DANIEL SPERLING

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Hearing: Realigning Federal Infrastructure Policy to Mitigate and Adapt to Climate Change

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Good morning Mr. Chairman and distinguished members of the committee. Thank you for the opportunity to testify today.

My name is Daniel Sperling. I hold two different positions: 1) Distinguished Professor of engineering and environmental science and policy and founding Director of the Institute of Transportation Studies at the University of California, Davis; and 2) Board member for the California Air Resources Board, holding the transportation seat (first appointed by Governor Arnold Schwarzenegger in February 2007). CARB, as we call it, is the agency in California principally responsible for administering its climate policies.

I am here to share thoughts on what California is doing to reduce greenhouse gas emissions from transportation, what we have learned, and what the Federal government might do, with a focus on new approaches to funding and incentives. The opportunity exists for the first time in half a century to create a truly sustainable transportation—economically, environmentally and socially.

California has been a pioneer in reducing greenhouse gas emissions while improving the economy and the mobility and accessibility of its residents…

California is home to some of the world's strongest environmental protections, while growing to become the fifth largest economy in the world. California policies have created markets for energy efficiency, energy storage, low carbon fuels, renewable power and zero-emission vehicles. California is home to nearly half of the zero-emission vehicles in the U.S., 40 percent of North American clean fuels investments, the world's best known electric car manufacturer, and the world's leading ride-sharing services.

California has demonstrated that one can invest in clean energy, efficient buildings and sustainable transportation, to gain a healthy environment while also growing the economy. Since 2010, California's economy, per-capita income and the size of the private workforce have all grown significantly faster than the national average, while at the same time reducing its carbon emissions back to the level they were at in 1990.

California is not an island—an especially important understanding in crafting solutions to climate change, a global problem. With ports, industries, water supplies, wild fires, and many communities all vulnerable to climate change, California aims to be a leader and model.

California's strategy is to employ a suite of policy approaches, combining carbon pricing with other complementary programs, including market-based compliance mechanisms, performance standards, technology requirements, and incentives.

A large variety of approaches are needed to grow the economy, solve environmental problems, and adapt to climate change. We have learned over the past decade that climate change is happening more quickly and with greater impact than we imagined, and that we need to pay special attention to transportation. What we see in California is that, despite the rapidly growing number of low and zero emissions vehicles, emissions are stubbornly rising.

The important role of transportation and its link to land use….

California's transportation system underpins its economy. The extensive freight system moves trillions of dollars of goods each year and supports nearly one-third of the state economy and more than 5 million jobs.

Transportation is also the largest source of GHG, criteria, and toxic diesel particulate matter emissions in the state (mobile sources account for almost 50% of greenhouse gas emissions in California, 85% of nitrogen oxides, and 90% of diesel particulate matter). This is not unique to California.

Where and how population grows will also have implications for traffic congestion, demand for new infrastructure (including roads, transit, and active transportation infrastructure), and demand for maintenance and upkeep of existing infrastructure. Historic patterns of growth continue to shape the country. While California has grown to be the fifth largest economy in the world, with world-class cities and thriving communities, many residents have no choice but to spend significant time and money driving from place to place.

The way we grow imposes and often reinforces long-standing racial and economic injustices by placing a disproportionate burden on low-income residents, who end up paying the highest proportion of their wages for housing and commuting. These residents also often live in communities with the most health impacts from lack of active transportation infrastructure and transportation pollution. Communities are at the heart of California's efforts to address climate change: urban and rural ones, and big and small ones. We cannot meet our goals without re-envisioning the way we plan and build them.

Innovative California initiatives in place…

I'd like to present a sampling of major California initiatives to reduce transportation greenhouse gas emissions, which also bolster the economy, enhance public health, revitalize disadvantaged communities, improve mobility, and strengthen resilience to disasters and changing climate, are often the same strategies that reduce transportation sector GHG emissions.

- California's Sustainable Communities Program, SB 375, is a law that sets targets for metropolitan areas to reduce greenhouse gas emissions from passenger transportation. The law has been highly successful at motivating leaders and community groups to reframe how to align transportation and environmental strategies and investments—truly a paradigm shift for the transportation community. What we learned, though, is that strong carrots and perhaps some sticks are needed to go the next step of accomplishing actual change at the local level.
    - One example of going the next step: a variety of policy and funding processes are being explored to infuse environmental criteria more deeply into transportation funding decisions.
    - As we continue to develop new approaches to transportation planning, it is important that we continue to measure and assess what we have. The transportation system is rapidly changing, so it's important that we have up-to-date data to inform our decisions
- California is investing in infrastructure that supports a suite of low-carbon transportation choices.
    - The Low Carbon Fuel Standard is structured to incentivize the supply of transportation fuels that are lower emitting and supports zero-emissions technology. For example, zero emissions technology use is credited to the low carbon fuel supplier, such as the electric utility or transit agency. Those credits are valued at over $0.10 per kWh; they are used to fund electric vehicle charging and hydrogen fuel stations, and are expected to be converted into rebates to electric vehicle buyers (estimated to be about $2000 per vehicle).
    - The California Energy Commission has committed $276 million for charging infrastructure and $141 million for hydrogen stations, to be fully spent within about 3 years.
    - Funding from the Volkswagen settlement, $1.2 billion, is being made available in California over 10 years mostly for electric vehicle charging stations, electric transit and school buses, electric trucks, electric forklifts and other equipment at ports, electric airport ground support equipment, electric ferries and tug boats, and low NOx combustion engine trucks, locomotives, and ships.
- Proceeds from California's Carbon Cap and Trade program are used for investments and incentives to reduce emissions from transportation. Of $9.4 billion available for public spending since 2012, more than $7 billion is being used to reduce GHG emissions from transportation, through a variety of programs. These include incentives and funding for clean cars, buses, and trucks, and off-road vehicles, high speed rail, active transportation, and more. Innovative efforts include linking affordable housing, transit, bike paths, car sharing, and urban greenery.

- Recent increases in California's gasoline/diesel tax (SB1) provides billions of transportation dollars to support California's air pollution, climate and public health priorities.
    - Over $800 million is allocated to active transportation, Sustainable Communities planning grants, transit and rail investments, and a new Congested Corridors program.
    - "The Solutions for Congested Corridors" program provides competitive funding based on performance measures tied to funding. The program requires that regions have an adopted Sustainable Communities Strategy (based on SB375) as part of their Regional Transportation Plan (RTP). Project applications are scored and selected based on metrics for accessibility, economic development, job creation and retention, air pollution and greenhouse gas emission reductions; and efficient land use.

Looking to the future, we need to rethink how transportation dollars are spent…

- In California alone over $1.1 trillion will be spent on transportation infrastructure over the life of current transportation plans – yet these spending plans often do not reflect key sustainability goals. Federal and State governments, including California, need to update transportation funding to better align projects with health, equity, economic, and environmental priorities.
    - In California 24 counties have passed local transportation sales tax measures, which comprise a significant portion of many regions' transportation funds. These measure often list specific projects, locking them in for years or decades. Often, these measure do not fully fund their listed projects, with the result that they go on to capture a region's otherwise-flexible State and Federal funds. While some of these projects or measures have been remarkably supportive of sustainability goals, others are not.
- Fiscally-sustainable and equitable methods for funding the transportation system are needed; they should be designed and adopted in a manner that aligns transportation goals with environmental and health goals. This alignment can be achieved through project performance criteria, funding formulas that account for environmental outcomes, and road user charges that account for congestion and environmental externalities.
- Funding programs could be created to fund pilot tests of strategies for improving transportation efficiency, such as shuttles, enhanced transit service, pooling facilitated by ride-hailing, protected bike lanes, and bike- and scooter-sharing, possibly to make travel easier in key zones that are currently highly congested, such as urban downtowns.

Looking to the future, we also need to use policy to direct new mobility services toward the public interest…

New mobility options offer an extraordinary opportunity to improve accessibility to jobs, school, health and more. Outside dense core cities, public transit is not efficient and does not serve many people well. An important goal is to improve mobility and accessibility for everyone—but to do so in a way that reduces vehicle miles traveled. It is possible and desirable—but only if the right policies are put in place. If we don't intervene, the likely outcome is higher costs for travelers and infrastructure, greater environmental impacts, and reduced accessibility and mobility by the most disadvantaged segments of our population. California is just beginning to pursue policies that direct these many new services, technologies, and business models (including demand-responsive ride-hailing companies, micro-transit vans and small buses, and micro-mobility options such as dockless scooters and bikes) toward the public interest. These initiatives include:

- Regulations to accelerate the use of electric vehicles and passenger "pooling" by Lyft, Uber, and other "transportation network companies" are being adopted in response to a new law, SB 1014 (2018) – the Clean Miles Standard and Incentive Program—which calls for innovative ways to curb greenhouse gas emissions. This new program will be aligned with future changes to the Advanced Clean Cars automaker regulations, as well as the SB 375 program – the Sustainable Communities and Climate Protection Act (which requires regional GHG reductions from passenger transportation).
- Pilot testing of innovative ideas and services to speed the adoption of clean, efficient transportation solutions. Promote the use of pilot projects that bring together innovators, technical experts, community members, and decision-making partners to find creative solutions for accelerating a change in travel choices away from single-occupancy vehicles while improving accessibility and access to opportunity, particularly for low-income communities.
    - In our capital city of Sacramento, the regional metropolitan planning organization, SACOG, is developing a "Green Means Go" pilot program that incentivizes and accelerates infill development, reduces vehicle miles traveled, and increases electric vehicle use within designated "Green Zones" or opportunity areas. Green Zones complement SACOG's Civic Lab pilot program, which focuses on targeted innovative transportation solutions and new ideas that can be scaled up throughout the region.
- Emerging public private partnerships are also helping to pave the way, and incentive funding to explore innovative solutions are key,
    - For example, the Car-Free Living Program is a first-of-its-kind partnership that encourages residents to use public transportation and ride share, providing a more affordable alternative to car ownership. The real estate developer is enthusiastic because they do not provide as much (expensive) parking garage spaces. New residents who participate in the Car-Free Living Program receive a

$100 monthly transportation credit per apartment to use with Getaround, Clipper card (transit fare card in the San Francisco Bay Area), and Uber. Any resident can also catch a ride in an UberPool from Parkmerced to nearby public transit stations for a flat rate of $5.

In conclusion…

Transportation is in need of a fix, not just because of greenhouse gas emissions, but also because of degrading road infrastructure, worsening traffic congestion, declining transit ridership, and large numbers of people with poor access to jobs, health, and education.

Transportation is also an opportunity. Innovation is everywhere. California is pioneering some initiatives, as are others. But much more can be done. Reforming federal and state policies to encourage innovation and incentivize change should be a top priority. Funding should be used to support initiatives that promote environmental, social, and economic goals.

Thank you and I look forward to answering any questions you might have.