

California's plan to have one million EV's on the roads by 2023 will be successful

☒ By 1 January 2023, there will be at least a million electric private vehicles in California if a plan adopted by Governor Jerry Brown succeeds. Last week, Gov. Brown signed a law encouraging consumers to buy environmentally friendly cars just days ahead of the start of the UN Summit on Climate Change in New York. Brown considers environmental protection to be one of the most important aspects of his administration. The new legislation will be backed by an initial USD\$ 200 million budget to reduce pollution by rewarding buyers of electric and very low emission cars in the form of discounts. This money will also be used to fund businesses and agencies that develop new technologies for zero, or near zero, emission vehicles. The goal is to have one million zero emission cars circulating in California rates. One of the most important aspects of the plan is to ensure that such 'clean' vehicles become more accessible to lower income drivers and the new Law does provide for a financial plan to achieve this, including the offer of subsidies for car sharing programs in low-income neighborhoods and installing car charging stations in these communities.

Gov. Brown's goals are attainable judging by the latest statistics published by the Association Plug-In Electric Vehicle Collaborative Association, which indicate that there are over 100,000 (102,440 registered between December 2010 and August 2014 to be exact) registered electric vehicles (that is 100% electric or plug-in hybrid) in California. California alone accounts for 40% of the 250,000 electric vehicles running in the United States. Manufacturers have already proven that they can meet the California standards by offering a wide range of affordable cars, which are fun to drive and,

of course, produce zero carbon emissions. California is the 'home State' for the production of the famous Tesla Model S. The State also finances many electric vehicle (EV) related R & D programs. The main issue of concern for potential EV buyers, regardless of price, remains their limited range and recharge times that remain significantly longer than it takes to fill up the gas tank of an internal combustion engine vehicle. Nevertheless, while longer lasting and more powerful batteries will be made possible thanks to new technology and higher quality specialty materials such as graphite and lithium, EV's are already able to address the daily needs of a vast majority of motorists on their daily commutes.

Drivers are worried, though, by the inability to take a long 'family holiday'. It is difficult to imagine Clark W. Griswold of 'Vacation' fame choosing an electric version of the 'Family Truckster' to haul his family from Chicago to Wally World!

Indeed, if the State of California did not adopt incentives to encourage sales of EV's, it would be difficult to achieve the targeted registration numbers and emission reductions. The internal combustion engine, ever more efficient and powerful, along with relatively cheap oil still makes the former a very tough competitor for the EV to crack. While in theory a vehicle with an actual (rather than theoretical) 160 km (100 miles) range is sufficient to meet the daily needs of most motorists, in practice, the situation is more complex. On the highway, an EV's energy requirements vary greatly depending on usage. So far, this feature has never really been a strong marketing element for EV's. The California research funds will have to be used to improve battery technology to increase range in much greater detail. Yet, California's new EV incentives have a precedent in Norway that may make the new Law even too successful for its own good.

The Government of Norway has encouraged the purchase of EV through a series of tax breaks and favors (such as free downtown parking in major cities) granted to EV owners. The

incentives have been so appetizing that a far higher number of people than expected have bought EV's., outnumbering all other kinds. With an electric vehicle for every 160 people, Norway is the country in the world that has the most electric cars compared to the number of inhabitants. In order to reduce greenhouse gas emissions from road traffic (representing almost 10% of the total), the government of Norway has increased the benefits for drivers of electric cars, who have the right to move freely in bus lanes, park and charge their cars for free in cities, avoid road tolls and be exempt from sales taxes. The introduction of these measures have accounted for left 13% of registrations since the beginning of 2014 being EV's cars against only 0.6% in other European countries.

This huge success is not without consequence. Norwegian roads have been plagued by traffic jams in the bus lanes, to the detriment of that other environmentalist staple: public transport. Moreover, according to the Ministry of Finance, the tax exemption for the purchase has caused a great loss to the government (to the tune of the equivalent of USD\$ 750 million Euros). In view of achieving close to the target by 2015 (set at 50 000 electric vehicles in 2017), certain privileges may be reduced. California would benefit from observing Norway and learning from its mistakes but its 1 million EV goal is very achievable.