Background

- On February 3, 2010, the President established an interagency CCS Task Force, co-chaired by EPA and DOE, with a report due in 180 days (August).
- The Task Force developed a plan to overcome barriers to widespread, cost-effective deployment of CCS within 10 years, including bringing 5-10 commercial demonstration projects online by 2016.
- The group was charged with exploring incentives for commercial CCS adoption and addressing any financial, economic, technological, legal, institutional, social, or other barriers to deployment.

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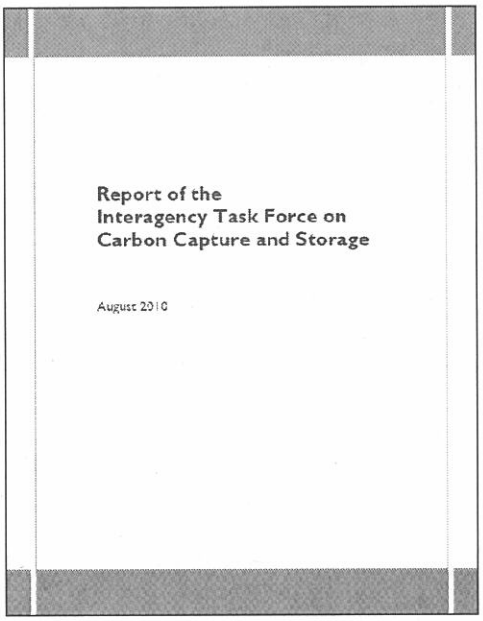
Interagency Task Force on Carbon Capture and Storage

Robert J. Wayland, Ph.D.
U.S. Environmental Protection Agency

35th Annual EPA-A&WMA Information Exchange
December 8, 2010

General Report Outline

- Role of CCS in Climate Policy
- Status of CCS
  - Technology
  - Costs
  - Demonstration Projects
  - Regulatory Framework
- Current Barriers for CCS Deployment
  - Market Failures
  - Regulatory Uncertainty
  - Public Acceptance
- Approaches for Overcoming Barriers
- Conclusions and Recommendations



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Process

- The Task Force was comprised of 14 Executive Departments and Federal Agencies.
- Composed of more than 100 Federal employees, the Task Force examined challenges facing early CCS projects as well as factors that could inhibit widespread commercial deployment of CCS.
- The Task Force relied on published literature and individual input from more than 100 experts and stakeholders, as well as public comments submitted to the Task Force.

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CCS Task Force Findings (cont'd)

- RD&D can enable commercial deployment of CCS by finding ways to reduce project uncertainty and improve technology cost and performance.
- Projects can proceed under existing laws, however, regulations need to be developed and/or finalized and regulators need training and tools.
- Increased coordination with all stakeholders (both Federal and State) will enhance government's ability to assist these projects.
- Open-ended Federal indemnification should not be used to address long-term CO_2 storage liability. However, long-term liability and stewardship are important issues which require further evaluation.
- Public engagement and outreach is extremely important for CCS.
- International collaboration complements domestic efforts on CCS and facilitates global deployment.

CCS Task Force Findings

- There are no insurmountable technological, legal, institutional, or other barriers that prevent CCS from playing a role in reducing GHG emissions.
- Widespread cost-effective deployment of CCS will occur only when driven by a policy designed to reduce GHG emissions.
- Existing Federal programs are being used to deploy 5-10 large-scale integrated CCS projects to be on-line by 2016. However, early CCS projects face challenges including the cost and performance of current generation technology.
- Federal agencies can use existing authorities and programs to begin addressing barriers for these (and other) early CCS projects while ensuring protection of public health and the environment.

Recommendations: Regulatory Development

- By late 2010, EPA should finalize rulemakings under SDWA and CAA and propose a RCRA applicability rule.
- EPA and DOI should immediately formalize coordination and prepare a strategy to develop regulatory frameworks for offshore Federal lands.

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Recommendations: Technology Development

- DOE and EPA should create a Federal agency roundtable to:
  - Act as point of contact for project developers and permitting authorities.
  - Create a technical committee comprised of experts from the power and industrial sectors, NGOs, State officials, and research community.
  - Track CCS demonstration projects in order to identify any additional research or regulatory needs.
- DOE, in coordination with EPA, Treasury, and USDA, should track the use and efficacy of Federal financial support for CCS projects.
- The Administration should continue to support international collaboration that complements domestic CCS efforts and facilitates its global deployment.

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Recommendations:
Long-Term Liability and Stewardship

- By late 2011, EPA, DOE, Department of Justice (DOJ), DOI, and Treasury should further evaluate certain approaches to address long-term liability and stewardship.

- The Task Force examined 7 approaches to address long-term liability including the current framework under existing laws.
  - The Task Force agreed that near-term projects can move forward under the existing liability framework and that open-ended Federal indemnification, an option currently under consideration, should not be used.

  - Approaches that merit further consideration include:
    - Reliance on the existing framework
    - Adoption of substantive or procedural limitations on claims
    - Creation of an industry-financed trust fund
    - Transfer of liability to the Federal government after site closure (with certain contingencies).

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Recommendations:
Regulatory Implementation

- EPA, in coordination with DOE and DOI, should develop capacity building programs for underground injection control regulators.

- DOE and EPA should identify data needs and tools to support regulatory development, permitting, and project development.

- DOE and EPA, in consultation with other agencies, should track regulatory implementation for early commercial CCS projects and consider whether additional statutory revisions are needed.

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For More Information

- For additional information about the Task Force, visit EPA's Task Force website at:

  http://www.epa.gov/climatechange/policy/ccs_task_force.html
  - Executive summary and report
  - Fact sheet
  - Frequently asked questions
  - Presidential memorandum

Recommendations: Public Outreach

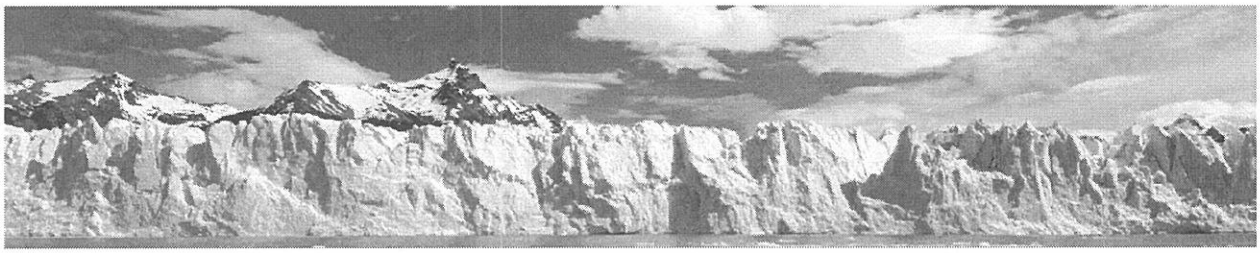
- DOE and EPA should coordinate among Federal agencies, states, industry, and NGOs to evaluate key concerns around CCS in different areas of the US.

- Using this information, DOE and EPA should develop a comprehensive outreach strategy including:
  1. A broad strategy for public outreach, targeted at the general public and decision makers; and
  2. A more focused engagement with communities that are candidates for CCS projects, to address issues such as environmental justice.

- DOE and EPA should establish a clearinghouse for public access to unbiased, high-quality information on CCS and develop outreach tools for project developers and regulators.

Over the past 4 years…

- Supreme court decision -- Massachusetts vs. EPA
- EPA's Endangerment Finding
- Copenhagen accord – goal of keeping global temperature increases below 2 degrees C
- Increasing understanding of the role of SLCFs
- Rise and fall of climate legislation in the 111th Congress
- China overtook the US as the world's #1 GHG emitter
- IPCC Assessment Report #4 and attacks on the science of climate change



Global Climate Change Overview

35th EPA – AWMA Information Exchange

December 7, 2010

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EPA Regulatory Actions to Address Climate Change

Regulatory Action

- **GHG Endangerment Findings**
  - http://www.epa.gov/climatechange/endangerment.html
- **Clean Air Act Developments**
  - **Light Duty Vehicle Rule**
    - http://www.epa.gov/otaq/climate/regulations.htm#1-1
  - **Phasing in Clean Air Act Regulations (Tailoring Rule)**
    - http://www.epa.gov/NSR/actions.html#may10
- **Renewable Fuel Standard**
  - http://www.epa.gov/otaq/fuels/renewablefuels/index.htm
- **GHG Reporting Program**
  - http://www.epa.gov/climatechange/emissions/ghgrulemaking.html
- **Geologic Sequestration of CO_2**
  - **Underground Injection Control rule – PROPOSED (Office of Water)** http://water.epa.gov/type/groundwater/uic/wells_sequestration.cfm
  - **GHG Reporting from CO_2 injection & geologic sequestration - PROPOSED** http://www.epa.gov/climatechange/emissions/subpart/rr.html

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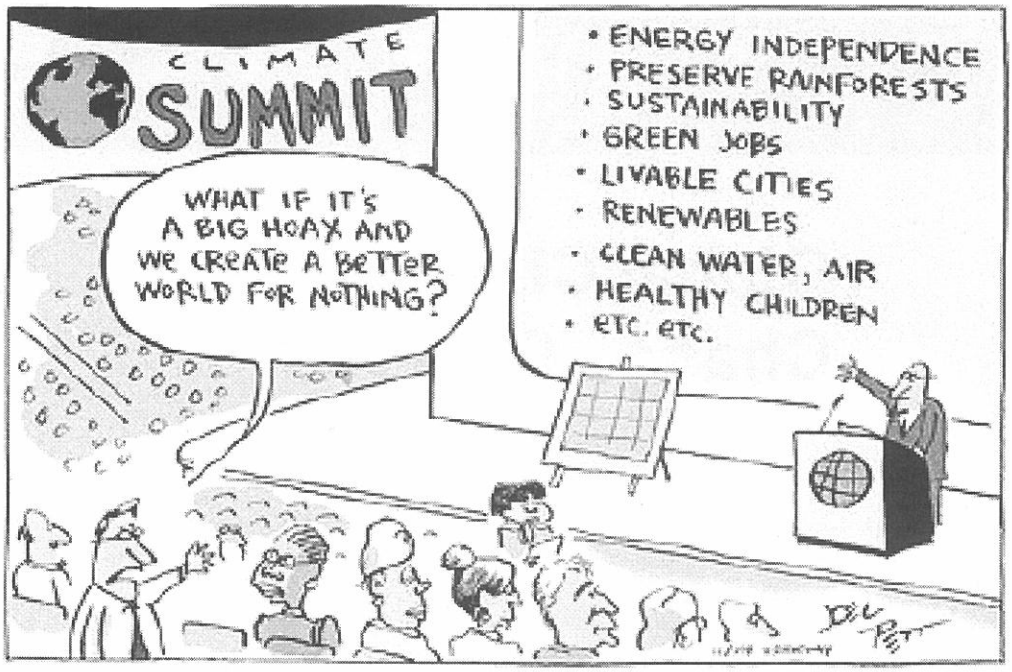
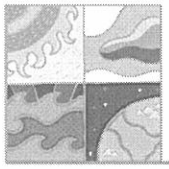


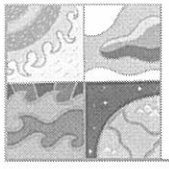
By Joel Pett, Lexington (Ky.) *Herald-Leader*, December 7, 2009



Regulatory Action

Light-Duty Vehicle Rule

- With Department of Transportation's National Highway Safety Administration
  - Highly significant; First GHG control regulation
- Establishes national standards for model year 2012-2016 cars, SUVs, minivans, pickups
- Increases fuel economy by approximately 5% every year
- Reduces greenhouse gas emissions by nearly 950 million metric tons, equivalent to 35.5 mpg in 2016



Regulatory Action

GHG Endangerment Findings

- Two distinct findings under section 202(a) of the Clean Air Act
  - **Endangerment Finding:** Current and projected concentrations of the mix of six key GHGs in the atmosphere threaten the public health and welfare
  - **Cause or Contribute Finding:** Combined emissions of CO_2, CH_4, N_2O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change

Regulatory Action

GHG Reporting Program

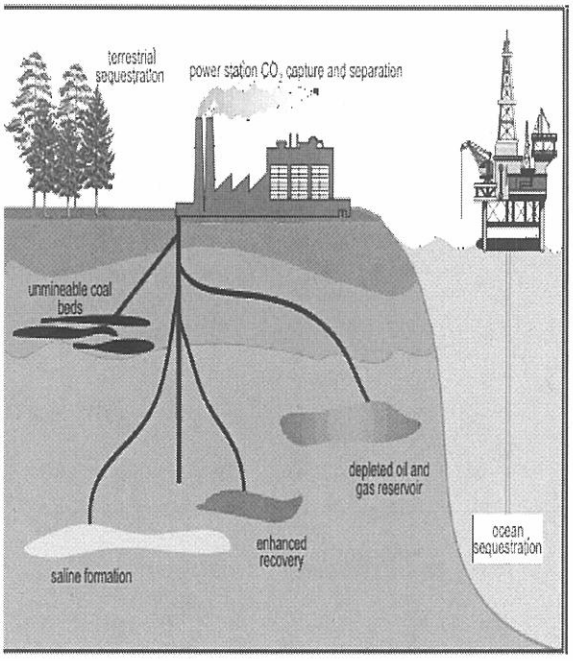
- Directed by Congress in 2008 Appropriations Act and issued September 22, 2009
- Will provide a better understanding of where U.S. GHG emissions are coming from
- Applies to facilities emitting large quantities of GHGs
- Covers an estimated 85 percent of total U.S. GHG emissions
- Data collection began in January 2010
- First annual reports due in March 2011
- Applicability tool to help assess whether a facility would be required to report
  - http://www.epa.gov/climatechange/emissions/GHG-calculator/index.html

Regulatory Action

Renewable Fuel Standard

- Reduce 138 million metric tons GHG emissions – equivalent to the annual emissions of 27 million passenger vehicles
- Replace about 7 percent of expected annual gasoline and diesel consumption in 2022
- Decrease oil imports by $41.5 billion
- Result in additional energy security benefits of $2.6 billion

Geologic Sequestration of CO_2



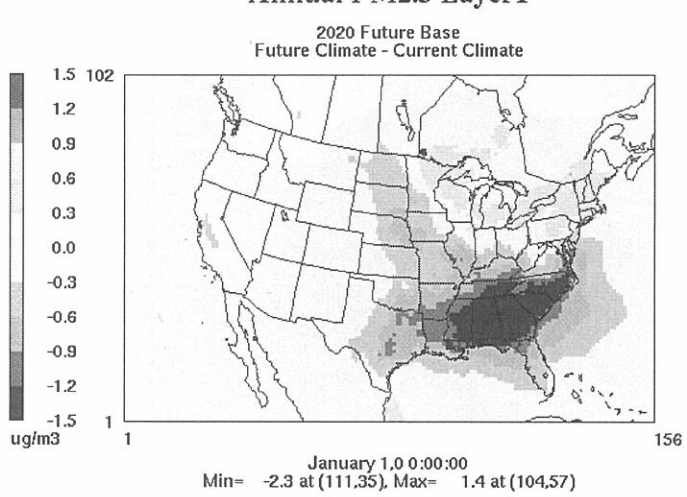
- Geologic sequestration is the process of injecting carbon dioxide (CO_2) from a source, such as a coal-fired power plant, through a well into the deep subsurface.
- Carbon Capture and Storage (CCS) using geological sequestration of CO_2 is a climate mitigation measure.
- The Interagency Task Force on CCS recently delivered a series of recommendations to the President on overcoming barriers to widespread, cost-effective CCS deployment within 10 years.

Tailoring Rule

- This is EPA's common sense approach to phasing in Clean Air Act Regulations
  - EPA does not intend to subject small businesses or farms to CAA permitting.
- Permits will cover nearly 70% of the GHG pollution from stationary sources that threaten Americans' health and welfare.
- EPA will focus GHG permitting on the right facilities at the right time and get the kind of reductions the CAA intended.
  - Operating permits will be needed by all sources that emit at least 100,000 tons of GHGs per year beginning in July 2011.

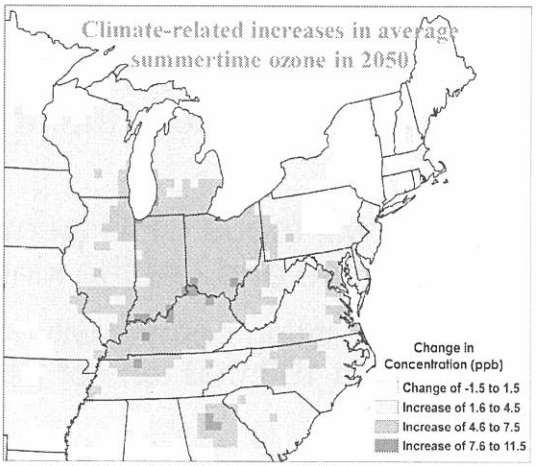
Impacts of Climate Change on Air Quality: PM

- Temperature, precipitation, and cloud formation affect $PM_{2.5}$
  - Direction of effect varies geographically and seasonally
  - Changes in ambient levels have major implications for public health
- Changes in precipitation also affect deposition processes



Impacts of Climate Change on Air Quality: Ozone

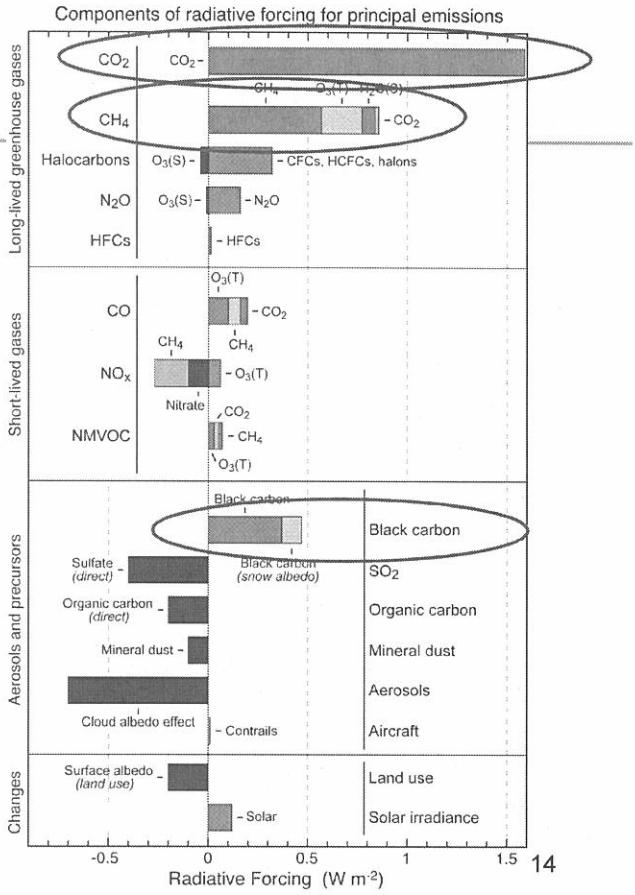
- Increases in temperature and weaker circulation patterns lead to increased ozone, partly by accelerating photochemical oxidation rates
- EPA's *Assessment of the Impacts of Global Change on Regional U.S. Air Quality: A Synthesis of Climate Change Impacts on Ground-Level Ozone* (Global Change Research Program, April 2009) found that by 2050, climate change could:
  - Increase summertime average ground-level ozone concentrations in many regions by 2 to 8 ppb
  - Exacerbate peak ozone concentrations on days where weather is already conducive to high ozone concentrations
  - Lengthen the ozone season
  - Increase emissions of ozone precursors from natural sources



Source: Figure 33 from EPA Assessment, 2009

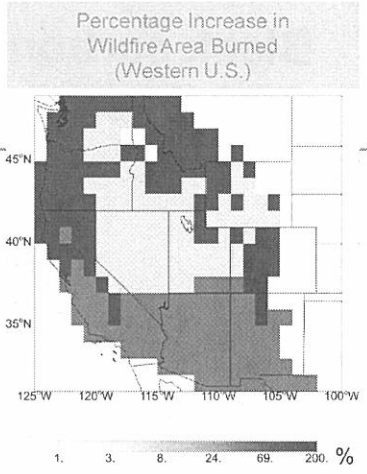
Largest forcers:

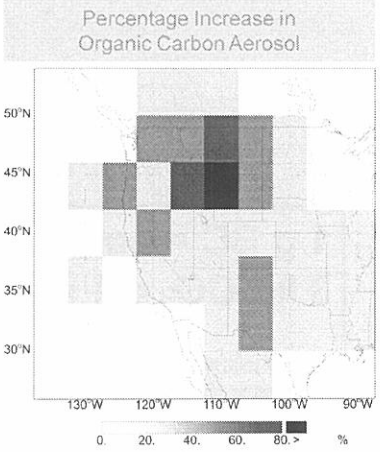
- *Carbon dioxide*
- *Methane (+ ozone)*
- *Black Carbon*



Other Air Quality Impacts

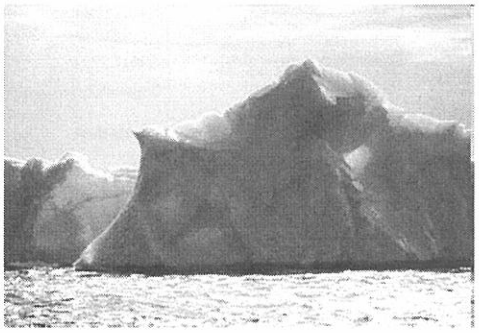
- Increases in wildfire (Spracklen et al, 2009) may lead to increased smoke emissions, which impact ozone and PM
- Changes in residential energy demand may alter emissions patterns (US CCSP):
  - Increased energy demand for summertime cooling → increased summertime emissions
  - Decreased energy demand for wintertime heating → decreased wintertime emissions
- Increases in temperature may increase evaporative emissions from fuels and biogenic emissions
- Adaptation may lead to changes in locations of emissions – as people migrate, they take their emissions with them

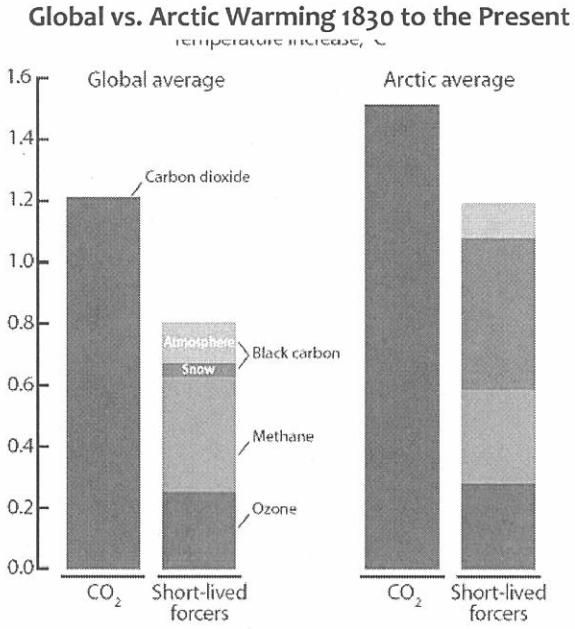




BC Regional Impacts: Arctic

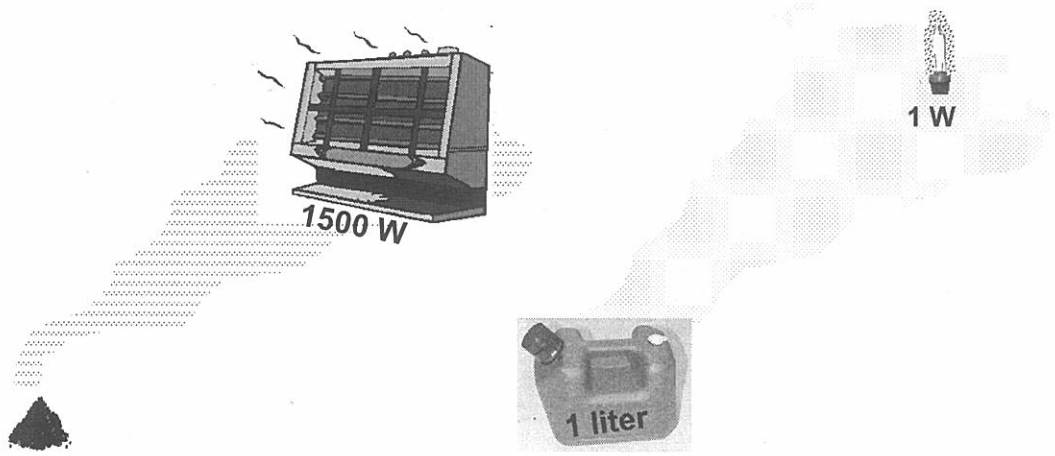
- Arctic temperatures increasing faster than global average (IPCC, 2007)
- Accelerated ice/snow melt





(Adapted from Reiersen and Wilson, 2009)

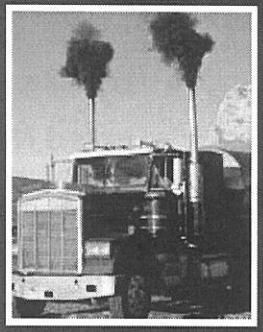
Black carbon → powerful, immediate, regional warming
CO2 → long, slow, global warming

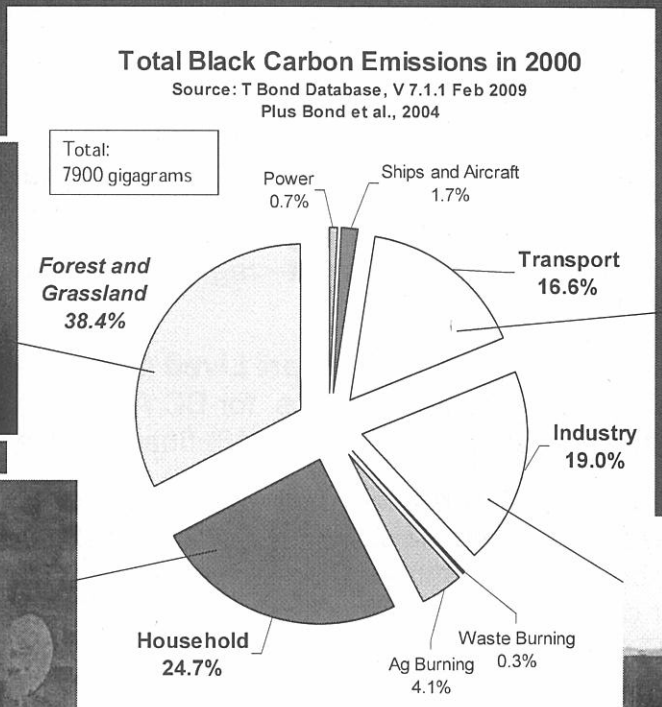


1 g BC = space heater for 1 week
3 kg CO_2 = 1 small bulb for 100 years

Both come from an old diesel truck driving ~3.5 km

Global Sources of Black Carbon:

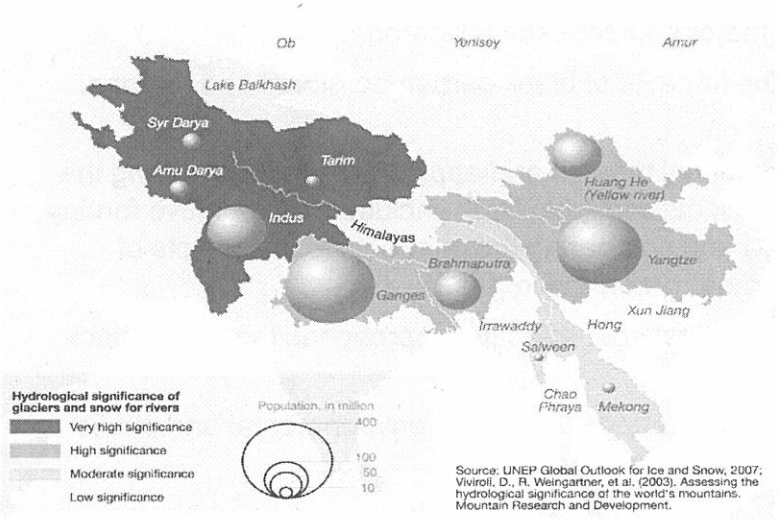




Pie Chart from Kirk Smith, UC Berkeley

BC Regional Impacts: Glaciers

In the Himalayan region, solar heating from BLACK CARBON at high elevations may be just as important as carbon dioxide in the melting of snowpacks and glaciers
(Ramanathan & Carmichael, 2008)



Source: UNEP Global Outlook for Ice and Snow, 2007; Viviroli, D., R. Weingartner, et al. (2003). Assessing the hydrological significance of the world's mountains. Mountain Research and Development.

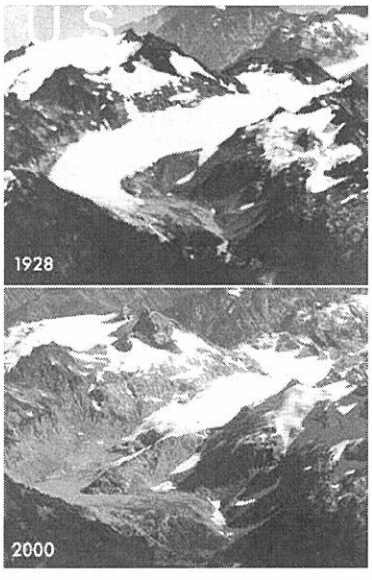


Photo: USGS

Other Ongoing Assessments

- **IGAC/SPARC "Bounding BC" study** (T. Bond and D. Fahey)– focus on reducing scientific uncertainties about BC. Draft results due out??
- **United Nations Environment Program (UNEP) Black Carbon and Tropospheric Ozone Assessment**– regional mitigation "baskets"; draft due early 2011
- **Arctic Council Task Force on Short Lived Climate Forcers**– covers emissions/impacts/mitigation options for BC Arctic. Initial draft report scheduled for release in November 2010; final due May 2011
- **Convention on the Long Range Transport of Air Pollution (LRTAP) Expert Group on Black Carbon**– assessing whether PM2.5 addition to the Gothenburg Protocol should include separate provisions for BC. Options for consideration to be presented to LRTAP executive body in December 2010

BC Report to Congress:

October 2009 Interior Appropriations Bill Requirement

- "Not later than 18 months after the date of enactment of this Act, the Administrator, in consultation with other Federal agencies, shall carry out and submit to Congress the results of a study on domestic and international black carbon emissions that shall include
  - an inventory of the major sources of black carbon,
  - an assessment of the impacts of black carbon on global and regional climate,
  - an assessment of potential metrics and approaches for quantifying the climatic effects of black carbon emissions (including its radiative forcing and warming effects) and comparing those effects to the effects of carbon dioxide and other greenhouse gases,
  - an identification of the most cost-effective approaches to reduce black carbon emissions, and
  - an analysis of the climatic effects and other environmental and public health benefits of those approaches."

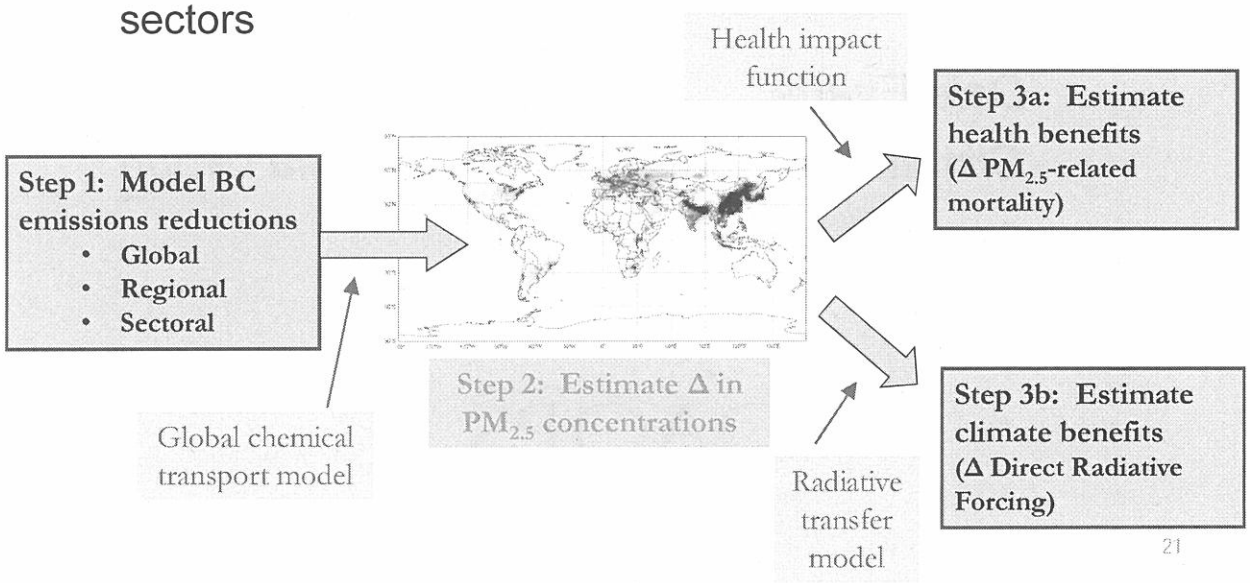
Remaining Questions and Analytical Challenges

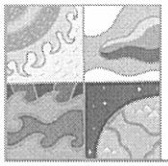
- How will future climate conditions AND future emissions interact to affect air quality and attainment of air quality goals?
- How will climate change affect the sensitivity of human health and ecosystems to air pollution exposures, and the resulting impacts?
- What are the potential climate and public health co-benefits of specific intervention strategies?
  - Assess co-pollutant impacts of GHG-reduction strategies, and climate impacts of conventional air pollution programs
    - Reductions in cooling aerosols (e.g., sulfates and nitrates) are essential to protect public health, but will lead to an "unmasking" of the true extent of warming– what additional climate mitigation strategies are needed?
  - For short-lived forcers like black carbon and ozone, assess effectiveness of conventional air-pollution programs for avoiding adverse climate impacts
  - Assess impacts/benefits resulting from mitigation of specific source categories such as cookstoves and biomass burning

Work In Progress:

Global Health and Climate Impacts of BC Emissions Reductions

- Objective: Calculate change in $PM_{2.5}$ concentration and premature mortality that could be achieved by reducing BC emissions in several world regions and economic sectors





Thanks!

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Presentation Outline

- PSD and Title V Permit Programs
- Section-by-Section Overview of Permitting Guidance
- GHG Technical Tools and Other Resources
- Answer Questions

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Office of Air Quality Planning and Standards

Greenhouse Gas Permitting Guidance

Dave Svendsgaard
New Source Review Group

Office of Air Quality Planning and Standards
Fall 2010

PSD and Title V Permit Programs (cont.)

- Title V program intended to improve sources' compliance with other CAA requirements.
  - Does not add new pollution control requirements, but requires that each permit contain all air quality control requirements or "applicable requirements" required under the CAA (*e.g.,* NSPS and SIP requirements, including PSD).
  - Requires that certain procedural requirements (such as adequate monitoring) be followed, especially with respect to compliance with the applicable requirements.

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PSD and Title V Permit Programs

- Prescribed in Clean Air Act
- PSD Program aimed at reducing the amount of pollution added to the atmosphere
  - Does not apply to every source; only to large/major sources that are newly built or substantially modified.
  - Emission reductions are achieved through the use of Best Available Control Technology (BACT).
  - BACT is determined on a case-by-case basis, and takes into account technical feasibility, cost, and other environmental and energy considerations.

GHG Guidance: Introduction

- Provides statutory and regulatory background for the permitting and regulation of GHGs.
- Explains the PSD and Title V permitting requirements are generally no different for GHGs.
- Reiterates that this document is guidance, not a rule.
  - EPA and delegated permitting authorities should follow this guidance when issuing permits.
  - SIP-approved permitting authorities have discretion to establish alternative approaches, as long as they comply with CAA and Federal rules.
  - Permitting authorities have the discretion to be more stringent than the policies in this guidance.

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GHG Permitting Guidance

Section-by-Section Overview

GHG Guidance: Biomass

- Acknowledges external requests to exclude emissions of GHG from bioenergy and other biogenic sources for the purposes of the BACT analysis and the PSD program.
- Permitting authorities currently have discretion to consider the environmental, energy and economic benefits that may accrue from the use of certain types of biomass and other biogenic sources in Step 4 of the BACT process.
  - Many federal and state policies have recognized that some types of biomass can be part of a national strategy to reduce dependence on fossil fuels and to reduce emissions of GHGs.

GHG Guidance: PSD Applicability

- Explains general PSD applicability requirements for new and modified sources of "regulated NSR pollutants."
- Reiterates GHG applicability thresholds and framework from Tailoring Rule.
  - GHG applicability based on both mass and CO_2e emissions, resulting in a 2-part test for new sources and a 4-part test for modifications.
- Explains how to calculate CO_2e-based emissions using global warming potential (GWP).

GHG Guidance: BACT General Approach

- Explains EPA's 5-step "top down" process and how each step should be applied for GHG permitting.
  - Step 1: Identify all available control technologies
  - Step 2: Eliminate technically infeasible options
  - Step 3: Rank remaining options by emissions control effectiveness
  - Step 4: Evaluate economic, energy, and other environmental impacts
  - Step 5: Select best option as BACT for the source

GHG Guidance: Biomass (cont.)

- EPA intends to issue guidance in January 2011 that will provide a suggested framework for analyzing the environmental, energy and economic benefits of biomass in BACT Step 4.
  - Will include qualitative information on relevant factors to consider with respect to biomass combustion, such as specific feedstock types and trends in carbon stocks at different spatial scales.
- EPA intends to determine, by May 2011, whether to initiate a rulemaking for PSD applicability for sources of biogenic emissions.
  - Specifically, whether to quantify carbon emissions from bioenergy or biogenic sources by applying separate accounting rules for different types of feedstocks.

GHG Guidance: BACT General Approach (cont.)

- Focuses on BACT options that reduce GHG emissions by improving energy efficiency.
  - In most cases, energy efficiency improvements will satisfy the BACT requirement for GHGs.
  - BACT for a new source may consider source-wide emissions reductions resulting from energy efficiency at the source.
  - BACT for a modified existing source can consider energy efficiency reductions that are part of the changed emissions unit.
  - Recommends use of industry-established benchmarking tools to assist in comparing efficiency of control options and determining BACT limits.

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Office of Air Quality Planning and Standards

GHG Guidance: BACT General Approach (cont.)

- Reiterates CAA requirement that BACT is a case-by-case determination, providing discretion to the permitting authority.
  - Does not prescribe GHG BACT for any source type.
  - Emphasizes the importance of a detailed case- and fact-specific record to justify the permitting decisions reached by the permitting authority.
- Addresses several policy issues raised by CAAAC GHG BACT Workgroup.
- Focuses BACT analysis on achieving emission reductions within the fence line of the facility.
  - Although impacts/benefits beyond the fence line can be considered later in Step 4 of BACT process (*i.e.*, collateral impacts analysis).

GHG Guidance: BACT Step 1 (cont'd)

- Provides criteria for determining what control options or source configurations would "fundamentally redefine" a source.
  - BACT should consider the most energy efficient design and control options for a proposed source.
  - Specific types of fuels or facility design are neither required nor precluded.
    - Clean fuels which reduce GHG emissions should be considered, but not if a change in primary fuel type would fundamentally redefine the source.
  - Permitting authorities have discretion to conduct a broader analysis and consider changes in the primary fuel.

GHG Guidance: BACT Step 1

- Defines term "available" and describes the types of available control options to be considered:
  - Inherently Lower-Emitting Processes/Practices/Designs,
  - Add-on Controls, and
  - Combinations of Inherently Lower Emitting Processes/Practices/Designs and Add-on Controls.
- Explains that, if/when there is an NSPS for GHGs, the CAA requires that it would set the floor for a BACT analysis.
- Carbon Capture and Storage (CCS) is "available" and should be considered in Step 1 of a BACT analysis for high CO_2-emitting sources.

GHG Guidance: BACT Step 2 (cont.)

- For Carbon Capture and Storage:
  - CCS technology is composed of 3 main components: (1) CO_2 capture and/or compression, (2) transport, and (3) storage.
  - CCS may be eliminated if any of the 3 components working together are deemed technically infeasible for the proposed source.
    - *e.g.*, no space available for CO_2 capture equipment at an existing facility; right-of-ways prevent building a pipeline or access to an existing CO_2 pipeline; no access to suitable geologic reservoirs for sequestration or other storage options.

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GHG Guidance: BACT Step 2

- A technology is "technically feasible" if it has been demonstrated in practice or is available and applicable to the source type under review.
  - The term "demonstrated" is focused on the technology being used in the same type of source, such as a similar plant producing the same product.
  - A technology is "available" if it can be obtained through commercial channels or is otherwise available within the common meaning of the term.
  - An available technology is "applicable" if it can reasonably be installed and operated on the source type under consideration.

GHG Guidance: BACT Step 4

- Costs of GHG Control
  - It is reasonable to anticipate the CO_2e cost effectiveness ($/ton) for GHG control will be significantly lower than typical cost effectiveness for control of criteria pollutants, due to the considerable difference in the volume of emissions.
  - Existing methodology for calculating cost effectiveness is appropriate for GHGs.
- Trade-offs between GHG and other pollutants
  - When conducting BACT reviews for both GHG and non-GHG pollutants at a source, permitting authorities have discretion to evaluate the trade-offs associated with decreasing one pollutant versus increasing another.

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GHG Guidance: BACT Step 3

- Ranking of control options should be based on total CO_2e, rather than total mass or mass for the individual GHGs, in order to best reflect the impact on the environment.
- Wherever possible, options should be ranked based on their net output-based emissions to fully consider the thermal efficiency of the control option, as well as the power demand of that control measure.
  - Where plant-wide measures to reduce emissions are being considered as GHG control techniques, the concept of overall control effectiveness will need to be refined to ensure the suite of measures with the lowest net emissions from the facility is the top-ranked measure.

GHG Guidance: BACT Step 5

- BACT selection essentially should default to the highest level of control for which the applicant could not adequately justify its elimination based on energy, environmental and economic impacts.
- Permitting agency is responsible to fully justify the BACT decision in the permit record.
- Documentation and rationale presented must:
  - ensure that the applicant has addressed all of the most effective control options that could be applied, and
  - show that the applicant has adequately demonstrated that energy, environmental, or economic impacts justify any proposal to eliminate the more effective control options.

GHG Guidance: BACT Step 4 (cont.)

- CCS Costs
  - Currently, CCS is an expensive technology and may often make the price of electricity from a power plant uncompetitive, even when underground storage of the captured CO_2 exists near the power plant.
  - CCS will often be eliminated from consideration in Step 4 of the BACT analysis based on cost (assuming it is not already eliminated earlier in the top-down process based on technical feasibility).
    - However, there are cases now where the economics of CCS are more favorable (e.g., enhanced oil recovery).
  - CCS may become less costly and warrant greater consideration in Step 4 of the BACT analysis in the future.

GHG Guidance: Modeling and Monitoring

- Since there are no NAAQS or PSD increments, ambient modeling (*i.e.*, additional impacts analysis or Class I area) is not required for GHG emissions.
- Unnecessary for applicants to gather monitoring data to assess ambient air quality for GHGs, since GHGs do not affect "ambient air quality" in the sense that other pollutants do.
- GHG emissions serve as the more appropriate and credible proxy for assessing the impact of a given facility.
- Compliance with the BACT analysis is the best technique that can be employed at present to satisfy the additional impacts analysis and Class I area requirements of the rules related to GHGs.

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GHG Guidance: BACT Step 5 (cont.)

- May consider converting the BACT emissions limit to a net output basis for the permitted emissions limit.
- Should focus on longer-term averages (*e.g.*, 30- or 365-day rolling average) rather than short-term averages (*e.g.*, 3- or 24-hr rolling average).
- Permits can also include conditions requiring the use of a work practice such as an Environmental Management System (EMS) focused on energy efficiency as part of that BACT analysis.
  - The ENERGY STAR program provides useful guidance on the elements of an energy management program.

GHG Guidance: Appendices

- Applicability Flow Charts for New and Modified Sources
- Applicability Example for Modified Source
- BACT Examples:
  - Natural Gas Boiler
  - Municipal Landfill
  - Refinery Hydrogen Plant
- Resource Library for GHG Emissions Estimation
- Resource Library for GHG Control Measures
- Cost Effectiveness Calculations

GHG Guidance: Title V Permits

- Reiterates title V applicability under Tailoring Rule.
- Reiterates Tailoring Rule statements on title V fees.
- GHG Mandatory Reporting Rule not considered an "applicable requirement" under title V regulations.
- Encourages the use of Flexible Air Permits, particularly if a source is able to improve energy efficiency and reduce GHG emissions over time.

Questions?

EPA Technical Tools and Other Resources

- White Papers on:
  - utilities, refineries, cement, large commercial/industrial/institutional boilers, pulp and paper, iron and steel, and nitric acid plants
- Control Technology Clearinghouses
  - RACT/BACT/LAER
  - GHG Mitigation Strategies
- GHG Permitting Action Team
- GHG Training for Permitting Authorities, Industry and Other Stakeholders
- One-stop website for GHG permitting resources: www.epa.gov/nsr/ghgpermitting.html

Topics

- Background
- Major Areas of Emissions Factors Program Improvement
  - WebFIRE
  - Emissions Factors Procedures Document
  - Electronic Reporting Tool
  - Source Classification Codes
- Compliance Data Submittal Rule
- Next Steps/Schedule

Compliance Data Submittal Rule and Emissions Factors' Program Improvements

Thomas Driscoll

Air and Waste Management Information Exchange

December 2010

Background

- The Emissions Factors Program is 40+ years old and contains > 22,000 factors (82% C-rated or worse), but stakeholders have indicated they still want and need emissions factors!
- Emissions factors are still integral for a variety of air pollution control activities including regulation development and compliance assurance
- ANPRM published (October 14, 2009) to seek comments on our EF program improvement approaches – comments included:
  - Eliminate redundancy and potential duplicative reporting costs
  - Update highly rated EFs every 10 years or less
  - Adjustment or transitional period needed
  - Use of EFs for purposes other than emissions inventory gap filling
  - Third party reviews of test reports
  - How should we treat performance tests for similar sources that use "similar", but not the same, test methods (i.e., CARB or TCEQ and EPA-approved methods)?
  - Should we eliminate EFs with no supporting data?

Background

- We initiated the electronic submittal of compliance data project as part of general improvement of the emissions factors program and to support reg development
- Other parts of the project include:
  - WebFIRE and new EF Development Procedures Guidance Document
  - Electronic Reporting Tool
  - Emissions Factors
  - Revisions to the Source Classification Codes