



Linking Green-TEA & Climate Policy

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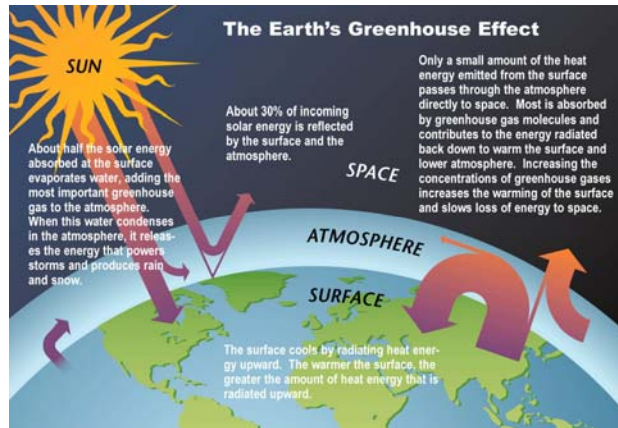
Webinar
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Overview

- Climate Change
- Transportation Greenhouse Gas (GHG) Emissions
- SAFETEA-LU
- Green-TEA?
- Climate Policy
- Discussion & Next Steps

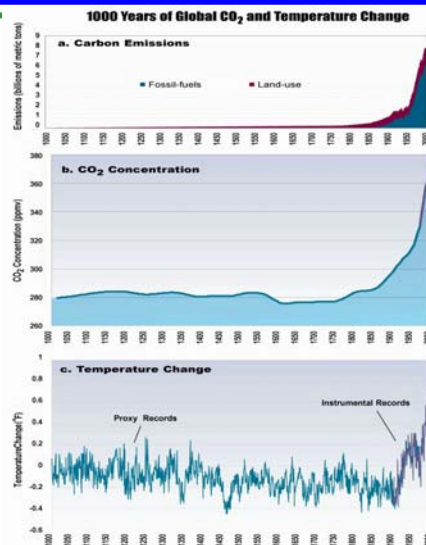


The Greenhouse Effect



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1,000 year Global record of CO₂ and Temperature



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Expected Impacts of Climate Change

- **More intense storm events, storm surges, extreme heat events...**
- **Stabilization at 450ppm CO₂-eq expected to give a 50/50 chance of keeping warming to + 2°C above pre-industrial levels.**
- **550 ppm would give 50/50 chance of keeping warming to +3°C**

- **2°C**
 - » All coral reefs bleached
 - » Up to 70 million people displaced by coastal flooding
 - » Up to 200 million people at risk of hunger

- **3°C:**
 - » > 35% of species extinct, including corals, polar bears
 - » Amazon rainforest & Great Lakes ecosystem collapse
 - » Up to 250 million people displaced from coastal areas
 - » Up to 500 million at risk of hunger
 - » Key threshold for Greenland ice sheet collapse

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Source: Dr. Rachel Warren,
Tyndall Centre for Climate Change Research, 2007

What does this mean for Global GHG Emissions?

- The later/higher global GHGs peak the more rapid the annual decline need to keep specific concentrations in play.

- If global emissions peak at 30% above 1990 levels by 2020 (we're now more than 21% above), we'd need annual reductions of 1.6%/year to keep 550ppm in play, and 4% per year to keep 450ppm in play.
 - » The only historic examples of rates of decline greater than 1% per year are UK coal to gas switch in the 90s, France switch to nuke in the 90s, and post Soviet union economic collapse.

- Delayed action means increased risks and higher costs, unless you're very optimistic about technology, policy or behavioral breakthroughs.

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What does this mean for US GHG Emissions?

- Depends on what other countries can be expected to do.
- Europe looking at 20-30% below 1990 levels by 2020.
- CCAP global GHG analysis scenario:
 - » **US: 1990 levels by 2020**
 - » EU, Japan and Russia: -30%
 - » Bottom-up assessments for key developing countries
 - » Results: Global GHGs 35% above 1990 levels, which may keep 550ppm in play.
- **Several analyses conclude that the US will need to be 50-80% below 1990 levels by 2050.**
- What's "needed" from transportation depends on what's expected in other sectors, and must be informed by short- and long-term costs.
- CCAP preparing a 2020 multi-sector GHG reduction cost-curve to inform this discussion.



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Transportation Greenhouse Gas Emissions

- 28% of US GHGs, 32% of CO₂
- Growing rapidly:
 - » 1.4%/year vs. 1.1%/yr US average
- Function of "3 Legs of the Stool"
 - 1) Travel Demand
 - 2) Fuel Economy
 - 3) Fuel Lifecycle GHGs



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1st Leg: Travel Demand (vehicle miles traveled = VMT)

- Historic: +2.2% per year 1990-2005
 - » Source: FHWA
- Projected: +1.9% per year 2005-2030
 - » Source: EIA
- Potential: -0.25% to -1.0% per year
 - » 5-20% GHG savings over 25 years
 - » Source: CCAP (see www.ccap.org/guidebook)



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2nd Leg: Fuel Economy (miles per gallon = mpg)

- Historic new passenger vehicle fuel economy:
 - 1981 = 24.1 mpg
 - 2006 = 24.6 mpg
 - » Due to more: SUVs, weight, power
- Projected/Potential:
 - » EIA: +0.5%/year (to 2030)
 - » Bush: +4%/year (to 2017)
 - » California: +5%/year (2009-2016) (CO₂ equivalent)

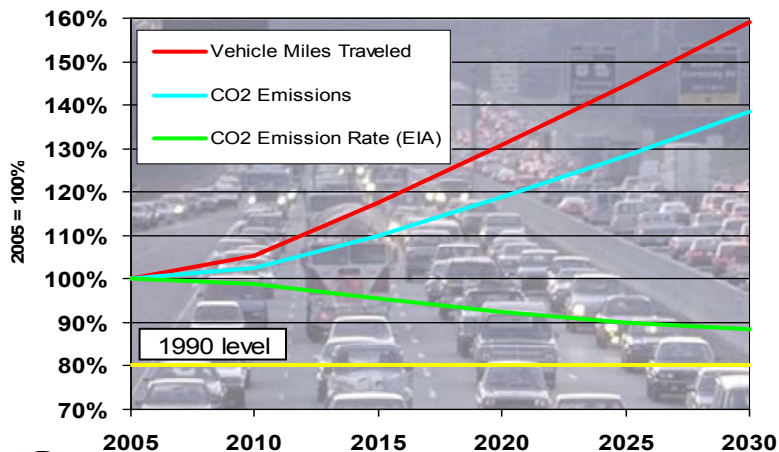


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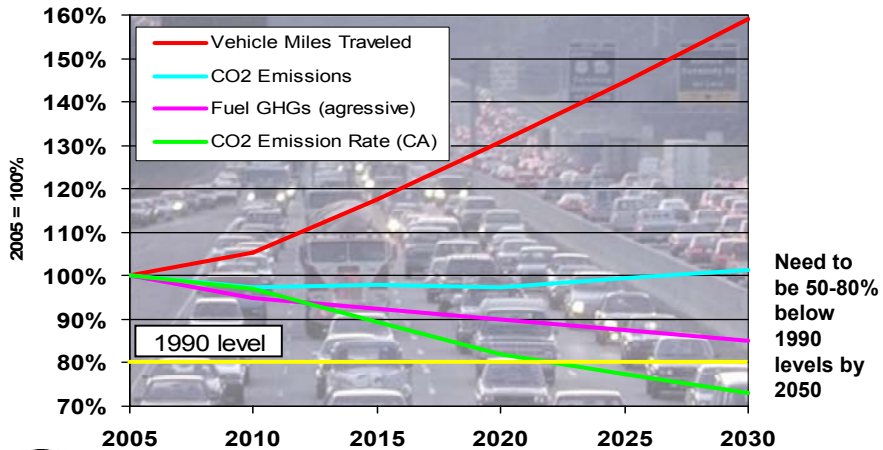
3rd Leg: Fuel Lifecycle GHG

- Historic: ethanol ~3% of petroleum use
 - » ~ 0.4% GHG savings
- Projected/Potential:
 - » California, Europe: -10% GHG intensity by 2020
 - » Bush alternative fuel proposal: ?
 - 15% fuel target does not have GHG performance criteria
- Potential
 - » Biofuels: Short-term: 5-10%, Long-term: 10-20%
 - » Plug-ins could make a big difference in the long-term if sufficient low-carbon power is available (nuke, coal w/CO₂ removal). Hydrogen faces major cost & technical barriers for mobile use.

VMT Growth Projected to Outpace CO₂ Emissions Improvements...



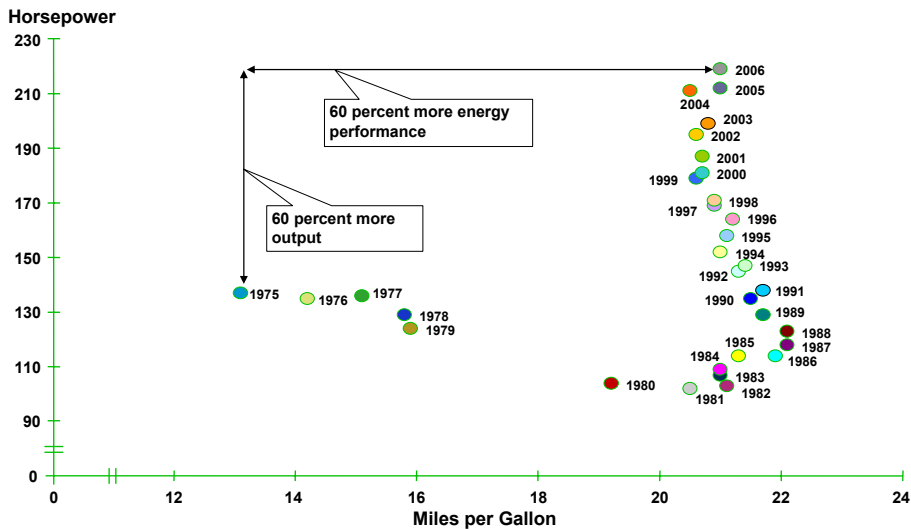
...even if Congress Adopts California Car and Aggressive Fuel Standards



Based on US DOE, EIA "AEO 2007" and CARB 2006

Where have all the mpg gone?

(Source: Cambridge Systematics, based on US EPA, 2006)



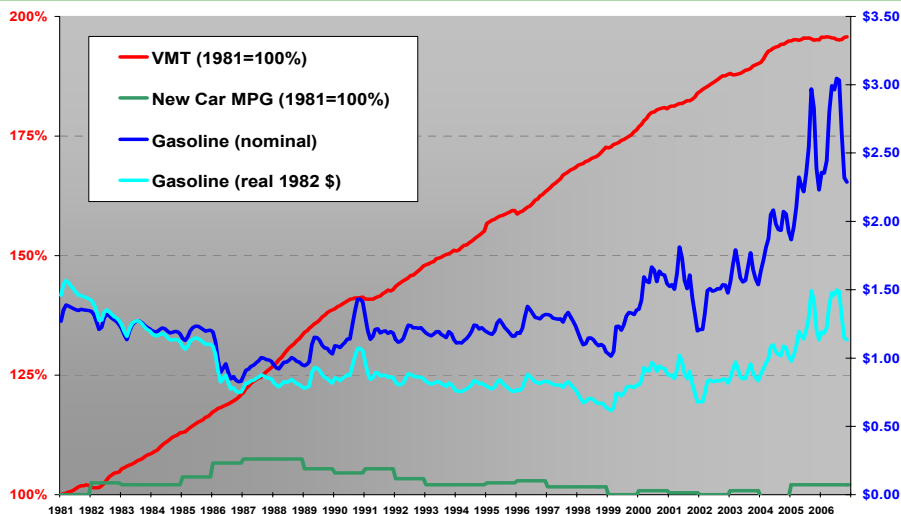
Fuel Price Impact?

- CO₂ price signals under discussion (\$7 -30/ton) much lower than recent increases and fluctuations
 - » \$1 per tonne CO₂ ~ \$0.01 per gallon
- Small changes in fuel demand as fuel price increases
 - » The signal is getting weaker: short-run price elasticities 1975-80: -0.28 vs. 2001-06: -0.055 (Sperling et. al, 2006)
- Major fuel price increases 2000-06, no response until 2004/5.
 - » Research question how much due to: Land use/travel choices? Demographics? Income? Major events (9/11, Katrina)?



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Driving & Fuel Economy vs. Fuel Prices, 1981-2006



CCAP 2007 based on EIA, FHWA, BLS, EPA

Market Challenges: Travel Demand

- The market under-supplies transit, smart growth housing
- Conformity process does not assess smart growth scenarios that could reduce GHGs by 15-25%
- Upstream signal not effective without viable travel options (transit, walk, bike)
- Short-term price signals do not adequately encourage changes in land use and transportation infrastructure
- With fuel cost savings smart growth can yield low net costs
 - » Strong co-benefits include: health, economic vitality, oil security
- Delaying travel demand policies puts more pressure on technology/fuels & may increase compliance costs
 - » Current infrastructure and land use decisions shape future travel patterns and emissions for 100 years



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SAFETEA-LU sends the Wrong Signal on Climate

- User-fee based funding formulae based on VMT, fuel use and lane miles –reward increases in GHGs.
- Federal discretionary funding capped at 50% for transit and subject to complex evaluation process; highway projects automatically get at least 80% Federal funding.
- Alternative analyses required for large projects and SIP conformity take narrow views of benefits and ignore potential savings from integrated transportation and land use.



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Potential Climate Options for Green-TEA

- GHG performance criteria in Green-TEA
 - » Reward low VMT/GHG in funding formulae
- Planning support
 - » Increase support for planning, data, models
- Regulatory approaches
 - » Require alternative analyses in regional transportation plans
 - » Add GHGs to Conformity?
- Leverage infrastructure funding
 - » Target to foster development of areas with rich transp. choices
- Incentives
 - » For transit, transit-oriented development, bike, walk, demand management



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Ask not what Green-TEA can do for Climate Policy....

National Climate Policy could:

- Send a fuel price signal via a carbon tax or an 'upstream' cap-and-trade
- Generate revenues from a carbon tax or allowance auction could that could be used for:
 - » Such revenues could support transit, smart growth, TOD, TDM..
 - As we suggested in our 2000 paper on transportation and GHG trading: <http://www.ccap.org/pdf/TGHG.pdf>
- Impose a regulatory requirement on States or MPOs on GHGs



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CCAP Vision

- Important opportunity for national climate policy to incent VMT reduction and for transportation policy to promote GHG reductions.
- Success will require that
 1. the climate policy community better understands transportation policy,
 2. travel demand experts better understand climate policy, and
 3. the broader (and traditional) transportation policy community engages on both VMT reduction and climate policy.
- Bring best ideas from experts on transportation, land use, and travel demand management into our internal climate policy dialogue.
- Is there a need to bring transportation experts up to speed on climate policy to effectively engage in that discussion?
- We see a need for a place for a robust discussion on policy ideas over the next few years as national climate change legislation is developed and SAFETEA-LU is reauthorized.



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Clarifying Questions (5 minutes)



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Discussion

- If you agree that this discussion is important...
 - » How should we focus our efforts to make our effort most valuable to you?
 - » Identify other ideas, opportunities to explore
 - » Have others already gone into some depth on specific recommendations?
 - » How best to coordinate with broader transportation reform efforts (STPP, RPA/Lincoln Land Institute, Brookings, AASHTO)?



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Potential Next Steps

- Decide what audiences to focus on first
- In future calls (and interim emails) we could discuss in more detail the initial ideas in the Green-TEA memo and generate additional ideas for the transportation bill and climate policy.
- Potential Process Steps
 - » conference calls every 1-2 months
 - » 1 or 2 in-person meetings over the next year, as appropriate
 - » Email exchanges to flesh out ideas, provide policy updates – set up ListServe?
 - » Volunteers to dig into more depth on specific recommendations



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