OFFICE OF THE MAYOR
SAN FRANCISCO

EDWIN M. LEE
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December 16, 2016

Mr. Mark Williams, Mailstop 3E
Air Resources Board
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On behalf of the City and County of San Francisco and San Francisco Mayor Edwin M. Lee, I am writing to comment on the Volkswagen (VW) settlement plan for California. San Francisco remains deeply committed to our climate action strategy and taking measurable steps to address climate change by advancing our city's transformation towards zero emission vehicles. We applaud your staff in working with VW to ensure that their investments in California support these local efforts that are supporting the State's greenhouse gas reduction and vehicle market transformation goals. In addition to improving access in slow-growth areas, we hope that you also prioritize investments that specifically enhance the ability of innovative cities like San Francisco to drive best practices for the entire state. This innovation is key to achieving our statewide goals. As you look at the Volkswagen plan on February 22, 2017, we recommend that all investments adhere to the following overarching principles:

- Consistency and Convenience
- Performance and Reliability
- Coordination of public / private stakeholders
- Equitable access to all residents, businesses and visitors
- Effectiveness in use of funds where they create the most impact and measurable results
- Transparency through Data, Information and Reporting

To ensure investments are prioritized in line with these principles we recommend the following for consideration:

1. Support focused investments on electrifying new modalities of transportation such as car, shuttle and ride sharing
2. Complement investments for electrified options of public transit, port and air transit
3. Identify complementary demand for DC Fast Charge investments to support commuters, Transportation Network Company drivers and multi-unit dwellers
4. Ensure electricity supply has the highest content of renewable energy possible and prioritize grid impact and mitigation strategies (e.g., demand response and DCFC with energy storage pilots)
5. Create greater market demand by aligning ongoing state and federal efforts
6. Pair investments with hydrogen fueling options where possible for greater impact

1. <u>Support focused investments on electrifying new modalities of transportation such as car, shuttle and ride sharing</u>

San Francisco is quickly becoming the new motor city, paving the way for the car and ride sharing economy. Today the City is home to both major TNCs, shuttle ride sharing services and car sharing options (e.g.Uber,

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Lyft, Chariot, GetAround). More than 40,000 business licenses have issued to TNC drivers in San Francisco to date.

The VW plan should consider:

- **Focusing on working with TNCs, car sharing firms and local governments to provide incentives to deploy significant investment in DCFCs to support entrepreneurial driver adoption of PEVs. DCFCs should be deployed in strategic locations of cities like San Francisco, informed by data through collaboration with TNCs, local utilities, and local government agencies.**

2. Complement investments for electrified options of public transit, port and air transit

Public Transportation

San Francisco has been globally influential in transportation, clean energy, and climate planning. It was an early and strong proponent of coordinated urban and regional climate action across jurisdictional borders, including ambitious efforts to decarbonize both the transportation and energy sectors. In 1973 City leaders enacted the Transit First policy, which prioritized public fund spending on cleaner transportation methods. Today, the City's trolley system, streetcar fleet and electric busses run on 100 percent renewable energy. As of 2012, citywide emissions have been reduced 23 percent from 1990 levels. Despite this achievement, the transportation sector (car and trucks) has only seen a 7 percent reduction during the same time period. Since the transportation sector makes up over 44 percent of citywide emissions it's imperative that solutions are rapidly deployed to meet the City's Climate Action goals (80 percent below 1990 levels by 2050; 25 percent and 40 percent below baseline by 2017 and 2025 respectively). To help achieve these goals, San Francisco produces a Transportation Sector Climate Action Strategy every two years that outlines 7 program areas that will reduce greenhouse gas emissions from the movement of goods and people throughout the City. Among the key strategies are market transformation for PEVs and charging infrastructure that can be integrated to complement our public transit system. This is further supported by providing information to travelers on their choices to make trips convenient, reliable and consistent.

Accessing and managing data and information related to the transportation sector is also critical to the City's understanding of the rapidly evolving transportation sector in San Francisco. The City is working to build a data management framework that will enable San Francisco to access and monitor the evolving multimodal transportation sector and its GHG emissions. This effort aims to develop an adaptive management / data driven framework to track emissions reduction through qualitative and quantitative data and performance measures. This in turn will allow San Francisco to better understand how its program areas in the Transportation Sector Climate Action Strategy are contributing to emissions reduction efforts and can lead to effective policy and projects that will successfully reduce emissions from the transportation sector.

To help local governments like San Francisco achieve these goals, the VW plan should consider:

- **Including investment in projects that locate Electric Vehicle Service Equipment (EVSE including Level 2 and DCFC) at transit hubs to provide first / last mile solutions (e.g. car and ride share applications co-located at BART, CalTrain, and Amtrak stations; public parking garages, surface lots and at San Francisco International Airport). This infrastructure would enable fleets of PEVs, including shuttle buses, to support commuters and travelers in the Bay Area. This approach would also include co-location of electric bikes at key public transit hubs.**

- **Supporting data management efforts that will help build a strong foundation of information that results in improved policies and innovative projects. Additionally, this coordinated effort will lead to greater transparency, improved reporting and performance measures, informing future funding opportunities, and additional private sector investment.**

San Francisco International Airport

The San Francisco International Airport (SFO) is a national leader, among airports, in growth, innovation, and sustainability. As one of the State's busiest intermodal transportation hubs, it is a long-time investor in ZEVs and support infrastructure. With over 51 million passengers annually, and daily operations that sustain a workforce of more than 36,000 badged Bay Area workers, SFO is well postured to adapt and serve as a pipeline to emergent and market-available ZEV technologies. SFO already boasts the nation's cleanest multimodal transportation system in BART (powered by 70 percent GHG-free electricity), AirTrain (powered by 100 percent GHG-free electricity) and is pursuing a system to expand electrification of its bus fleet, light-duty vehicle fleet, and PEV charging stations this fiscal cycle. SFO recognizes ZEVs promise to influence many crucial aspects of airport operations, and embraces the societal and operational benefits associated with ZEV light-duty passenger cars and trucks, medium and heavy duty trucks, shuttle buses, and ground support equipment.

As SFO further evaluates the role of ZEVs within its daily operations, the Airport has identified its vehicle rental business as a unique opportunity to increase consumer exposure to PEVs. Nationally, vehicle rental at airports is a high volume business, and in 2015, the nine car rental companies operating at SFO registered a total 1.87 million rental transactions. This volume represents a 59 percent increase over transactions from 2009, despite the rapid evolution and growth of TNCs (e.g. Uber, Lyft) during this time. However, only one of the rental car companies at SFO currently offers PEVs (with a fleet of nine Tesla Model S). Given the rising number of PEV models on the market, and the increasing prevalence of PEV support infrastructure in the Bay Area, SFO believes an expanded and diversified fleet of rental PEVs at the Airport would translate to valuable growth in PEV driving opportunities for the general public – particularly when coupled with a strong PEV awareness campaign in high traffic areas of SFO via its digital media suite.

The VW plan should consider:

- **Including focused Airport ZEV awareness campaigns partnered with investment in Airports with rental car operations. Such a program could provide PEV "ride and drive" experiences for a significant population of passengers who also represent prospective consumers that may otherwise not seek opportunities to test-drive PEVs.**

3. <u>Identify complementary demand for DC Fast Charge investments to support commuters, Transportation Network Company drivers and multi-unit dwellers</u>

<u>Include a Focus on Multi-Unit Dwellings</u>

In San Francisco, there are approximately 225,000 vehicles registered to single-family home dwellers and another 200,000 to occupants of Multi-Unit Dwellings (MUDs). Approximately 67 percent of San Francisco's population consists of renters (compared to 42 percent in California and 38 percent nationwide). Although they comprise a majority of the population, renters are underrepresented in PEV ownership and rebate statistics, leaving a large segment of demand in MUDs unmet.

Today, 80-90 percent of PEV drivers charge their cars at home. However, home charging is usually not an option for those living in MUDs. Numerous barriers discourage retrofitting MUDs to accommodate PEV infrastructure, the greatest of which is the high cost of retrofits. There is also disconnect between tenants who may be required to pay for the installation of infrastructure, and building owners who own the infrastructure once it is installed. Finally, landlords and homeowners' associations often set insurance requirements or other conditions that discourage retrofit of PEV charging infrastructure by tenants or condo owners.

The VW plan should consider:

- **Supporting widespread access to PEV charging infrastructure during the first 30 months of investment, leveraging the existing network of gas stations across the State, including those in San Francisco, to provide reliable and consistent DCFC hubs, transitioning the *gas station* to an *energy station*.**

- **Prioritizing DCFC investment, both at gas stations and in areas where there is demand for charging infrastructure, and ensure that DCFCs are paired with energy storage. This will enable maximum GHG reductions, taking advantage of the over-generation renewables on the grid. This will also help to shape load, alleviate demand charges that impact the business case for DCFCs, and open up opportunities to Distributed Energy Resource Providers to participate in the CAISO wholesale market.**

- **Investing in offsetting the retrofit and site preparation costs in existing MUDs to enable equitable charging solutions in this sector. MUD owners or managers would still pay the cost of Level 2 chargers, leveraging Investor Owned Utility incentives; however, given that site preparation alone can constitute one half to three quarters of the total cost of charger installation in existing buildings, offsetting that initial cost through grants could significantly increase the number of MUDs installing PEV chargers – thus unleashing the "next" market of PEV owners.**

- **Investing in pilot projects that pair charging solutions with other Distributed Energy Resources to unlock emerging private sector business models.**

Include a Focus on Workplace Charging

California aims to have 1.5 million PEVs on the road by 2025 – a more than 500 percent increase over the roughly 260,000 PEVs it has today. Thinking about this from a local context, there are approximately 120,000 inbound commuter vehicles in San Francisco daily. Supporting that many vehicles will require a significant and relatively rapid expansion of charging infrastructure in non-home charging stations. For that load to have a positive, as opposed to negative, effect on the grid, that EVSE need to be where vehicles can plug into them at the right time. In San Francisco for example, where solar is a major contributor to grid power that will mean more chargers are needed at the workplace, so that vehicles can charge during the midday peak of solar output.

The VW plan should consider:

- **Including incentives for employers, commercial property owners and managers to install workplace PEV charging and charging management systems (e.g. a simple rebate that can be leveraged in addition to utility incentives to further reduce cost barriers).**

- **Including incentives for commercial building energy storage systems to take advantage of the over generation of renewables on the grid and address utility demand charges that could otherwise be a cost barrier for employers, commercial property owners and managers.**

4. Ensure electricity supply has the highest content of renewable energy possible and prioritize grid impact and mitigation strategies (e.g., demand response and DCFC with energy storage pilots)

IOU, MOU and CCA Coordination

San Francisco's two electric utility providers provide a 40 percent renewable electricity resource mix to residents and businesses today. Pacific Gas & Electric (PG&E) has historically provided service within most of the San Francisco Bay Area, including the City (75 percent of load). PG&E is committed to achieving California's Renewable Portfolio Standard (RPS) requirements (33 percent by 2020 and 50 percent by 2030). The utility's current portfolio includes 29.5 percent renewables and it is on track to achieve the 2030 RPS goal with 37 percent renewables currently under contract. In January 2016, PG&E also launched Solar Choice, a renewable energy program that enables PG&E retail electricity customers – including renters, homeowners with poor roof orientation and shading and businesses – to purchase up to 100 percent renewable energy without installing solar PV on their roofs. PG&E's Solar Choice provides another option for community members to power their PEVs with carbon free electricity.

The San Francisco Public Utilities Commission (SFPUC) owns and operates the Hetch Hetchy Power System, San Francisco's clean energy backbone. For over 100 years, the Hetch Hetchy power network has supplied 100 percent GHG-free electricity to all municipal facilities, services and customers, which includes San Francisco International Airport, hospitals, the City's MUNI system (light rail, trolleys, buses), Police, Fire, retail City tenants, residences and businesses in the South East Shipyard area of the City (e.g. Bayview Hunters Point), Treasure Island and more. Collectively, this accounts for approximately 17 percent of the City's electrical load.

The City is also actively expanding its path to achieve 100 percent renewable energy by 2030 through CleanPowerSF, San Francisco's new Community Choice Aggregation program. Launched in May 2016, CleanPowerSF, which was authorized through State law (AB117 in 2002), and allows SFPUC to partner with PG&E to provide an additional choice in the sources of electricity generated and delivered to residents and businesses. Under CleanPowerSF, PG&E continues to maintain the grid, respond to outages and collect payment. The City is offering electric generation rates to CleanPowerSF customers that are competitive with PG&E and exceed the state's 2020 RPS goal of 33 percent by providing a default "Green" product that is 35 percent renewable and a premium "Super Green" product that is 100 percent renewable, using California sourced renewable energy. There are also three other CCAs operational in California and local governments representing 17.6 million residents, are launching or exploring development of CCA programs by 2020. This means that 60 percent of Californians would be eligible to choose a CCA as their default electricity provider. From a climate protection perspective, the impact of this transformation is a game changer.[1]

Today's fast-changing PEV market represents the beginnings of a demand-side opportunity like no other: intelligent, interactive electricity demand that is movable. Even without vehicle-to-grid power flows, the ability to flexibly manage charging while still meeting the community's power requirements can provide a new kind of distributed resource at the grid edge.

The VW plan should consider:

- **Coordinating with Community Choice Aggregation programs like CleanPowerSF and Municipal Owned Utilities who supply 100 percent GHG free electricity to customers, today. Local governments with MOUs and / or CCAs have the ability to develop and pilot model tariffs and incentives for PEVs and other complementary Distributed Energy Resources (energy storage, rooftop solar) that open up compensation for grid services and unlock barriers to charging solutions, faster.**

- **Leveraging the work of IOUs like PG&E who are currently developing and implementing PEV charging infrastructure incentive programs. Coordination with IOU programs will ensure consistency, convenience, long term reliability of assets and equitable access for stakeholders across the state.**

5. Creating market demand through alignment of state and federal efforts

U.S. Department of Transportation FACT Act

U.S. DOT was required to designate corridors across the country to improve mobility of passenger and commercial vehicles that employ PEV charging and hydrogen refilling (e.g. Zero-Emission Corridors in California) by December 2016. The City supported the State of California's proposal for designation which identified strategic charging and refilling points along major interstates and highways, including those in the San Francisco Bay Area.

The VW plan should consider:

- **Deploying charging infrastructure that is strategically aligned with the State's Zero-Emission Corridor Designation and ensuring consistency in the build out of this network. This includes**

[1] http://www.leanenergyus.org/cca-by-state/

adhering to the standardization of signage being developed by federal and state government agencies to catalyze public interest and provide consistency to drivers.

- **Coordinating with the U.S. Department of Energy (USDOE) which is developing system specification requirements for DCFCs that require energy storage to address demand charges, help shape load / optimize use of over generation of renewables on the grid and provide resiliency in time of emergency. This standard will apply across the country (e.g. it is not exclusive to California), and can serve as a model for best practices as VW expands its investment in other states.**

- **Identifying how it will ensure EVSE has consistent standards so to avoid future stranded assets.**

- **How VW will work with USDOE, technology providers, local governments and transit authorities to ensure traffic apps that show gas stations on maps also show charging station deployment to ensure travelers have an easy experience through the availability of web based tools.**

- **Investing in siting and implementation of 350-kilowatt DCFC to support the growing medium and heavy-duty PEV market, and to "future proof" next generation charging infrastructure for light duty vehicles.**

- **Collaborating with existing networks and partnerships among municipalities, state and federal government agencies will enable VW to conduct awareness campaigns that complement or expand on existing campaigns and institutional infrastructure.**

- **Leveraging USDOE-supported Clean Cities Collaborative, USDOE EV Everywhere and Best. Drive. Ever Campaigns; Regional Councils such as the Bay Area EV Strategic Council; the Plug-in Electric Vehicle Collaborative; the California Fuel Cell Partnership; the Pacific Coast Collaborative, and the USDOT Smart City Challenge network of local government finalists (including San Francisco), for knowledge exchange and replication across the U.S.**

6. <u>Pair investments with hydrogen fueling options where possible for greater impact</u>

San Francisco appreciates that CARB including hydrogen in the first phase of VW settlement funding. In less than one year nearly 1,000 people have leased or purchased an FCEV and this month station number 24 opened in California. Through both CEC and USDOE grants, San Francisco is currently working to streamline the permitting and inspection process for hydrogen refilling stations throughout the Bay Area. We will also work with the California Fuel Cell Partnership to provide training workshops for permitting, inspection and safety officials. Quickly expanding the number of hydrogen stations is the single most important element for increasing FCEV deployment. Additionally, public awareness of FCEVs and hydrogen refilling stations is vital. Through our USDOE grant, San Francisco will work to increase public awareness on the viability, safety and availability of FCEVs and hydrogen refilling stations in 2017. Consistent messaging and experience for drivers is crucial.

The VW plan should consider:

- **Leveraging ARFVTP funding and make it go farther by building more hydrogen stations, faster.**

- **Leveraging dissemination of the California Fuel Cell Partnership's collateral materials.**

- **Supporting expanding renewable hydrogen, building stations for transit buses and trucks, and supporting testing devices that can significantly reduce the time needed to commission stations.**

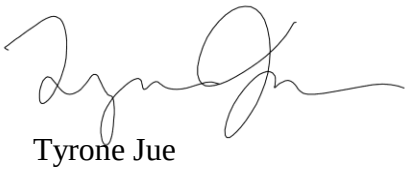
- **Investing in the implementation of medium and heavy-duty FCEVs to reduce priority air contaminants found in diesel which impact disadvantaged communities near ports, distribution centers and throughout neighborhoods with delivery routes.**

Conclusion
San Francisco is proudly part of the Pacific Coast Collaborative (PCC), which has prioritized transitioning to ZEVs in order to maximize immediate reductions in GHG emissions. We closely collaborate with our state partners, Seattle, Portland, Oakland and Los Angeles to advance key ZEV priorities. We encourage the VW plan to prioritize the coordinated and collective investment being made by California's PCC members pursue innovative and coordinated ZEV initiatives.

In addition, as 1 of 7 U.S. DOT Smart Cities Challenge finalist, San Francisco has shovel ready projects with partners including private sector technology providers, universities, utilities (both MOU, CCA and IOU), city agencies, community based organizations and regional partners.

We appreciate the opportunity to provide input into this process and looks forward to partnering with CARB and VW in order to ensure that investments complement other initiatives, particularly leadership among local governments, to maximize the benefits of this investment for the good of all Californians.

Sincerely,



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