



Environmental Policy for 2015 Negotiations

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Background Info- Kyoto Protocol

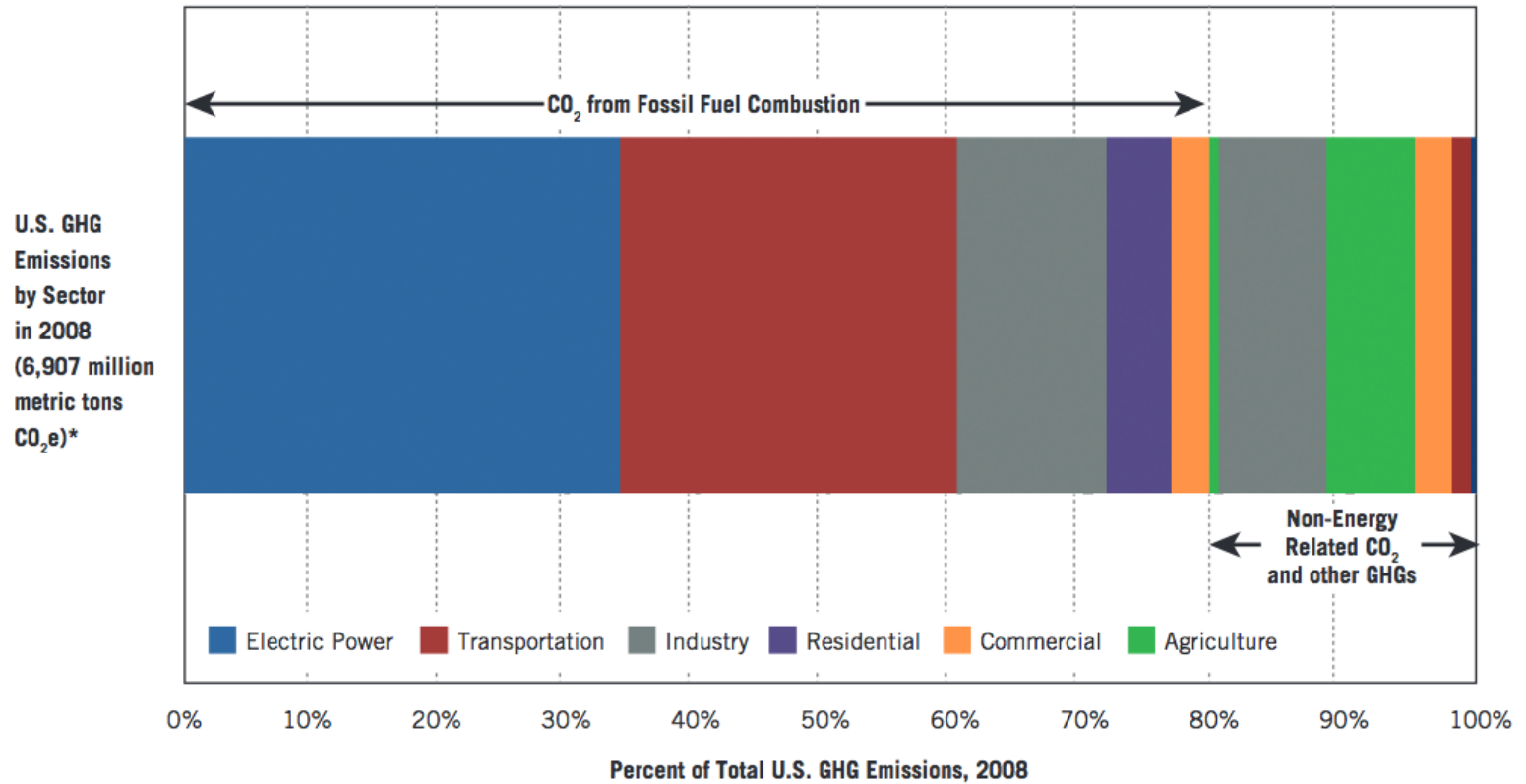
- an international treaty that sets binding obligations on industrialized countries to reduce GHG emissions
- Proposed that united states reduce emissions to 80% of 1992 levels
- Reductions can be achieved by reducing electricity consumption, natural gas consumption, etc.

Future Projections

- Through combination of linear and exponential growth, estimated a growth of 1.309 ppm/yr from 1957-2015
- Based off this rate of change, expect 390.84 ppm in 2015
- To achieve 1990 levels (331.4 ppm) by 2020, -3.3% reduction necessary

Figure 1

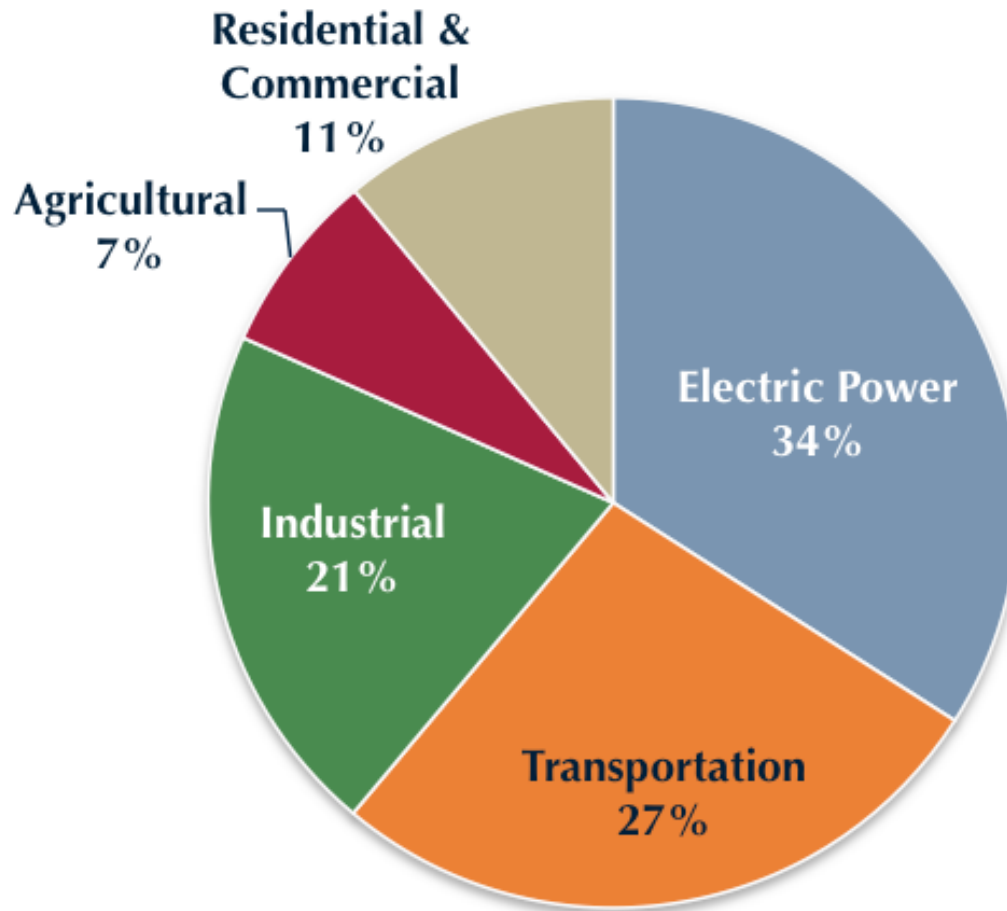
U.S. GHG Emissions by Sector, 2008



Source: U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008*.

*Notes: Excludes 49.9 million metric tons CO₂e of GHG emissions reported for U.S. territories, and emissions from electricity generation are reported separately and not apportioned to the economic sectors that consume the electricity.

Emissions Distribution



Federal Policy- Modeled after “Green Fleet”

- In 2012, President Obama ordered that by 2015 all new light-duty vehicles either leased or purchased by federal agencies must be “alternative fueled,” a broad category that includes battery electrics, hybrids, natural gas and biofuel cars.
- the federal government, which operates the largest vehicle fleet in the United States, with about 600,000 cars and trucks, has to “lead by example.”
- OUR POLICY- all vehicles purchased by federal, military, and postal services be alternatively fueled by 2020

Why federal?

According to Federal Fleet Report, in 2012:

- 119,564,365 gallons consumed by Civilian agency cars in Department of Transportation, Department of Education, etc
- 61,823,341 gallons consumed by military agencies such as Marine Corps and Department of Air Force
- 120,701,590 gallons consumed by postal service

Costs and Benefits

- Costs-
 - for ex: 8,139 alternative technology vehicles in 2009 and 6,467 in 2010 added up to \$300 million for the federal fleet
 - Waste existing vehicles
- Benefits-
 - fewer air pollutants and GHG
stimulates economy by purchasing from companies like Ford and Hyundai
 - reduce size of vehicles, lead by example
 - Encourage innovation in transportation sector

Impact and Support

- Directly impacts the federal government, those who drive the cars and the companies they are bought from
- indirectly impacts all Americans as we share one environment
- Support: environmentalists, car companies benefiting in increased consumption, federal agency members
- Opposition: gas companies, American car companies like GM, taxpayers

In the future...

- Obstacles- lack of demand for EV, American industry unable to support purchase of 1 million EV by 2015
- Electric vehicles are limited in their mileage range and require recharging
- Costly cross over- monetary support would come from federal funding i.e. greater taxation

State- Cap and Trade

- In September 2006 Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act. The Act caps California's greenhouse gas emissions at 1990 levels by 2020 and represents the first state-wide program in the United States that caps all GHG emissions from major industries and includes penalties for non-compliance. California is currently in the process of implementing a comprehensive program—including a cap-and-trade program—to meet its goals under AB 32
- <http://www.c2es.org/blog/aaronsk/california-leads-way-climate-action>

The Policy

- “By creating a market and a price for emission reductions, cap and trade offers an environmentally effective and economically efficient response to climate change.” (Center for Climate and Energy Solutions)
- Cap statewide industrial emissions to 1990 levels by 2020
- Flexibility provided in offsets, borrowing and compliance period, and safety valve
- Allowance distribution

Cap and Trade: Costs and Benefits

- Costs-
 - adjustments to industrial sector and costly machinery changes
- Benefits-
 - encourages innovation in emissions reduction
 - clear regulation, consistent regulation,
 - flexible, covers a wide variety of emission sources and sectors

Why the state level?

- can be structured according the industry of the given state
- compliments the local and federal policies because the responsibility is shared across the spectrum- business, individuals, and government
- compliments the emissions areas already covered
- Cap and trade covers industrial emissions while federal level covers transportation emissions and local covers household electricity consumption.

Impacts and Support

- Directly impacts industry sector
- Indirectly impacts consumers and employees
- Supporters: environmentalists, companies making energy efficient devices/machines
- Opposition: business owners/ operators

Future obligations and adjustments

- Obstacles:
 - cost of new, energy efficient mechanisms to stay below emission limit
 - inflation of product price to subsidize this cost
 - lose efficiency and money initially
- Policy will be adjusted to different levels in the future. 1990 cap alone does not meet Kyoto Protocol. However, this policy is not meant to stand alone!

Local-Vermont Home Energy Challenge

- http://www.encyvermont.com/for_our_partners/community_partners/residential/how-it-works.aspx
- Efficiency Vermont has established six regions statewide wherein participating towns within each region will compete in encouraging residents to commit to improving efficiency and in getting the most number of homes weatherized.

Why local?

- Promotes issue of climate change- lead by example
- Encourages more action by the State and Federal Levels
- Concerned and motivated by impacts of change (natural disasters, sea levels, weather, health problems)
- Citizens become more aware of their emissions, why they should care, how they can help, and big impact of lifestyle changes.
- Most inclusive policy of home emissions which contribute to 11% of GHGs (Residential & Commercial combined in Distribution Chart)

Costs and Benefits

- Costs:
 - Takes time to organize- Vermont has community committees (volunteers)
 - State or Federal government must fund the incentives and “prizes” for winning region
 - Incentives altered for various needs of regions
- Benefits:
 - Encourages involvement and improvement
 - educates the public and makes them environmentally conscious
 - Incentive is also geared toward climate change

Impact and Support

- Directly impacts region emissions and homeowners
- Indirectly impacts energy companies, consumer market (more efficient appliances), and State and Federal Government policies
- Supporters: environmentalists, city government subdivisions (landscaping and ,
- Opposition: lower income communities- more difficult to lower already low emissions and obtain efficient materials

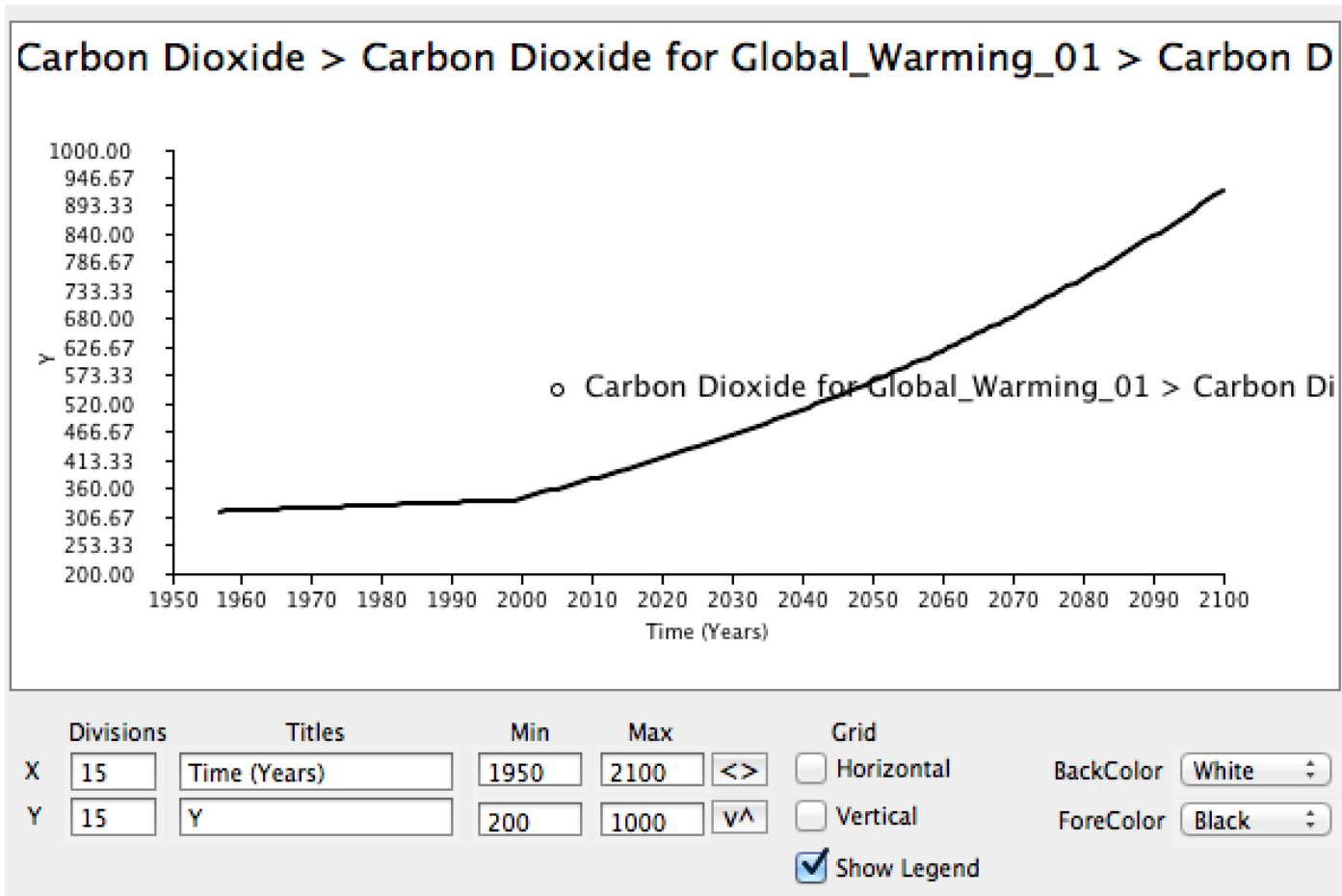
In the future...

- Obstacles:
 - cost for homeowners
 - it is voluntary, not mandatory
 - agreeing on reward
- The same challenge may run through 2020.
- The incentives and climate advantageous winnings would change based on need and funding.

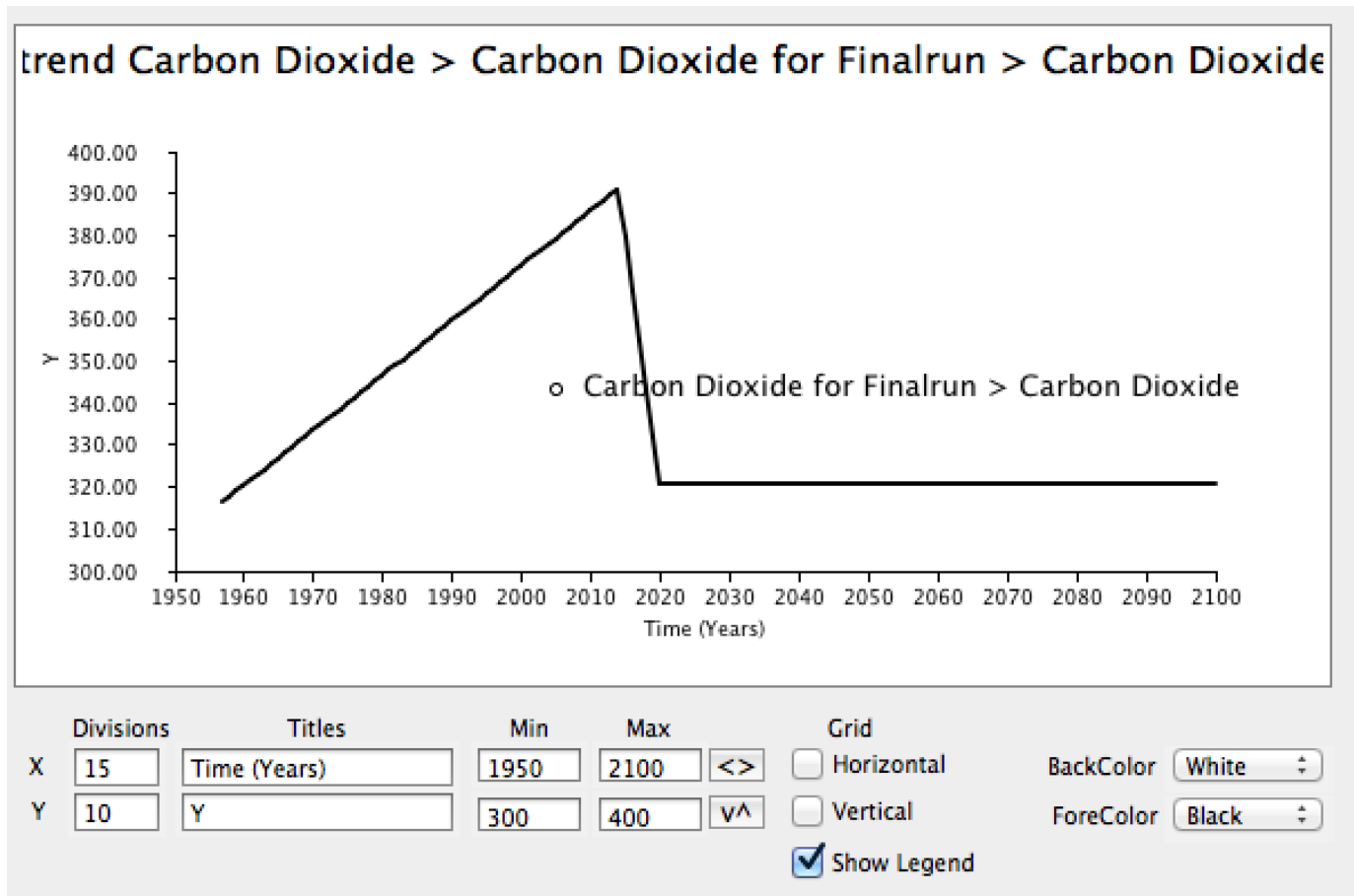
International Obligations

- Will these policies meet Kyoto Protocol?
 - Protocol insists on 265.9 ppm by 2020, however our proposed 1990 levels of 331.4 ppm are more realistic
 - Further measures would have to be implemented to reach 80% of 1992 levels

Carbon Trend for Control



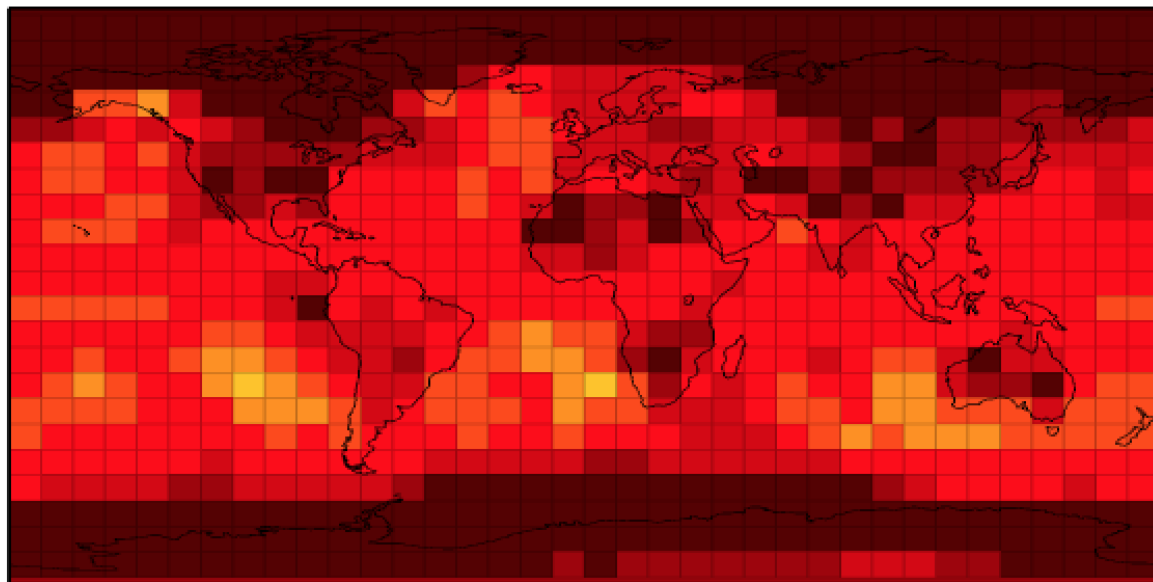
Carbon Trend for Policy



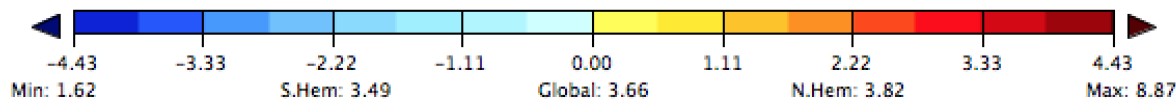
Temperature Change Control vs. Policy

Annual SurfAirTemp

(Global_Warming_01.2091-2100ij__Finalrun.2091-2100ij_8328_diff.ncdf)



SurfAirTemp (deg C)

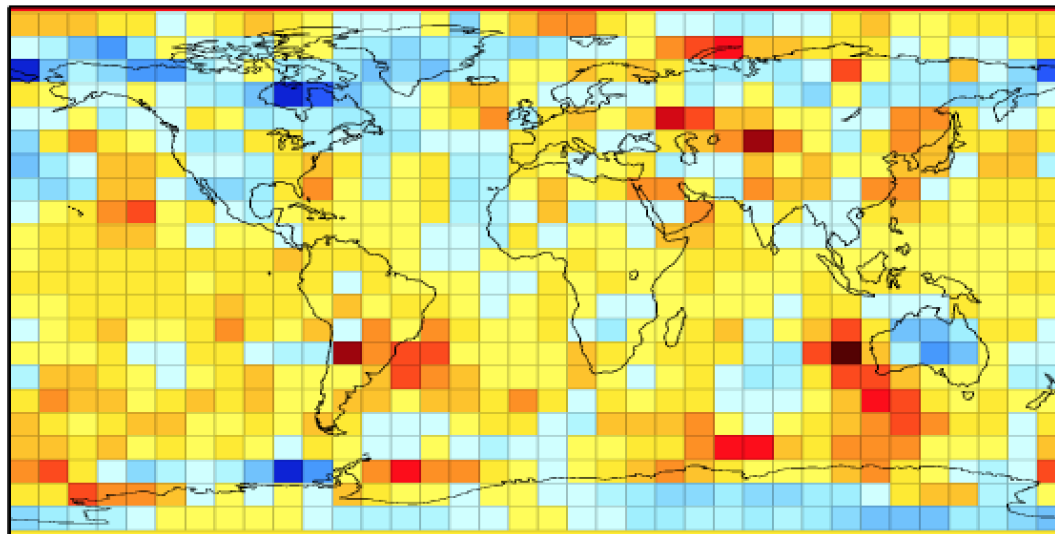


On average,
3.66 degree C
difference in
average global
air surface
temperature

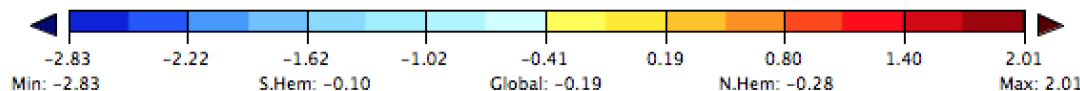
Temperature Change Today vs. 2100 (w/ negotiations)

Annual SurfAirTemp

(Finalrun.2091-2100ij__Global_Warming_01.2013-2013ij_4858_diff.ncdf)



SurfAirTemp (deg C)

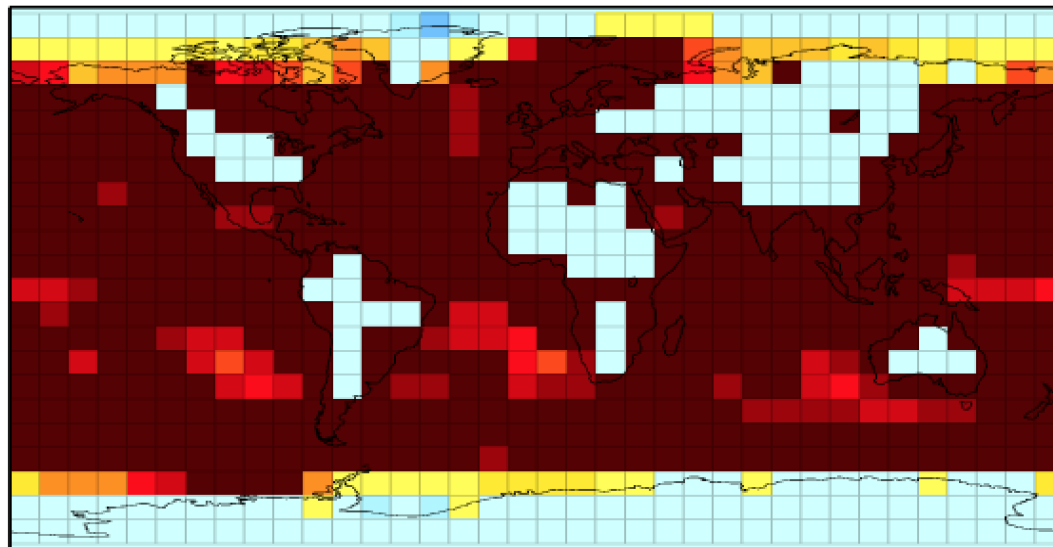


Overall, 0.19
degree C
decrease in
average global
air surface
temperature

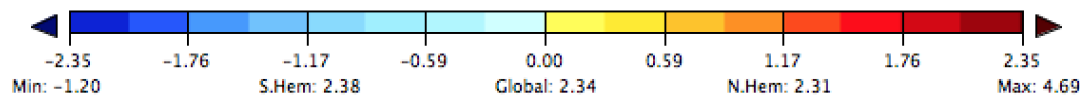
Sea Surface Temp. Change Control vs. Policy

Annual SST

(Global_Warming_01.2091-2100ij___Finalrun.2091-2100ij_7530_diff.ncdf)



SST (deg C)



Overall, 2.34
degree C
difference in
average sea
surface
temperature

Environmental Impacts

Climate change can alter

- where species live and how they interact, which could fundamentally transform current ecosystems.
- the rate of species extinctions, especially in sensitive regions.
- warmer and more acidic oceans
- Sea level rise could erode and inundate coastal ecosystems and eliminate wetlands
- Agriculture and livestock negatively affected by heat
- frequency and intensity of wildfires, storms, insect outbreaks, and the occurrence of invasive species.

Resources

- <http://www.c2es.org/docUploads/climate101-local.pdf>
- <http://www.c2es.org/docUploads/climate101-state.pdf>
- <http://www.c2es.org/docUploads/climate101-federal.pdf>
- <http://www.c2es.org/docUploads/climate101-captrade.pdf>
- http://www.encyvermont.com/for_our_partners/community_partners/residential/town-participation.aspx
- <http://www.gsa.gov/portal/category/102859>
- <http://www.epa.gov/climatechange/impacts-adaptation/>