

## DOCKETED

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*Comment Received From: Rikki Weber*

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## **Comments on CEC's Transportation Electrification in Integrated Resource Planning**

*Additional submitted attachment is included below.*



November 1, 2016

VIA ELECTRONIC MAIL

California Energy Commission  
Dockets Office, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512

**Re: Docket No. 16-TRAN-01**

To the California Energy Commission,

Thank you for the opportunity to comment on the California Energy Commission's ("Commission's") consideration of transportation electrification in integrated resource planning. These comments are submitted on behalf of the Catholic Charities of Stockton, the Center for Community Action and Environmental Justice, the Central Valley Air Quality Coalition, Comite Civico del Valle, the Ditching Dirty Diesel Collaborative, East Yard Communities for Environmental Justice, EndOil, the Long Beach Alliance for Children with Asthma, Regional Asthma Management and Prevention, and the West Oakland Environmental Indicators Project. These organizations offer the following comments to encourage the Commission to direct publicly owned utilities ("POUs") to invest in maximizing emission reductions in communities most impacted by air pollution. In particular, this will require significant investment in the electrification of freight operations, vehicles, and equipment.

## **I. Organizational Interests**

The groups joining this letter represent communities in areas served by POU's that will use the Commission's guidelines to develop their integrated resource plans ("IRPs") or other planning efforts. Members of these organizations live in communities adjacent to rail yards, ports, major roadways, and other parts of the state's goods movement infrastructure. They suffer the health effects associated with exposure to high levels of pollutants emitted by freight vehicles and equipment and are advocating for a transition to zero emission technologies now. Utility plans that prioritize widespread transportation electrification are critical to improving quality of life in these communities.

## **II. SB 350 Requires Publicly Owned Utilities to Invest in Transportation Electrification to Advance Air, Climate, and Equity Goals**

Senate Bill ("SB") 350 recognizes that transportation electrification is necessary to "meet air quality standards, to improve public health, and to achieve greenhouse gas emissions reduction goals."<sup>1</sup> SB 350 also notes that "widespread transportation electrification requires electrical corporations to increase access to use of electricity as a transportation fuel."<sup>2</sup> As a result, SB 350 states that "[i]t is the policy of the state and the intent of the Legislature to encourage transportation electrification as a means to achieve ambient air quality standards and the state's climate goals."<sup>3</sup> The law requires that "agencies designing and implementing regulations, guidelines, plans, and funding programs to reduce greenhouse gas emissions shall take [these findings] into account."<sup>4</sup> POU's designing IRPs must prioritize investments in transportation electrification in order to improve public health, attain federal air quality standards, and meet statewide greenhouse gas emission reduction goals. Fulfilling these mandates requires investments in electrification of all transportation sectors, including the freight sector.

### **A. Presentations at the October 5 Workshop Neglected Electrification of the Freight Sector**

Despite the importance of electrifying transportation across sectors to meet the requirements of SB 350, many of the presentations at the October 5 workshop focused exclusively on electrifying passenger vehicles. For example, the presentation given by the Los Angeles Department of Water and Power ("LADWP") indicated that the LADWP draft EV Plan does not yet include any goals for medium and heavy duty fleets, despite serving one of the world's largest ports, as well as rail yards and distribution centers.<sup>5</sup> The Sacramento Municipal Utility District ("SMUD"), which also serves a port as well as other freight facilities, did not discuss ground support

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<sup>1</sup> Pub. Util. Code § 740.12 (a)(1)(A).

<sup>2</sup> Pub. Util. Code § 740.12(a)(1)(E).

<sup>3</sup> Pub. Util. Code § 740.12(a)(2).

<sup>4</sup> Pub. Util. Code § 740.12(a)(2).

<sup>5</sup> Los Angeles Department of Water & Power. Transportation Electrification: The LADWP Plan, at 12 (October 5, 2016).

equipment, cargo handling equipment, or other freight vehicles and equipment that are primed for electrification.

Freight electrification should be a centerpiece of POU IRPs due to the magnitude of emissions from the freight sector statewide. According to the California Sustainable Freight Action Plan, “freight equipment accounts for about half of the statewide diesel particulate matter emissions, and approximately 45% of the statewide nitrogen oxides emissions.”<sup>6</sup> The transformation envisioned in SB 350 will require substantive investments in freight electrification.

### **B. Freight Electrification Is Needed to Meet Ambient Air Quality Standards and Climate Goals**

Many regions in the state, including the San Joaquin Valley, Imperial County, the San Francisco Bay Area, the South Coast air basin, and the Sacramento Valley are classified as nonattainment areas for federal fine particulate matter (“PM2.5”) and/or ozone standards.<sup>7</sup> These regions face multiple attainment deadlines in the next five to ten years, and meeting those deadlines will require massive reductions in air pollutant emissions throughout the state. For example, in the South Coast air basin, the California Air Resources Board projects that emissions of nitrogen oxides (“NOx”) must decline to 70% of today’s levels by 2023, and to 80% of today’s levels by 2031.<sup>8</sup> In the San Joaquin Valley, NOx emissions must be reduced by 50% by 2031 to meet federal standards.<sup>9</sup> As freight is responsible for 45% of all NOx emissions in the state, reducing emissions from freight will be critical to attaining federal clean air standards.

Freight pollution also contributes to climate change. The freight sector is responsible for 6% of all greenhouse gas emissions in the state. If entities like the Commission and POUs fail to take action to reduce emissions from freight, the sector’s contribution to statewide greenhouse gas emissions is projected to increase.<sup>10</sup>

### **C. Freight Electrification Will Benefit Disadvantaged Communities**

The health risks posed by diesel particulate matter (“PM”) and other pollutants are not spread across our population equally; rather, low-income communities and communities of color bear more than their fair share of this burden. For example, studies have shown that levels of diesel PM in West Oakland, the community adjacent to the Port of Oakland, are three times higher than

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<sup>6</sup> California Sustainable Freight Action Plan, at 6 (July 2016).

<sup>7</sup> California Air Resources Board. December 2015. Area Designations for National Ambient Air Quality Standards: PM2.5 (available at: [https://www.arb.ca.gov/desig/adm/2015/fed\\_pm25.pdf](https://www.arb.ca.gov/desig/adm/2015/fed_pm25.pdf)); California Air Resources Board. December 2015. Area Designations for National Ambient Air Quality Standards: 8-Hour Ozone (available at: [https://www.arb.ca.gov/desig/adm/2015/fed\\_o3.pdf](https://www.arb.ca.gov/desig/adm/2015/fed_o3.pdf)).

<sup>8</sup> California Air Resources Board. Proposed 2016 State Strategy for the State Implementation Plan, at 12 (May 17, 2016).

<sup>9</sup> *Id.*, at 14.

<sup>10</sup> California Sustainable Freight Action Plan, at 7 (July 2016).

in other parts of the Bay Area.<sup>11</sup> West Oakland is a community with more low-income families and a higher proportion of people of color than the Bay Area as a whole.<sup>12</sup> Similarly, diesel trucks are the single largest source of air pollutants in the Imperial Valley<sup>13</sup> and diesel PM is the driver of much of the cancer risk that people bear in Southern California.<sup>14</sup> Those risks in Southern California and the Imperial Valley are borne disproportionately by low-income communities and communities of color.<sup>15</sup>

These hazardous emissions affect children the most. In fact, the Office of Environmental Health Hazard Assessment recently revised its health risk assessment methodology to reflect the heightened impact of pollutants on children's health, such that risks are up to three times higher than previously believed.<sup>16</sup> Research in Southern California has demonstrated that children living near busy roadways have slower lung growth and reduced lung function, and that improvements in air quality can make an entire generation of children healthier.<sup>17</sup>

The health effects associated with air pollution have an economic impact as well. A 2008 study found that air pollution costs California roughly \$28 billion per year. This includes the economic impact of the estimated 3,000 premature deaths per year, in addition to medical costs and the cost of missed days of school and work due to illnesses caused or worsened by air pollution.<sup>18</sup> As described above, these impacts are felt most in disadvantaged communities. Programs and investments that support freight electrification will produce clear benefits for public health, particularly in the most impacted communities.

Moreover, some cities served by POUs are developing plans that will require electrification of the freight sector. For example, the City of Los Angeles included commitments regarding zero

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<sup>11</sup> California Air Resources Board. "Diesel Particulate Matter Health Risk Assessment for the West Oakland Community," at 2 (December 2008) (available at: <http://www.arb.ca.gov/ch/communities/ra/westoakland/documents/westoaklandreport.pdf>).

<sup>12</sup> Alameda County Public Health Department. "Life and Death from Unnatural Causes: Health and Social Inequity in Alameda County," at 45. (August 2008) (available at: <http://www.acphd.org/media/53628/unnatcs2008.pdf>).

<sup>13</sup> Patricia Leigh Brown. "The air is dark and deadly along the Mexico border," Reveal: the Center for Investigative Reporting (April 21, 2015) (available at: <https://www.revealnews.org/article/the-air-is-dark-and-asthma-is-deadly-along-the-mexico-border/>).

<sup>14</sup> South Coast Air Quality Management District. "Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin" (May 2015) (available at: <http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv>), p. ES-5.

<sup>15</sup> See, e.g. Patricia Leigh Brown. "The air is dark and deadly along the Mexico border," Reveal: the Center for Investigative Reporting (April 21, 2015) (available at: <https://www.revealnews.org/article/the-air-is-dark-and-asthma-is-deadly-along-the-mexico-border/>); California Air Resources Board. Health Risk Assessment for Union Pacific Railroad Commerce Railyard, at Figure II-3 (November 2, 2007) (available at: [https://www.arb.ca.gov/railyard/hra/up\\_com\\_hra.pdf](https://www.arb.ca.gov/railyard/hra/up_com_hra.pdf)) (Commerce, CA is one of the most disadvantaged communities in the state of California, according to CalEnviroScreen 2.0).

<sup>16</sup> California Sustainable Freight Action Plan, at 6 (July 2016).

<sup>17</sup> See, e.g., University of Southern California. "USC Children's Health Study: Study Findings" (available at: <https://healthstudy.usc.edu/findings.php>).

<sup>18</sup> Louis Sahagun. "Pollution saps state's economy, study says." Los Angeles Times (November 13, 2008) (available at: <http://articles.latimes.com/2008/nov/13/local/me-pollute13>).

emission goods movement in the equity portions of Sustainable City Plan.<sup>19</sup> The Commission plays an important role in making sure the requisite infrastructure is developed to support these critical projects.

#### **D. Freight Sector Growth Projections Make Electrification an Immediate Priority**

Goods movement is a major economic driver in California, and the State projects that the sector will grow in the future.<sup>20</sup> The Southern California Association of Governments expects that “[i]nfrastructure for freight will be strained, current efforts to reduce air pollution from goods movement will not be sufficient to meet national air quality standards, capacity at international ports will be overburdened and warehouse space could fall short of demands.”<sup>21</sup>

The South Coast air basin is not unique. Goods movement in the San Joaquin Valley is expected to grow by 60%, with a total annual volume of over 800 million tons of goods moved by 2040.<sup>22</sup> Nearly all of those goods will be carried by trucks. The Inland Empire’s population is also expected to grow, as will the volume of freight on its roadways. San Bernardino Associated Governments expects truck volumes to require all roadway capacity on SR-60 and I-15 in San Bernardino.<sup>23</sup> The Port of Oakland is currently developing a new seaport logistics complex that will include a new marine terminal, a new intermodal terminal, and a new rail yard, in addition to new roads, infrastructure, and warehouse space.<sup>24</sup> In short, California must act quickly to transition to zero emission technologies for goods movement to accommodate growth while protecting public health.

### **III. POU Investments in Freight Electrification Will Advance State Goals**

POUs’ timely commitments to freight electrification will contribute to the successes of plans developed by state agencies to meet air quality standards and reduce greenhouse gas emissions. These plans include:

- **California State Implementation Plan:** A plan that describes the pollution control measures that the US Environmental Protection Agency, the California Air Resources Board (“ARB”), and local air districts will implement to reduce air pollution and meet

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<sup>19</sup> City of Los Angeles, PLAN, Transforming Los Angeles: Environment, Economy, Equity, at 78 (available at: [https://www.lamayor.org/sites/g/files/wph446/f/landing\\_pages/files/The%20PLAN.pdf](https://www.lamayor.org/sites/g/files/wph446/f/landing_pages/files/The%20PLAN.pdf)).

<sup>20</sup> Executive Order B-32-15 (available at: <https://www.gov.ca.gov/news.php?id=19046>).

<sup>21</sup> Southern California Association of Governments. “The 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life,” at 3 (April 2016) (available at: <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>).

<sup>22</sup> Cambridge Systematics. “San Joaquin Valley Goods Movement Plan: Final Report,” at 2-20 (August 2013) (available at: <https://www.camsys.com/publications/san-joaquin-valley-interregional-goods-movement-plan>).

<sup>23</sup> Neal Nisperos. “Truckers call for dedicated truck lanes as freight expected to double,” Inland Valley Daily Bulletin (May 7, 2016) (available at: <http://www.sbsun.com/general-news/20160507/truckers-call-for-dedicated-truck-lanes-as-freight-expected-to-double>).

<sup>24</sup> Port of Oakland. Seaport Logistics Complex (available at: <http://www.portofoakland.com/port/seaport/seaport-logistics-complex/>).

federal air quality standards. Because vehicles and equipment associated with freight are responsible for a significant portion of California's NOx and PM emissions, reducing freight emissions is an important piece of the plan.

- **California Air Resources Board Mobile Source Strategy:** The Mobile Source Strategy feeds into the State Implementation Plan. It describes the actions that ARB will take to reduce emissions from mobile sources, which include heavy duty trucks, forklifts, locomotives, ocean-going vessels, cranes, and other equipment used in goods movement. The strategy is part of California's path to a fully zero emission goods movement sector, and will require support from utilities in the form of charging infrastructure that can handle the additional load from zero emission vehicles and equipment.
- **California Sustainable Freight Action Plan:** The California Sustainable Freight Action Plan was developed by seven different state agencies: ARB, the California State Transportation Agency, the California Environmental Protection Agency, the California Natural Resources Agency, the California Department of Transportation, the California Energy Commission, and the Governor's Office of Business and Economic Development. The plan was developed at the direction of Governor Brown to determine how to advance zero emission freight technology, while supporting the growth of the goods movement sector by making goods movement more efficient. The strategies proposed in this plan will result in greater demand for electricity and the success of the plan will rely on utilities throughout the state.
- **Regional Transportation Plans ("RTPs"):** RTPs describe how a metropolitan area will invest its transportation funding to support efficient movement of goods and people throughout the region. RTPs have begun to include projects that will advance the development of zero emission technology. These RTP projects will rely on electricity from local utilities, so POU's should focus on investments that will ensure that there is enough electricity available for these projects and that charging infrastructure is sufficiently developed to make the projects feasible.

Transforming our transportation sector is a monumental undertaking with many different stakeholders. However, that transformation is achievable. The technology is available now in many instances, and investments in developing the infrastructure and supporting new technologies will only hasten technological advancement and the creation of a more sustainable transportation sector.

#### **A. Electrification Is Available Now for Many Freight Applications**

POUs can and should support the development of technologies that will make our freight system less polluting and more sustainable. As ARB describes, "applications such as last mile delivery, transit and shuttle buses, and other small vocational trucks offer the potential for increasing use

of [zero emission] technologies.”<sup>25</sup> POUs should prioritize these segments of the transportation sector for near-term development in their IRPs.

## **1. Transit Buses**

While buses are not part of the goods movement sector, widespread electrification of transit buses will facilitate the development of zero emission trucks for the goods movement sector. The US Department of Transportation has found that “[zero emission bus] market growth also positively affects how the large-scale electric drive and energy storage system components develop in the freight truck manufacturing to the extent the technology can be replicated and built upon.”<sup>26</sup> Electric buses can meet or exceed performance targets set by buses that run on fossil fuels. A study by the National Renewable Energy Laboratory (NREL) found that electric buses have far higher fuel economies than compressed natural gas buses, while being less expensive to maintain.<sup>27</sup>

Advancing the use of electric buses is also important to meeting California’s electric vehicle targets and other goals. The 2016 ZEV Action Plan considers more widespread deployment of electric buses as a core strategy for increasing access to clean transportation.<sup>28</sup> ARB is currently working on an Advanced Clean Transit Rule that seeks to convert all bus fleets from diesel to electric by 2040.<sup>29</sup> In addition, SB 350 aims to reduce the impacts of air pollution on disadvantaged communities in California, and expanded access to clean transit in disadvantaged communities would move California closer to this goal. Because zero emission buses are available for wider deployment now, they can provide much needed emission reductions in communities at greatest risk due to toxic air contaminants emitted by diesel buses and other vehicles.<sup>30</sup>

As of July 2016, there are twenty-two zero emission transit bus operators in California.<sup>31</sup> This level of engagement is a great start, but to meet state goals and requirements, transit agencies and POUs must work to accelerate progress. To facilitate deployment of electric buses, POUs should include projects and programs that expand use of electric buses in their IRPs. The IRPs should also analyze how electricity rates can promote expanded use of electric buses. The NREL study found that demand charges and time of use charges can complicate efforts to charge at

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<sup>25</sup> California Air Resources Board. Mobile Source Strategy, at 8 (May 2016).

<sup>26</sup> U.S. Department of Transportation. Zero Emissions Bus Benefits (available at: <https://www.transportation.gov/r2ze/benefits-zero-emission-buses>).

<sup>27</sup> Leslie Eudy, Robert Prohaska, Kenneth Kelly, and Matthew Post. Foothill Transit Battery Electric Bus Demonstration Results, at Table ES-1 (January 2016) (available at: <http://www.nrel.gov/docs/fy16osti/65274.pdf>).

<sup>28</sup> Governor’s Interagency Working Group on Zero-Emission Vehicles. 2016 ZEV Action Plan, at 17 (October 2016) (available at: [https://www.gov.ca.gov/docs/2016\\_ZEV\\_Action\\_Plan.pdf](https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf)).

<sup>29</sup> See California Air Resources Board. “Advanced Clean Transit Regulation: Discussion Document,” at i (May 2015) (available at: <http://www.arb.ca.gov/msprog/bus/actdiscussiondocument.pdf>).

<sup>30</sup> See California Air Resources Board. “Advanced Clean Transit Regulation: Discussion Document,” at 2 (May 2015) (available at: <http://www.arb.ca.gov/msprog/bus/actdiscussiondocument.pdf>).

<sup>31</sup> U.S. Department of Transportation. U.S. Zero Emission Transit Bus Operators (July 2016) (available at: <https://www.transportation.gov/sites/dot.gov/files/pictures/US-ZEB-Operators.png>).

reasonable rates.<sup>32</sup> Affordable rates for electric vehicle charging can incentivize the growth of zero emission technologies in POU service areas.

## **2. Trucks**

There are zero emission technologies available for some truck applications, such as urban delivery trucks and drayage trucks. Usage of urban delivery trucks fits well within the constraints of current zero emission technology: the trucks run on shorter routes and return to a truck yard or warehouse in the evenings, where they can be recharged. Regenerative braking can also help extend the battery life of these trucks, which make many stops throughout the day. Not only do they produce emissions reductions in the communities in which they operate, but they also operate more efficiently than diesel trucks in some cases, which can produce cost savings.<sup>33</sup> Companies such as Frito Lay, Staples, Coca Cola, and FedEx have already added zero emission delivery trucks to their fleets.<sup>34</sup>

Drayage trucks are also ready for more widespread electrification. Drayage trucks are being piloted at the Port of Los Angeles. The Port of Stockton has purchased four zero emission electric trucks.<sup>35</sup> There is now additional funding to expand these efforts: earlier this year, ARB announced that it will fund 43 more zero emission drayage trucks, which will be used in Sacramento, San Diego, the Bay Area, the San Joaquin Valley, and the South Coast Air Basin.<sup>36</sup> These trucks will come from four different manufacturers, which will help develop expertise across the market. POUs, particularly those that serve ports such as the Port of Oakland, the Port of Stockton, Sacramento Municipal Utility District, and Los Angeles Department of Water and Power, should prioritize greater use of zero emission drayage trucks to reduce the health impacts of diesel pollution in their service areas.

While there is not a viable zero emission long-haul heavy duty truck yet, there are ways to increase zero emission miles from heavy duty trucks while developing zero emission infrastructure for the long-term transition to zero emission heavy duty vehicles. Heavy duty trucks can operate on catenary systems, for example, while in densely populated areas or while near heavily impacted communities. Plug-in hybrid heavy duty trucks also offer zero emission miles over a shorter range. Vehicle manufacturers such as Volvo and Siemens are developing catenary systems as well as inductive and conductive charging systems that would provide the

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<sup>32</sup> Leslie Eudy, Robert Prohaska, Kenneth Kelly, and Matthew Post. Foothill Transit Battery Electric Bus Demonstration Results, at viii-ix (January 2016) (available at: <http://www.nrel.gov/docs/fy16osti/65274.pdf>).

<sup>33</sup> California Hybrid, Efficient and Advanced Truck Center (CalHEAT), “Battery Electric Parcel Delivery Truck Testing and Demonstration” at 5 (August 2013) (available at: [http://www.calstart.org/Libraries/CalHEAT\\_2013\\_Documents\\_Presentations/Battery\\_Electric\\_Parcel\\_Delivery\\_Truck\\_Testing\\_and\\_Demonstration.sflb.ashx](http://www.calstart.org/Libraries/CalHEAT_2013_Documents_Presentations/Battery_Electric_Parcel_Delivery_Truck_Testing_and_Demonstration.sflb.ashx)). (“Data showed that E-Trucks are more efficient than conventional diesel vehicles, with E-Truck efficiency being up to 4 times better than the fuel efficiency of similar diesel vehicles. E-Trucks are also cheaper to operate since they are more efficient and are generally fueled with cheap electricity.”)

<sup>34</sup> See Smith Electric’s website: <http://www.smithelectric.com/>.

<sup>35</sup> Port of Stockton. Air Quality Program (available at: <http://www.portofstockton.com/air-quality>).

<sup>36</sup> California Air Resources Board. “State Award \$23.6 Million for Zero-Emission Trucks at Seaports (May 4, 2016) (available at: <http://www.arb.ca.gov/newsrel/newsrelease.php?id=809>).

infrastructure necessary for trucks to operate without emissions in some areas.<sup>37</sup> POU IRPs should include projects that increase zero emission miles from heavy duty trucks, focusing on emissions reductions in highly impacted communities.

### **3. Support Equipment**

Cargo handling equipment at ports and warehouses and ground support equipment at airports are ripe for transition to zero emission technology.

#### ***a) Cargo Handling Equipment***

Cargo handling equipment includes any type of equipment used to move freight at ports, distribution centers, or rail yards, such as forklifts, gantry cranes, and loaders.<sup>38</sup> Zero emissions technology is viable for many types of cargo handling equipment, but use of these technologies remains limited.<sup>39</sup> Electric gantry cranes, for example, have been available commercially for years but are not widely used at California ports.<sup>40</sup> Use of existing zero emission equipment at ports, warehouses, and distribution centers throughout the state must be a near-term priority for building out a clean freight system.

#### ***b) Ground Support Equipment***

Ground support equipment is the equipment used to move cargo at airports, such as tugs, tractors, container loaders, and buses. Zero emission ground support equipment is commercially available for baggage tugs, tow tractors, lavatory service trucks, water trucks, and belt loaders.<sup>41</sup> Electric ground-support equipment is manufactured by a number of different companies including TLD, Tug Technologies Corporation, Charlotte America, Tronair, and Eagle Tugs.<sup>42</sup> Zero emission ground support equipment provides an opportunity to reduce airports' severe air quality and environmental health impacts on nearby communities while developing zero emission technologies for more widespread use.

### **4. Locomotives**

Zero emission technologies for locomotives lag behind trucks and support equipment, but there are technologies that can reduce emissions from locomotives in the near-term. The near-term

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<sup>37</sup> Volvo Group, "The road of tomorrow is electric" (May 23, 2013) (available at: <http://news.volvogroup.com/2013/05/23/the-road-of-tomorrow-is-electric/>); Siemens, "Siemens builds first eHighway in Sweden." (June 04, 2015) (available at [http://www.siemens.com/press/en/pressrelease/?press=/en/pressrelease/2015/mobility/pr2015060246moen.htm&content\[\]=MO](http://www.siemens.com/press/en/pressrelease/?press=/en/pressrelease/2015/mobility/pr2015060246moen.htm&content[]=MO)).

<sup>38</sup> California Air Resources Board. Draft Technology Assessment: Mobile Cargo Handling Equipment, at ES-2 (November 2015).

<sup>39</sup> South Coast Air Quality Management District. Final 2012 Air Quality Management Plan, at Appendix IV-B, IV-B-67 (February 2013).

<sup>40</sup> *Id.* at Appendix IV-B, IV-B-67 (The status of battery-electric gantry cranes is listed as "demonstration under discussion."); California Air Resources Board, "Heavy-Duty Fuels and Technology Assessment" at 10 (Draft April 2015) ("Electric cable reel or bus bar [rubber tired gantry cranes] and rail mounted gantry cranes (RMG) are a mature technology used at the automated foreign ports with the first delivered in 2002.")

<sup>41</sup> *Id.*, at 9-10; Charlotte America, Products (available at: <http://www.charlotteamerica.com/products>).

<sup>42</sup> California Air Resources Board. Heavy-Duty Fuels and Technology Assessment, at 10 (Draft April 2015)

focus should be on increasing the amount of zero emission miles locomotives travel. This can be accomplished using catenary systems, hybrid diesel-electric locomotives, and battery tender cars.<sup>43</sup> Catenary systems, as with trucks, involve using overhead wires to connect the train to electricity. Hybrid diesel-electric locomotives rely on batteries that store energy released during braking and reuse it when more power is needed. Battery tender cars are similar to the hybrid diesel-electric technology, but a battery tender car is an entire rail car devoted to batteries. Those batteries can power the locomotive without any power from diesel fuel for a short range. Battery tender cars would be a way to increase the amount of zero emission miles traveled through highly polluted areas.<sup>44</sup>

The Bay Area Metropolitan Transportation Commission's (MTC) draft Freight Emissions Reduction Action Plan includes a yard switcher demonstration project for a rail yard at the Port of Oakland.<sup>45</sup> The system will include a modified switcher locomotive with a battery tender car. The system will only operate locally, which offers an opportunity to test a new technology while reducing emissions in the nearby West Oakland neighborhood. POUs should explore and support similar projects within local rail yards, and the Port of Oakland should support the development of this specific project by planning for its infrastructure needs.

## **5. Ocean-going Vessels**

Zero emission technologies for ocean-going vessels are limited, but emissions reductions are still available via shore-side power. Shore-side power allows vessels to run on electricity while at port. ARB requires the use of shore-side power in some cases,<sup>46</sup> and POUs such as the Port of Stockton have implemented shore-side power for some vessels.<sup>47</sup> POU IRPs should include programs that expand the use of shore-side power at ports.

### **B. POUs Serving Major Freight Facilities Should Include Integrated Projects in Their IRPs**

The Commission should direct POUs that serve major freight facilities or areas to consider integrated projects in their IRPs. A project that was recently approved by the Port of Los Angeles

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<sup>43</sup> See Gladstein, Neandross and Associates on behalf of the California Cleaner Freight Coalition. "Moving California Forward: Zero and Low-Emission Goods Movement Pathways," at 33-36 (November 2013); Frank Stodolsk, Argonne National Laboratory, "Railroad and Locomotive Technology Roadmap," at 45-48 (December 2002) (available at: <http://www.ga.com/websites/ga/docs/transportation/ecco/Railroad%20and%20Locomotive%20Technology%20Roadmap.pdf>); BNSF Railway, "Green Technology" (available at: <http://www.bnsf.com/communities/bnsf-and-the-environment/green-technology/>); California Air Resources Board. Freight Locomotive Advanced Technology Assessment, at 26-50 (September 3, 2014) (available at: <http://www.arb.ca.gov/msprog/tech/presentation/rail.pdf>); California Air Resources Board. Heavy-Duty Fuels and Technology Assessment, at 13 and 28.

<sup>44</sup> Gladstein, Neandross and Associates on behalf of the California Cleaner Freight Coalition. Moving California Forward: Zero and Low-Emission Goods Movement Pathways, at 34 (November 2013).

<sup>45</sup> Cambridge Systematics. Freight Emissions Reduction Action Plan: Draft Action Plan, at 4-0 (July 26, 2016).

<sup>46</sup> California Air Resources Board. Draft Heavy-Duty Technology and Fuels Assessment: Overview, at 15 (April 2015).

<sup>47</sup> Port of Stockton. Air Quality Program (available at: <http://www.portofstockton.com/air-quality>).

provides a good example for other POU.<sup>48</sup> In May, the Port of Los Angeles considered a lease renewal at a terminal that would include funding to demonstrate a variety of zero emission equipment: four electric yard tractors, two electric (Class 8) on-road trucks, two electric high-tonnage forklift retrofits, one electric top handler retrofit, and an at-berth vessel emission control system.<sup>49</sup> The project couples these equipment components with construction of a solar powered microgrid, which will be supported by 2.6-megawatts of backup battery storage “intended to provide critical power to the charging units for the plug-in electric equipment as well as terminal system during a grid power outage.”<sup>50</sup> These projects advance the transformation of the freight sector and reduce the health burden on nearby communities. POU IRPs should assess the feasibility of integrated projects in their service areas.

#### **IV. POU and IOU IRP Guidelines Should Be Consistent**

The California Public Utilities Commission (“CPUC”) is holding a parallel to this proceeding, focused on investor-owned utilities (“IOUs”), and has found that freight electrification should be a priority for IOUs. The CPUC issued a ruling recommending that IOUs “consider proposing projects and investments that provide the biggest impact for the amount of money spent, i.e. ‘minimize overall costs and maximize overall benefits’ per Pub. Util. Code § 740.12(b).”<sup>51</sup> The ruling went on to specifically suggest freight electrification projects, such as “[transportation electrification] of transit buses, drayage, vocational, or short haul fleets [which have] the potential to affect a large number of vehicles owned by a single entity.”<sup>52</sup> The ruling accurately describes the role that freight electrification can play in meeting the goals laid out in SB 350.

As discussions of transportation electrification have taken place at the CPUC and other venues throughout California, proponents of natural gas technologies have proposed that instead of transportation electrification strategies, California should myopically focus on other technologies. These arguments, however, ignored the clear directive in Public Utilities Code section 740.12(b), which focuses on transportation electrification. SB 350 defines “transportation electrification” in Section 9 as “the use of electricity from external sources of electrical power, including the electrical grid, for all or part of . . . mobile sources . . . and the related programs and charging and propulsion infrastructure investments to enable and encourage this use of electricity.”<sup>53</sup> Neither natural gas (including renewable natural gas) nor hydrogen-powered fuel cell vehicles fit this definition of “transportation electrification” because they are not mobile sources powered by electricity from external sources.

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<sup>48</sup> Given the scope of the emissions from the Port of Los Angeles, this project should also serve as a model to expand clean resources into all terminals that LADWP services.

<sup>49</sup> Port of Los Angeles. May 19, 2016 Agenda, Item No. 9 (available at: [https://www.portoflosangeles.org/Board/2016/May%202016/051916\\_Agenda\\_Item\\_9.pdf](https://www.portoflosangeles.org/Board/2016/May%202016/051916_Agenda_Item_9.pdf)).

<sup>50</sup> *Id.*

<sup>51</sup> California Public Utilities Commission. R.13-11-007. Assigned Commissioner’s Ruling Regarding the Filing of the Transportation Electrification Applications Pursuant to Senate Bill 350, at 22 (November 14, 2013) (available at: <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M167/K099/167099725.PDF>).

<sup>52</sup> *Id.*

<sup>53</sup> Pub. Util. Code § 237.5.

While some might propose these technologies as part of a strategy to combat air pollution and greenhouse gas emissions, they are not the focus of SB 350, which is primarily concerned with overcoming the barriers to widespread electrification.<sup>54</sup> The benefits of these other technologies will be different than the specific benefits that the Legislature identified for transportation electrification.<sup>55</sup> For example, even if near-zero natural gas technologies may have the potential to provide partial benefits as zero emission technologies are further developed in certain categories, these near-zero technologies do not provide the same transformative long-term benefits as transportation electrification technologies powered by renewable sources of electricity. As such, it is reasonable to remain focused on achieving that superior long-term transformation. Moreover, these discussions simply seek to distract from the necessary discussions of how POUs aid in transportation electrification efforts.

The CPUC made it clear in their ruling that IOUs cannot consider natural gas projects to fulfill their responsibilities under SB 350: “[c]learly, vehicles that are unable to use grid electricity and rely exclusively on natural gas or hydrogen do not fit the [transportation electrification] definition. Accordingly, the SB 350 [transportation electrification] applications shall not propose these kinds of projects and investments.” The Commission should issue the same clarification for POUs.

## **V. Conclusion**

For the foregoing reasons, the organizations signing on to this letter request that the Commission direct POUs to prioritize electrification of freight and transit buses in their IRPs. Electrifying these sectors will benefit the communities that these organizations represent. Electrification is also necessary to meet the requirements laid out in SB 350, the federal Clean Air Act, and other state policies.

Respectfully submitted,



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<sup>54</sup> See, e.g., Health & Safety Code § 44258.5 (b); Pub Util. Code § 740.12(a).

<sup>55</sup> See, e.g., *id.*

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