



Building the Foundation for a Low Carbon Economy in the National Capital Region

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Metropolitan Washington Council of Governments

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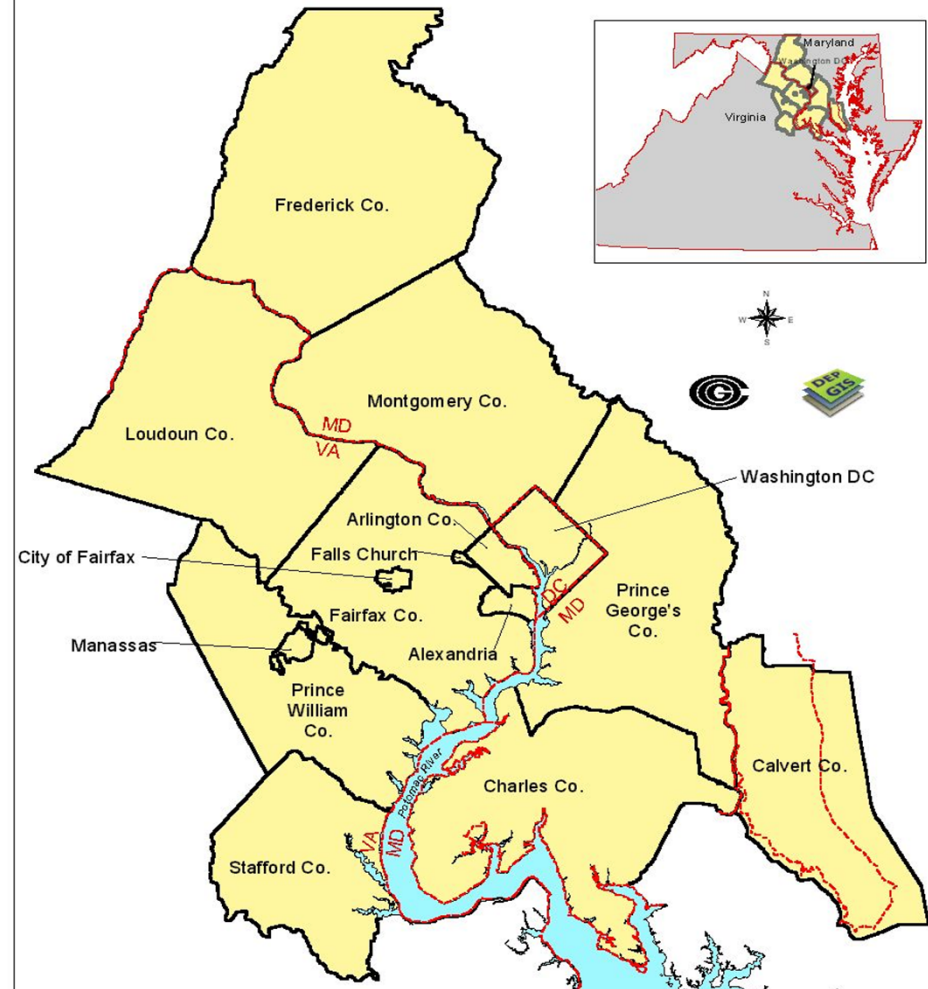
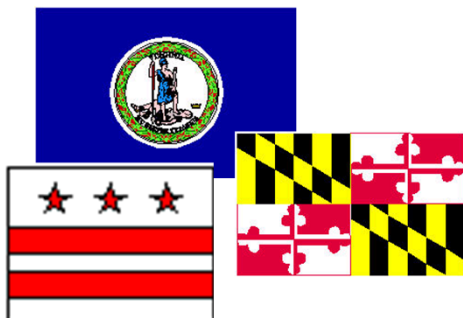


Metropolitan Washington
Council of Governments

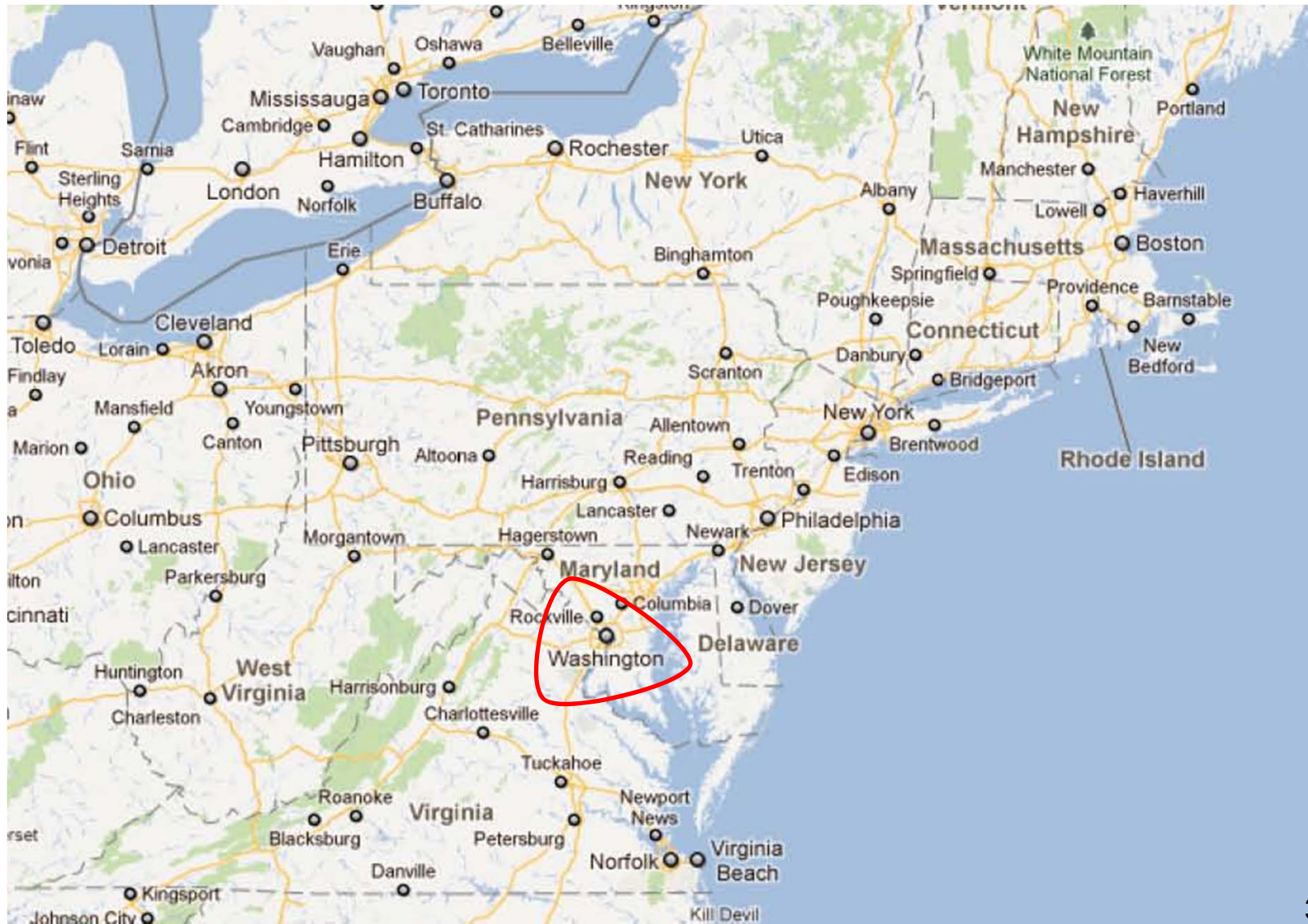


What is MWCOG?

- Association of 21 local government members
- 3 States – Maryland, Virginia, District of Columbia
- Designated Regional Planning Organization
 - Air Quality
 - Climate and Energy
 - Transportation
 - Public Safety/Housing/Community Development



Metropolitan Washington and the Mid Atlantic



What is driving our regional actions?

- Federal Mandates (or lack thereof)
- State and Local Leadership
- Regional Policy
- Grassroots Requests



U.S. CONFERENCE OF MAYORS
CLIMATE PROTECTION AWARDS



Federal Influence

Yes

- Mandates for auto manufacturers to improve efficiency and meet emissions limits
- Mandates for cities to meet air quality targets
- Mandates for states and cities to meet water quality targets
- Grant programs for renewables and efficiency
- Efficiency labeling programs
- Energy outreach and education (Energy Star)
- Cap and trade for SO₂ and NO_x



No

- Nationwide mandates for states, regions, or localities to reduce CO₂ emissions (beginning in some sectors through the Clean Air Act - controversial)
- Cap and Trade for CO₂
- Carbon Tax



State Initiatives

New State Energy and Climate Plans Involve Significant New Energy Efficiency and Renewable Initiatives



Maryland

- Energy Efficiency Targets (15% by 2015)
- Renewable Mandate (20% by 2022)
- Greenhouse Gas Cap and Trade

Virginia

- Increase Production of both traditional and alternative sources of energy
- Promote conservation and efficiency businesses
- Renewable Target (12% by 2022) (voluntary)

The District

- Special Fund for Energy Efficiency and Renewable Energy
- Renewable Mandate (20% by 2020)
- Building Energy Benchmarking Requirements
- EPA Green Power Community Leader



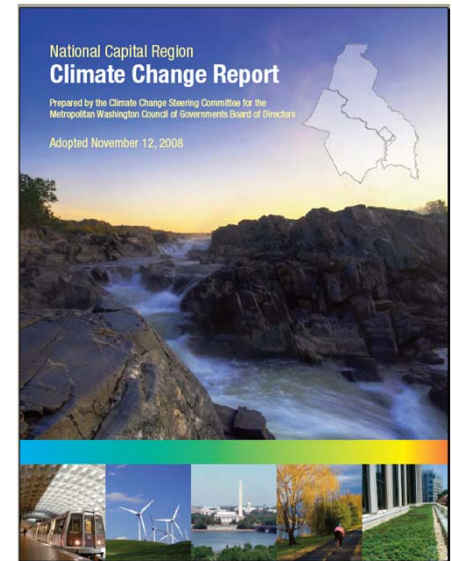
Local Leadership

- **Local government voluntary programs catalyzing citizen action:**
 - **Eco-City Alexandria**
 - **Arlington Initiative to Reduce Emissions**
 - **Loudoun Green Business Challenge**
 - **Montgomery County Residential Energy Efficiency Rebates Program**
 - **Fairfax County Energy Task Force**
- **Many committed to Voluntary Carbon Reduction Pledges (Cool Counties, the Mayor's Commitment)**



COG's Climate and Energy Programs

- **Directive from the COG Board of Directors**
 - COG Board comprised of local elected officials (County Council & Supervisors, City Mayors)
- **Established formal policy committee with supporting advisory subcommittees.**
 - Climate, Energy and Environment Policy Committee (CEEPC)
 - Subcommittees – Energy, Recycling, Climate Adaptation, Green Buildings, Electric Vehicles
- **Wide range of stakeholders involved – elected officials, academic, environmental organizations, business sector, transportation agencies, energy utilities.**
- **Adopted Climate Change Report November 2008**
- **Adopted Climate and Energy Action Plan in January 2010**
 - Includes 2012 Goals for Government, COG, and Community/Businesses





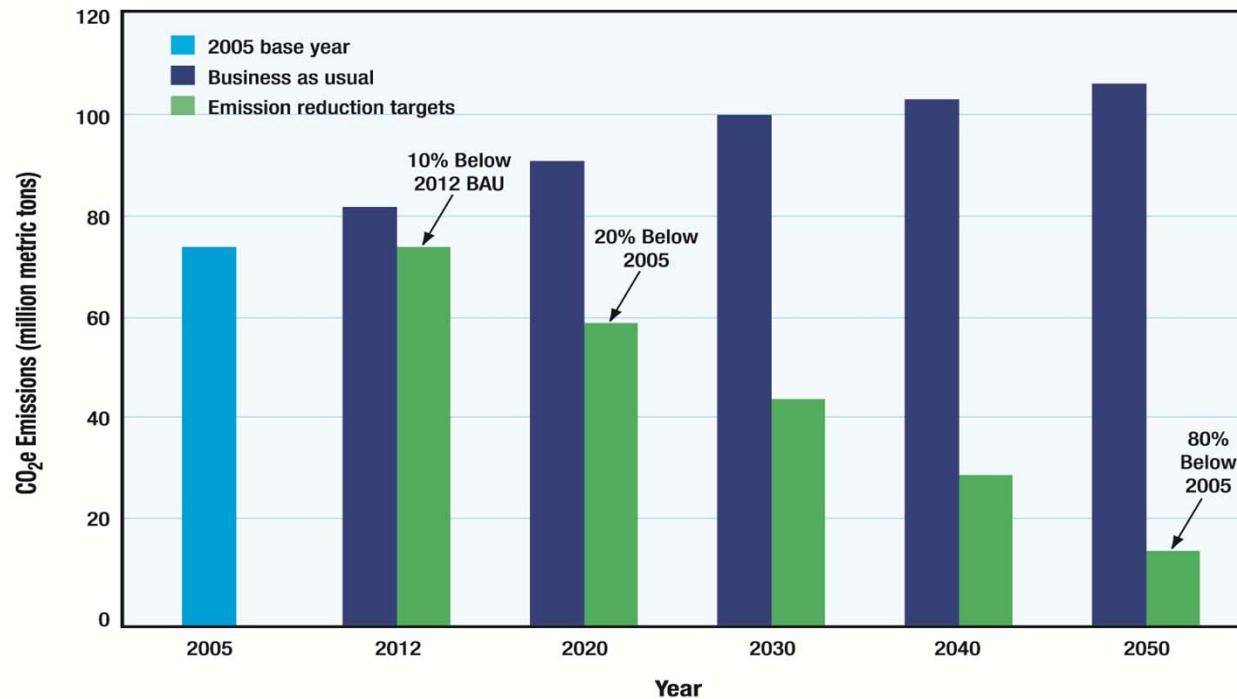
Adopted Regional Reduction Goals

2012: Return to 2005 Levels

2020: 20% Below 2005

2050: 80% Below 2005

Recommended Regional Greenhouse Gas Emission Reduction Targets Compared to Regional Greenhouse Gas Emissions Under BAU: 2005–2050



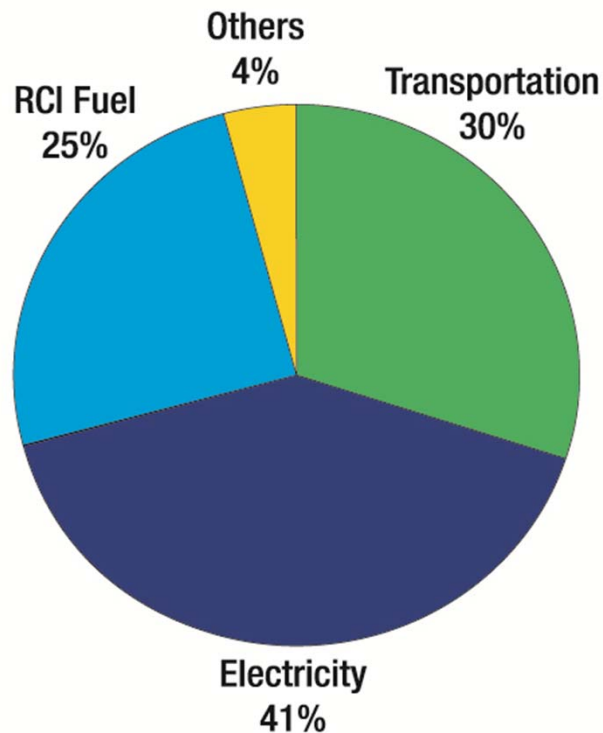
COG Targets

- 2012: 10% below BAU
- 2020: 20% below 2005 levels
- 2050: 80% below 2005 levels



Greenhouse Gas Emissions Inventory

Metropolitan Washington Greenhouse Gas Emissions: 2005



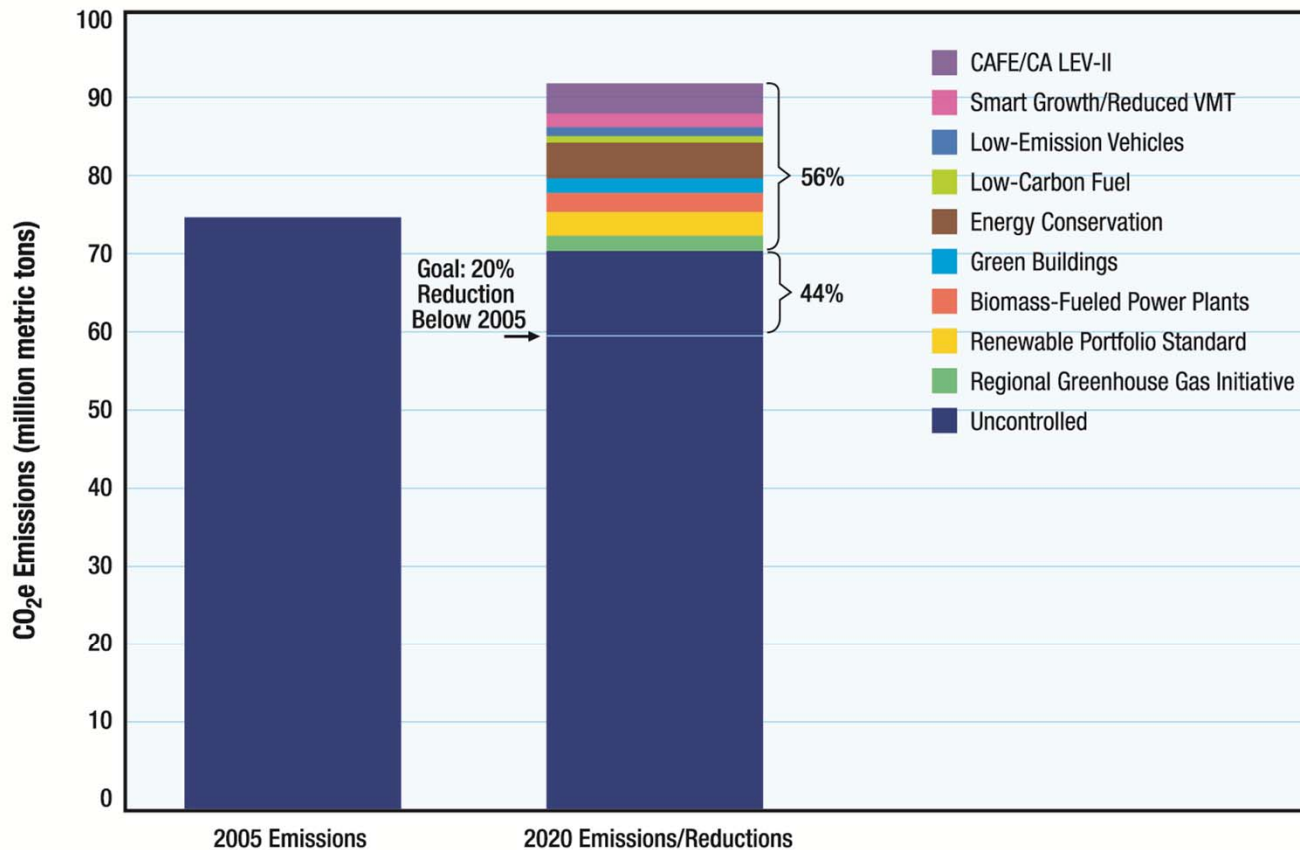
Notes:

RCI fuel includes residential, commercial, and industrial natural gas, home heating oil, nonroad diesel, and aviation fuel. Other sources include methane from wastewater treatment and landfills, as well as high global-warming-potential gases used as refrigerants and solvents.

Total – 74 million metric tonnes in 2005
Source: MWCOG 2008.



Opportunities to reduce regional GHG emissions

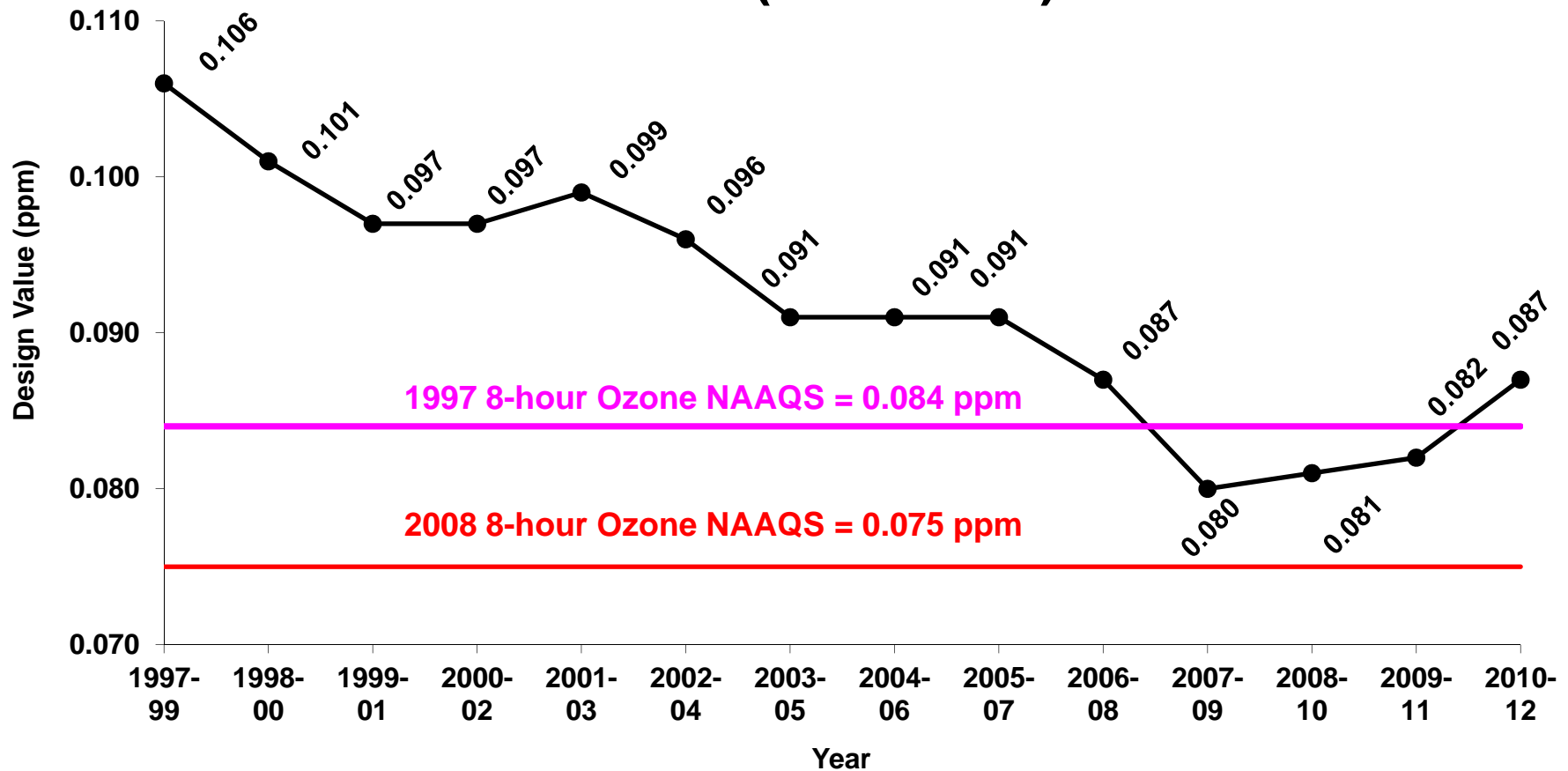


Source: COG staff estimates.



Ozone Design Value Trend

8-hour Ozone Design Value Washington, DC-MD-VA Nonattainment Area (1999-2012)

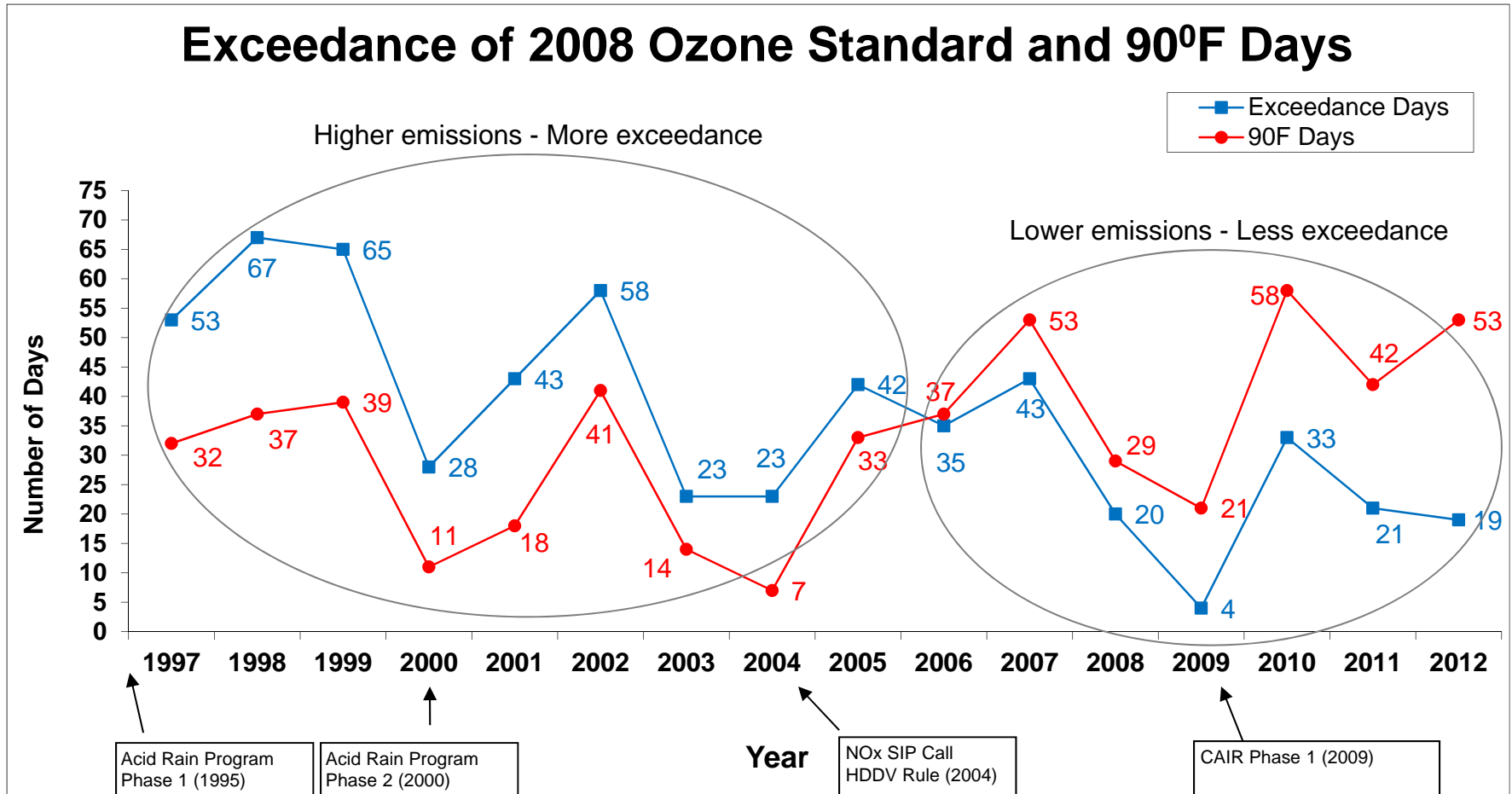


* Design value = 3-year average of 4th highest daily maximum 8-hour average ozone concentrations. 2012 data is draft and may change.





Ozone Exceedance & 90°F Days



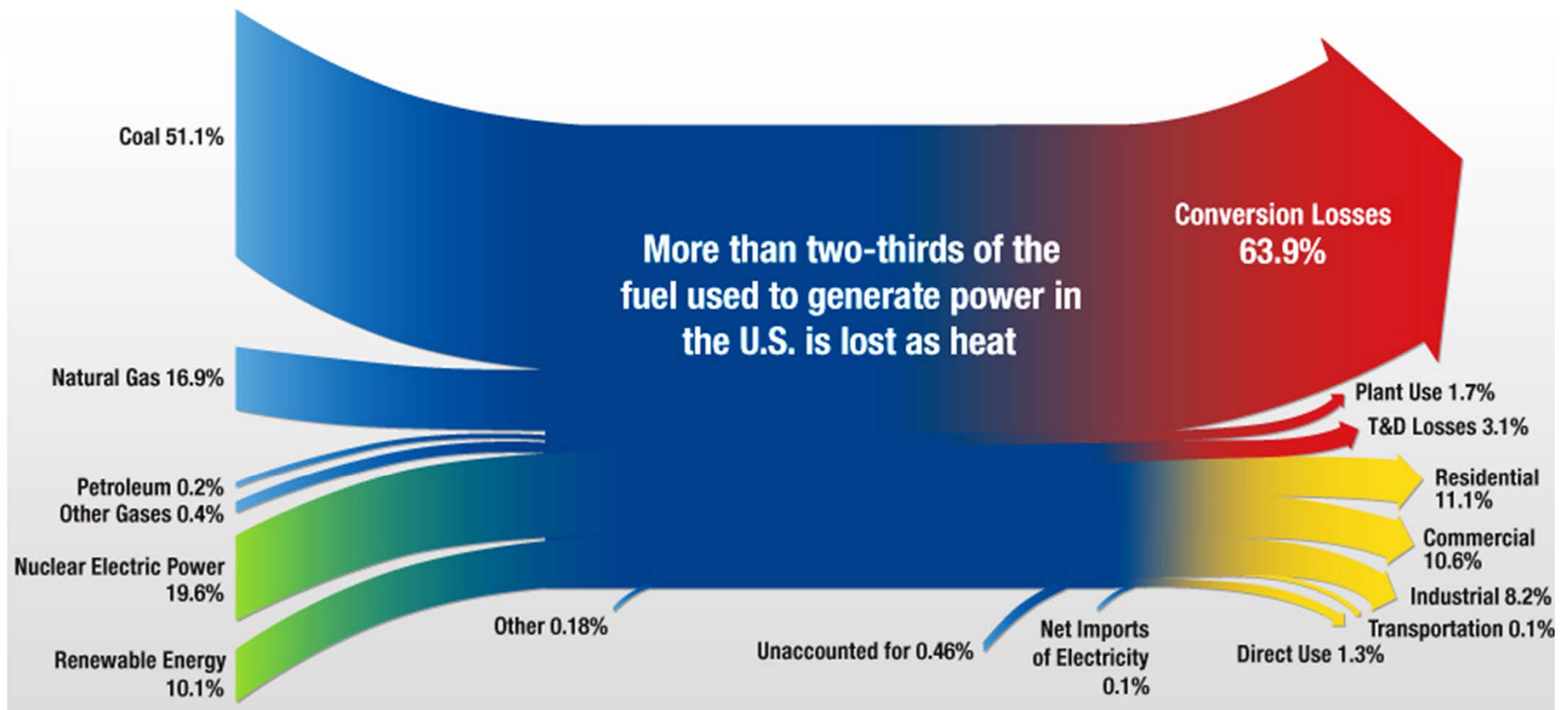
* 2012 analysis is based on draft data as of September 9, 2012 and is subject to change.

Morgantown Coal Plant and New SO2 Scrubber



Traditional Power is VERY Inefficient

CHP more efficient + less emission





“Clean Energy” Technologies

CHP



The sequential production of electric and thermal power from a single dedicated fuel source

Waste Heat Recovery



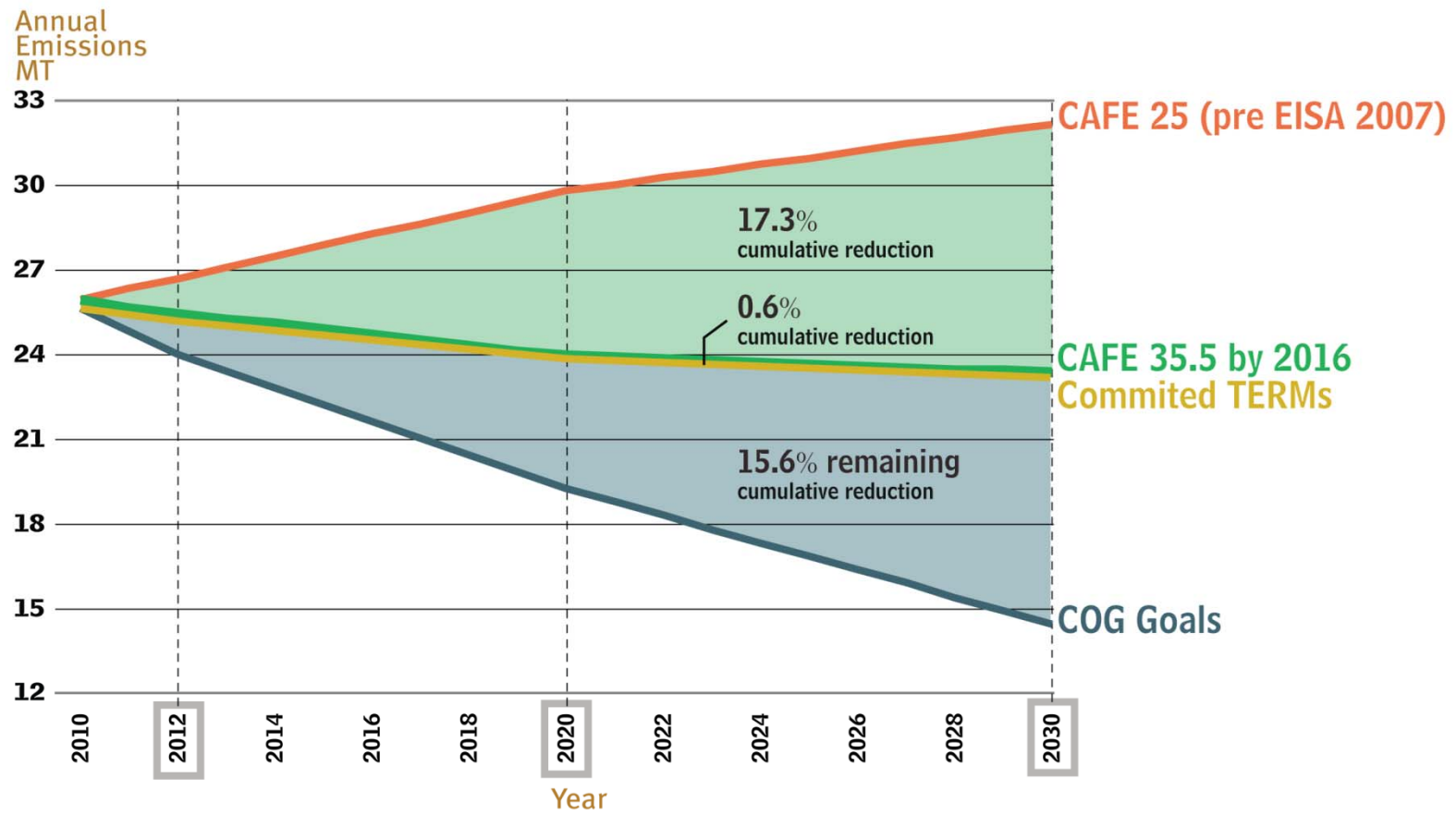
Captures heat otherwise wasted in an industrial process and utilizes it to produce electric power. These systems may or may not produce additional thermal energy

District Energy



Central heating & cooling plants that incorporate electricity generation along with thermal distribution piping networks for multiple buildings (campus / downtown area)

What's Our GHG Baseline?



Committed TERMS refers to the full TERM Tracking Sheet, including: Access and service improvements to transit, bike/ped projects, rideshare assistance programs, telecommute programs, traffic improvements, engine technology programs

2010-2012 Climate/Energy Action Plan Local Government Actions

By 2012, COG-Member Local Governments:



Green Building Policy



**Efficient Street Light
Deployment**



Use 10% Renewable Energy



Use 10% less energy



COG Initiatives

- Energy Outreach Campaign
- Integrated Community Energy Solutions
- Solar PV Initiatives
- Electric Vehicle Coalition
- Cooperative Green Procurement
- Green Building Policy
- Recycling Initiatives
- Tree Canopy/Green Infrastructure
- Chesapeake Bay Protection
- Watershed Restoration



COG Priority Focus Areas

- Improve energy efficiency in older, commercial and government buildings.
- Improve energy efficiency in new buildings.
- Develop infrastructure (policies, permitting, locate charging stations) to encourage, support electric vehicle adoption.
- Financing for renewable energy for commercial & government buildings.
- Consolidate purchases of renewable, green products to lower the unit price.



COG 2012 Climate & Energy Action Plan Adopted Local Government Actions

- **By 2012, All COG-Member Local Governments:**
 - Prepare plan to reduce greenhouse gas emissions from government operations; adopt target.
 - Adopt COG green building policy
 - Reduce government energy use by 10% below forecast 2012 levels
 - Purchase or consume 10% renewable energy
 - Regional target of 5000 solar roofs



Role of State Incentives

- **State Policies have accelerated renewable deployment:**
 - Renewable Portfolio Standards >>> REC value
 - Allowing Power Purchase Agreements (PPA) >>> 3rd party can receive tax benefit
 - Projects can make money from Day One.
- **State Policies have also hindered advancing low-carbon solutions**
 - Utility territory and PUC oversight >>> no ability to do PPAs, time to get approval for utility solar programs, low REC value, poor economics
 - Result: 30+ MW of solar projects in Northern Virginia not advancing even though found to be technically feasible.



What's Next?

- **Federal Government Leadership**
 - Federal agency lead by example
 - Significant advancement of renewables envisioned by the Department of Defense on military installations
- **New State Policies and Initiatives**
 - Community Choice Aggregation
 - Community Net Metering
 - Energy Performance Contracting
- **Competing and Complementary Solutions**
 - Low cost of natural gas > impacts renewable project economics, influences choice of transportation solutions (CNG vs electric)
 - Future of natural gas powered stationary fuel cells that generate electricity 24/7 with no emissions (e.g., Bloom Energy)
 - More Distributed Energy - District Energy and Microgrids?



Keep up the New Energy Collaboration!

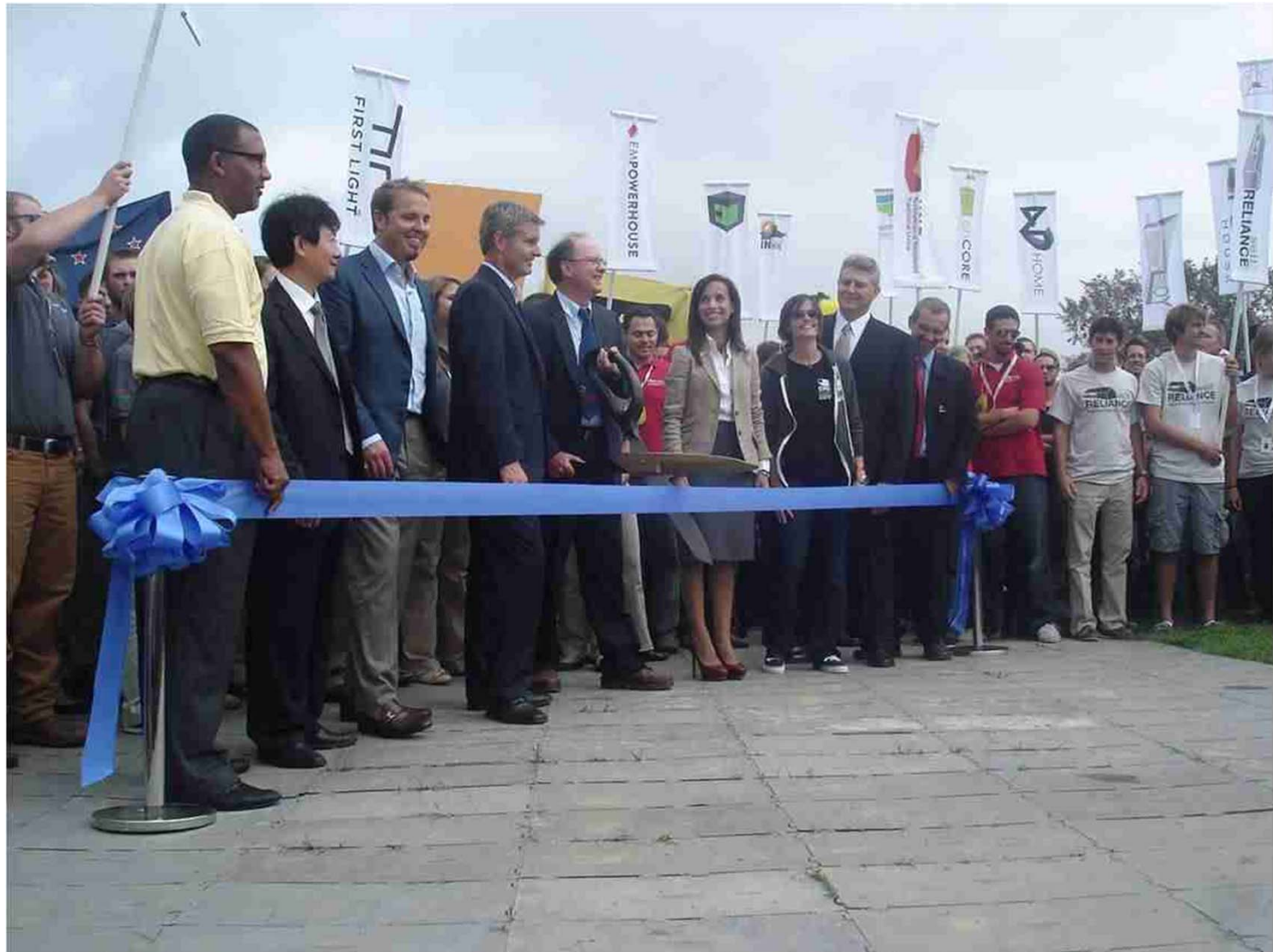


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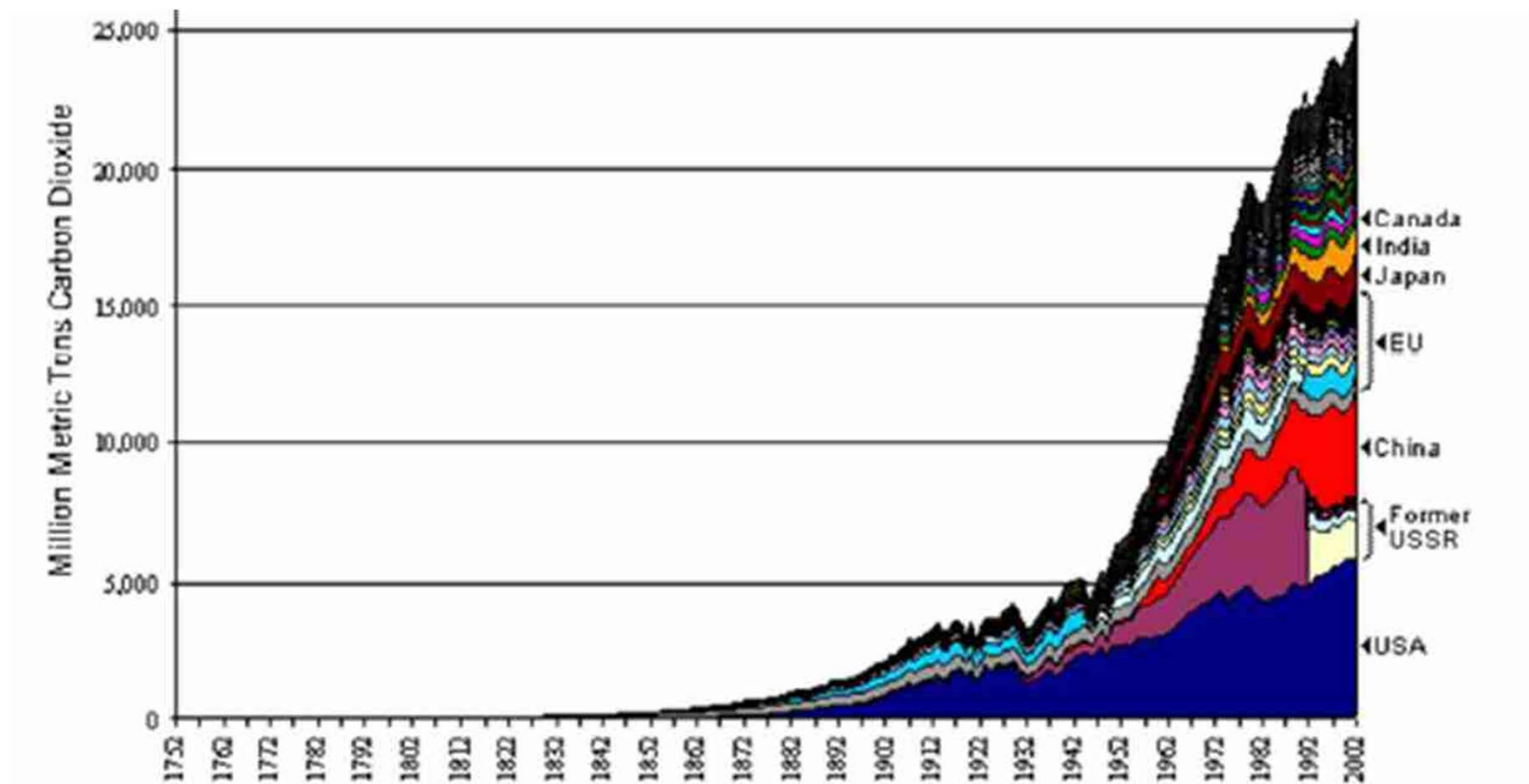


extra slides

Solar Decathlon 2012

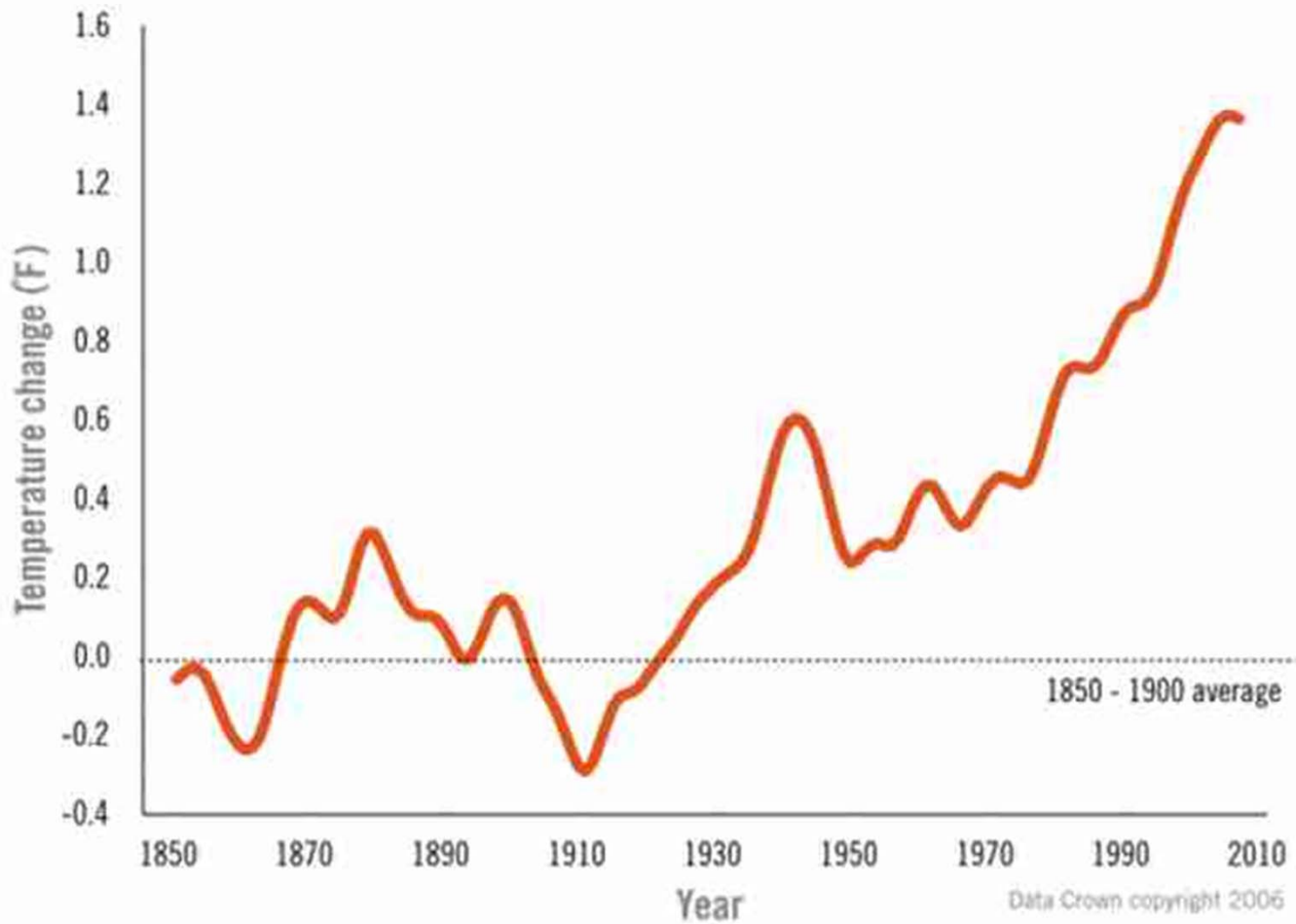


Global CO₂ Emissions Since 1752



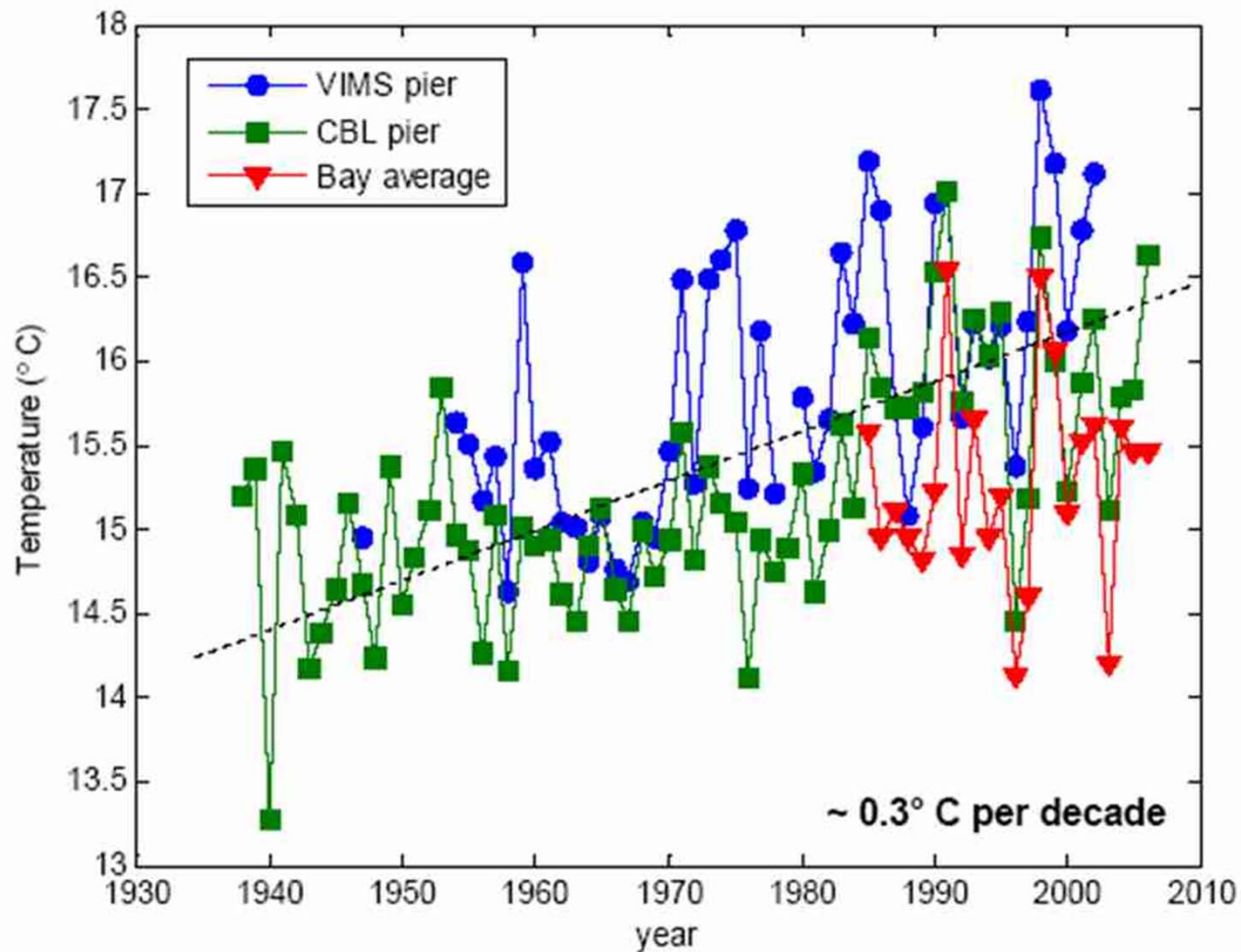
Source: Carbon Dioxide Information Analysis Center, U.S. Dept. of Energy

Increasing Global Surface Temperature

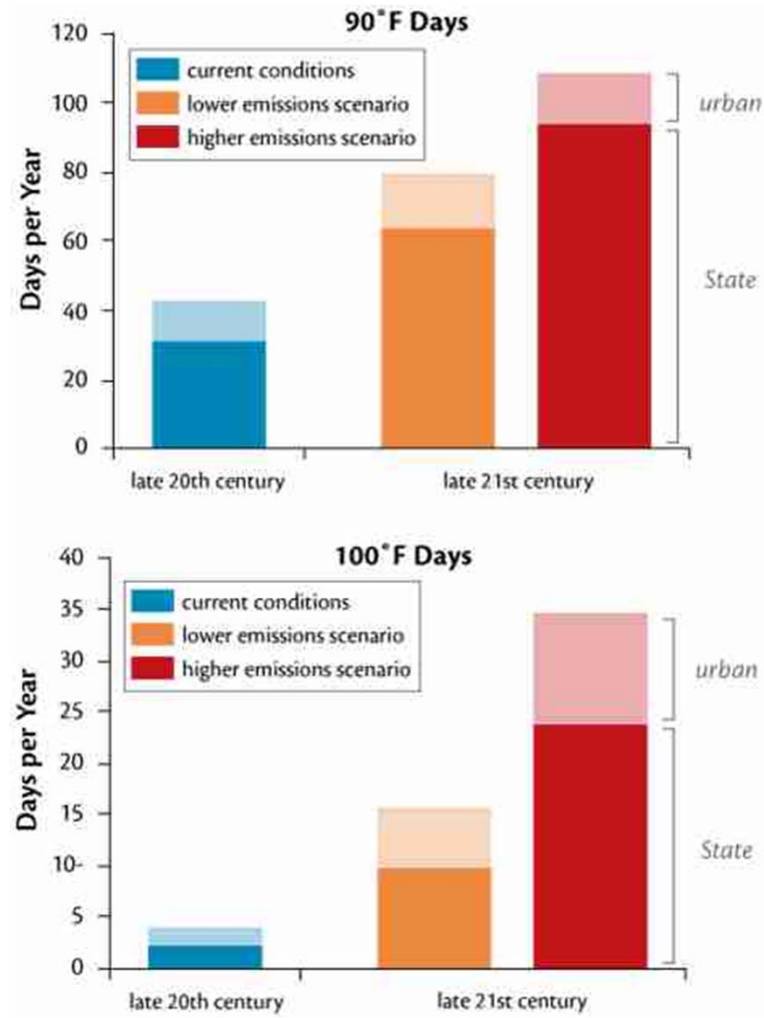


Source: Pew Center on Global Climate Change

Measured Temperature Changes in Chesapeake Bay Surface Waters



Milder Winters, Much Hotter Summers

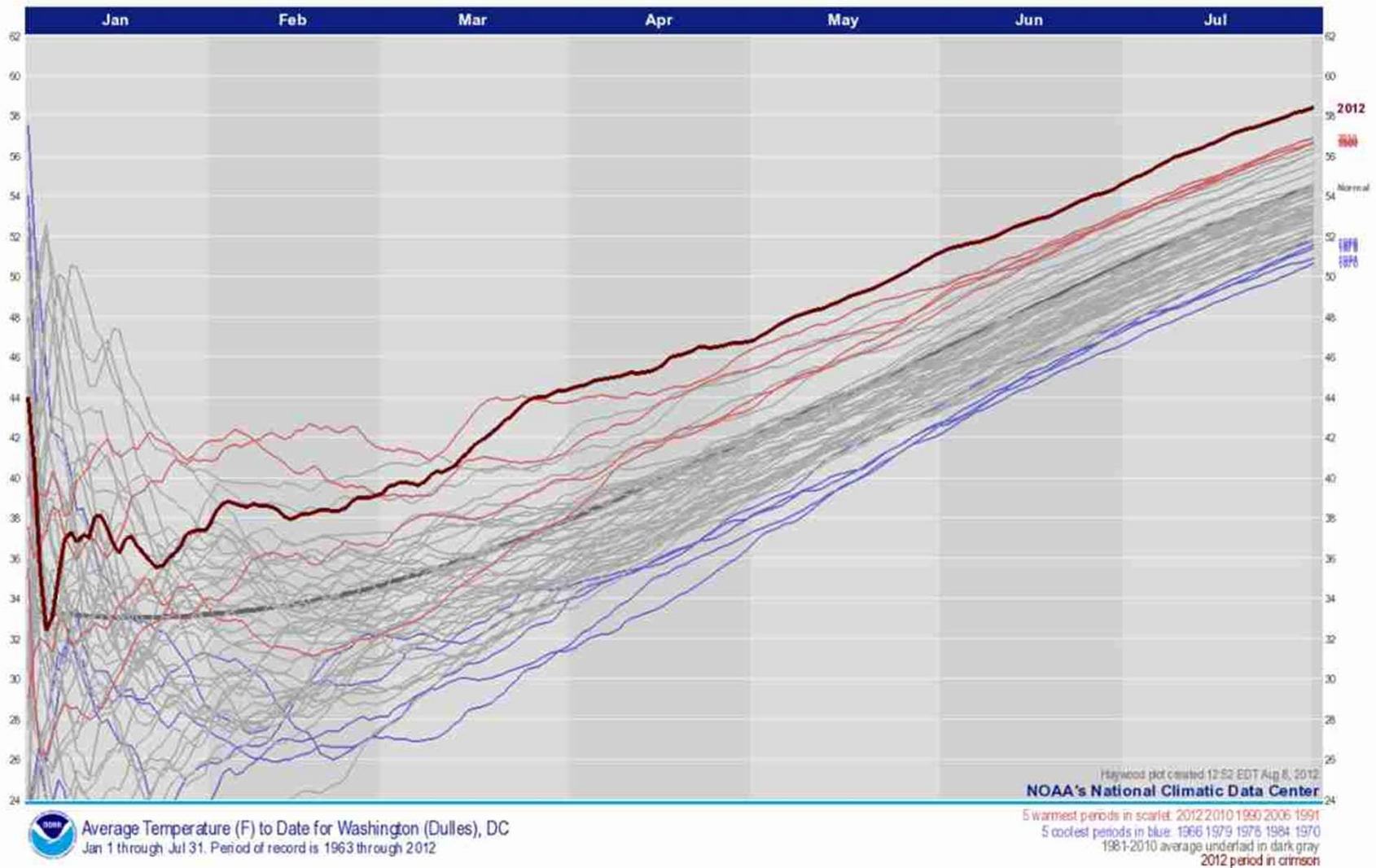


Source: Dr. Donald Boesch, University of Maryland



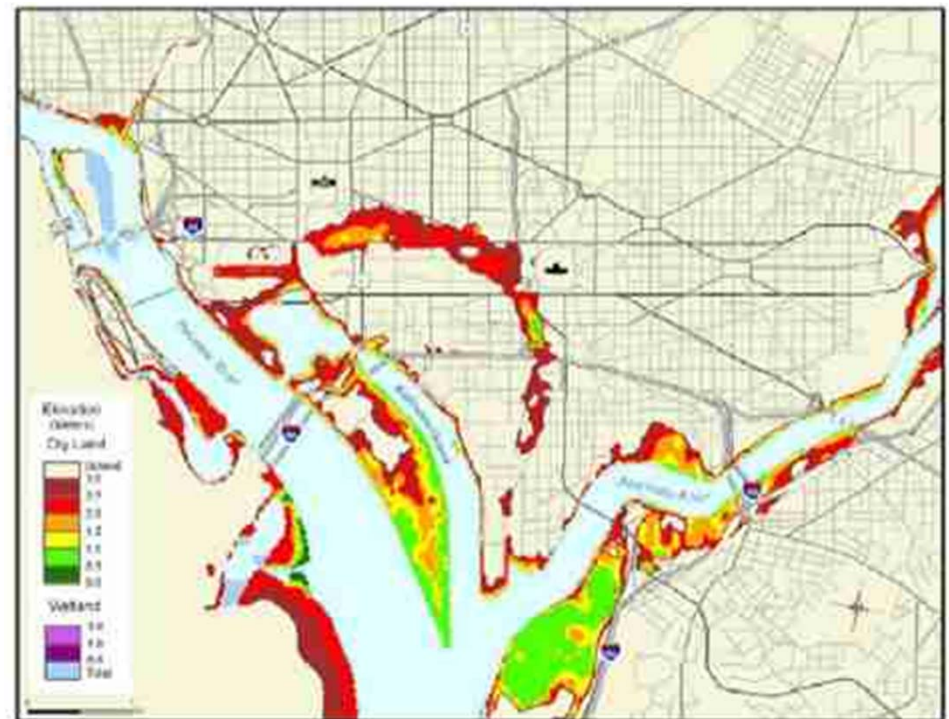
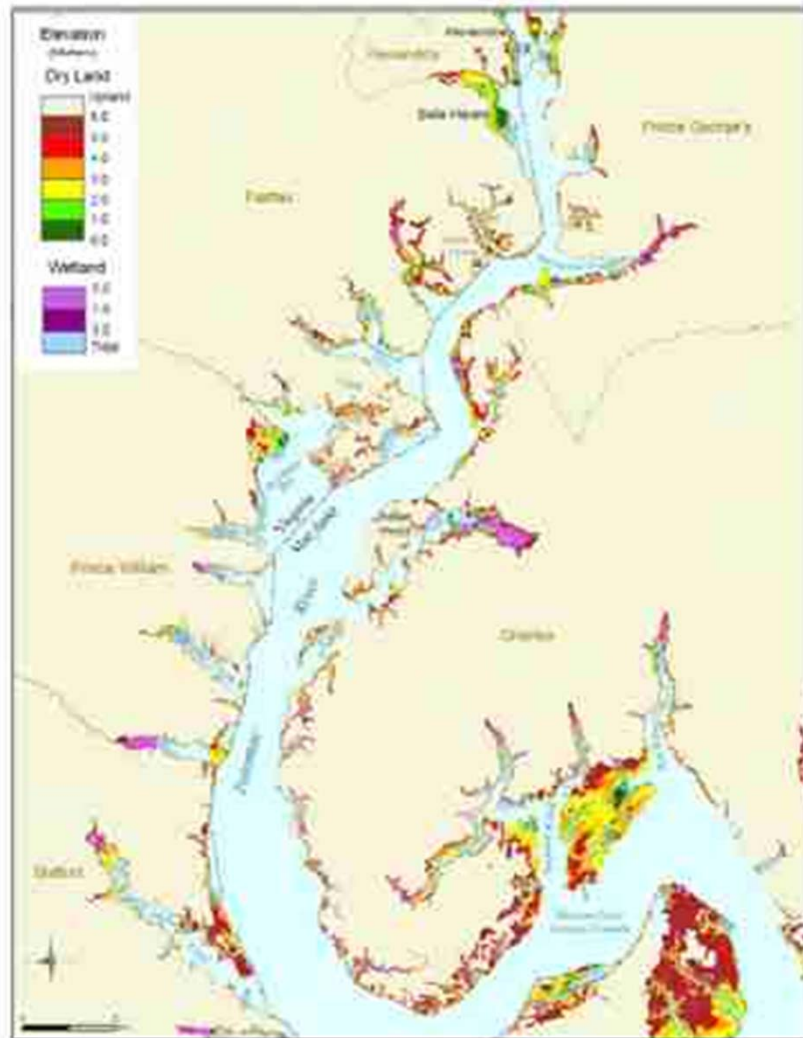
Long-Term Temperature Trend - Dulles

❖ July 2012 – Warmest July on record (1963-2012)



<http://www.ncdc.noaa.gov/img/haywood/jul/janjul.USW00093738.png>

Sea-level Rise Vulnerability in DC Area



Source: Dr. Donald Boesch, University of Maryland