

Transportation Solutions Defense and Education Fund

P.O. Box 151439 San Rafael, CA 94915 415-331-1982

April 5, 2014
By E-Mail

Mary Nichols, Chair
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Re: Proposed First Update to Climate Change Scoping Plan

Dear Ms. Nichols:

The Transportation Solutions Defense and Education Fund, TRANSDEF, is a California non-profit advocating for reducing greenhouse gases through the regional planning of transportation, land use and air quality. The Proposed First Update to Climate Change Scoping Plan ("Update") contains an amazingly comprehensive collection of well thought-through measures and programs. We appreciate its thorough and thoughtful approach to the challenges of climate change. However, our in-depth knowledge of two of the program elements raises doubts about the effectiveness of the overall program. We offer suggestions on improving confidence in the Plan:

Urgency for Action

We agree with the cited "need to stabilize at about 400 ppm CO₂e [the current atmospheric level] in order to likely avoid exceeding the 2°C threshold" (p. 14), and are convinced of the need for urgent action by the statement "Because of the cumulative effects of greenhouse warming and the inertia in the climate system, delaying efforts to reduce emissions will likely mean that global average temperature will increase by more than 2°C ..." (p. 15 of Update.) We are relieved to hear that mitigation of the four SLCPs could reduce near-term CO₂e levels enough (p. 18) to allow more time for a global reduction of CO₂ emissions. We urge ARB to set the reduction of emissions of these pollutants as its highest priority.

We agree that adopting interim goals will make program management and evaluation much more effective: "We need to meet strict, science-based targets not just in 2020 and 2050, but at every point in between, as well." (p. 38.)

Effectiveness of the First Scoping Plan

We vigorously applaud ARB for stating that "Progressing toward California's long-term climate goals will require that GHG reduction rates be significantly accelerated" (p. 6)

and "Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit." (p. 37.) Operationalizing these statements, however, requires an understanding of the GHG reduction rates achieved by the first Scoping Plan. Unfortunately, the Update does not tease apart the emissions reduction contributions of the economic recession (p. 99) and historically high fuel prices. (p. 100.)

This Update has not established a causal connection between the first Scoping Plan and the reduction in emissions. For such a far-reaching and expensive program, a much greater level of scientific confidence in the effectiveness of the measures is needed. An analysis of VMT/ employed person and VMT/ \$CA GDP for target years before, during and after the recession would begin to point towards causation. Similarly, electrical consumption/ \$CA GDP before, during and after the recession would help determine how permanent (structural) these GHG reductions have become.

While the Update claimed to "measure progress towards the 2020 statewide limit" (p. 96), it offered no measurement of the Progress to Date of the Scoping Plan's measures. The Update's avoidance of quantification at the measure level was apparently a stylistic choice, but it harms the Update's ability to convey confidence that the Plan will achieve the state's goals.

The Update very much needs a compilation of the data readily available in the California Greenhouse Gas Report Card (p. 96). In addition, the Update desperately needs its own Table 2, Recommended Greenhouse Gas Reduction Measures, just like the first Scoping Plan, to set out expectations for all the proposed measures. An updated table should contain a column indicating progress to-date.

Energy

Feed-in tariffs have been extremely effective in spurring PV and wind resources in Germany. The Update should call for them to be adopted in California.

We see no justification for the continued expenditure of public funds for hydrogen infrastructure in support of automotive fuel cells. It is obvious that infrastructure costs make hydrogen a much more expensive transportation fuel than electricity. Because a new Governor took office after the initial Scoping Plan, the benefit/cost and viability of this program need to be reevaluated.

SCS Targets

The depth of quantitative information suggested above will be essential when the Board considers revising the regional GHG emissions reductions targets later this year. Given the MPOs' resistance to doing more to reduce emissions, a case for the statewide need for more reductions must be made if the targets are to be ramped up. As only 3.0 MMTCO₂e of the Scoping Plan's goal of 5 MMTCO₂e from Regional Transportation-Related GHG Targets was accomplished by the recent round of SCSs (2013 CA GHG Report Card, p. 24/41), setting a new goal requires the context of a data-rich Plan.

The Update is sorely lacking an evaluation of the political dimension of SCS planning. The low priority that SANDAG placed on its transit investments resulted in an EIR challenge to its SCS. The Bay Area's catering to single-occupant vehicles with its HOT lane program was a factor in its SCS EIR being challenged. In addition to disagreements on transportation investments, other members of the public are opposed to regional planning, *per se*. Because this contentiousness impacts the feasibility of this sector's proposed emissions reductions, the Update needs to discuss these issues.

High-Speed Rail

TRANSDEF is a transit advocacy organization. We strongly support passenger rail as a key low-carbon transportation mode of the future. We work towards the day when a tightly integrated Northern California rail network is connected to a tightly integrated Southern California rail network by high-speed rail. In theory, HSR is great. If designed with a direct-enough route, HSR could be built at a modest cost and run without an operating subsidy.

The actual project proposed by the HSR Authority, however, is seriously problematic: it is so expensive and overly long that it will need a subsidy to operate. It is highly unlikely that it can deliver the promised benefits. The project was developed in a process that was so politicized that the resulting design is not economic. As a result, the private sector is unwilling to invest, making it unlikely that more than a short segment in the Central Valley will ever be built.

Even as proposed, though, the project's construction emissions will make the project a net GHG emitter for two or more decades. Rather than debate the merits of the project here, we think the policy direction provided in the Update should simply be followed: "California must plan how best to invest the numerous sources of potential funding... and investing in areas that maximize GHG emission reductions and co-benefits. ... Funding should be focused on specific programs that can quickly and effectively support AB 32 objectives." (p. 119-120.)

The Authority produced a GHG report in response to a legislative mandate to identify the project's net GHG benefits. Despite an endorsement by ARB's Chair, this report (FN 72, p. 63) is so profoundly flawed that it cannot not be relied on by the Update as evidence for statements such as "It is projected to realize GHG emissions reductions its first year in operation, with annual increases in GHG emission reductions as the system expands." (p. 63. See attached in-depth analysis of the CHSRA report for why this statement--and any claims of GHG emissions reductions--are misleading and wrong.)

Obviously, a project that increases GHG emissions for the next several decades should not be an emissions reduction measure in the Scoping Plan. It also should not be funded with cap and trade auction revenues.

The HSR bond also made available nearly a billion dollars of funds to transit operators to connect with HSR. Unfortunately, the selection process was so politicized that some funded projects actually reduce connectivity. For example, San Francisco's Central

Subway project disconnects the Third Street light rail line from the Muni subway, forcing a long walk. Its GHG emissions reductions should therefore be suspect.

Caltrans

The external review of Caltrans, currently being conducted by the State Transportation Agency, found that Caltrans' mission is not compatible with the state's climate change policies. (See TRANSDEF letter, attached.) As part of ensuring plan feasibility, the Update should evaluate the profound institutional culture change that would be required for Caltrans to "consider lifecycle benefits and impacts (including environmental, construction, operation, and maintenance costs) for transportation infrastructure projects ... [and] increase investment in expanded transit and rail services." (p. 65.)

Freight Transportation

We offer additional questions for the list on p. 61: What are the determinants of the proportion of highway freight that can be shifted to rail? Could incentives be created that address these determinants, to achieve the secondary benefit of regained highway capacity? What would be the benefits and costs of electrification of freight railroads?

Agriculture

Because livestock is the biggest generator of methane (p. 24), this sector needs to be placed under the cap and trade regime. While this will undoubtedly be politically challenging, this "second most important anthropogenic GHG in the atmosphere" (p. 22) cannot be allowed to remain outside the control of the state's climate change program. Just like petroleum, the economics of meat production must be altered to reflect its significant impact on climate.

Water Supply

California needs more than policy on groundwater extraction. (p. 73.) The state needs regulation to deal with long-term supply concerns, land subsidence and fairness between neighbors.

The subsidies for agricultural water need to be rationalized as part of the implementation of conservation-oriented rate structures. Prices need to go up to incentivize efficient use. Vast quantities of water are lost through evaporation by daytime spray irrigation. This is able to continue only because excessive subsidies cushion the cost.

Waste

Please explain: "Efforts to expand urban-based waste recycling and reuse programs may have implications for the transportation, fuels, and land use focus area." (p. 77.)

Natural and Working Lands

We were surprised and alarmed to find that "emissions from wildfires, land use conversion, management practices, and other sources may significantly outweigh the current carbon uptake ability in this sector, as currently managed." (p. 80.) Sequestration must become a major state goal for its natural and working lands, as proposed for the Forest Carbon Plan.

We strongly agree that "Farmland and open space conservation can be an important policy to support the objectives of the Sustainable Communities Strategies, including reducing vehicle miles traveled. This could be accomplished by using incentives for conservation easements, supporting urban growth boundaries, and maintaining agricultural zoning." We support the convening of a climate investment working group, whose top priority should be to determine the additional funding needed to proceed with measures that are identified as near-term (e.g., wetlands restoration and tree planting).

Green Buildings

What is the statewide market penetration of LEED buildings? (p. 91.) What is the potential contribution of incentives, including PACE, and public education/marketing?

Short-Lived Climate Pollutants

We are very glad ARB has taken notice of research on the underestimation of fugitive methane emissions (p. 86) and is determining the appropriate regulatory response.

Copy Editing

The Update had excellent copy editing. The only error I spotted was "finical" instead of "financial." (p. 83.)

Conclusions

Our August 2, 2013 letter (attached) provided the Board with a more detailed set of suggestions on improving the Scoping Plan Update.

ARB faces difficult management challenges: proceeding with all these programs simultaneously, keeping them coordinated and integrated, setting priorities for the use of scarce incentive funding and fighting off inevitable political pressures that seek to distort the Plan, game it and take advantage of it. Preserving the effectiveness of the Plan will require steering these programs with strong science-based decision-making. The Plan deserves a meticulous and committed follow-through. We stand ready to assist.

Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,
President

Attachments

2013 TRANSDEF letter on Scoping Plan Update
"Analysis of the CHSRA's GHG Report"

Transportation Solutions Defense and Education Fund

P.O. Box 151439 San Rafael, CA 94915 415-331-1982

August 2, 2013
By E-Mail

Mary Nichols, Chair
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Re: Scoping Plan Update

Dear Ms. Nichols:

The Transportation Solutions Defense and Education Fund, TRANSDEF, submits these comments to expand upon the remarks we made to the Board on its hearing on the Bay Area SCS. We urged the Board then to use the Scoping Plan Update process to revise the regional GHG emissions reductions targets. Making the per capita reductions larger percentages than overall statewide population growth percentages would ensure that GHG emissions are actually reduced statewide. Using as examples the specific comments we made on the Bay Area SCS, we seek to document the problem and provide an evidentiary basis that the previously adopted targets were inconsistent with the statutory mandate of SB 375. We provide a wide-ranging set of suggestions for other areas of the Scoping Plan as well.

2008 Emissions Projections

The 2008 Scoping Plan projected 2020 Business as Usual GHG emissions of 596 MMTCO₂e.¹ However, the actual 2010 inventory turned out to be only 448 MMTCO₂e.² For the sake of the future reliability of ARB GHG projections, the Update needs to analyze this discrepancy in great detail, considering the possibilities that (a) the projections contained a serious methodological error, (b) a serious arithmetic error was made, (c) the economic recession had a dramatic effect on emissions, (d) the implemented Scoping Plan measures were more effective than expected or (e) other possibilities.

In addition to using bar charts for the beginning and end points (Adopted Scoping Plan, p. 21), the Update needs to include a chart like Attachment E, to allow the visualization of the projections and goals in juxtaposition to inventory trends over time. The Update should include zero emission vehicles in its projections, consistent with Executive Order B-16-2012.

2050 GHG Emissions Goal

Given the pace of scientific discovery about climate change since 2006, ARB must evaluate the adequacy of both the magnitude and the timing of the emissions reductions called for by Executive Order S-3-05. Atmospheric CO₂ reached the 400 ppm level this spring, unprecedented in human history. Recent announcements indicate that climate change is occurring much faster than previously predicted. Science should dictate whether the Updated Scoping Plan needs to call for faster emissions reductions.

Work by the ARB and others provides a scientific basis for prioritizing efforts to reduce the shorter-lived and high-GWP GHGs, including methane, nitrous oxide and black carbon.³ Retrofitting diesel trucks should be an especially high priority, due to the very high public health co-benefits. Nitrous oxide is a much bigger problem than currently thought.⁴ Fugitive methane⁵ is such a significant problem that it could undo the benefits of the entire Scoping Plan.

High-Speed Rail

The project promoted by the California High-Speed Rail Authority has proven to be a complete failure as a Scoping Plan measure to reduce GHGs. Rather than reduce GHGs, the Legislative Analyst's Office released a report⁶ projecting that the project would lead to a net increase in GHG emissions for its first 30 years of operations. Given this dismal analysis, there is no justification for the continued listing of High-Speed Rail as a Scoping Plan measure.

Please note: TRANSDEF is a strong advocate for High-Speed Rail. We are confident that a properly designed High-Speed Rail system would serve as a model Scoping Plan measure. Unfortunately, political deal-making has reduced the project to a mere pork barrel for special interests, making it economically infeasible and a waste of public dollars.⁷ An impending court decision could deny the project access to High-Speed Rail bond funds.⁸

Energy

Concerns about fugitive methane should be high among the factors considered in setting the State's natural gas policies. Leak testing of working and shut-in wells, along with the entire distribution system should be a high priority for the Energy Commission and the PUC.

On the electricity side, feed-in tariffs are needed to incentivize the production of renewable resources. These tariffs have been tremendously successful in Germany. Tariffs for energy storage are needed to even out renewable sources flowing to the grid, with programs like electric vehicles-to-grid looking very promising. The State should advocate at the FERC for incentives via ancillary charges.

Incentives for energy efficiency improvements for rented/leased spaces should go forward, perhaps using a PACE-type of financing structure that captures the debt

service in an add-on charge to the lease, less than or equal to the monthly energy savings to the tenant.

The State should do nothing to encourage further use of nuclear power, due both to its radiological dangers (Fukushima) and the climate change impacts of massive concrete structures. The State should encourage the replacement of Diablo Canyon nuclear power with renewable power and associated storage, and oppose license renewals.

Transportation

1. Fundamental Transformation of Transportation System--Institutions

Staff recognizes the need for "Fundamental transformation of transportation system needed to meet goals"⁹ but seems to have little grasp of the institutional barriers to that transformation. If the Updated Scoping Plan is to seriously address the State's largest GHG emissions sector, the Elephant in the Room must be made to submit to its regulatory scheme. Caltrans still has not accepted responsibility for leading the motor vehicle sector in the age of climate change: As recently as 2011, its official journal announced that "(Caltrans) has chosen to follow the lead of the California Global Warming Solutions Act of 2006..."¹⁰ This surprisingly honest disclosure shows that Caltrans does not acknowledge any statutory duty to actually reduce GHGs.

Due to ideology, denial and faulty modeling (see below), the Environmental Impact Reports that Caltrans does for highway projects do not acknowledge that widening highways increases GHG emissions.¹¹ Facilitating future auto-dependent development is a primary impact of highway widening, in direct opposition to the policy direction set by SB 375. The entire backlog of Caltrans-supported highway widening and highway building projects needs to be re-evaluated for their climate change impacts. This would probably require an act of the Legislature, due to transportation agencies' profound resistance to change.

For the Updated Scoping Plan to be a success, Caltrans has to reformulate its strategic plan, recognizing that highway widening is essentially over. Although Caltrans' Strategic Growth Plan has a pyramid that places highway widening at the apex, indicating it is only a small element of Caltrans' strategy, in reality, this is where the vast bulk of its funds are programmed. The Strategic Growth Plan is fundamentally dishonest.

2. Fundamental Transformation of Transportation System--Funding

The institutional inertia of MPOs, CMAs and local transportation authorities is driven by the massive amounts of money committed to the projects they sponsor. As remnants of the bygone Age of the Automobile, these projects are hostile to the climate. The large flow of state, federal and especially local sales tax funds goes to reinforcing GHG emissions growth.

Using the Bay Area as an example, the burden of transportation funding has been shifted to local sales taxes.

Source	% of Total
Local	53%
Regional	15%
State	16%
Federal	11%
Anticipated	5%
Total	100%

If the State is to be serious about climate change, the grandfathering of sales tax expenditure plans in regional transportation plans needs to end. Sales tax agencies need to be ordered by the Legislature to review their plans against climate goals and to have the resulting amended plans reconsidered by the voters.

What's needed to replace omnipresent highway widening projects is the use of transportation pricing as an incentive in urbanized areas to use alternative modes, coupled with heavy funding (reprogrammed from unbuilt highway projects) for the construction and operations of cost-effective transit. Parking and/or highway usage fees need to be phased in as alternatives are placed in service.

3. Fundamental Transformation of Transportation System--Modeling

Caltrans has a flawed model that allows it to claim lower GHG emissions for what it terms "efficiency projects" (highway widenings), under the dubious claim that increasing speed reduces emissions. Besides completely overlooking the effects of induced demand, this modeling is incorrect because it uses grams/mile which it claims are higher at very low speeds. This is meaningless, as total grams are the appropriate metric.

4. Sustainable Communities

The legislative findings for SB 375 identify that:

...greenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve **significant additional** greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32. (Chapter 728, Statutes of 2008, Section 1(c) and (i), emphasis added.)

The Draft 2013 Regional Transportation Plan/Sustainable Communities Strategy for the Bay Area will result in:

- an 18% **overall increase** in transportation GHG emissions between 2010 and 2040
- a 28% **overall increase** in land use GHG emissions between 2010 and 2040.

The addition of the Scoping Plan measures (new vehicle technology and low-carbon fuel) implemented by the Air Resources Board, will reduce emissions enough to create:

- a net 19% reduction in transportation GHGs by 2040.
- a net 12% reduction in land use GHG emissions between 2010 and 2040.
- a net 15% reduction in total regional GHG emissions between 2010 and 2040.¹²

Because the Bay Area SCS does not reduce 2040 regional GHG emissions apart from reductions from Scoping Plan measures, the SCS violates the legislative intent of SB 375. Despite meeting the ARB-adopted regional per capita GHG emissions reduction targets, the overall GHG emissions for the Bay Area will increase. This is because the population is projected to grow by 30%,¹³ while the target was only 15%. Had the SB 375 GHG emissions reduction targets required an **actual** reduction in GHGs, that would have forced MTC to use its financial resources strategically, in sharp contrast to its past wasteful practices.

The problem here is that regional GHG emissions reduction targets were set as per capita numbers, without taking overall population growth into consideration. This results in a statewide increase in GHGs in the regional transportation land use measure. For SB 375 to produce actual statewide GHG emissions reductions, the statewide per capita emissions reduction target average has to be higher than the projected statewide population increase, on percentage bases. While there were valid policy reasons to provide different per capita targets for regions with markedly different population growth projections, ARB failed to set targets high enough to comply with SB 375. The first cycle of regional targets will result in an increase in GHG emissions for California.

5. Hydrogen as Motor Vehicle Fuel

At best, hydrogen is only a storage medium--unlike petroleum, it offers no net energy benefit. The requirement to build an entirely new distribution infrastructure therefore disqualifies hydrogen as a serious candidate to replace petroleum-based liquid transportation fuels. Given the acknowledged need for massive investment in the electricity grid to support distributed renewable sources, it makes no economic sense to invest in a parallel energy distribution system. It is unlikely that adequate private capital would be committed by industry.

Natural and Working Lands

Planting trees is the only proven carbon sequestration program. The long-term effectiveness of programs attempting to mitigate the burning of coal and natural gas remains unproven. Equally important to planting trees is protecting them. The CEQA Guidelines should be strengthened to require an analysis of the impacts on carbon sequestration of both agricultural burning and conversion of forest lands to either urban uses or other agricultural uses, such as vineyards.

Carbon Tax

The British Columbia carbon tax offers a real-world example of successfully reducing pollutants by taxing them.¹⁴ Instituting a revenue-neutral carbon tax has led to a higher GDP growth than Canada as a whole,¹⁵ demonstrating that GHG emissions reductions

do not have to have an economic cost. A carbon tax can be structured to exempt lower-income people¹⁶ and can be modified, once in place, to cover larger segments of the economy and have a larger emissions reduction effect.¹⁷ TRANSDEF advocated for a carbon tax for the 2008 Scoping Plan, and objected to the dismissive treatment the carbon tax received in the Functional Equivalent Document. The Final Supplement to the FED was somewhat less dismissive, following the court's remand, but still reached what TRANSDEF believed to be the wrong conclusion.

The FED for the Updated Scoping Plan must consider the evidence of BC's successful carbon tax implementation and contrast that with California's disappointing first Cap-and-Trade auction and the distressing price instability of the European Emissions Trading Scheme.¹⁸ Circumstances have changed dramatically since the FED was adopted, requiring a reconsideration of the decision to proceed with Cap-and-Trade.

Since 2008, massive financial misdeeds have been revealed,¹⁹ utterly demolishing the foundational assumption that financial markets are trustworthy. Wall Street has demonstrated a propensity for gaming everything it touches, including manipulating LIBOR rates, swap rates, foreign-exchange markets, electricity markets, and municipal bond bid-rigging. With this history and with the U.S. Assistant Attorney General tacitly admitting that major financial institutions are "Too Big to Jail,"²⁰ it is no longer prudent to rely on market-based trading to protect our environment. Without criminal sanctions, there is no rational basis to assume the effectiveness of any compliance and enforcement programs. Many of the very agencies listed in the Final Supplement to the FED²¹ have massively failed to enforce their respective markets. Wall Street's strong preference for a Cap-and-Trade program it can game must not be allowed to outweigh the public benefits of a revenue-neutral carbon tax.

In light of all of the above, the 2008 decision to proceed with Cap-and-Trade has turned out to have been an unwise one, and must be reversed if California is to succeed with GHG emissions reductions. If California were to change course and move to a revenue-neutral carbon tax like British Columbia's, the resulting example would create momentum for a GHG emissions reduction approach that might be able to get through a tax-phobic U.S. Congress.

Conclusion

TRANSDEF sincerely hopes the Board will consider the suggestions made herein and produce an Updated Scoping Plan that can lead our State and our Nation to a more stable climate. We would be pleased to assist staff in the development of any of these suggestions.

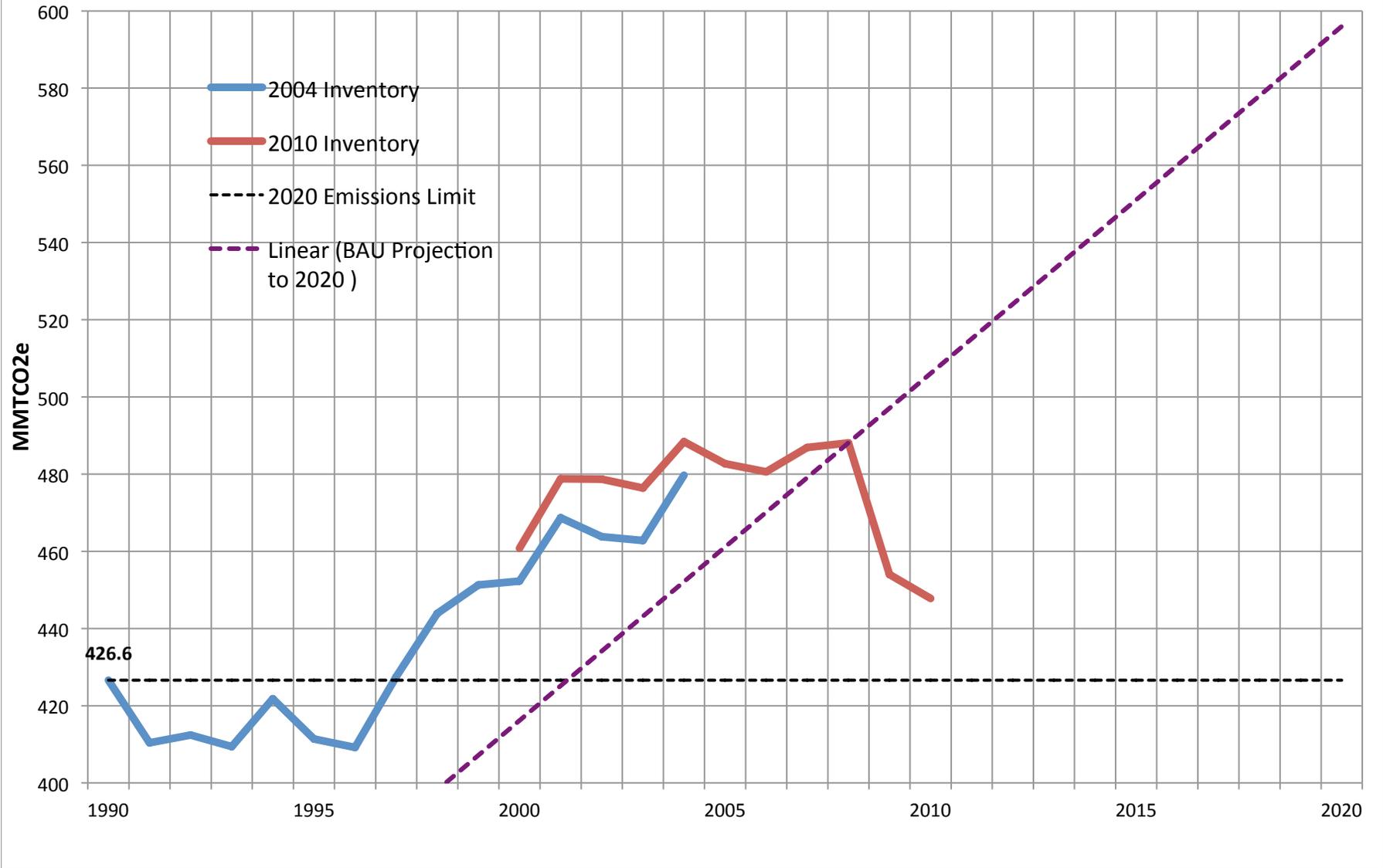
Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,
President

- 1 Adopted Scoping Plan, p. 12.
- 2 [ARB ghg_inventory_ipcc_00-10_sum_2013-02-19.pdf](#) and [ARB ghg_inventory_ipcc_90_04_sum_2007-11-19.pdf](#)
- 3 <http://www.nature.com/news/soot-a-major-contributor-to-climate-change-1.12225>
- 4 <http://www.sciencedaily.com/releases/2012/12/121204145914.htm>
- 5 <http://www.nature.com/news/methane-leaks-erode-green-credentials-of-natural-gas-1.12123>
- 6 Funding Requests for High-Speed Rail, Legislative Analyst's Office, April 17, 2017, p.
- 7 <http://transdef.org/HSR/HSR.html>
- 8 <http://transdef.org/HSR/Taxpayer.html>
- 9 http://www.arb.ca.gov/cc/scopingplan/meetings/071813/sjvuapcd_spu_workshop_presentation.pdf, slide 42.
- 10 http://www.dot.ca.gov/ctjournal/2011-1/climate_change.html (emphasis added)
- 11 See Climate Change section of the 2012 [Caltrans Environmental Impact Report/ Environmental Impact Statement Annotated Outline](#), starting at p. 134
- 12 Plan Bay Area DEIR, pp. 2.5-53 to 2.5-56.
- 13 Plan Bay Area DEIR, pp. 3.1-11.
- 14 <http://www.sustainableprosperity.ca/dl872&display>
- 15 <http://daily.sightline.org/2013/01/30/three-things-everyone-should-know-about-bcs-carbon-tax-in-pictures/>
- 16 <http://www.csmonitor.com/Commentary/Opinion/2013/0110/The-beauty-of-a-carbon-tax-and-its-exemption-for-the-poor>
- 17 <http://daily.sightline.org/2013/01/08/from-good-to-great>
- 18 EU carbon prices crash to record low, Financial Times, January 24, 2013
- 19 <http://www.rollingstone.com/politics/blogs/taibblog/chase-once-considered-the-good-bank-is-about-to-pay-another-massive-settlement-20130718>
- 20 <http://www.rollingstone.com/politics/news/gangster-bankers-too-big-to-jail-20130214>
- 21 Final Supplement to the FED, p. 50.

Attachment E--CA GHG Emissions



Transportation Solutions Defense and Education Fund

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Analysis of the CHSRA's GHG Report

On July 1, 2013, the California High-Speed Rail Authority released its *Contribution of the High-Speed Rail Program to Reducing California's Greenhouse Gas Emission Levels* (June 2013).¹ It is meant to fulfill the mandate contained in SB 1029 (the Legislature's authorization of HSR bonds for the Central Valley project) to provide "a report on the 'net impact of the high-speed rail program on the state's greenhouse gas emissions.'"² However, the report fails to quantify the project's emissions and emissions reductions, thereby making an evaluation of the program's net impact impossible.

The report is obviously intended to counter the Legislative Analyst's budget report³ of April 2012, which concluded that the HSR project would result in a net increase in GHG emissions for the first 30 years of operations. Knocking down that report would open the door to funding HSR with cap and trade revenues. Interestingly, the CHSRA report never mentioned the LAO report and pretended it didn't exist. Someone must have concluded they couldn't win an argument on the merits.

Rather than dispute the LAO report, the CHSRA report claims to "detail[] the projected net greenhouse gas (GHG) emissions associated with the construction and operation of the high-speed rail system."⁴ However, the report offers no details of those emissions. If numbers were developed during the preparation of the report, they weren't included in the publication. This is a politicized promotional piece and not a science-based document. It is simply not credible and not responsive to the legislative mandate.

Update: The Governor's Budget Proposal

The Governor proposed that \$250 million in 2014-15 cap and trade revenues go to HSRA. He further requested that 33% of all cap and trade revenues starting with 2015-16 be continuously appropriated to HSRA.⁵ These many billions of dollars, if not well-spent by the HSR project, could threaten the effectiveness of the entire cap and trade program. Careful scrutiny of the HSR project's net GHG benefits is warranted.

Methodology

A disclosure on p. 17 invalidates the entire report: "The timeframe and activities analyzed and discussed in this report were for CP1 [the first phase of the current Merced-Bakersfield project]. As the project moves forward, direct GHG emissions calculations will be carried out for each subsequent construction package." The construction impacts of CP1 cannot be meaningfully analyzed in relation to the operational emissions

reductions calculations, because the latter pertains to the Initial Operating Section (IOS), which is ten times its length. No HSR operations are planned for CP1.

This is critical, because the report is actually comparing the emissions benefits of the IOS to the emissions costs of the one-tenth-as-long CP1. Completing the IOS would require funding the \$26 billion extension to the LA Basin, as well as building CP2, CP3, CP4 and CP5 [the remainder of the Merced-Bakersfield project]. Obviously, the net project emissions are going to be very different when the emissions arising from \$26+ billion of construction are added in.

Evaluating the HSR program's net impacts requires either the operational emissions reductions of CP1 or the construction emissions of the IOS. This report offers neither.

Summary of Findings

The following six so-called Findings are mere restatements of vague intentions, with no identified funding to implement them:

- Commitment to 100% renewable energy during operations
- Zero net greenhouse gas emissions during construction
- Supportive transit and land use for greater cumulative benefits for the state
- Plans to plant thousands of new trees across the Central Valley
- Cleaner school buses and water pumps in Central Valley communities
- Agricultural conservation measures aimed at reducing Central Valley sprawl and preserving valuable agricultural land⁶

In addition, the report offers no evidence in support of the following two so-called Findings:

- Zero net greenhouse gas emissions during construction⁷

There is no evidence to support this claim. No numbers whatsoever are offered for GHG mitigation activities. This is a classic "aspirational goal" rather than a finding on a plan to achieve one.

- Significant contributions to the State's goals embodied in AB 32 and SB 375⁸

There is no evidence to support this claim.

Not only is there no evidence to support the following three so-called Findings, they are actively misleading, as they are entirely dependent on CHSRA receiving an additional \$26 billion to build out the IOS to the Los Angeles Basin. In addition, they will mislead non-technical readers because they appear to be findings on the project's net emissions impacts. Because they exclude the construction emissions of both CP1 and the IOS, they represent only one side of the emissions ledger.

- Greenhouse gas savings from the first year of operations increasing to over 1 million tons of CO₂ per year within 10 years⁹
- Result in net GHG emissions diversions that, conservatively, are the equivalent of the GHG emissions created from the electricity used in 22,440 houses, or removing 31,000 passenger vehicles from the road.¹⁰

- Using methodologies consistent with state practice, an estimated 4 to 8 million metric tons of CO2 saved by 2030, as if the state turned off a coal fired power plant¹¹

As discussed below, this last assertion is also misleading because the 8 years of operations are being compared to roughly one year of such a power plant's emissions.

GHG Emissions Sources for High-Speed Rail System

The diagram on page 9 is the only rendition of emissions category totals in the report. Amazingly, there is no corresponding table. The diagram comes closer to identifying the net impact than anything else in the report. However, its use of graphic symbols instead of conventional chart bars makes it impossible to interpret quantitatively. It is unclear from the diagram (or its associated text) whether the symbols have any quantitative significance, and if they do, whether emissions totals are represented by the height or by the area of the symbols. This makes the diagram both useless and deceptive: it obscures more than it discloses. Given the central importance of this data, choosing this indecipherable diagram for its portrayal can only be interpreted as an act of bad faith.

Operational Emissions Reductions

This project has had a long history of challenges to the technical validity of the HSR ridership model and litigation about the hidden changes that were made to it that advantaged Pacheco ridership while penalizing Altamont ridership. Ridership is the key input to an analysis of operational emissions reductions. As will be discussed later, the GHG reduction benefits of the HSR project are very dependent on ridership. With the controversy surrounding the ridership projections, this net emissions analysis rests on a shaky foundation.

The most striking part of this section is the meaningless apples-and-oranges comparison between the annual emissions of a coal-fired power plant and the emissions reductions from 8 years of HSR operations.¹² This is an attempt to invite positive identification with HSR by creating a "Coal Bad--HSR Good" dualism, a classic technique of promotion.

Construction Emissions

While the report uses standard methods to calculate the direct emissions resulting from construction, it entirely leaves out the emissions resulting from the acquisition of construction materials, and offers a weak justification that these emissions shouldn't be counted against the project:

Regarding the construction materials, for some it is possible to calculate the impacts over the material's life-cycle, from extraction through processing, use onsite, and disposal, and express those impacts in GHG emissions terms. Those GHG emissions are usually the reporting responsibility of the manufacturer, and in terms of a project GHG emissions

inventory, happen "upstream" and outside the boundary of the project.

For example, cement manufacturers in California are subject to ARB's Mandatory Reporting and Cap-and-Trade Regulations. These regulations require cement manufacturers to report their GHG emissions annually to ARB. The emissions from cement manufacturing count towards the statewide GHG emissions "cap." The GHG emissions covered under the "cap" are required to be reduced through emission controls or a limited amount (eight percent) may be offset through the purchase of ARB certified offset credits.¹³

The problem is that these emissions from construction materials constitute a very significant part of the project's overall emissions, because of the huge amount of concrete called for in the plans. This amount is large enough to increase the cement manufacturing sector's statewide emissions, which makes the "count it upstream" approach entirely inappropriate when evaluating the project's net impacts.

Perhaps recognizing this, the next paragraph of the report acknowledges the appropriateness of including the emissions from construction materials in its analysis, yet withholds the data on the flimsy excuse that the data is not "precise" enough:

However, the Authority considers it important to disclose the GHG emissions that occur outside of the project associated with materials used during construction. **These have not yet been quantified, due to the limitations of available information at this stage of project delivery.** While it is understood that the rail infrastructure will consist, largely of aggregate, concrete, steel, rails, and ballast; the **precise** source and supplier of those materials is not yet known. Additionally, the **precise** quantities are not available, given the nature of the design-build procurement process... (emphasis added)¹⁴

This is a masterful exercise in appearing to be fair-minded while simultaneously holding back damaging information. It is obvious that in the course of putting the project out to bid, the Authority prepared estimates of construction material quantities. These estimates were the basis for the calculation of the direct construction emissions. The materials' emissions must be **huge** for the Authority to need to bury them with this kind of double-talk.

The Legislative Analyst's April 2012 report¹⁵ relied on a 2010 pioneering study by Chester and Horvath entitled *Life-cycle assessment of high-speed rail: the case of California*.¹⁶ The study's 2012 update produced data that enabled this calculation: Infrastructure construction and operations contribute between 40% and 51% of the

CHSRA project's GHG emissions per person per kilometer travelled. This figure rises to near 100% of the emissions for the scenario with 100% renewable power, and falls to 32% when the train's capacity is nearly doubled.¹⁷ The paper found "CAHSR infrastructure construction effects are dominated by concrete use. Approximately 67% of CAHSR infrastructure emissions are the result of cement production for concrete use..."¹⁸

This is the smoking gun: Construction materials (as well as infrastructure construction, if one doesn't assume the success of the zero net GHG emissions program¹⁹) make up a highly significant percentage of the project's overall GHG emissions. Leaving them out so compromises the net impact analysis as to render it worthless.

The Chester and Horvath study calculated the project's payback period, the point at which the emissions reductions from the substitution of auto and air trips (measured as Vehicle Kilometers Traveled, or VKT) with HSR trips equals the HSR project's GHG emissions, including its cumulative prior emissions:

The payback sensitivity reveals several important considerations for transportation planners and air quality policy makers. The cumulative plum-colored lines for the high, medium and low forecast figures show that the **GHG payback will likely occur between 20 and 30 yr (D3) after groundbreaking**, and acidification potential after 20–40 yr. **However, payback is highly sensitive to reduced automobile travel.** The 5.8 billion auto VKT displaced dominate emissions changes in the corridor and the effects from reduced air travel and CAHSR are small. The reduced auto impacts are significantly affected or dominated by life-cycle components, in particular, avoided vehicle manufacturing, vehicle maintenance and gasoline production. (emphasis added.)²⁰

Chester and Horvath are thus warning that any slip in ridership from currently predicted levels would delay the GHG benefits of HSR even further.

Double Counting

When evaluating statewide benefits, it is important that GHG emissions reductions calculations represent only the project's own properties. The model that was used, on the other hand, "also reflects the GHG emissions benefits of ARB's recent rulemakings including on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel standard."²¹ This means that the report's emissions reduction calculations overstate the benefits accruing to the HSR project.

Offset Activities

The only way the CHSRA's GHG Report is able to claim a net beneficial GHG impact is by buying offsets in the form of environmental mitigations, including construction mitigations,²² and farmland protection.²³ The strategy of the Cap and Trade program is

to purchase GHG-reducing offsets at the lowest cost per ton. There's something very odd about committing Cap and Trade funds to a project that increases GHGs, which then has to buy GHG-reducing offsets. It would be dramatically less expensive on a per-ton basis to fund the GHG-reducing projects directly. Buying these same offsets as part of a CHSRA project package is inherently far more expensive.

Conclusion

The report offers no numbers capable of serving as a basis for the conclusion that "the high-speed rail program will have a positive impact on reducing the state's greenhouse gas emissions."²⁴ Instead, that conclusion "'feels right' without regard to evidence, logic, intellectual examination, or facts"--the Wikipedia definition of Stephen Colbert's 'truthiness'.

Endorsements

The uncritical endorsements of the report by agency heads expose the depth of its politicization. It simply is not credible that sophisticated agency heads and their staffs failed to spot the profound flaws identified above. Brian Kelly, now Secretary of the State Transportation Agency, "reviewed and approve[s]" the report.²⁵ Mary Nichols, Chair of the Air Resources Board, "believe[s] the analysis is reasonable..."²⁶ Instead of the comprehensive overview expected of someone of her subject matter expertise, she offered only superficial comments on the emissions reductions from mobility choices, and avoided construction emissions and offsets entirely. These two endorsements make it obvious that the Governor ordered his people to "make HSR funding happen" no matter what.

¹ hsr.ca.gov/docs/programs/green_practices/HSR_Reducing_CA_GHG_Emissions_2013.pdf

² p. 13. (Unless otherwise noted, all references are to the report accessible at the URL above.)

³ Legislative Analyst's Office, *Funding Requests for High-Speed Rail*, April 17, 2012, p. 8

⁴ p. 13.

⁵ Legislative Analyst's Office, *Cap-and-Trade Auction Revenue Expenditure Plan*, February 2014, p. 5

⁶ p. 6.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² p. 11.

¹³ p. 14.

¹⁴ p. 14.

¹⁵ Legislative Analyst's Office, p. 8

¹⁶ Mikhail Chester and Arpad Horvath, *Life-cycle assessment of high-speed rail: the case of California*, Environmental Research Letters, January 2010.

¹⁷ Mikhail Chester and Arpad Horvath, *High-speed rail with emerging automobiles and aircraft can reduce environmental impacts in California's future*, Environmental Research Letters, July 2012, p. 5 [Interpolated from the chart data in Figure 1]

¹⁸ Chester and Horvath, 2012, p. 4.

¹⁹ pp. 13-15.

²⁰ Chester and Horvath, 2012, p. 9.

²¹ p. 19.

²² p. 13.

²³ p. 15.

²⁴ p. 20.

²⁵ p. 1.

²⁶ p. 5.