



Every Sector, One RESOLVE

A Progress Report
on Business Roundtable's
Climate RESOLVE Program

September, 2004



Business Roundtable

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Business Roundtable

Business Roundtable (www.businessroundtable.org) is an association of chief executive officers of leading corporations with a combined workforce of more than 10 million employees in the United States and \$4 trillion in revenues. The chief executives are committed to advocating public policies that foster vigorous economic growth and a dynamic global economy.

EXECUTIVE SUMMARY

This is the first annual report by Business Roundtable on Climate RESOLVE (Responsible Environmental Steps, Opportunities to Lead by Voluntary Efforts). Climate RESOLVE is a unique multi-sector, CEO-led initiative to promote voluntary action to reduce the greenhouse gas (GHG) intensity of the U.S. economy. It is helping to meet the challenge of climate change by mobilizing the expertise and resources of the Roundtable's diverse membership, which represents \$4 trillion in annual revenues and more than 10 million U.S. employees.

► Progress In Implementing Climate RESOLVE

Climate RESOLVE is off to a strong start since it was launched nearly 18 months ago. As of July 1, 2004, 107 companies – comprising 70 percent of the Roundtable's membership – are participating in Climate RESOLVE. These companies represent all major sectors of the U.S. economy, including vehicle and parts manufacturing, pharmaceuticals, chemicals, forest products, utilities, oil and gas production, petroleum refining, computers, telecommunications products and services, railroads, package delivery services, heavy-equipment manufacturing, banks and insurance companies.

Participation in Climate RESOLVE has been steadily expanding as a result of CEO-to-CEO communications and the Roundtable's proactive outreach and education activities.

To provide companies with the tools for GHG management, the Roundtable has sponsored two workshops bringing together company experts, government officials and environment groups to discuss strategies and programs for reducing, avoiding, sequestering or offsetting GHG emissions. The Roundtable has also held detailed telephone learning sessions and provided one-on-one consulting help to companies. A multi-sector Steering Committee of participating companies has been formed to oversee the program and assist in outreach and recruitment.

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► Climate RESOLVE's Rationale and Goals

The potential impact on global climate of rising GHG concentrations in the atmosphere is of concern to governments and the private sector. As the Roundtable has consistently emphasized, breakthrough technologies will ultimately be needed to stabilize GHG concentrations in the atmosphere at an acceptable level. In the interim, notwithstanding remaining scientific uncertainties, it is prudent to take action to reduce U.S. "greenhouse gas intensity," which is the ratio between emissions and economic output. The Roundtable believes that the nation's GHG intensity can be lowered substantially by voluntary, cost-effective measures to reduce, avoid, sequester or offset GHG emissions. Climate

RESOLVE was launched to demonstrate leadership by CEOs from leading companies across the economy in taking voluntary action to manage GHG emissions.

The ultimate goal of Climate RESOLVE is *100 percent participation* by Roundtable members in voluntary GHG management programs. This goal is dictated by the breadth and magnitude of the climate issue and the need for contributions by every company in every sector to achieve significant economy-wide reductions in GHG intensity.

► **The Roundtable's Survey of Climate RESOLVE Participants**

Early in 2004, the Roundtable surveyed Climate RESOLVE participants about their efforts to manage GHG emissions. The survey sought to assess the progress that member companies were making in establishing the elements of effective GHG management programs. The survey also asked what specific steps companies were taking to inventory their emissions, identify and implement measures to reduce, avoid, sequester or offset those emissions, participate in government programs and report their accomplishments to agencies and the public.

The survey respondents represent 82 percent of Climate RESOLVE participants. Two overall findings emerge from the survey:

- *All* of the survey respondents (100 percent) took action to establish GHG management programs in 2003 or are taking such actions in 2004.
- Ninety-two (92) percent of the respondents have already implemented or are in the process of implementing actual measures to manage GHG emissions.

These findings provide strong evidence that Roundtable members are serious about their commitments under Climate RESOLVE and are advancing rapidly from program development to actual implementation of GHG management measures.

The survey results also provide considerable insight into the nature and scope of GHG management efforts occurring under Climate RESOLVE. Highlights include:

- 71 percent of the survey respondents have developed or are developing written GHG policies
- 92 percent have reviewed or are reviewing their emissions profiles
- 90 percent have evaluated or are evaluating their operations for opportunities to reduce, avoid, offset or sequester GHG emissions
- 89 percent have taken or are taking actions to reduce, avoid, offset or sequester GHG emissions
- 76 percent have been or are participating in government-sponsored programs to reduce, avoid, offset or sequester GHG emissions
- 61 percent have invested or are investing in developing products or technologies which improve energy efficiency or lower carbon intensity
- 72 percent have reported or are reporting GHG emission management actions to the public

The Roundtable survey was also intended to assess the year-to-year level of progress across the Roundtable membership in developing GHG management programs. These results indicate that many companies strengthened and expanded their programs from 2003 to 2004. This suggests that, together with government initiatives and other factors, Climate RESOLVE is successfully motivating Roundtable members to enhance their efforts to manage GHG emissions.

▶ **GHG Management Success Stories**

The Roundtable has collected several noteworthy examples of voluntary action by member companies to reduce, avoid, sequester or offset GHG emissions. These examples – summarized in the body of this report – reveal a wide range of innovative and exciting projects, including investments in cutting-edge technologies, large-scale sequestration initiatives and dramatic improvements in energy efficiency. The examples provide a positive model for other companies who have not yet taken action to manage GHG emissions.

▶ **Next Steps for Climate RESOLVE**

While the Roundtable is encouraged by the progress of Climate RESOLVE to date, it recognizes that GHG management is an ongoing process and that strengthening and expanding the programs of Roundtable members must remain a high priority.

For example, the percentage of companies in the service sector participating in Climate RESOLVE has been lower than the percentage of participating companies from the industrial sector. The Roundtable is addressing this gap by launching a new multi-part initiative to encourage companies from service industries to join Climate RESOLVE. The thrust of this initiative will be to educate these companies about the contribution of energy consumption in commercial buildings to GHG emissions and the role that energy efficiency can play in avoiding and reducing these emissions and provide them with the tools and resources to take action.

The initiative will include a guidebook on reducing energy use in commercial buildings and a new Web tool developed in partnership with the ENERGY STAR program that provides step-by-step assistance in establishing GHG-reducing energy managements programs. The Roundtable will be reaching out to service companies by publicizing this new initiative at the CEO level and working with the Climate RESOLVE Steering Committee to identify additional recruitment opportunities.

The survey results also indicate that while Roundtable members are making strong progress in building comprehensive GHG management programs, not all members are developing written GHG management policies and goals for managing emissions, reporting to the §1605(b) Registry, or quantifying the GHG benefits of their emission management activities. The Roundtable intends to focus on these areas for improvement at the next RESOLVE workshop in Colorado on September 23-24, 2004, through continued telephone Learning Sessions and ongoing one-on-one assistance to individual companies.

► **The Bottom Line**

Climate RESOLVE is demonstrating that voluntary actions can reduce GHG intensity, foster innovation and promote investment in new technologies more cost-effectively than government mandates and rigid compliance timetables. This first annual report shows that Roundtable companies are leading the way in addressing climate change by improving energy efficiency, reducing and sequestering GHG emissions, and developing low-carbon technologies that can facilitate economic growth without corresponding GHG emission increases.



WHY CLIMATE RESOLVE WAS INITIATED

The potential impact on global climate of rising GHG concentrations in the atmosphere is of concern to government and the private sector. Business Roundtable has consistently emphasized that breakthrough technologies will ultimately be needed to stabilize GHG concentrations in the atmosphere at an acceptable level. In the interim, notwithstanding remaining scientific uncertainties, Roundtable CEOs recognize that it is prudent to take action to reduce the GHG intensity of the U.S. economy.

This means that American businesses must take cost-effective steps to improve the greenhouse intensity of their operations by reducing, avoiding, sequestering or offsetting GHG emissions. To determine how best to meet this challenge, the Roundtable surveyed its members in early 2002 to develop a profile of ongoing voluntary initiatives by industry. That survey found that many members were already taking action to manage GHG emissions. At the same time, the survey showed that there was substantial room for improvement – that more Roundtable members could initiate GHG management efforts and that companies with programs in place could achieve greater progress in managing emissions and more effectively report results to government and the public.

That is why the Roundtable's Environment, Technology & the Economy Task Force developed Climate RESOLVE to demonstrate CEO-level leadership in expanding business participation in voluntary GHG management programs. Climate RESOLVE is based on a recognition that, because emissions from any individual company represent a small fraction of total GHG emissions, every company in every sector must take effective action to achieve significant economy-wide reductions in GHG intensity. Hence, the ultimate goal of Climate RESOLVE is *100 percent participation by Business Roundtable members in voluntary GHG management programs.*

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Climate RESOLVE will be reassessed in 2012, the milestone selected by President Bush for reviewing national progress in reducing GHG intensity and determining next steps.

Climate RESOLVE is the vehicle by which the Roundtable participates in the Administration's Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now) program. A Presidential initiative, Climate VISION is a voluntary public-private partnership designed to reduce GHG emissions from diverse economic sectors.

HOW CLIMATE RESOLVE WAS DESIGNED

Designing Climate RESOLVE posed a unique challenge because of the wide diversity of companies and business sectors represented in the Roundtable's membership and the importance of creating a broad base of participation for the program while achieving meaningful results. Based on these considerations, the Roundtable designed Climate RESOLVE to reflect a number of key strategies:

► Accommodating Differing Levels of Understanding and Expertise

Our initial survey confirmed that Roundtable members differ substantially in their readiness and capacity to undertake voluntary actions to control GHG emissions. Some companies need time to develop expertise and management systems and inventory their emissions before they can begin to implement emission management measures. Other companies, by contrast, already have mature programs that are achieving substantial results. Climate RESOLVE is structured to accommodate the differing levels of readiness and expertise within the Roundtable membership. Companies with preexisting programs are encouraged to continue and enhance ongoing activities to reduce, avoid, sequester or offset GHG emissions as well as to share their experiences with other companies. On the other hand, companies lower on the learning curve may initially participate in the program by committing to develop procedures and policies that lay the groundwork for subsequent emission management actions. To encourage participation by these companies, the Roundtable is providing support and guidance in establishing cost-effective GHG management programs. Once this groundwork is in place, Climate RESOLVE envisions that these companies will progressively expand their programs so that they are ultimately participating in all aspects of GHG management.

► Building on Existing Government Programs

DOE, EPA and other agencies are partnering with many sectors and individual companies to develop new or expanded voluntary GHG emission management initiatives. These initiatives include Climate VISION, Climate Leaders, ENERGY STAR and other programs underway at the federal and state levels. Climate RESOLVE has been designed to build on these efforts, not supersede them. Roundtable members participating in existing voluntary programs need not develop new programs simply to meet their commitments under Climate RESOLVE if they have already put in place and are implementing the necessary measures for effective GHG management.

► Flexibility In Setting Goals and Management Strategies

Climate RESOLVE gives companies the flexibility to design GHG management programs that best fit their individual needs. It does *not* set specific targets or timetables for the amount of GHG emissions that companies should reduce, avoid, offset or sequester. Because Roundtable members represent every sector of the economy, setting a target that applies to all Climate RESOLVE participants would be impractical. Moreover, because

Roundtable members differ in their level of understanding of GHG management strategies and their readiness and capacity to undertake voluntary emission management measures, any uniform set of targets would be too stringent for some companies and not stringent enough for others. However, Climate RESOLVE does encourage Roundtable members to develop GHG management goals and procedures for measuring progress. It also urges companies to consider their appropriate contribution to the President's national goal of reducing GHG intensity by 18 percent by 2012.

▶ Reporting Progress

Measuring emission reduction progress and reporting results to government and the public are vital to assure that industry's efforts are transparent and credible and to assure a full accounting of emissions reductions in the U.S. Accordingly, the Roundtable is encouraging its members to report the actions they take to manage emissions to the DOE §1605(b) GHG Registry. The Roundtable also encourages its members to consider other mechanisms for communicating GHG reduction accomplishments to key stakeholders, including company websites, employee bulletins and reports to shareholders and the public.

“Climate RESOLVE is based on the idea that effective action to reduce the GHG intensity of our economy requires a contribution from every company in every sector of the economy.”

*Michael G. Morris
American Electric Power*

PROGRAM IMPLEMENTATION

► Launch of Climate RESOLVE

Dr. E. Linn Draper Jr., then Chair of the Environment, Technology & the Economy Task Force and CEO and Chairman of American Electric Power Company, Inc., announced Climate RESOLVE to Roundtable CEOs on December 2, 2002. In his letter to CEOs, Dr. Draper underscored the importance of voluntary actions to reduce, avoid, sequester or offset GHG emissions and urged all Roundtable members to participate in Climate RESOLVE. The letter was accompanied by an extensive “toolkit” educating companies about the basics of GHG emissions management and outlining how Climate RESOLVE would work. The toolkit included a participation form for companies to return when enrolling in the program (*Appendix 1*).

Climate RESOLVE was publicly announced by Roundtable President John J. Castellani on February 12, 2003 at a press conference hosted by DOE Secretary Abraham and other Administration officials to highlight commitments by several industry sectors to voluntary GHG management initiatives.

► Climate RESOLVE Steering Committee

To oversee implementation of the program, the Roundtable formed a Climate RESOLVE Steering Committee early in 2003. The Committee consists of 29 company representatives drawn from such diverse sectors as chemicals, paper and forest products, refining, automotive manufacturing, railroads, pharmaceuticals, power generation, transportation and financial services (*Appendix 2*). The Committee plays a critical role in recruiting additional Climate RESOLVE participants and has worked closely with Roundtable staff and consultants on outreach and education efforts to assist participating companies. The Committee meets regularly by teleconference.

► Climate RESOLVE Workshops

Following the launch of Climate RESOLVE, the Roundtable's priority was to publicize the program and encourage participation by its members. On February 25-26, 2003, the Roundtable hosted a workshop in Leesburg, Virginia to educate companies on the basics of managing GHG emissions and participating in Climate RESOLVE. Topics covered were: developing and implementing a company climate change program; industry sector voluntary initiatives; fundamentals of GHG accounting; cost-effective mitigation options and programs; and reporting to the DOE §1605(b) registry. A diverse array of speakers made presentations, including company experts, senior officials from DOE and EPA, and representatives of environmental groups. Attendees received a voluminous compendium of background materials.

A second Climate RESOLVE workshop was held in San Francisco, California on September 18-19, 2003. This workshop provided in-depth discussion of high-priority issues that emerged at the first workshop and in follow-up discussions with companies. A wide range of company experts and government officials participated as speakers. Topics covered were: how to develop a company energy/climate program; examples of successful projects in both manufacturing and commercial buildings; the benefits of using energy service companies; supply chain/customer initiatives; updates on DOE and EPA climate programs; communicating voluntary climate actions to employees, shareholders and the public; sequestration as an option; ENGO programs; state, federal and international GHG registries; GHG accounting software and collection systems; and GHG accounting issues.

In all, 83 companies were represented at the two workshops.

► **Support Services For Members**

The Roundtable has provided additional support to members developing and implementing GHG management programs in a variety of ways:

- **One-on-One Consulting.** The Roundtable has retained an experienced GHG management consultant to assist participating companies on a one-on-one basis. Each week, the consultant addresses member questions by conference call, typically with three to four individuals involved in designing a company's GHG management program. Issues covered include how to complete the Climate RESOLVE participation form, techniques for GHG accounting, establishing internal systems and policies, energy management and other cost-effective mitigation options, and reporting to the DOE §1605(b) Registry. This service is available to all Business Roundtable member companies.
- **Learning Sessions.** The Roundtable has launched an ambitious series of telephone Learning Sessions to allow company representatives to learn about GHG management from the convenience of their offices, ask questions, get live answers, and interact with both instructors and other participants. Instructors have included representatives from EPA and DOE and company experts. Ten Learning Sessions have occurred to date addressing the following topics:
 - Basics in GHG Accounting
 - Corporate Energy Management
 - Commercial and Space Lighting
 - Buildings Operation & Management Practices
 - Renewable Energy as an Option
 - Energy Efficiency Audits for Manufacturing
 - DOE Industrial Energy Efficiency Training Session on Steam Systems
 - Using Benchmarking Tools for Company-wide Commercial Building Energy Efficiency Programs
 - Energy Efficient Lighting Projects for Commercial Buildings
 - Distributive On-site Generation Systems (<5MW) for Power, Heating, and Cooling of Commercial Office Buildings

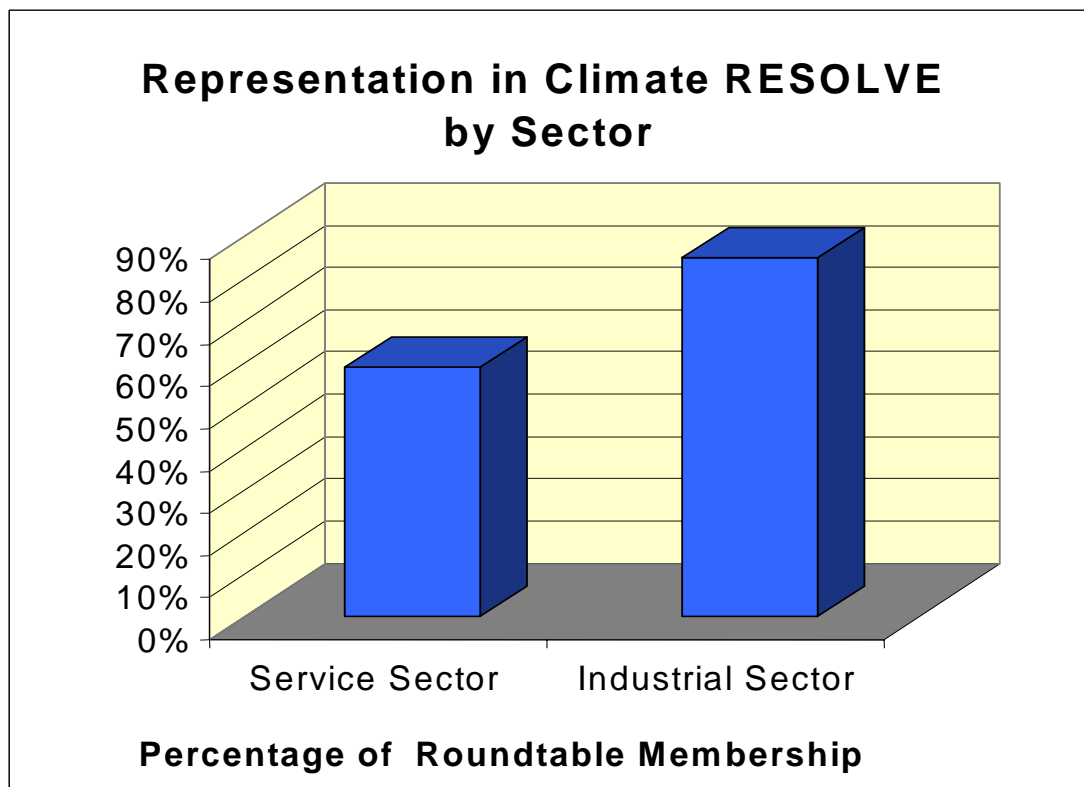
- ***Communications and Outreach Materials.*** In order to build awareness of Climate RESOLVE among member companies and to maintain progress towards the goal of 100 percent participation, the Roundtable developed drafts of internal communications and media outreach materials to help companies promote their participation in Climate RESOLVE. The materials include two PowerPoint presentations with notes, a template press release, key talking points on Climate RESOLVE, a Q&A, a draft memo to employees and a suggested statement for company websites. These documents have enabled member companies to communicate to stakeholders about the important work underway under Climate RESOLVE.

LEVEL OF PARTICIPATION IN CLIMATE RESOLVE

Participation in Climate RESOLVE has been steadily increasing in response to direct appeals to CEOs, participation in workshops and learning sessions, and company-to-company recruitment efforts under the direction of the Steering Committee. As of July 1, 2004, 107 companies – representing 70 percent of the total Roundtable membership¹ – had enrolled in Climate RESOLVE. This level of support is very heartening after only 18 months of program implementation and represents strong progress toward the Roundtable's long-term goal of 100 percent participation in Climate RESOLVE.

The companies participating in Climate RESOLVE include all major sectors of the U.S. economy, including vehicle and parts manufacturing, pharmaceuticals, chemicals, forest products, utilities, oil and gas production, petroleum refining, computers, telecommunications products and services, railroads, package delivery services, heavy-equipment manufacturing, banks and insurance companies.

To better understand the profile of companies participating in Climate RESOLVE, companies were divided into two broad groupings – service and industrial business sectors – and the level of participation for each category was analyzed. This analysis shows that 80 percent of Roundtable member companies in the industrial business sector and 54 percent of service sector members are participants in Climate RESOLVE.



¹ This percentage is based on the number of Roundtable members as of July 1, 2004, when the survey results were tabulated.

Banking, insurance, software, data management and telecommunications firms may have a lower rate of participation in Climate RESOLVE because they believe that, without manufacturing operations, they lack meaningful opportunities to reduce, avoid, sequester or offset GHG emissions. The Roundtable will educate service providers about the contribution that their energy consumption makes to overall GHG emissions and the opportunities they have to reduce or avoid emissions by improving energy efficiency in commercial buildings. These outreach efforts are described more fully below.

FINDINGS OF SURVEY FROM 2003 CLIMATE RESOLVE PARTICIPANTS

Early in 2004, the Roundtable surveyed all Climate RESOLVE participants about their efforts to manage GHG emissions. The survey sought to assess the progress that these companies were making in establishing the elements of effective GHG management programs. The survey also asked what specific steps companies were taking to inventory their emissions, identify and implement measures to reduce, avoid, sequester or offset those emissions, participate in government programs and report their accomplishments to agencies and the public.

Of the 93 companies enrolled in Climate RESOLVE as of January 1, 2004, 76 (or 82 percent) participated in the Roundtable's survey.²

Two overall findings emerge from the survey:

- All of the survey respondents (100 percent) took action to establish GHG management programs in 2003 or are taking such actions in 2004.
- Ninety-two (92) percent of the respondents have already implemented or are in the process of implementing actual measures to manage GHG emissions.

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² Fourteen additional companies joined Climate RESOLVE in 2004. Because they were not Climate RESOLVE participants when the survey was initiated, they were not included in the survey universe.

³ It should be noted that some of the respondents did not respond to particular survey questions. In tabulating the survey results, these non-responses were treated as negative responses. This approach may in fact understate the level of GHG management activity within the Climate RESOLVE universe because some companies may be taking actions that they failed to record on the survey form. On the other hand, the survey results may overstate the level of GHG management activity among companies who did not submit survey forms. Taking into account these considerations, the survey results can reasonably be projected to the entire universe of Climate RESOLVE participants.

The survey results also provide considerable insight into the nature and scope of GHG management efforts occurring under Climate RESOLVE. Highlights include:

- ▶ **Designation of Persons With GHG Management Responsibility.** 96 percent of the respondents have designated or are designating a person or team responsible for GHG management.⁴
- ▶ **Development of Written GHG Management Policies.** 71 percent of the respondents have developed or are developing a written GHG policy.
- ▶ **Review of Emissions Profiles.** 92 percent of the respondents have reviewed or are reviewing their emissions profiles. Nearly all of these companies (90 percent) have evaluated or are evaluating their operations for opportunities to reduce, avoid, offset or sequester GHG emissions. More than three in four of these companies (76 percent) are conducting emissions inventories using established methodologies like the WRI/WBCSD GHG Protocol.
- ▶ **Adoption of Goals for Managing GHG Emissions.** 68 percent of the respondents have adopted or are developing GHG emission management goals. These goals are in the form of numerical targets for emission reduction, avoidance or sequestration (20 percent), GHG intensity reduction (32 percent) or energy efficiency (28 percent).
- ▶ **Procedures For Measuring Progress.** 75 percent of the respondents have put in place or are developing procedures for tracking progress and meeting goals. The most prevalent metric for measuring progress was energy efficiency (38 percent), followed by emission estimates (36 percent), emission monitoring (26 percent) and calculation of emission reductions for specific projects or offsets (18 percent).
- ▶ **Actions to Reduce, Avoid, Sequester or Offset Emissions.** 89 percent of the survey respondents either implemented actions to reduce, avoid, sequester or offset emissions in 2003 or were undertaking such actions in 2004. The breakdown between different GHG management tools was as follows:

<i>Energy efficiency/conservation programs for manufacturing</i>	71%
<i>Energy efficiency/conservation programs for buildings</i>	67%
<i>Construction of new energy production units/modification</i>	33%
<i>Carbon sequestration projects</i>	28%
<i>Halogenated substances emission reduction programs</i>	25%
<i>Methane emission reduction projects</i>	16%
<i>Nitrous oxide emission reduction projects</i>	13%
<i>Purchase emission credits or other GHG offsets</i>	3%
<i>Other</i>	11%

⁴ The survey form asked companies whether they had conducted a particular activity in 2003 or were undertaking that activity in 2004. The percentages in the text combines both categories – i.e. the number of companies taking an action in 2003 and/or undertaking the action in 2004.

- ▶ **Quantification of Results.** 28 percent of the respondents stated that they could quantify the GHG emissions their programs had reduced, avoided, sequestered or offset since 2002. 26 percent of the respondents stated that they were able to quantify their improvement in GHG intensity since 2002.⁵

- ▶ **New Technologies.** 61 percent of the respondents have invested or are investing in developing new products or technologies that improve energy efficiency, reduce GHG emissions or lower GHG intensity. Respondents identified several examples of such investments, including:
 - *Systems to monitor and control energy use by satellite*
 - *Development of industrial-sized fuel cells*
 - *CO₂ capture and geologic storage technology for power plant emissions*
 - *Catalysts, sorbents and metal powders for hydrogen reforming of natural gas*
 - *Hybrid-electric vehicles*
 - *Gas turbine/combined cycle systems with high thermal efficiency*
 - *Energy efficient pumps, compressors and micro turbines*
 - *Miniature fuel cells for portable/consumer products*
 - *Introduction of oxy-fuel technology in glass manufacturing processes*
 - *Hydrogen fuel cell passenger vehicles*
 - *Light-weight composite fiberglass and foam-insulation for use in blades on wind-driven turbines and other energy-efficient applications*
 - *Technology to beneficiate fly-ash, allowing it to replace Portland cement in concrete*
 - *“Package flow” technology for planning delivery routes to avoid unnecessary driving*

- ▶ **Participation in Government Programs.** 76 percent of respondents are participating in voluntary GHG management programs implemented by federal and state agencies. These programs include Climate Leaders, Climate VISION, EPA Green Programs, DOE energy efficiency program, the Voluntary Aluminum Industry Partnership, the Landfill/Coalbed Methane Outreach Program, and partnership programs in California, Texas, North Carolina and other states.

- ▶ **Participation in NGO Programs.** 36 percent of respondents are participating in climate-related programs sponsored by NGOs or other non-profit organizations. Examples of these organizations include the Chicago Climate Exchange, Pew Climate Center, The Nature Conservancy, Environmental Defense and the World Resources Institute.

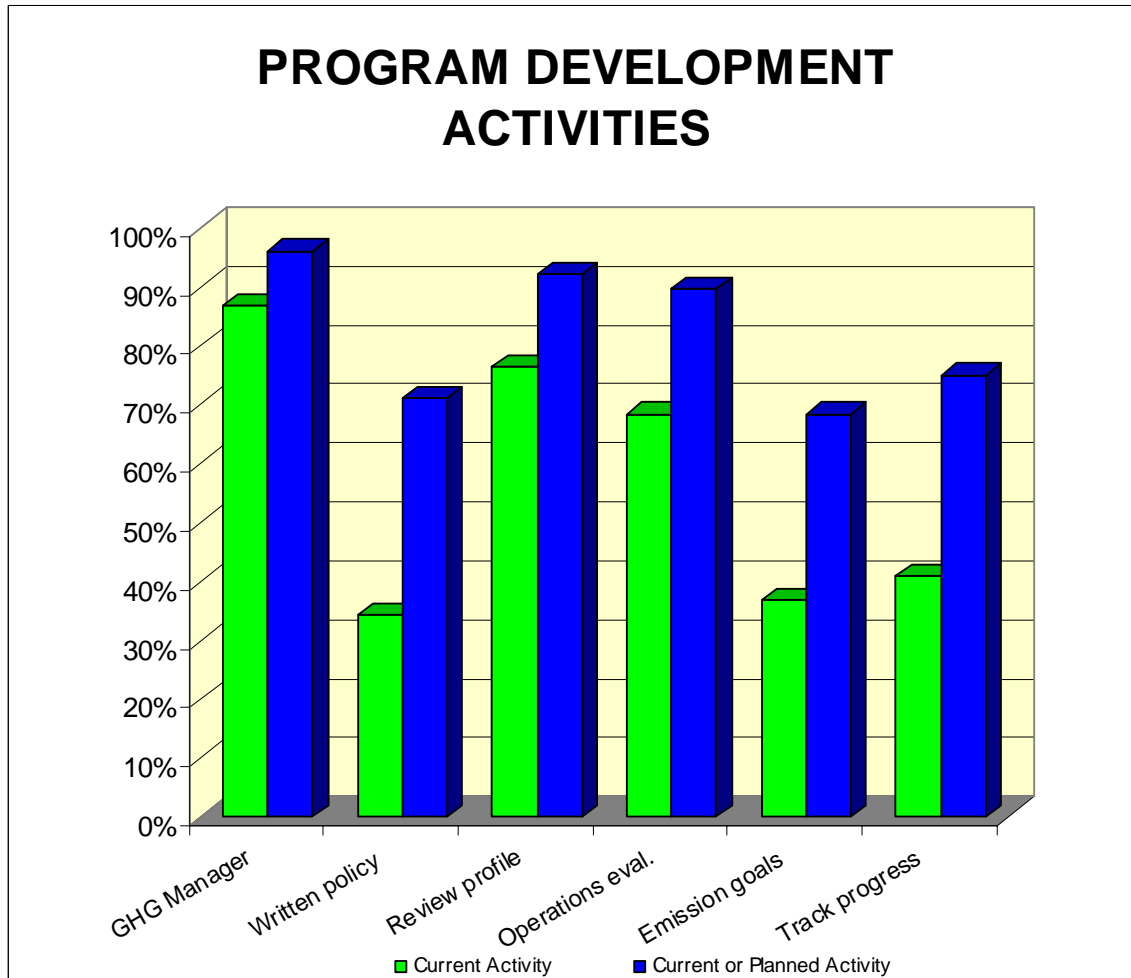
⁵ These findings are somewhat surprising and may reflect a misunderstanding of the survey questions. It is also possible that many companies implementing energy efficiency programs have not taken the additional step of converting reductions in energy consumption into tons of CO₂ emissions avoided. This aspect of the survey results will help focus future workshops on areas where companies can benefit from additional education and training – for example, on the methodologies for determining the CO₂ emissions avoided as a result of improvements in energy efficiency.

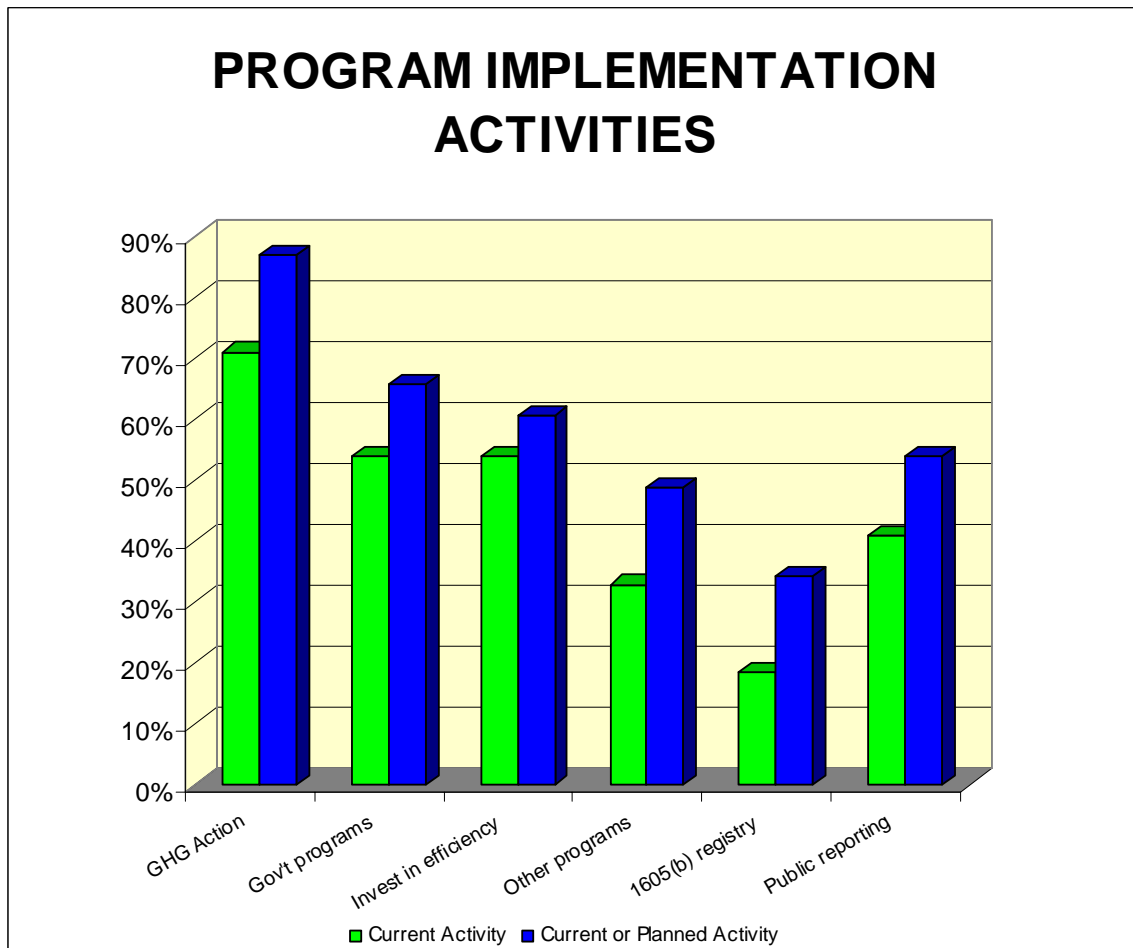
- ▶ **§1605(b) Reporting.** 18 percent of respondents reported to the DOE §1605(b) Registry in 2003 and earlier years and 34 percent plan to report in 2004.⁶
- ▶ **Public Reporting.** 72 percent of survey respondents are taking action to communicate their GHG emission management programs to government and the public. The most common vehicles for public reporting are company websites and annual environmental reports.

⁶ The absence of greater reporting under §1605(b) may be attributable to uncertainty about the criteria and procedures for reporting. DOE is still in the process of revising its general reporting guidelines and the comments submitted to DOE reflect a wide range of views on how to structure these guidelines. In addition, DOE has not yet proposed for comment-detailed technical guidelines. Companies may well be waiting for greater clarity on the ground rules for reporting before devoting time and resources to making submissions under §1605(b). Since Climate RESOLVE has encouraged reporting under §1605(b), we intend to devote increased attention at upcoming workshops to how the §1605(b) Registry operates and the pros and cons of reporting.

YEAR-BY-YEAR IMPROVEMENT IN COMPANY GHG MANAGEMENT PROGRAMS

By asking companies to designate the program development and implementation activities they had undertaken in 2003, or were planning to undertake in 2004, the survey allows an assessment of the level of progress from one year to the next. This progress is shown in the following charts:





In sum, Climate RESOLVE participants made solid progress from 2003 to 2004 in putting in place and implementing the program elements required for successful GHG management.⁷ This suggests that, together with government initiatives and other factors, Climate RESOLVE is successfully motivating Roundtable members to take action to manage GHG emissions.

⁷ Based on a review of the Climate RESOLVE participation forms, companies also made major improvements in the GHG programs from 2002 to 2003. See *Appendix 3*.

EXAMPLES OF COMPANY ACTIONS TO MANAGE GHG EMISSIONS

The Roundtable has collected several noteworthy examples of voluntary action by member companies to reduce, avoid, sequester or offset GHG emissions. These examples – summarized below – reveal a wide range of innovative and exciting projects, including investments in cutting-edge technologies, large-scale sequestration initiatives and dramatic improvements in energy efficiency.

- ▶ Development and use of the OptiFleet E700 Hybrid Electric Vehicle by **FedEx Express**, a subsidiary of FedEx Corporation, will increase fuel efficiency by 50 percent and decrease CO₂ emissions by 33 percent. If other companies would also utilize hybrid electric vehicles, CO₂ emissions would decrease by 75,000 tons annually, equal to planting 1.9 million urban trees. This hybrid electric-powered delivery vehicle could become a standard medium-duty delivery truck for the FedEx Express fleet.
- ▶ **Bristol-Myers Squibb's** Energy Conservation Awareness Program helped to avoid GHG emissions of approximately 3,855 metric tons of CO₂ during a two-year period and achieved a return 27 times the original investment (ROI). The company continuously educates scientists about the correct use of chemical fume hoods and the need to maintain hood sashes at an effective and safe height when labs are in use. In addition, the company used posters, videos and electronic bulletins in a campaign to increase awareness about energy conservation and to modify behaviors during business hours at four major facilities.
- ▶ The Noel Kempff Mercado Climate Action Project involved the purchase and retirement of timber companies' logging rights on 2 million acres of biologically diverse tropical forests in Bolivia. This **American Electric Power** initiative is projected to sequester 7-10 million tons of carbon over its 30-year life, and is demonstrating the viability of forest sequestration as an option in greenhouse gas emissions mitigation.
- ▶ **Eastman Kodak Company** announced a series of worldwide 5-year environmental performance goals in 1998, including 20 percent reductions in greenhouse gas emissions. As of year-end 2003, Kodak reported a 17 percent absolute reduction in CO₂ emissions and a 19 percent indexed reduction in energy use worldwide. Kodak also committed to an additional 10 percent GHG absolute reduction by year-end 2008.
- ▶ The GreenLights Program: 2002, a **General Motors** initiative, consists of replacing T12 fluorescent fixtures with T8 fixtures, resulting in substantial energy savings without a reduction in light levels. In addition, GM is removing or relocating unnecessary lights as well as installing motion sensors where appropriate. These projects, implemented at 73 plants through 2004, are estimated to have avoided 261,220 tons of CO₂ emissions and reduced energy costs by more than \$16 million.

- ▶ From 1998 to 2002, **Caterpillar** phased out three obsolete high-sulfur coal-fired boiler-heating plants – and one low-sulfur plant – at four major Illinois manufacturing facilities. The energy efficiency management program resulted in a net reduction in excess of 500,000 metric tons of CO₂ during that time.
- ▶ **Xerox Corporation** converts end-of-life office equipment into new products resulting in a reduction of raw material and energy needed to manufacture brand new parts. These products may be rebuilt as the same model through remanufacturing, or used as a source of parts for next-generation use. Xerox estimates it saves several hundred million dollars each year, and the program diverted 74,000 tons of waste from landfills in 2001 alone. Since 1991, the program has netted over 1.1 million tons of indirect CO₂ emission reductions.
- ▶ **General Motors'** Janesville Energy and Waste Reduction program is a series of projects designed to reduce energy use and GHG emissions. The initiative includes the removal of bulbs illuminating the front panel of over 100 vending machines, the use of pagers to control remote parking lot lights and the reprogramming of assembly line robots to utilize a "sleep mode" while waiting to do the next job. Through this project, paint purge use was reduced by 32,000 gallons per year and 22,960 tons of material was recycled. Additionally, the program kept over 12,000 tons of waste out of landfills, saving approximately \$580,000.
- ▶ From 1990-2000, **Johnson Controls Inc.** – and its customers – implemented numerous building improvement projects that produced substantial energy savings. Resulting reductions in demand on the nation's energy supply achieved energy savings of \$16.7 billion, equating to a reduction in U.S. CO₂ emissions of over 217 million tons. The company projects that, in combination with these savings, energy efficiency projects implemented between 1990 and 2020 will achieve overall energy savings of \$95 billion and 1.3 billion tons of CO₂ reductions.
- ▶ **DuPont** first set GHG emission reduction goals in the early 1990s, and has made absolute reductions of GHGs from its global operations of over 95 percent since that time. Much of these reductions come from non-CO₂ gases such as nitrous oxide from its nylon operations, and HFC-23 -- an unwanted by-product in the manufacturing of fluorochemicals -- through pollution prevention initiatives. Additional reductions have come from energy efficiency and renewable energy measures, estimated to have produced an energy cost savings of \$2 billion from 1990 to 2003 as compared to business as usual costs. In total, DuPont has reduced its GHG emissions globally by approximately 300 million metric tons of CO₂ equivalents since 1990 as compared to business as usual projections.
- ▶ **Owens Corning** has initiated a project to utilize oxy-firing in its molten glass manufacturing process, which is expected to reduce natural gas consumption by approximately 65 percent on one production line. In addition, the company did a detailed audit of natural gas usage at a Texas manufacturing facility, enabling it to evaluate and rank opportunities for GHG reduction. When the equipment settings were subsequently readjusted to reflect the audit results, approximately 9,900 tons of CO₂ were reduced from 2001 levels.

- ▶ In 2003, **ChevronTexaco's** Chevron Energy Solutions group installed a solar power and energy efficiency system for Pierce College in Woodland Hills, California. A new solar unit provides power to the campus by converting sunlight directly into electricity. In addition, the group installed a cogeneration system to produce additional electricity, provide backup power and recover waste energy to chill water for campus air conditioning. The project will cut energy costs by \$180,000 annually. Over the 30-year operating life of the system, the college's CO₂ emissions will reduce by as much as 13,000 tons.
- ▶ Ashland Paving And Construction, Inc., a division of **Ashland Inc.**, is currently involved in a joint venture project with 5R Constructors in a project that is utilizing a 6-mile conveyor system to move fill dirt for the Hartsfield-Jackson Atlanta International Airport Runway Expansion Project. The conveyor eliminates the need to move fill dirt via diesel dump trucks over the busy Atlanta roads. This innovative approach prevented the generation of an estimated 400 tons of CO₂ emissions.
- ▶ **Air Products and Chemicals, Inc.'s** energy efficiency engineers have reduced its global power consumption by an estimated 26 megawatts in 2002 and another 29 megawatts in 2003 – the equivalent of the power consumed by 55,000 average U.S. homes, and a reduction of approximately 300,000 tons of annual CO₂ emissions. In addition, Air Products is developing oxygen combustion technology that will provide for cleaner and more efficient power generation, steel, glass and aluminum production, and municipal waste incineration. The company developed the nitrogen trifluoride (NF₃) product to replace the use of PFCs in the semiconductor industry and another specialty gas product for use in manufacturing LEDs, which use 80-90 percent less energy than traditional lighting applications.
- ▶ Denver Federal Center is reducing energy and operating costs by more than \$450,000 per year through a partnership with **Johnson Controls, Inc.** The project includes traditional building improvements as well as the installation of new, high-efficiency chillers and pumps. Johnson Controls decommissioned an existing solar domestic hot water heating system and improved an irrigation control system as well. The water savings for the project will total nearly 11 million gallons per year, and the Denver Federal Center is expected to reduce emissions by more than 8,000 tons of CO₂.
- ▶ A **Procter & Gamble** team in Green Bay, Wisconsin, decreased the amount of solids in the wastewater at a manufacturing site by routing the effluent flow through a plate and frame heat exchanger for use in the papermaking process. The amount of steam required to heat the incoming river water decreased by 18.1 metric tons per hour, resulting in annual estimated savings of \$1.5 million and CO₂ reductions of 50,000 tons.
- ▶ **Schering-Plough** has committed to reduce the emissions of three greenhouse gases by 3.5 percent at Kenilworth Facility. Through the installation of energy efficient lighting, computer-based process controls and state-of-the-art heating and cooling systems, the company has lowered its energy costs and significantly reduced emissions at its major New Jersey facilities. As a result, 2002 emissions were approximately 12 percent less than 2001.

- ▶ **Southern Company** has launched the Cooperative Tree Planting Program, a \$4.5 million initiative to capture carbon dioxide from the atmosphere. This project assists landowners in planting trees on unused or underused pasturelands, making it the largest cooperative forestry program ever undertaken by a utility. To date, over 35 million trees have been planted on over 50,000 acres. The company projects the sequestration of almost 6 million tons of CO₂ by 2030.
- ▶ **Verizon** utilizes fuel cells as an alternative means to battery back-up power. Batteries are recharged using gasoline generators and are replaced every three years. The method improves efficiency and reduces the cost of fuel to the environment. The fuel cell only needs to be replaced every 10 years and has no GHG emissions because its only by-products are heat and water vapor, making it a preferred alternative by the environmental community to gas-powered generators.
- ▶ The Chicago Climate Exchange is designed to build a multi-sector, voluntary market for GHG emission reductions. Participants agree to reduce their annual GHG emissions by 1-4 percent from 2003 to 2006 below their "baseline" level – the average of 1998-2001 emissions. Through this commitment, **American Electric Power** expects to reduce or offset a total of 18 million tons of CO₂-equivalent GHG emissions.
- ▶ **Dow Chemical** is seeking to capture and use landfill methane at its Dalton, Georgia polyurethane, latex and polystyrene manufacturing plants. This program will take approximately 240 billion BTU per year of landfill gas from a county-owned landfill and use it in place of natural gas. This amount of energy is equivalent to the same amount of electricity used in about 2,100 U.S. homes annually. This use of landfill gas will avoid the emissions of more than 13,500 tons of CO₂ per year.
- ▶ **ChevronTexaco** also supports a forestry project in Louisiana. The company cooperated with Environmental Synergy Inc. to plant 450,000 seedlings on over 1,500 acres of land. The trees are expected to sequester over 800,000 metric tons of CO₂ from the atmosphere, improve the biological diversity of the area and also improve water quality in the region. The company is registering the growing mass of carbon in the trees with the DOE §1605(b) GHG Registry.

NEXT STEPS IN IMPLEMENTING CLIMATE RESOLVE

While the progress of Climate RESOLVE is encouraging, the Roundtable recognizes that GHG management is an ongoing process and that strengthening and expanding members' programs must remain a high priority. Based on the results of the Roundtable's member survey, future activities will focus on the following areas:

► Recruitment of Companies in the Service Sectors

As noted above, participation in Climate RESOLVE by companies in the service sectors has been lower than participation by companies from industrial sectors. The Roundtable intends to address this situation by launching a new multi-part initiative to encourage companies from the service industries to join Climate RESOLVE. The thrust of this initiative will be to educate these companies about the contribution of energy consumption in commercial buildings to GHG emissions by energy producers and the role that energy efficiency can play in avoiding and reducing these emissions. The initiative will include a guidebook on reducing energy use in commercial buildings and a new Web tool developed in partnership with the ENERGY STAR program that provides step-by-step assistance in establishing GHG-reducing energy management programs. The Roundtable will conduct outreach to service companies by publicizing this new initiative at the CEO level and working with the Climate RESOLVE Steering Committee to identify additional recruitment opportunities.

► Enhancing Program Implementation

The survey results indicate that Roundtable members are making strong progress in building comprehensive GHG management programs and advancing from program development to implementation measures to reduce, avoid, sequester or offset GHG emissions. Nonetheless, the survey results also highlight opportunities for companies to improve their GHG management programs. For example, not all Climate RESOLVE participants reported having written GHG management policies, goals for reducing or avoiding emissions and procedures for tracking progress. Similarly, some companies indicated that they could not quantify the GHG benefits of emission management activities or were not submitting reports under §1605(b).

The Roundtable intends to focus on these areas for improvement in a number of ways. Another RESOLVE workshop is scheduled for September 23-24, 2004 in Colorado and will again feature presentations by government officials, leading experts from the private sector and environmental groups. Learning Sessions will again be held regularly during the remainder of 2004 and throughout 2005. And one-on-one assistance will be provided to individual companies. The Roundtable will also continue to showcase "success stories" which provide examples of striking GHG management efforts by Roundtable members that can motivate their industry peers.

CONCLUSION

Climate RESOLVE is demonstrating that voluntary actions can reduce GHG intensity, foster innovation and promote investment in new technologies more cost-effectively than government mandates and rigid compliance timetables. This first annual report shows that Roundtable companies are leading the way in addressing climate change by improving energy efficiency, reducing and sequestering GHG emissions, and developing low-carbon technologies that can facilitate economic growth without corresponding GHG emission increases.



APPENDIX 1 – CLIMATE RESOLVE PARTICIPATION FORM

The purpose of this form is to inform the Business Roundtable of your company's plans for participating in Climate RESOLVE. Please return the form as soon as possible.

The goal of Climate RESOLVE is 100 percent participation by Business Roundtable members in voluntary actions to reduce greenhouse gas (GHG) intensity. While many Roundtable members are already taking these actions, others are still formulating GHG management programs and will need time to put these programs in place. Companies may initially participate in Climate RESOLVE by taking steps to develop GHG management programs but ultimately will need to implement GHG control measures to be counted toward the Business Roundtable's 100 percent participation goal.

This form will enable the Business Roundtable to determine whether your company will be focusing on program development in 2004 and later years or whether you will be implementing GHG management measures. It will also give us a picture of which activities in each category you have already completed and what additional steps you are planning under Climate RESOLVE. At the end of 2004, we will be surveying the Roundtable membership to obtain more information about your activities in these areas so that we can measure improvements in 2004 and track progress toward the Business Roundtable's goal of 100 percent participation in voluntary GHG management programs.

CEO NAME: _____

COMPANY: _____

As applicable, please check the boxes below that describe the activities your company took in 2003 or earlier years and the activities you are planning in 2004 and later years.*

I. PROGRAM DEVELOPMENT ACTIVITIES

	ACTIVITIES IN 2003 or Earlier Years	ACTIVITIES PLANNED for 2004	ACTIVITIES PLANNED For Later Years**
Designate person(s) responsible for GHG management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Develop written GHG management policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Review emissions profile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Evaluate operations for opportunities to reduce GHG intensity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Establish GHG emission management goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Develop procedures for tracking progress and meeting goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____

* You should indicate that an activity is planned for 2004 if you initiated it in prior years and are planning to continue the activity in 2004. For example, continuation of a previously initiated energy efficiency program should be listed as an emission reduction and avoidance activity planned for 2004.

** Please indicate the years in which you plan to conduct the activity in question.

II. PROGRAM IMPLEMENTATION ACTIVITIES

	ACTIVITIES IN 2003 or Earlier Years	ACTIVITIES PLANNED for 2004	ACTIVITIES PLANNED For Later Years**
Take actions to reduce, avoid, offset or sequester GHG emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Participate in government-sponsored programs to reduce GHG intensity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Invest in developing products or technologies which improve efficiency or lower GHG intensity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Participate in other GHG management programs (for example, with environmental organizations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Report entity-wide emissions and/or reduction projects to the Department of Energy's 1605(b) GHG registry or its successor program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____
Report GHG emission management actions to the public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Year: ____

Your completed form should be returned as soon as possible to:

Business Roundtable
1615 L Street, N.W.
Suite 1100
Washington, DC 20036

Fax: (202) 466-3509

CONTACT PERSON *for* CLIMATE RESOLVE

So that we can coordinate with your company in the future, please list your designated contact person for CLIMATE RESOLVE:

Name: _____

Title: _____

Company: _____

Address: _____

Address: _____

City, State Zip: _____

Tel: _____

Fax: _____

E-mail: _____

If you have any questions about this form, please contact Marian Hopkins of the Roundtable at (202) 872-1260.

Thank you for your participation in this important and exciting effort.

** Please indicate the years in which you plan to conduct the activity in question.

APPENDIX 2 – CLIMATE RESOLVE STEERING COMMITTEE

Nirmal Chatterjee
Martin A. McBroom
Ted Wells
Julie E. Brokaw
Craig Woodard
Mark Stehly
Jeff W. Cross
Dennis Fitzgibbons
Peter Molinaro
Michael S. Parr
Derek Guest, Ph.D.
R. Hays Bell
W. F. Buchholtz
Michelle Desiderio
M. Rush O'Keefe, Jr.
Stephen K. Harvey
Mark Stoler
Dennis Vaughn
Thomas G. Marx
Sergio F. Galeano
Kevin Farnam
Mark Chatelain
Al Forte
Robert Tollett
Caroline Choi
A. E. Moffitt
Robert P. Gehri
Ellen Quinn
Jack C. Azar

Air Products and Chemicals, Inc.
American Electric Power Company, Inc.
ArvinMeritor, Inc.
Bechtel National, Inc. Bechtel Group, Inc.
Bristol-Myers Squibb Company
Burlington Northern Santa Fe Corporation
Caterpillar Inc.
DaimlerChrysler Corporation
The Dow Chemical Company
DuPont Company
Eastman Kodak Company
Eastman Kodak Company
Exxon Mobil Corporation
Fannie Mae
FedEx Corporation
FMC Corporation
General Electric Company
General Mills, Inc.
General Motors Corporation
Georgia-Pacific Corporation
Hewlett-Packard Company
Johnson Controls, Inc.
Pfizer Inc
The Procter & Gamble Company
Progress Energy, Inc.
Schering-Plough Corporation
Southern Company
United Technologies Corporation
Xerox Corporation

APPENDIX 3 – COMPARISON OF GHG MANAGEMENT ACTIVITIES IN 2002 AND EARLIER YEARS WITH ACTIVITIES PLANNED FOR 2003

ACTIVITY	PERCENT CONDUCTING IN 2002 OR EARLIER YEARS	PERCENT PLANNED FOR 2003
Designate persons(s) responsible for GHG management	51	71
Develop written GHG management policy	33	59
Review emissions profile	48	72
Evaluate operations for opportunities to reduce GHG intensity	46	72
Establish GHG emission management goals	31	48
Develop procedures for tracking progress and meeting goals	28	46

ACTIVITY	PERCENT CONDUCTING IN 2002 OR EARLIER YEARS	PERCENT PLANNED FOR 2003
Take actions to reduce, avoid, offset or sequester GHG emission	53	65
Participate in government-sponsored programs to reduce GHG intensity	35	52
Invest in developing products or technologies which improve efficiency or lower GHG intensity	53	52
Participate in other GHG management programs (for example, with environmental organizations)	29	45
Report entity-wide emissions and/or reduction projects to the Department of Energy's 1605(b) GHG registry or its successor program	22	28
Report GHG emission management actions to the public	34	45



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