Mike Bullock

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San Diego Chapter of the Sierra Club and CDP Delegate, 73rd AD

13 Slides

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Climate Crisis Performance of Our California & Regional Transportation Policy

- California Governor's Executive Order S-3-05

http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm

- SB 375's Impact on Regional Transportation Plans

- San Diego Association of Government's (SANDAG's) Draft Regional Transportation Plan (RTP) Climate-Crisis Performance

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Governor's Executive Order S-3-05

Slide 1 of 2

- Signed in 2005; still in effect
- Greenhouse gas (GHG) Emission Trajectory
  - 2000 levels by 2010
  - 1990 levels by 2020
    - Same as AB 32, so-called Global Warming Solutions Act
      - Prop 23 tried to suspend this
  - 80% below 1990 levels by 2050
- Achieved by Plans & Status
  - For transportation
    - CALTRANS & CARB → Cal EPA → Governor

Governor's Executive Order S-3-05

Slide 2 of 2

- Designed to Cap atmospheric levels of C02 at 450 PPM, by 2050
  - Requires other countries to achieve similar reductions
  - Most civilized countries have adopted a similar plan
  - 450 PPM must then be brought down to safe levels
    - Eliminate use of fossil fuels
    - ***350 PPM may be safe***

"350.org" is named for this safer level of atmospheric CO2.

Temperature-Change Probabilities Associated with 450 PPM C02

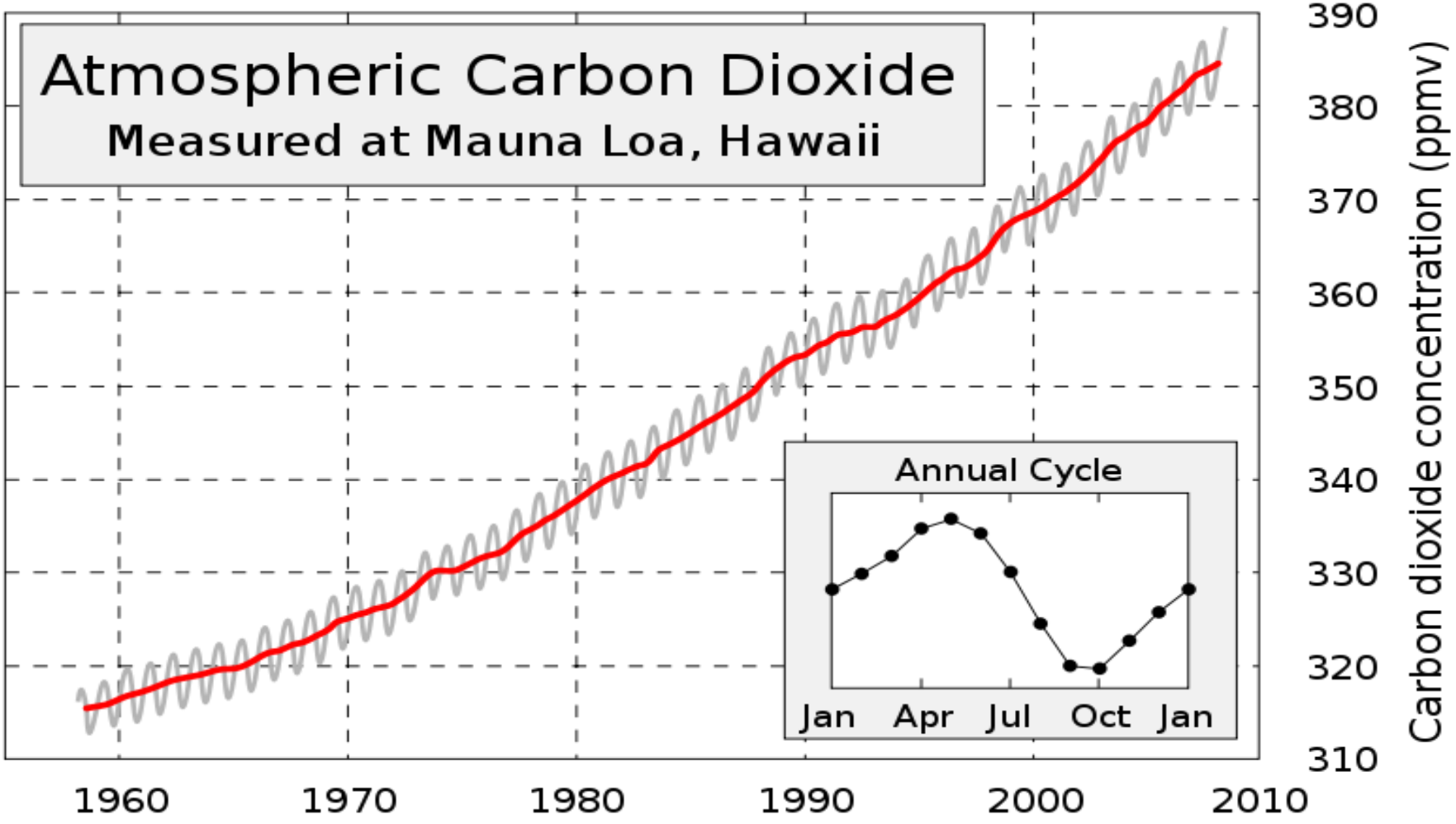
http://www.aqmd.gov/ceqa/handbook/GHG/2009/april22mtg/CBDcomments.pdf

- Cap of 450 PPM
  - A 50% chance that temp change stays below 2°C
    - 2°C means
      - Loss of 97% of Corral Reefs
      - 1 to 3 Billion (of 7 B) people experience water stress
      - Loss of summer ice at North Pole
      - 58% unstable tundra
  - 30% chance of more than 3°C
    - **Exponentially worse than 2°C**

James Hanson: Present level of C02 "already in the dangerous zone" (385 PPM when written)

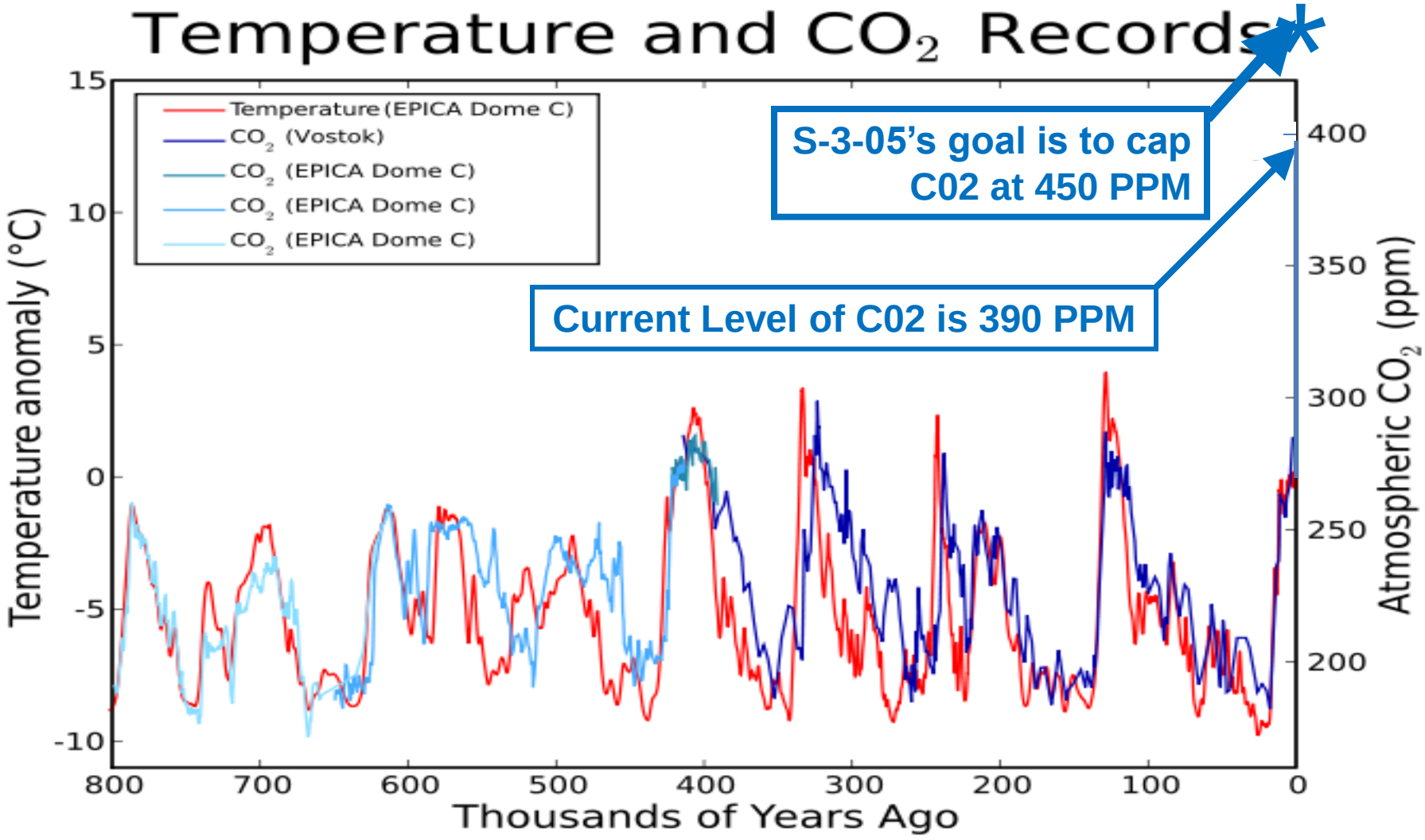
Climate Data

- Keeling Curve:
  http://en.wikipedia.org/wiki/An_Inconvenient_Truth#Scientific_basis



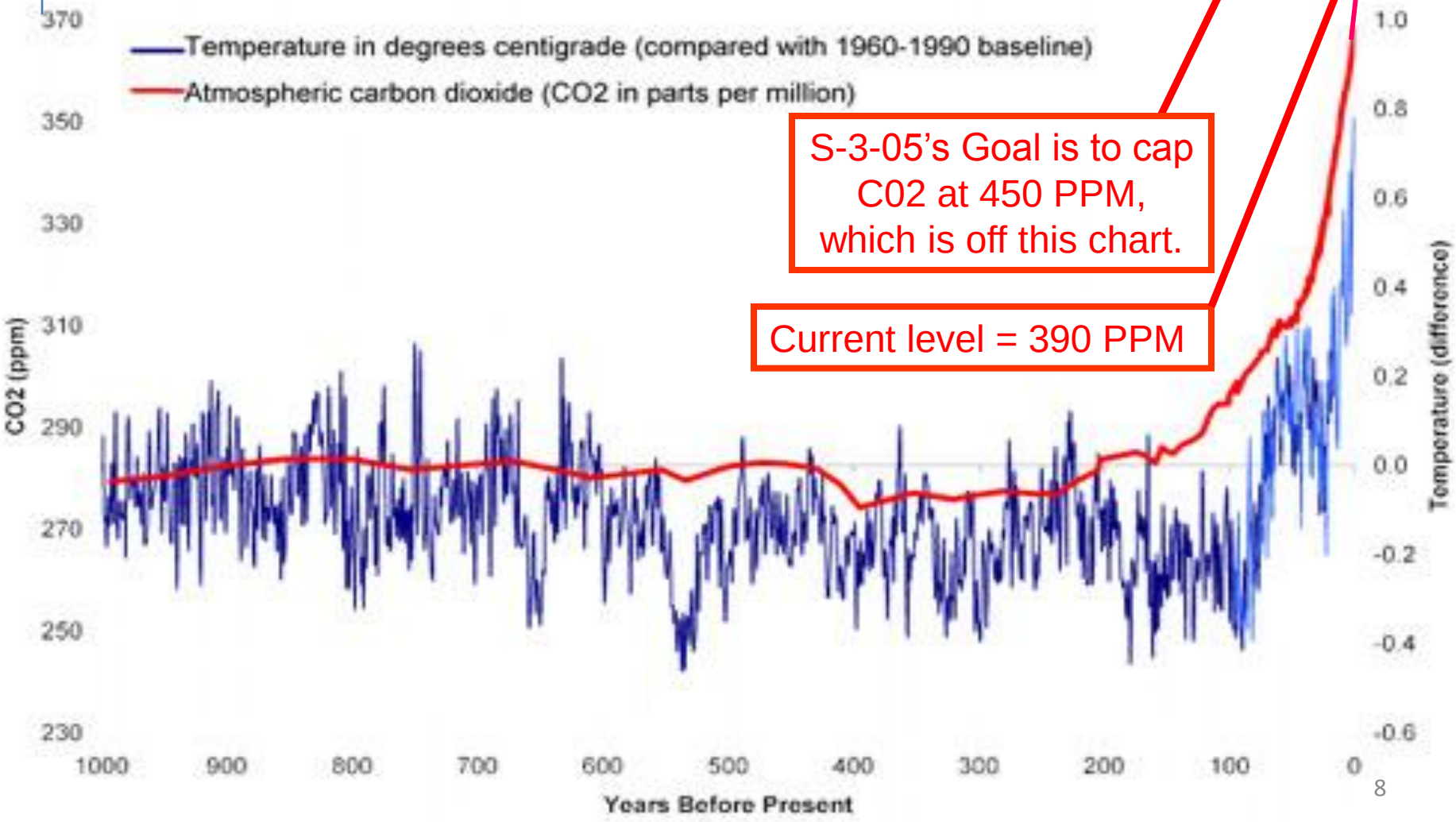
Our Climate Crisis

- From: http://en.wikipedia.org/wiki/An_Inconvenient_Truth#Scientific_basis



Our Climate Crisis

- Earth & Space Research (ESR) website:
  http://www.esr.org/outreach/climate_change/mans_impact/man1.html



SB 375, Passed in 2008

http://www.nrdc.org/globalwarming/sb375/files/sb375.pdf

- Authored by Speaker Pro Tem Darrell Steinberg
- Only for cars and Light-duty trucks
- Key provision
  - California Air Resources Board Provides vehicle-miles-travelled (VMT) reduction targets
    - Years 2020 and 2035
    - To Metropolitan Planning Organizations (MPO)
    - Computed in Regional Transportation Plans (RTP)
    - Our MPO, SANDAG, is producing the first post-SB375 RTP

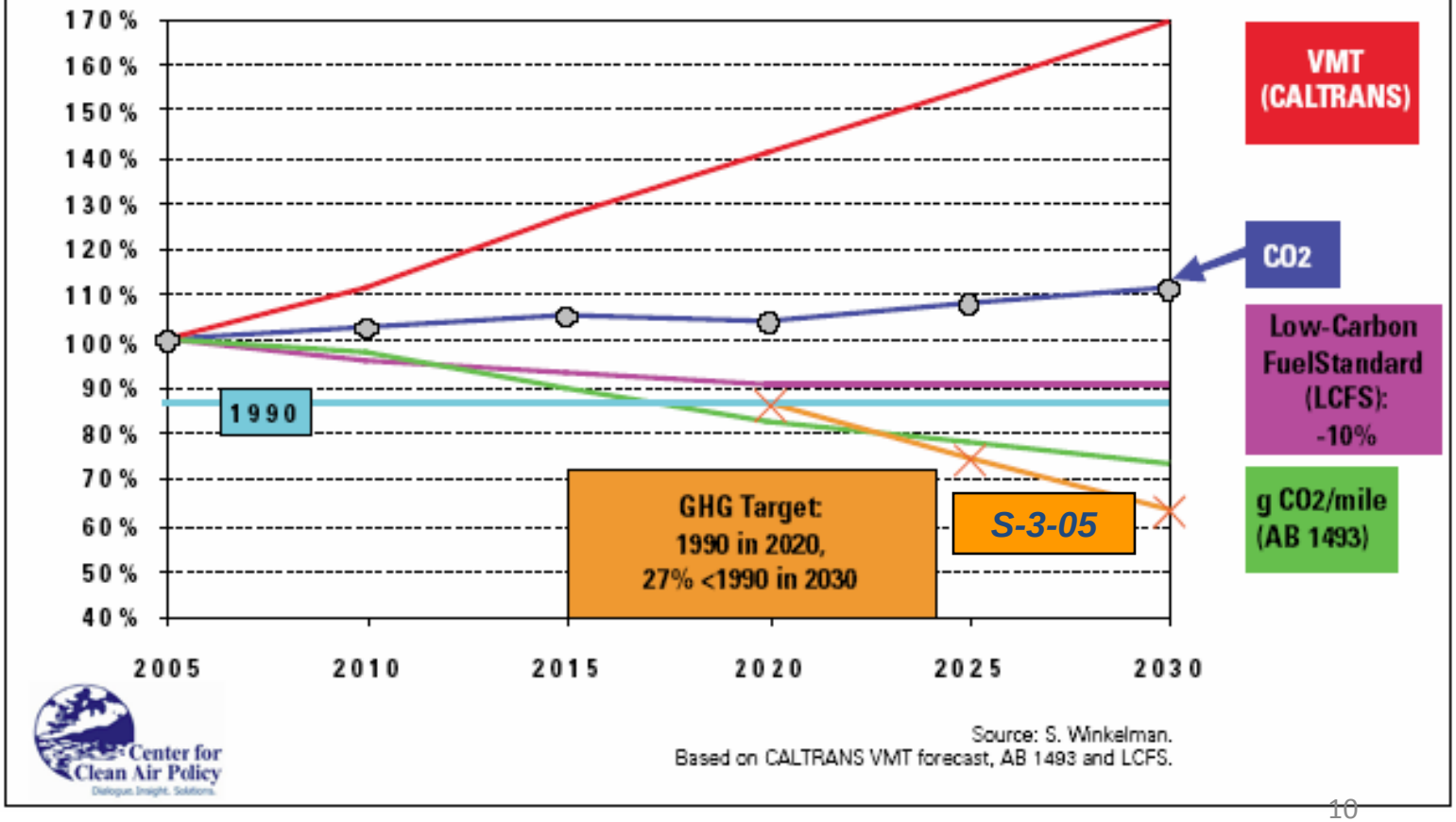
Trajectories to Support Calculations

Purple (Low carbon fuel), Green (C02/Mile), & Gold (S-3-05)

From ***Communities Tackle Global Warming, A Guide to SB 375*** comes the words and plot shown as ***Figure 1***.

In San Diego County, 41% of GHG emissions come from cars and light-duty trucks.

Figure 1: Increasing VMT Threatens to Overwhelm Greenhouse Gas Savings From Cleaner Fuels and Vehicles



SB 375's Per-Capita VMT Reduction for 2035, to Support S-3-05

Variable Name	Definition	Taken From
f	net factor of the emissions of Greenhouse Gas	Gold Line[1]
f_Pavley	factor of the average statewide mileage	Green Line[1]
f_Fuel	factor of the reduction of GHG due to low-carbon fuels	Purple Line[1]
f_Population	factor of the population in the region of interest	CARB[2]
f_PerCapitaVMT	factor of per capita driving	Computed

[1]From the Chart constructed by Steve Winkleman, as shown in the "Guide to SB 375" report.

[2]Population estimates are from CARB's http://arb.ca.gov/cc/sb375/mpo.co2.reduction.calc.pdf. Namely 3,034,388 for 2005 and 3,984,753 for 2035. So f_Population = 1.314

$$f = f\_PerCapitaVMT * f\_Population * f\_Pavley * f\_Fuel$$

$$f\_PerCapitaVMT = f / (f\_Population * f\_Pavley * f\_Fuel)$$

Per-Capita VMT Reduction for 2035, as Required by S-3-05

$f_{PerCapitaVMT} = f / (f_{Population} * f_{Pavley} * f_{Fuel})$

$f_{PerCapitaVMT} = 0.525 / (1.313 * 0.685 * 0.9)$

$f_{PerCapitaVMT} = 0.649$

This is a 35.1% decrease in per-capita VMT.

The proposed RTP only achieves 13%!

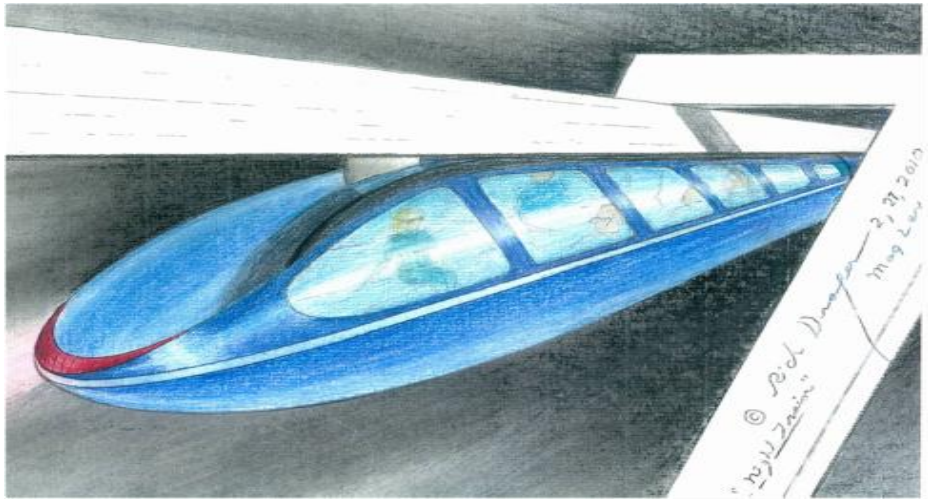
Because .649 * 1.313 = .8515, in 2035, the people in San Diego County must drive 15% less than they did in 2005, even with the 31.3% increase in population. ***Therefore, why add lanes?***

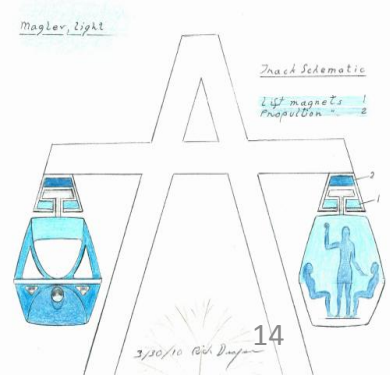
Strategies to Achieve 35%

- Stop expanding freeways
  - No need, because we must drive less
  - Eliminate congestion with following strategies
- Reallocate freeway expansion funds to transit
- Pricing to increase fairness & choice
  - Parking demonstration projects to unbundle cost
  - **State legislation**
    - Unbundle the cost of all “free” parking
    - Equitable and environmentally-sound road-use fees
- Smart growth, complete streets, bicycle education

21st Century Transportation Solutions

- Redesigned rail or monorail systems
  - Electric, automated, 24/7, frequent service
- Commitment to clean-bus technology
- Equitable driving fees to reduce taxes
- Unbundled car parking cost





Bill Powers

Powers Engineering

10 Slides

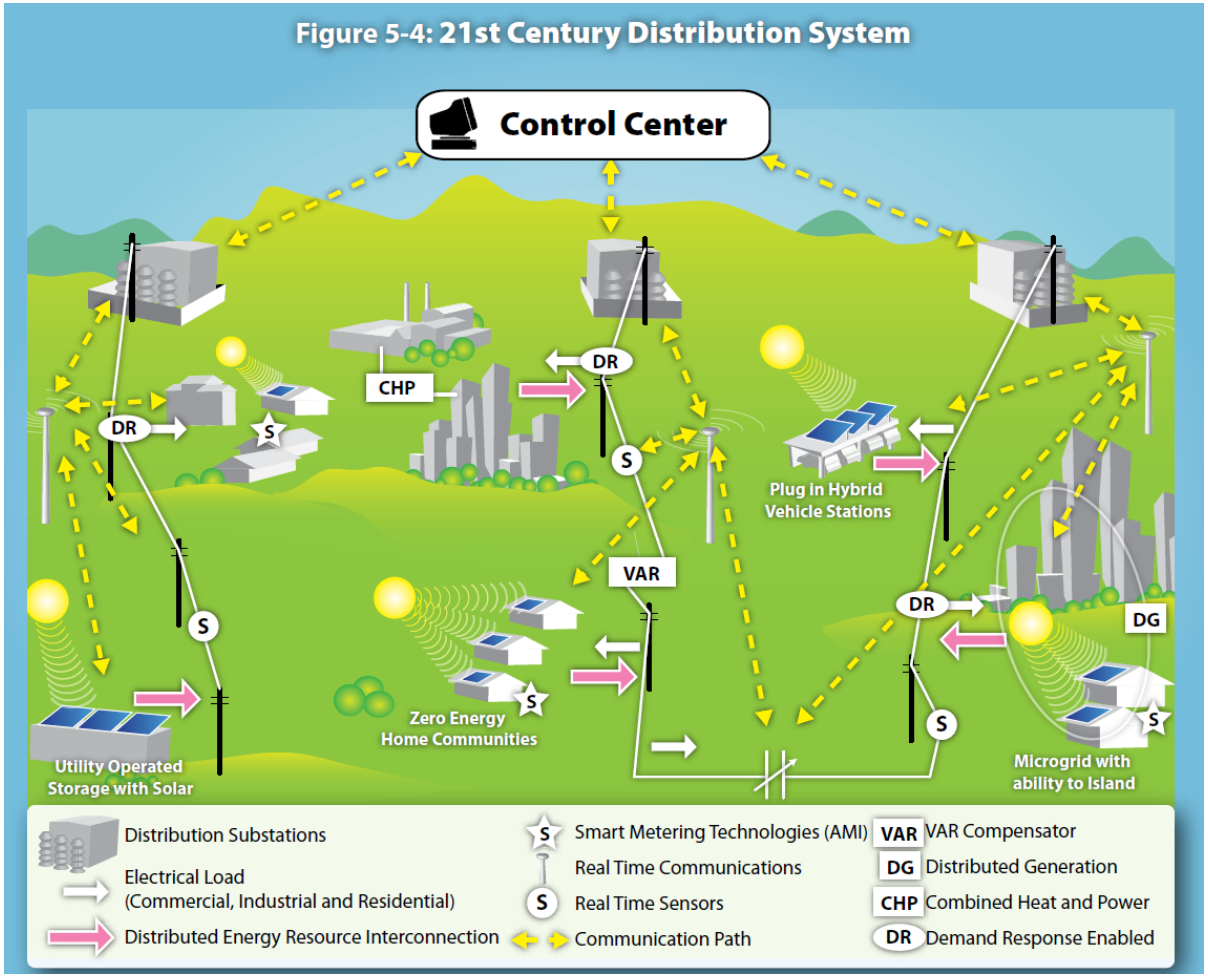
Green Jobs and Distributed Electricity Generation in San Diego

San Diego County Democratic Convention

Bill Powers, P.E., Powers Engineering

September 17, 2011

California's policy vision – solar power on the rooftops, battery storage, small local power plants



What is the state's plan? Joint Utility Energy Efficiency Strategic Plan (2008, 2011)

- Energy efficiency & demand response

  (net zero energy buildings: energy efficiency + rooftop PV)

- All new residential net zero by 2020
- All new commercial net zero by 2030
- 25% of existing residential ~ net zero by 2020
- 50% of existing commercial net zero by 2030
- 30 – 40% reduction in existing building electricity demand via energy efficiency measures
- Reduce air conditioning loads by 50% by 2020

Gov. Brown's Clean Energy Jobs Plan – local focus

- 12,000 MW of local renewable power by 2020, out of 20,000 MW target
- 2,000 MW initial local PV target for San Diego – now 1,200 MW
- Feed-in tariff for renewables under 20 MW
- 4,000 MW of new combined heat & power
  - (can be fueled with biogas or biomethane)
- Use utility on-bill financing or Property Assessed Clean Energy (PACE) assessments for energy efficiency upgrades and rooftop solar

San Diego
Smart Energy 2020

THE 21ST CENTURY ALTERNATIVE

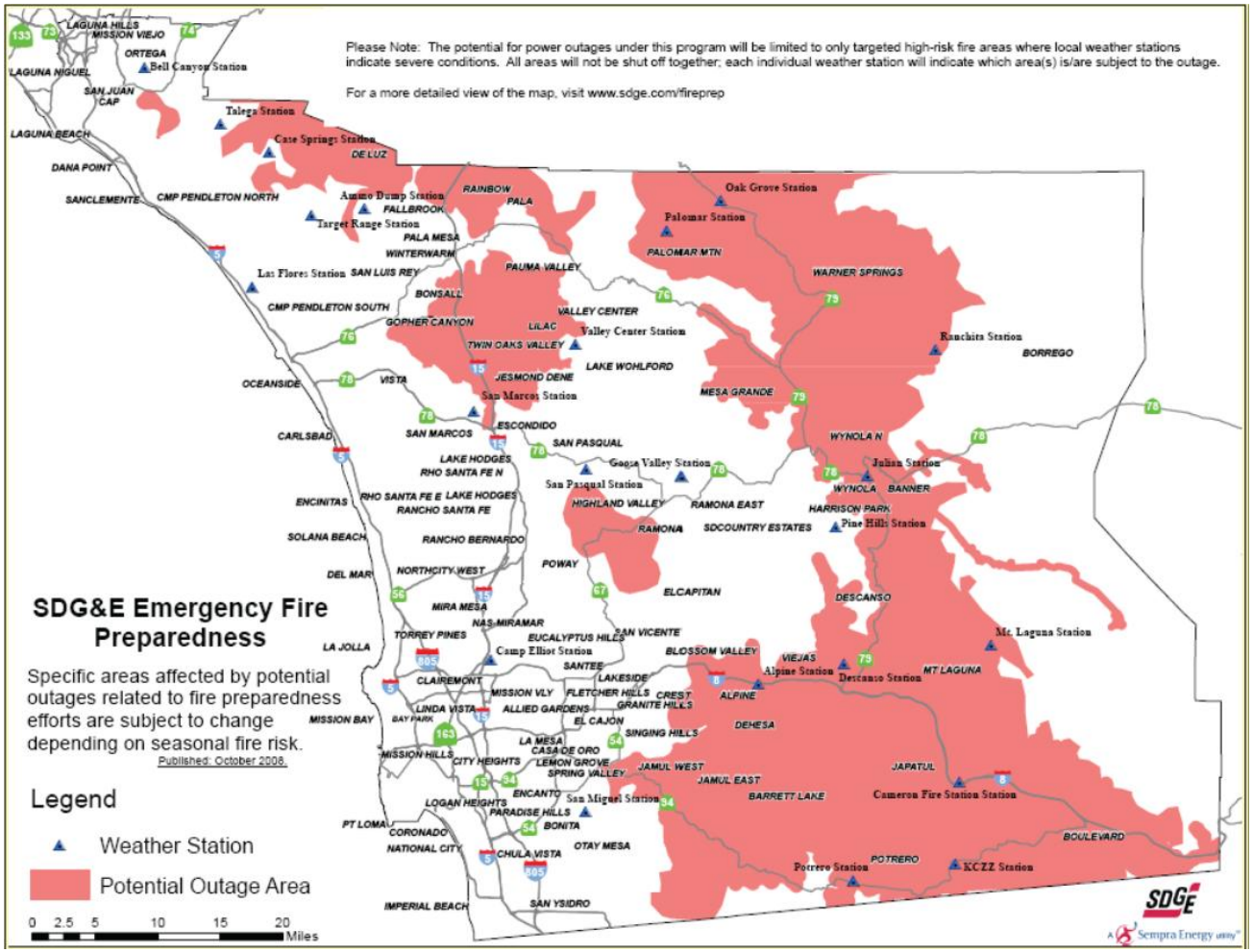
Property Assessed Clean Energy assessments – mechanism to create sustainable energy efficiency and PV markets – these markets drive local green jobs

- PACE assessments, at 7% over 20 years, for energy efficiency & PV repaid along with property tax payments
- Reduced electric bill with no out-of-pocket expense
- Loans have a minimum value of $5,000, no maximum limits, and can be used for:
  - air conditioning and ventilation systems
  - energy efficient windows, doors and skylights
  - white-roofs and coatings
  - solar PV, natural gas fuel cells
- PACE temporarily stalled in 2010 by contrary Federal Housing Financing Agency (FHFA) opinion

PACE may be back in the near future due to a court-ordered rulemaking proceeding at FHFA, and proposed federal legislation

- August 2011 – federal court orders FHFA to initiate rulemaking proceeding regarding PACE assessments, in part due to lawsuit by California
- Bipartisan federal legislation has been introduced to address FHFA concerns regarding PACE assessments – "PACE Assessment Protection Act of 2011, HR 2599"
- San Diego Board of Supervisors resolution introduced in September 2011 in support of HR 2599
- Utility on-bill financing is equivalent to PACE, though program receives small share of energy efficiency funds – fate of utility "public good charges" in question

Areas subject to fire cut-off by SDG&E, affected residents excellent candidates for PACE retrofits



Distributed PV with some battery storage for peak power and reliability is right green fit for San Diego

- Presented as alternative in 2008/2009 to SDG&E ratebased $250 million project to build 100 MW of local PV
- Solves problem of electricity cut-off to 45,000 to 60,000 backcountry SDG&E customers during firestorm
- SDG&E has applied to build 450 MW of peaking gas turbines to support renewable energy integration, ~$130 million/yr over 20 years to have available if needed
- Adding limited 3-hr battery capacity to distributed PV arrays achieves same peaking/integration objective, and home/business reliability in emergencies. Over 600 MW could be built over 20 years with same $130 million/yr

Green jobs are driven by markets for green services/products – PACE assessments and on-bill financing can create large, sustainable markets

- PACE assessments and on-bill financing eliminate principal hurdle – upfront costs
- Recent studies (UCLA, LBNL) indicate assessed home value increases by more than the value of the solar PV system the moment the system is installed
- PACE assessments and on-bill financing provide near-term avenue for high urban market growth in energy efficiency and PV
- Fair tariffs for PV is another proven avenue for establishing a dynamic PV market, though policymakers in California reluctant to establish adequate pricing

Jennifer Badgley

Political Director for the International

Brotherhood of Electrical Workers (IBEW) Local 569