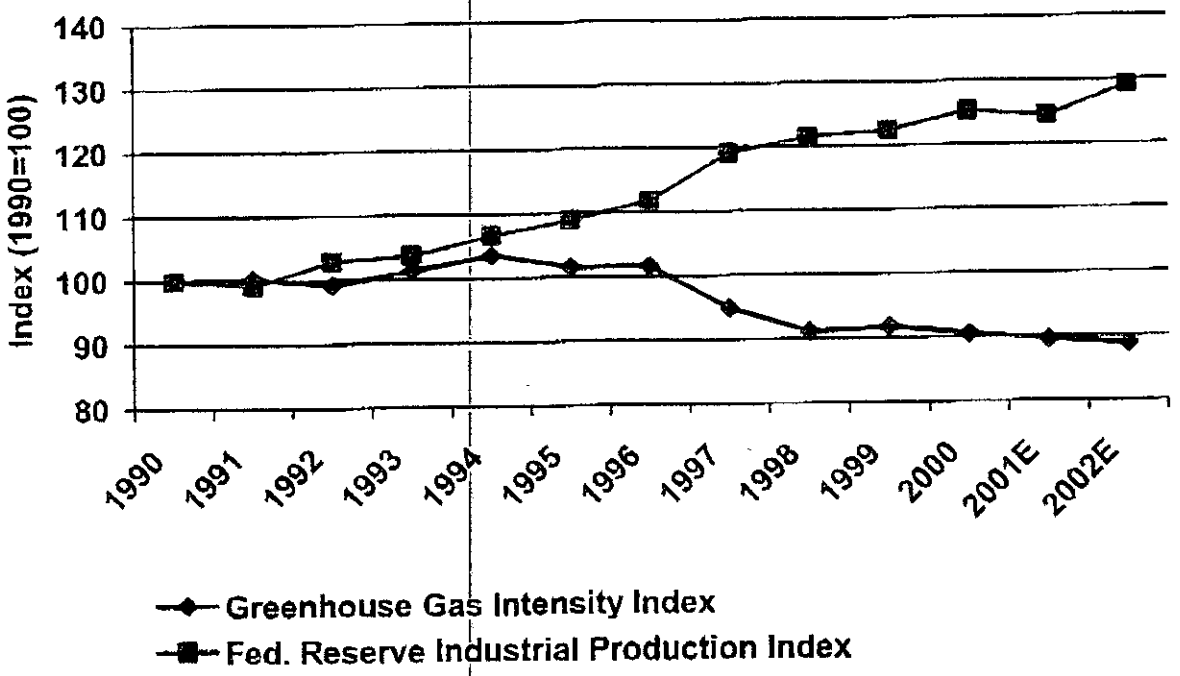
The industry recently revamped its Responsible Care® performance improvement initiative to strengthen energy efficiency and environmental performance. Among the proposed new "metrics" is public reporting of energy efficiency and greenhouse gas emissions.

The industry has a history of increasing energy efficiency and reducing greenhouse gas emissions. During the past 12 years, ACC members have made major investments,

conducted programs and looked for and taken advantage of opportunities to achieve those reductions and efficiencies. Because of that effort, and of special opportunities such as changes in production processes that have reduced nitrous oxide emissions, the industry is expected to achieve about a 12 percent reduction in greenhouse gas intensity emissions through 2002.

The chart below depicts greenhouse gas emission intensity since 1990. Performance to date required substantial R&D, improvements in process and energy technology and significant investment. Sustaining this level of improvement into the future will depend on substantial additional introduction of new technology and processes, removal of government barriers, and access to tax code incentives. In short, there is no such thing as "business as usual" for the chemical industry.

Greenhouse Gas Emissions (GHG) Intensity
(GHG Emissions per Unit of Production)



Footnote: To measure the intensity of greenhouse gas emissions in the chemical industry, it is necessary to use a denominator that measures changes in production. The ideal denominator would be pounds of production, however this data does not exist for our industry because of its diverse product base. The Federal Reserve calculates an "industrial production" index for the chemical industry that attempts to measure changes in production activity. The IP index measures changes in the physical quantity of production and where this data is unavailable, the index is based on changes in electricity consumption and production worker hours. ACC is using

this index to illustrate historical greenhouse gas intensity. Beginning in 2003, ACC will be making the measurement using internal data.

Enabling Other Industries to Improve Energy Efficiency and Decrease Greenhouse Gas Intensity

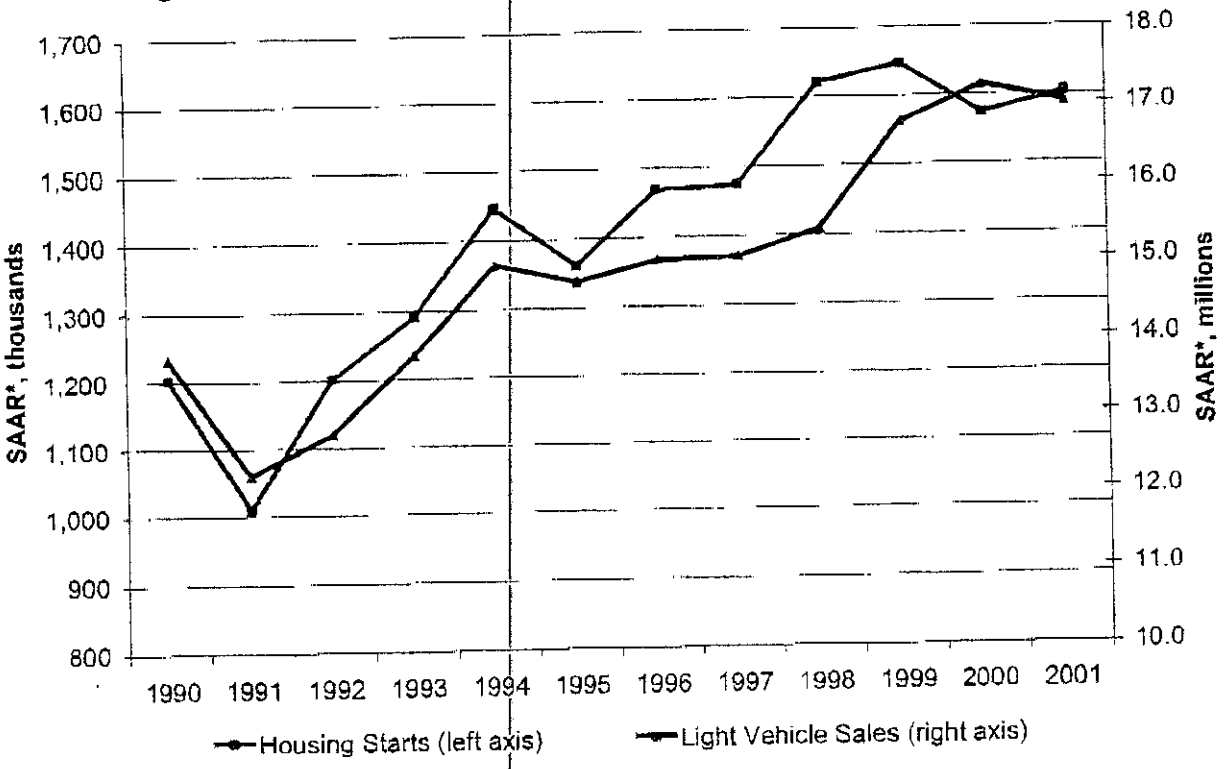
Refrigerators and other appliances are far more energy efficient today than a generation ago. That's largely because insulation materials, made from chemicals derived from oil and gas, have dramatically reduced the amount of electricity used to run a refrigerator. The same is true for automobiles. Body parts and engine equipment -- made from chemicals derived from oil, natural gas and natural gas liquids -- make today's cars lighter, increasing their energy efficiency. These chemicals also make the cars more durable than their predecessors.

Even the ways we heat and cool our homes are more efficient, economical and environmentally friendly thanks to chemical industry products. Common building products such as wood, brick or stucco don't completely prevent air and water from seeping into a home, making it harder to keep it cool in the summer or warm in the winter. But polyolefin fiber films and linear polyethylene, the insulation material wrapped around houses as they're being built, along with paints and coatings offer a protective envelope that keeps out water, moisture and air. Insulation, double-paned windows, window glazing, sealants and efficient heating and air conditioning systems are all produced through chemistry.

These are just some of the many ways that the business of chemistry is developing and commercializing sustainable, climate friendly products and technologies that help it and other industries reduce greenhouse gas intensity while improving energy efficiency. As a matter of fact, just one insulation product by one chemical company is responsible for saving more than five billion gallons of fuel oil since the beginning of the nation's energy crisis in the 1970s. That insulation product's use in U.S. housing construction has saved six million metric tons of carbon dioxide from being generated. That same company has developed products derived from corn that are used in a number of products, including paper and board coatings and pigments, paints, building products, bottles and food service packaging. Because these products recycle the Earth's carbon, they potentially reduce CO_2 in the atmosphere.

The Department of Energy/Energy Information Administration "Annual Energy Outlook 2002" report projects that the areas in the economy with the largest increases in associated CO_2 emissions over the period 2000-2020 are the transportation (1.9 percent per year) and buildings (residential – 1.1 percent per year and commercial – 1.8 percent per year) sectors. These two sectors have grown 23 and 33 percent respectfully since 1990. Chemical industry products that improve the energy efficiency for these sectors contribute much to the U.S. effort to achieve greater greenhouse gas intensity reductions.

Growth in Light Vehicle Sales and Housing Starts



* Seasonally Adjusted Annual Rate
Source: Department of Commerce

Opportunities for Government To Encourage Chemical Industry Greenhouse Gas Intensity Reductions

There are a number of opportunities for the government to help the chemical and other industries achieve desired greenhouse gas intensity reductions. These opportunities include removing barriers that impede efficiency upgrades, and providing incentives for companies to implement state-of-the-art technology.

For example, the Business Roundtable's July 1999 report, *"The Role of Technology in Responding to Concerns about Global Climate Change,"* concluded that increased and widespread deployment of more energy-efficient technologies and developing new and breakthrough technologies constitute the most effective responses to concerns about global climate change.

Addressing U.S. and global needs for diverse energy and fuel supplies, as well as implementing energy efficiency improvements, are important to the members of the American Chemistry Council. ACC feels that near-term opportunities for accelerating the development, commercialization and global dissemination of advanced technology, especially combined heat and power (CHP), should be a part of the president's Business Challenge. Without an aggressive government role in removing barriers to progress and providing incentives, it will be difficult, if not impossible, for the business of chemistry to do its share to reach the president's goal of reducing national greenhouse gas intensity by 18 percent during the 2002-2012 timeframe.

Appendix I to this paper spells out the importance that the president's National Energy Policy places on the growth of CHP technology. The appendix also focuses on potential roadblocks to the president's plan for CHP growth and excerpts the National Energy Policy's support for combined heat and power.

Appendix II points out regulatory barriers that impede research, innovation and investment in new technology that the business of chemistry needs to meet its energy supply and economic growth.

Appendix III focuses on tax barriers that interfere with capital availability and utilization in the chemical industry, including investment in new plants and equipment, new processes and new technology. Improvements on the president's proposed tax incentives are presented.

Part of the current challenge in establishing a viable energy policy are unnecessary roadblocks brought about by environmental policy. To correct this, it is important to evaluate key federal, state and local agency decisions regarding administrative action, regulatory action, or compliance and enforcement action for its impact on energy supply, distribution or use. Current agency activity should undergo an extensive review for energy and fuel supply impact consistent with current law and the May 2001 Executive

Orders 13211 ("Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution and Use") and 13212 ("Actions to Expedite Energy-Related Projects").

The federal government should require that every agency action be evaluated for possible adverse impacts on energy supply, transmission, distribution or use. This assessment should consider possible shortfalls in supply, impact on consumers and increased demand for foreign supplies. The secretary of energy should have the responsibility to comment on the validity of federal agency assessments before administrative or enforcement action is taken. States should provide direct input to the secretary of energy. Affected companies should be encouraged to file adverse energy effects statements with the secretary of energy as part of this process

Unfortunately, some taxpayer-funded government initiatives have the potential to be weighed down by inertia and special interests, which can make it difficult for government to make mid-course corrections in research and development. To operate effectively within budget constraints, it is important for government to continuously re-evaluate the effectiveness of current programs. Input from the private sector representing manufacturing and deployment interests is crucial to this review so that more productive use of R&D funding occurs.

There should be an annual "audit" of ongoing federal research and development to justify funding, asking:

- Has the taxpayer funding resulted in improvements in the market viability for the technology?
- Has the program attracted a growing base of private participation, including manufacturing and deployment interests?
- Does the technology meet U.S. deployment needs?

Some tax incentives are designed without regard for effectiveness. Assuming a limited budget is available for tax support for the president's Climate Business Challenge, it is vital that a periodic evaluation be undertaken to assess the effectiveness of various incentives, including tax credits for purchase of equipment, to determine cost differences between technologies and exemptions from taxes.

Appendix I: PRESIDENT'S POLICY ENCOURAGES AND REQUIRES COMBINED HEAT AND POWER GROWTH

The National Energy Policy (excerpted below) contemplates substantial growth in combined heat and power (CHP): an additional 124,000 megawatts at industrial facilities alone. The Public Utility Regulatory Policies Act has been successful in encouraging CHP capacity growth from 10,000 megawatts in 1980 to 55,000 megawatts currently, representing nine percent of electricity generation.

The U.S. Climate Change Strategy (excerpted below) contemplates a major role for CHP during the 2002-2012 timeframe. Achieving an 18-percent reduction in greenhouse gas emissions intensity in the industrial sector would be impossible if CHP were discouraged. New technology investments are needed now.

The National Energy Policy calls for a new CHP tax credit that will enhance efforts underway by the Environmental Protection Agency to streamline the permitting process for cogeneration plants and to promote CHP location at "brownfields" and other industrial sites.

WHAT ARE THE POTENTIAL ROADBLOCKS TO THE PRESIDENT'S CHP INITIATIVE?

There are a number of potential roadblocks to achieving the growth of CHP called for in the National Energy Policy, including:

- **Failure to sustain the Carper-Collins Public Utilities Regulatory Policies Act amendment in the energy bill legislative conference (HR4).**

  The Carper Collins amendment to the Senate's energy bill does much to continue to preserve the incentives for CHP in monopoly utility markets. It must be retained in any final energy bill that contains electricity provisions. Any attempt to repeal PURPA without access to a truly competitive electricity market must be blocked.

- **Application of "Clear Skies" multi-pollutant requirements to CHP**

  CHP plants already have provided substantial emissions reductions – in fact, they produce about one-half the emissions of central station plants. Since many CHP plants are fired by natural gas, there is no fuel-switching option. Many facilities also are in non-attainment areas already subjected to substantial current and future emissions constraints. Imposing the costs of additional regulation on facilities that may have marginal economics and have superior environmental performance is contrary to the National Energy Policy and the U.S. Climate Change Strategy.

NATIONAL ENERGY POLICY SUPPORT FOR COMBINED HEAT AND POWER

[Excerpted from the report of the National Energy Policy Group, May 2001, Chapter 3 – Protecting America's Environment: Sustaining the Nation's Health and Environment, Page 5]

Technologies for Improved Efficiencies

Two-thirds of the energy used in a conventional coal-fired power plant is wasted in the production of electricity. These losses can be minimized through a number of innovations, including installing high efficiency steam turbines, reducing steam leaks, and using software to optimize combustion efficiency. New coal-burning power plants can achieve efficiencies of over 40 percent using existing technology, and companies are developing even more efficient technologies. Wasted energy can also be recycled for use in industrial processes or for heating buildings.

A family of technologies known as combined heat and power (CHP) can achieve efficiencies of 80 percent or more. In addition to environmental benefits, CHP projects offer efficiency and cost savings in a variety of settings, including industrial boilers, energy systems, and small, building scale applications. At industrial facilities alone, there is potential for an additional 124,000 megawatts (MW) of efficient power from gas-fired CHP, which could result in annual emission reductions of 614,000 tons of carbon equivalent. CHP is also one of a group of clean, highly reliable distributed energy technologies that reduce the amount of electricity lost in transmission while eliminating the need to construct expensive power lines to transmit power from large central power plants.

[Excerpted from the report of the National Energy Policy Group, Chapter 4 – Using Energy Wisely: Increasing Energy Conservation and Efficiency, Page 9]

Because of their large needs for both heat and electricity, businesses find combined heat and power (CHP) systems particularly attractive. However, replacing old, inefficient boilers with highly efficient CHP systems may add a number of new regulatory requirements (such as air permits), but does not offer the same tax depreciation incentives the tax code grants to power plants.

Recommendations:

- The NEPD Group recommends that the President direct the Secretary of the Treasury to work with the Congress on legislation to encourage increased energy efficiency through combined heat and power (CHP) projects by shortening the depreciation life for CHP projects or providing an investment tax credit.

- The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to work with local and state governments to promote the use of well-designed CHP and other clean power generation at "brownfield" sites, consistent with the local community's interests. EPA will also work to clarify liability issues if they are raised at a particular site

- The NEPD Group recommends that the President direct the EPA Administrator to promote CHP through flexibility in environmental permitting.

U.S. Climate Policy Support for Combined Heat and Power

National Goal
[Excerpted from U.S. Climate Change Strategy, A New Approach, February 14, 2002, Pages 6-7]

The President set a national goal to reduce the greenhouse gas intensity of the U.S. economy by 18 percent over the next ten years. Rather than pitting economic growth against the environment, the President has established an approach that promises real progress on climate change by tapping the power of sustained economic growth.

- The Intensity Based Approach Promotes Near-Term Opportunities to Conserve Fossil Fuel use, recover Methane, and Sequester Carbon. Until we develop and adopt breakthrough technologies that provide safe and reliable energy to fuel our economy without emitting greenhouse gases, we need to promote more rapid adoption of existing, improved energy efficiency and renewable resources that provide cost effective opportunities to reduce emissions

Incentives and Programs for Renewables and Industrial Cogeneration
[Excerpted from U.S. Climate Change Strategy, A New Approach, February 14, 2002, Page 11]

The President's FY '03 budget proposes providing $4.6 billion in clean energy tax incentives over the next five years ($7.1 billion over ten years) for investments in renewable energy (solar, wind, and biomass), hybrid and fuel cell vehicles, cogeneration, landfill gas conversion, and ethanol. These incentives are important to meeting the nation's long-term energy supply and security needs, and reducing pollution and projected greenhouse gas emissions. These clean energy tax incentives include:

- New 10 Percent Tax Credit for Co-Generation (Combined Heat and Power Systems). The President has proposed a new 10 percent tax credit for investments in combined heat and power systems between 2002 and 2006. The credit will encourage investments in highly efficient CHP projects and spur innovation in improved CHP technologies. No income tax credits are currently available for investment in CHP property.

- Cogeneration. Combined heat and power (CHP), also known as "cogeneration", is a highly efficient form of electric generation that recycles heat, which is normally lost under traditional power combustion methods. CHP captures the heat left over from industrial use, providing a source of residential and industrial heating and air conditioning in the local area around the power plant. CHP systems achieve a

greater level of overall energy efficiency, thereby reducing energy consumption, costs, and carbon emissions.

- EPA Combined Heat and Power Partnership. The new tax credit would enhance efforts underway by the Environmental Protection Agency to streamline the permitting process for cogeneration plants, promote their location in Brownfields and other industrial sites, and clarify how companies can use cogeneration to stay in compliance with Clean Air Act pollution standards. On October 5, 2001, in partnership with 17 Fortune 500 companies, city and state governments and nonprofits, EPA announced the Combined Heat and Power Partnership. Current CHP projects of the founding partners represent more then 5,800 megawatts of power generating capacity, an amount capable of serving almost 6 million households. The projects annually reduce carbon dioxide by more than 8 million tons; the annual energy savings equal 19 million barrels of oil. A similar program by the Department of Energy challenges the heat and power industry to double usage of cogeneration in the United States by 2010.

Appendix II: REGULATORY BARRIERS

The Council supports reasonable regulations that result in environmental improvements. However, many current environmental regulations impede research, innovation and investment in new technology needed to meet the nation's energy supply and economic growth needs, while producing limited environmental benefit.

A leading example of a regulatory barrier that discourages technological innovation is the New Source Review program. This program was originally intended as a pre-construction permitting program aimed at requiring major stationary sources to install state-of-the–art air pollution controls when the source builds new plants or makes major "non-routine" changes that result in significant increases in emissions at existing operations. This program has deviated significant and detrimentally from its original intent.

EPA announced its proposed reform of New Source Review June 3, 2002. In it, EPA Administrator Christine Todd Whitman correctly recognized that "some aspects of the NSR program have deterred companies from implementing projects that would increase energy efficiency and decrease air pollution." EPA's recommendations seem to address many of the concerns that have been raised about the NSR program. It is important that EPA expeditiously implement these proposals through both final rules and proposed rules. Any further delay will only exacerbate the challenge the industry faces in making the investments that will help achieve the intensity improvements expected by the President. ACC commits to work with and support the Administration and Congress to implement legislation and regulations that enhance industry's ability to install and operate new technologies and equipment that can increase energy efficiency and reduce greenhouse gas emissions, thus enhancing the industry's ability to compete in the global marketplace.

Companies that have made substantial investments are disadvantaged in the market when regulatory policies are changed in mid-stream. In the late 1990's, EPA reversed 20 years of policy guidance on New Source Review requirements to pressure companies to accept requirements not contemplated in the authorizing legislation. This undermines industry's ability to invest in new technologies, including many technologies that would improve energy supply, fuel supply and energy efficiency while reducing emissions. Concurrent with EPA's changed regulatory interpretations on the NSR program, it has undertaken an enforcement initiative that relies heavily on their reinterpretations. The threat of future enforcement action had created a chilling effect on the pursuit of energy improvement projects.

Several steps should be taken to improve the existing NSR program:

- EPA should implement its existing regulations in a clear and consistent manner that avoids triggering NSR/PSD permitting requirements for changes necessary to

maintain and repair existing units, for changes that result in energy efficiency improvements, or changes that do not increase emissions.

- All "routine maintenance, repair and replacement" activities must be exempt from the scope of NSR. EPA should retract its recent changes to the interpretation of this regulatory exemption and return to the broader, common sense approach followed from 1980 through the mid-1990s. EPA should also provide further clarification, by industry sector, on what activities constitute routine maintenance, repair, and replacement.
- Projects that generate environmental benefits should be explicitly exempted from the NSR program. This exemption should include projects that increase the energy efficiency of operations.
- In addition to the above administrative changes and regulatory reforms, EPA should facilitate permits that move away from project-by-project reviews to facility-wide emissions, providing complete flexibility to make changes within the permitted emissions.

Other regulatory barriers that discourage technology innovation include:

- Technology-based regulations preventing "netting" and other forms of performance-based regulation.
- Inconsistent enforcement among regulatory agencies and
- Inadequate scientific and economic bases for regulations.

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Regulatory barriers often create disincentives or obstacles to adopting more energy-efficient technologies that reduce total emissions. These barriers include:

- Inclusion of combined heat and power in new multi-pollutant proposals, e.g., Clear Skies.
- Technology-specific air quality standards.
- Possible regulation of CO_2 emissions.

Appendix III: TAX BARRIERS

As currently written, the U.S. tax code does not always support capital formation, including investments in manufacturing plant and equipment and new process and product technologies. While the President's initiative has proposed tax incentives for CHP, unless depreciation life is shortened, the necessary incentives will not be provided.

The burden is especially difficult for many energy supply and energy-efficiency investments that are also constrained by government regulations, trade laws and limited market demand.

There are several issues with the R&D tax credit that should be addressed as part of a national climate and energy policy initiative, including:

1. On-Again-Off-Again Nature of the R&D Tax Credit

Because the R&D tax credit has a history of unpredictable and short-term extensions, companies have not been able to fully take advantage of its benefits.. Currently, the credit is scheduled to expire on June 30, 2004. The uncertainty created by the pending expiration is particularly troublesome for investors in long-term breakthrough technologies. Their inability to rely on the credit impedes technological progress. The solution to this problem is straightforward: Make the R&D tax credit permanent.

2. Limitations and Inconsistencies in the R&D Tax Credit

The rules and exceptions that determine the availability of research and development tax credits are highly complex. Rules that limit such tax credits to incremental expenses over a base period amount and to a percent of gross receipts serve to reward some R&D activities but not others.

In order to qualify for the credit, a company's R&D outlays in the current year must exceed a base period hurdle that takes into account the company's historical expenditures and gross revenues. Because the base amount is tied to gross receipts, the amount of the credit can be affected as much by changes in the level of revenues as it is by the level of research performed. The current R&D credit has the unintended effect of encouraging high-cost, manual research and development, while discouraging its replacement with more efficient, technological, and math-based R&D procedures. In addition, firms in mature industries can face ever-declining credits if their R&D outlays level off while their sales revenues increase in nominal terms due to inflation.

Solutions to this R&D tax issue include:

- Allow R&D tax credits for every dollar of research expense incurred for energy and energy efficiency-related technology – not just for the increment over some arbitrary base period amount.
- Eliminate the disparity between qualifying costs for contractors versus company employees.
- Make the credit refundable or transferable among taxpayers.

3. Tax incentives for energy efficiency, research and development are inadequate, but some steps can be taken to address the problem, including:

- Provide enhanced tax credits focused specifically on promoting research and development on breakthrough energy-efficiency technologies for plant and equipment.
- Provide additional incentives and support for long-term public-private research partnerships.

Congress should take the following actions to address the depreciable lives barriers as described in a study on energy and energy-efficiency related investments by the American Council on Capital Formation (ACCF):

- Dramatically shorten the period during which businesses write off investments in energy or energy efficiency (combined heat and power) related investments to reflect the risks to investors and the benefits to society.
- Create a U.S. capital acquisition deduction, similar to that in European countries, for energy-efficient plants and equipment.
- Reinstate the Investment Tax Credit for energy-related investments.
- Stop treating accelerated depreciation and amortization of energy-related investments as preferences for AMT purposes.

appliances are far more energy efficient today than a generation ago. That's largely because insulation materials, made from chemicals derived from oil and gas. have dramatically reduced the electricity needed to run them. The same is true for automobiles, where parts and engine equipment made from the same type of chemicals, make them lighter, increasing their energy efficiency. Chemicals also make today's cars more durable.

The ways we heat and cool our homes are more efficient, economical and environmentally friendly thanks to chemical products. Chemical insulation material wrapped around houses as they're being built. along with paints and coatings, offer a protective envelope that keeps out water, moisture and air. The Department of Energy projects that the areas with the largest increases in associated CO2 emissions from 2000 to 2020 are the transportation and buildings sectors. Chemical industry products that improve the energy efficiency for these sectors will contribute greatly to U.S. efforts to achieve greater greenhouse gas intensity reductions.

While members of the American Chemistry Council have made and will continue to make their best efforts to achieve greenhouse gas intensity reductions, government can help by removing barriers that impede efficiency upgrades and by providing incentives for companies to implement state-of-the-art technology. Without an aggressive government role in removing barriers to progress and providing incentives, it will be difficult, if not impossible for the business of chemistry to do its share to reach the president's goal of reducing national greenhouse gas intensity by 18 percent during the 2002-2012 timeframe.

The Response

As its response to the president's Global Climate Business Challenge, members of the American Chemistry Council commit to:

1. Pursue additional reductions in greenhouse gas intensity toward an overall target of 18 percent by 2012, using 1990 emissions intensity as the baseline. Government data shows that from 1990 to 2000, with projection to 2002, the U.S. chemistry business will reduce its greenhouse gas intensity by 12 percent. From 2003 through 2012, ACC will collect data directly from members to measure progress. Greenhouse gas intensity for the business of chemistry is the ratio of net greenhouse gas emissions to production.

2. Continue to manufacture products and pursue innovative new ways to help other industries and sectors achieve the president's goal. ACC will work with the government to develop a credible methodology for estimating the greenhouse gas [illegible] of the economy that use chemical industry