EVs Mid-Summer 2023

By John Benson

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1. Introduction

The prior EV paper was posted on July 4. It is described and linked below.

EVs, Early Summer, 2023: *This post will cover the following subjects:*

Technology:

The Long Road

2023 battery rollouts

NHTSA proposes Auto Emergency Braking Mandate

Business:

Ford

- *More Details on New Truck and SUV*
- *Ford's New Platform, Supply Chain and EV targets*
- *Ford & Tesla Make Nice (again)*
- *Ford F-150 Lighting production boost to 150,000/year by year-end*

The U.S. Version of the VW ID. Buzz Debut

Hyundai and LG announce battery plant in Georgia

Tesla announces second quarter deliveries

https://energycentral.com/c/ec/evs-early-summer-2023

This paper covers the following subjects:

Technology:

The 2030 National Charging Network

New Battery Chemistry (or Chemistries?)

Hot and Cold Weather Impacts on EVs

How Long Do Electric Car Batteries Last?

Business:

Tesla:

- Tesla Q2 2023 earnings: Expectations beat amid record quarter
- Tesla Model 3 Gets another Price Cut

First Chevy Blazer EV en route to the US

Stellantis Second Battery Factory

Nikola California Hydrogen Refueling Stations

Bipartisan Infrastructure Law Funding to Boost Buses

Big Busses also get boosted

2. Technology

2.1. The 2030 National Charging Network

The National Renewable Energy Laboratory (NREL) recently released a document with this subsection's title as a name. The subtitle is: "Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure." This document is over 60 pages long and its goal seems to be: given our federal and state government quantitative and qualitative commitments to climate and future light electric vehicle (EV) deployments, what will the future charging infrastructure look like by 2030. Since 2030 is only six years in the future, this should be a reasonably accurate estimate.[1]

U.S. climate goals for economy-wide net-zero greenhouse gas emissions by 2050 will require rapid decarbonization of the light-duty vehicle fleet, and plug-in electric vehicles (PEVs) are poised to become the preferred technology for achieving this end. The speed of this intended transition to PEVs is evident in actions taken by government and private industry, both in the United States and globally. New PEV sales have reached 7%–10% of the U.S. light-duty market as of early 2023. Globally, PEV sales accounted for 14% of the light-duty market in 2022, with China and Europe at 29% and 21%, respectively. A 2021 executive order targets 50% of U.S. passenger car and light truck sales as zero-emission vehicles (ZEVs) by 2030, and California has established requirements for 100% light-duty ZEV sales by 2035, with many states adopting or considering similar regulations. These goals were set prior to passage of the landmark U.S. Bipartisan Infrastructure Law and Inflation Reduction Act, which provide substantial policy support through tax credits and investment grants.

Companies in the automotive industry have committed to this transition, with most companies rapidly expanding offerings and many pledging to become ZEV-only manufacturers. Tesla has been a ZEV-only company since its inception in 2003; Audi, Fiat, Volvo, and Mercedes-Benz are targeting ZEV-only sales by 2030; and General Motors and Honda are targeting ZEV-only sales by 2035 and 2040, respectively. The combination of policy action and industry goal-setting has led analysts to project that by 2030, PEVs could account for 48%–61% of the U.S. light-duty market. This transition is unprecedented in the history of the automotive industry and will require support across multiple domains, including adequate supply chains, favorable public policy, broad consumer education, proactive grid integration, and (germane to this report) a national charging network.

The Joint Office of Energy and Transportation (Joint Office) is setting the vision for a national charging network. This report supports the vision of the Joint Office by presenting a quantitative needs assessment for a national charging network capable of supporting 30–42 million PEVs on the road by 2030.

[1] Eric Wood, Brennan Borlaug, Matt Moniot, Dong-Yeon (D-Y) Lee, Yanbo Ge, Fan Yang, Zhaocai Liu, National Renewable Energy Laboratory (NREL), "The 2030 National Charging Network," June 2023, https://www.nrel.gov/docs/fy23osti/85654.pdf

…Multiple PEV charging use cases are considered, including typical needs to accommodate daily driving for those with and without residential access, corridor-based charging supporting long-distance road trips, and ride-hailing electrification. While the analysis is national in scope, the simulation framework enables inspection of results by state and city, with parametric sensitivity analysis used to test a range of assumptions. This modeling approach is used to draw the following conclusions:

Convenient and affordable charging at/near home is core to the ecosystem but must be complemented by reliable public fast charging. *Industry focus groups with prospective PEV buyers consistently reveal that consumers want charging that is as fast as possible. However, consumer preferences tend to shift after a PEV purchase is made and lived experience with charging is accumulated. Home charging has been shown to be the preference of many PEV owners due to its cost and convenience. This dichotomy suggests that reliable public fast charging is key to consumer confidence, but also that a successful charging ecosystem will provide the right balance of fast charging and convenient destination charging in the appropriate locations. Using sophisticated planning tools, this analysis finds that a national network in 2030 could be composed of 26–35 million ports to support 30–42 million PEVs. For a mid-adoption scenario of 33 million PEVs, a national network of 28 million ports could consist of:*

- *26.8 million privately accessible Level 1 and Level 2 charging ports located at single-family homes, multifamily properties, and workplaces*
- *182,000 publicly accessible fast charging ports along highway corridors and in local communities*
- *1 million publicly accessible Level 2 charging ports primarily located near homes and workplaces (including in high-density neighborhoods, at office buildings, and at retail outlets).*

In contrast to gas stations, which typically require dedicated stops to public locations, the PEV charging network has the potential to provide charging in locations that do not require an additional trip or stop. Charging at locations with long dwell times (at/near home, work, or other destinations) has the potential to provide drivers with a more convenient experience. This network must include reliable fast charging solutions to support PEV use cases not easily enabled by destination charging, including long-distance travel and ride-hailing, and to make electric vehicle ownership attainable for those without reliable access charging while at home or at work.

Fast charging serves multiple use cases, and technology is evolving rapidly. *The majority of the 182,000 fast charging ports (65%) simulated in the mid-adoption scenario meet the needs of those without access to reliable overnight residential charging (estimated as 3 million vehicles by 2030 in the mid-adoption scenario). Support for ride-hailing drivers and travelers making long-distance trips accounts for the remainder of simulated fast charging demand (21% and 14%, respectively).*

While most near-term fast charging demand is simulated as being met by 150-kW DC chargers, advances in battery technology are expected to stimulate demand for higher-power charging. We estimate that by 2030, DC chargers rated for at least 350 kW will be the most prevalent technology.

The size and composition of the 2030 national public charging network will ultimately depend on evolving consumer behavior and will vary by community. *While growth in all types of charging is necessary, the eventual size and composition of the national public charging network will ultimately depend on the national rate of PEV adoption, PEV preferences across urban, suburban, and rural locations, access to residential/overnight charging, and individual charging preferences. Sensitivity analysis suggests that the size (as measured by number of ports) of the 2030 national public charging network could vary by up to 50% (excluding privately accessible infrastructure) by varying the share of plug-in hybrids, driver charging etiquette, and access to private workplace charging. Additionally, the national network is expected to vary dramatically by community. For example, densely populated areas will require significant investments to support those without residential access and ride-hailing electrification, while more rural areas are expected to require fast charging along highways to support long-distance travel for those passing through.*

Continued investments in U.S. charging infrastructure are necessary. A cumulative national capital investment of $53–$127 billion in charging infrastructure is needed by 2030 (including private residential charging) to support 33 million PEVs. The large range of potential capital costs found in this study is a result of variable and evolving equipment and installation costs observed within the industry across charging networks, locations, and site designs. The estimated cumulative capital investment includes:

- *$22–$72 billion for privately accessible Level 1 and Level 2 charging ports*
- *$27–$44 billion for publicly accessible fast charging ports*
- *$5–$11 billion for publicly accessible Level 2 charging ports.*

The cost of grid upgrades and distributed energy resources have been excluded from these estimates. While these excluded costs can be significant in many cases and will ultimately be critical in building out the national charging network, they tend to be site-specific and have been deemed out of scope for this analysis.

Existing announcements put the United States on a path to meet 2030 investment needs. *This report estimates that a $31–$55-billion cumulative capital investment in publicly accessible charging infrastructure is necessary to support a mid-adoption scenario of 33 million PEVs on the road by 2030.*

As of March 2023, we estimate $23.7 billion of capital has been announced for publicly accessible light-duty PEV charging infrastructure through the end of the decade, including from private firms, the public sector (including federal, state, and local governments), and electric utilities…

2.2. New Battery Chemistry (or Chemistries?)

It seems like I have been chasing new lithium ion chemistries for several months.

Last summer, we told our readers about a new battery chemistry by Contemporary Amperex Technology Co. Limited (CATL). Called M3P, the new batteries are said to be up to 15% more energy dense than LFP batteries, which would allow cars like the Tesla Model 3 to have a range in excess of 400 miles. [2]

[2] Steve Hanley, CleanTechnica, "CATL M3P Battery Production Begins," March 26, 2023, https://cleantechnica.com/2023/03/26/catl-m3p-battery-production-begins-doe-predicts-1000-gwh-of-us-built-batteries-by-2023/

Reuters reported last week that CATL is now ready to begin mass production of its M3P batteries. They will have greater energy density and perform better than lithium-iron phosphate (LFP) batteries and be less expensive than nickel- and cobalt-based batteries, Zeng Yuqun told an online investor briefing on Friday.

It's not always possible to get exact information on what precise battery chemistries are being used by manufacturers. Such details are a jealously guarded trade secret. We do know there is such a thing as an LMFP battery, which adds manganese to the LFP mix. The M3P batteries, on the other hand, replace the iron currently used in LFP batteries with a mix of magnesium, zinc, and aluminum, according to Autoevolution. Official data shows the energy density of M3P batteries will be about 15% higher than that of the 210 Wh/kg of current LFP batteries, which should translate into a 10% range improvement over the current LFP-powered cars built at Giga Shanghai, according to Sina Tech.

Author's comment: M3P apparently stands for 3-metals plus phosphate.

Following reports out of China earlier this month, battery behemoth CATL has confirmed the production of its M3P batteries that will deliver next year. Although the chemistry may be similar, CATL has said the M3P batteries vary from Lithium Manganese Iron Phosphate (LMFP) cells.[3]

Regarding the above mentioned LMFP batteries, another firm has promised to have this chemistry in production next year, however there has no promise for production in the U.S. by then.

Gotion High-Tech is the latest company to promise more range, but if its LMFP battery chemistry can reach production as planned, it could become a viable option to enable more affordable EVs.[4]

Gotion High-Tech Co., Ltd. is a battery R&D and energy solutions provider that is headquartered in China but has footprints all over the world, including Silicon Valley. The company specializes in several different types of battery chemistries for a myriad of use cases inside and out of the automotive segment…

Gotion is already looking ahead to next year, when it intends to begin production of a new lithium-iron-manganese-phosphate (LMFP) battery its promising can deliver 1,000 km (621 miles) of range on a single charge.

LMFP's new battery chemistry can provide an energy density of 240 Wh/kg. For comparison, Gotion says the energy density of current LFP batteries tops out right around 190 Wh/kg.

By adding manganese to the cell's chemistry, Gotion says it has been able to achieve higher energy density at a lower weight and pack size – a potentially huge win for EVs. Additionally, executive president of Gotion's international business unit Cheng Qian says the company expects its new LMFP battery, being called "Astroinno," to cost 5% less than a conventional LFP cell in terms of dollars per kWh…

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[3] Scooter Doll, Electrek, "CATL chief scientist says energy dense M3P batteries are already in production, debut next year," Jul 22 2022, https://electrek.co/2022/07/22/catl-m3p-batteries/

[4] Scooter Doll, Electrek, "Gotion unveils LMFP EV battery it says can deliver 1,000 km per single charge for a lower price, Jun 6 2023, https://electrek.co/2023/06/06/gotion-unveils-lmfp-ev-battery-it-says-can-deliver-1000-km-per-single-charge-for-a-lower-price/

Author's comment: CATL has partnerships with both Ford and Tesla. See the earlier "EV…" post linked below, section 2.1, "Tesla Borrows a Strategy from Ford." Also see Ford's CEO's comments in an interview covered in section 4.

https://energycentral.com/c/ec/evs-early-spring-2023

I had guessed in the above-linked post that Ford was planning to produce M3P Batteries in the $3.5 billion battery plant for electric vehicles in Michigan in future years (based on the interview with Ford's CEO in Section 4 of the above-linked post). However, I could not find any indications of this in a more recent search. This plant would be owned and operated by Ford, but is a collaborative effort with CATL, appears to currently be planned to produce only LFP batteries and open in 2026.

Tesla tends to be a bit more secretive than Ford, and has not specified where the joint battery plant will be located. However otherwise the deal will be similar to Ford's in order to get similar treatment from the federal government. However, Ford has been getting some serious pushback from right-leaning politicians for their deal, and it is expected that Tesla will also meet some resistance.

2.3. Hot and Cold Weather Impacts on EVs

EV batteries can have their capacity strongly reduced by weather that it too hot or too cold. Right now we are more concerned by the former. Also both conditions have solutions with some EVs and some users. More on this at the end of this subsection.

Electric vehicle owners can expect to take on additional preparations as the summer months heat up and vehicle performance declines.[5]

As temperatures rise, EV batteries tend to degrade faster than expected and require a battery replacement, a Recurrent Auto study from March indicates. Heat can affect the life of Lithium-ion batteries, which most plug-in hybrids and nearly all-electric vehicles use.

"Once you're above [104 degrees Fahrenheit] you start to have a breakdown of the passive emission layer on the anode, and that breakdown will then cause consumption of the liquid electrolyte, which will shorten the lifetime of your battery," Greg Less, the technical director of the University of Michigan Battery Lab told Recurrent.

Hot temperatures don't have as much of an effect as cold temperatures, according to AAA. When temperatures reach up to 95 degrees Fahrenheit and the air conditioning is on in the vehicle, the driving range decreases by 17% on average.

Most EV batteries have a life expectancy of 15 to 20 years within the car, according to multiple studies, but proper care plays an important factor in the longevity of the vehicle. Recurrent encourages EV owners to park their car in the shade during warm months and cool down the car before charging.

[5] Eden Villalovas, Washington Examiner, "Electric vehicles struggle to hold up amid heat wave roasting US," July 22, 2023, https://www.washingtonexaminer.com/news/electric-vehicles-struggle-hold-up-amid-heat-wave-us

***All electric cars experience some degree of range loss in cold weather**. For EV owners in colder winter climates, like northern portions of the United States, daily driving and charging behaviors must be adjusted in these months.*[6]

That's the bad news. The good news is that this range loss is temporary and there is no long term detriment to your battery. As the ice melts and the temperatures rise, your vehicle's expected range at full charge should return to normal…

Chemical and physical reactions in the battery occur more slowly in cold temperatures. This reduces the EVs power. Cold temperatures inhibit chemical reactions and act as resistance that slows down the physical processes.

Electric cars have to make their own heat. The internal combustion engines (ICE) that power traditional cars are surprisingly inefficient. All of the energy that ICE cars don't use to propel them forward is turned into "waste heat," which is typically just lost energy. In cold weather, however, ICE cars redirect this waste heat from the engine to warm the cabin. On the other hand, an EV has a much more efficient motor which does not generate as much heat. In the cold, available motor heat is routed to warm the battery itself, meaning that cabin heating requires a power source. Cabin heaters generally draw from the high voltage battery, reducing how much battery is left for driving.

Several organizations have studied these effects, including AAA, but they are often completed in laboratory settings or with only several vehicles. This research project includes a much larger data set. Instead of dozens of vehicles, we are analyzing thousands, and recording their performance in real world driving conditions.

New for 2022: we include data that shows actual, real-world winter range under real-world driving conditions for the Ford Mustang Mach-E, Nissan LEAF, all Tesla models, and Volkswagen ID.4. These verified winter range values reflect average observed data for a variety of drivers under a wide range of use cases…

Author's comments: go through the link in reference 6 below for the information described in the above paragraph.

Some EVs use on-board systems to cool and/or heat batteries. To offset range loss, these can pre-cool or preheat the batteries before you unplug the EV from the charger just before a trip.

Primary battery heating should come from a heat pump (ditto cabin heating) vs. resistance heating, as the former is the most efficient method. Also, a dual-mode heat pump can provide both heating and cooling with little additional hardware.

2.4. How Long Do Electric Car Batteries Last?

Battery life is a big question as people shop for a used Tesla or other electric car brand. A battery is a lithium ion black box that can make up 50-70% of an electric car's value. The reality is that if the battery dies, so does the car.[7]

[6] Recurrent, "Winter & Cold Weather EV Range Loss in 7,000 Cars," Dec 12, 2022, https://www.recurrentauto.com/research/winter-ev-range-loss

[7] Liz Najman, Recurrent, "New Study: How Long Do Electric Car Batteries Last?" March 27, 2023, https://www.recurrentauto.com/research/how-long-do-ev-batteries-last

Author's comment: See prior article for hot and cold impacts on battery lifetime.

How long is that EV battery going to last? The one simple answer is that we don't know for sure because electric cars have not been around long enough for us to tell. The best we can do is observe the apparent degradation in those cars on the road.

Even that observation can prove a challenge, though, since most EVs have been on the road well under six years, with almost 30% sold in 2022.

We still have very little sense of how they degrade over their lifetime - which car makers say should be as long as 20 years. So far, it seems that EV batteries have much longer lifespans than anyone imagined, since very few of them have been replaced, even once the 8-year, 100,000 mile warranty period ends…

The good news is that your EV battery is far more complex and sophisticated than other lithium ion batteries in your life and is built to ensure its lifetime exceeds its warranty - and more.

Coming up with an exact answer to what a battery lifetime is complicated because:

Batteries are complicated systems. We can't observe them directly, and have to rely on a computer interface to give us information about their state of health, state of charge, and more.

We know more about battery cells than battery packs. Most of the rigorous scientific tests on lithium ion batteries are done on individual battery cells, not the high-tech systems used in EVs.

But a lot of information can be gleaned from studies on older models of Nissan LEAF and Tesla Model S, both of which have been on the road for almost a decade. The study findings are encouraging: it looks like EV batteries have a lot of life in them.

There have been two major battery recalls in recent years, both related to similar battery pack flaws in the Chevrolet Bolt EV and EUV and the Hyundai Kona Electric. The remedy for both of these recalls was a sweeping battery replacement program covered by the manufacturers. Other than these two recalls, though, battery replacements in the Recurrent community remain rare…

Go through the Recurrent link in reference 7 above for additional information, including data on individual models.

3. Business

3.1. Tesla:

3.1.1. Tesla Q2 2023 earnings: Expectations beat amid record quarter

Tesla (NASDAQ:TSLA) posted its Q2 2023 earnings report after markets closed today. The results, which were discussed in the Q2 2023 Update Letter, were released after the closing bell on Wednesday, July 19, 2023.[8]

[8] Simon Alvarez, Teslarati, "Tesla (TSLA) Q2 2023 earnings results: Expectations beat amid record quarter," July 19, 2023, https://www.teslarati.com/tesla-tsla-q2-2023-earnings-results/#google_vignette

Tesla's earnings come on the heels of yet another record quarter in terms of vehicle deliveries and production. In the first quarter, Tesla produced 479,700 vehicles and delivered 466,140. This was despite the company's ongoing aggressive pricing strategies and some Model 3 customers potentially holding off on their vehicle purchases due to the upcoming and highly-anticipated Project Highland update.

Tesla's non-GAAP earnings per share for the first quarter of 2023 was listed at $0.91. In comparison, analysts were calling for adjusted earnings of $0.79 cents a share.

Tesla's operating income decreased slightly YoY to $2.4 billion in the second quarter, which resulted in a 9.6% operating margin. Tesla's Q2 2023 Update Letter noted that operating income was affected by the mix and pricing, cost of production ramp of 4680 cells and other related charges, and an increase in operating expenses driven by Cybertruck, AI, and other large projects.

Tesla's war chest continued to grow in the second quarter. The company's quarter-end cash, cash equivalents, and investments increased sequentially by $700 million to $23.1 billion in Q2 2023. This was driven by free cash flow of $1 billion, which was partially offset by other financing activities, including debt repayments.

3.1.2. Tesla Model 3 Gets another Price Cut

Tesla's second quarter results may have been somewhat of a mixed bag. Profits and revenue are way up, but investors and pundits alike aren't all that thrilled with the brand's reduced profit margins on its models, because of its drastic price cuts. Yet, that hasn't stopped Tesla from cutting prices further. There are price cuts on existing new inventory Model 3s.[9]

All across the United States, Tesla has shaved more than $2,000 off existing stock of Model 3s. It's not just limited to the top trim Performance AWD Dual Motor, the Long Range AWD, and standard range RWD models also get significant price cuts. Arguably, the single motor is the most impressive deal; at $37,940 (not counting the $1,390) destination fee. The Model 3 is eligible for the full $7,500 tax credit, which means the Model 3's base price could slip in right at the $30,000 mark…

3.2. First Chevy Blazer EV en route to the US

July 12, According to a new report from Vanguardia MX, a breaking news station in Mexico, GM's prized jewel, the Chevy Blazer EV, has left the Ramos Arizpe plant and is in transit to the US.[10]

The news comes two weeks after the facility posted on its social media page that the first sellable Blazer EV completed assembly.

[9] Kevin Williams, Auto Guide, "Tesla Model 3 Gets Another Price Cut," July 24, 2023, https://www.autoguide.com/auto/auto-news/tesla-cut-prices-of-model-3-existing-new-inventory-again-44607085#:~:text=There%20are%20price%20cuts%20on%20existing%20new%20inventory,range%20RWD%20models%20also%20get%20significant%20price%20cuts.

[10] Peter Johnson, "First Chevy Blazer EV en route to the US as GM ramps production to 65 units per hour," Jul 12 2023, https://electrek.co/2023/07/12/first-chevy-blazer-ev-en-route-us/

Tereso Medina Ramirez, general secretary of the Confederation of Workers of Mexico (CTM), said GM's Ramos Arizple facility is now producing 65 Blazer EV models per hour. He added the first order of the new electric SUV had already left for the US.

3.3. Stellantis Second Battery Factory

DETROIT (AP) — Stellantis says it will build a second U.S. electric vehicle battery factory in a joint venture with Samsung.[11]

The automaker didn't disclose the location but said Monday that it signed a memorandum of understanding with Samsung SDI under its existing joint venture called StarPlus Energy.

The new plant will open in early 2027, joining a joint-venture facility in Kokomo, Indiana, that's already under construction and scheduled to start production in early 2025.

3.4. Nikola California Hydrogen Refueling Stations

Nikola, a cash-strapped maker of zero-emission heavy-duty trucks, said it has received grant funding from California to build some of the first U.S. fueling stations for hydrogen-powered semis, an alternative to carbon-spewing diesel models. Some may open as soon as late this year.[12]

The Phoenix-based company said the California Transportation Commission awarded it $41.9 million to build six heavy-duty hydrogen stations in Southern California. They'll operate under the HYLA brand Nikola launched this year with its partner Voltera and be located along high-volume freight corridors near Los Angeles, San Diego and in the Mojave Desert region.

The grant "will allow us to accelerate the deployment of zero-emissions hydrogen refueling infrastructure, which is vital for the successful launch of our hydrogen fuel cell electric trucks in July," Carey Mendes, president of Nikola Energy, said in an emailed statement.

The announcement is much-needed good news for a company that needs to raise substantially more capital to create a viable business selling zero-emission trucks. Nikola last month said it was cutting about 270 jobs across its operations to help reduce expenses, and it's also seeking to raise more money by issuing new shares. It's overhauled operations dramatically in the past two years, focusing solely on building battery and fuel cell trucks and making hydrogen to power the latter, trying to overcome damage to its brand done by founder Trevor Milton. He was convicted of securities and wire fraud last year and is awaiting sentencing.

The California funds will cover about half of the cost of building the six stations, said company spokesman Dan Passe. Nikola and Voltera will cover the remaining portion. They'll be designed to refuel up to 100 trucks a day, with the first ones opening late this year and in early 2024. Nikola said in May it aimed to open 50 HYLA stations with Voltera by 2028.

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[11] The Associated Press via ABC News, "Stellantis to build second US electric vehicle battery plant in joint venture with Samsung," July 24, 2023, https://abcnews.go.com/Business/wireStory/stellantis-build-us-electric-vehicle-battery-plant-joint-101604123

[12] Alan Ohnsman, Forbes, "Nikola Snags $42 Million From California for Hydrogen Truck Stations," July 5, 2023, https://www.forbes.com/sites/alanohnsman/2023/07/05/nikola-snags-42-million-from-california-to-build-hydrogen-truck-stations/?utm_source=newsletter&utm_medium=email&utm_campaign=dailydozen&cdlcid=628673ca6e1a1d1211f1d747&section=trends&sh=e0f15c25b612

3.5. Bipartisan Infrastructure Law Funding to Boost Buses

This is a bit of a strange one. The press-release that alerted me to this information didn't come out until June, 2023. However, once I tracked it back to the source DOT Press Release, that was in August 2022. Thus I needed to look at all of my EV posts between now (late July) and until before the DOT Release to make sure I had not covered it earlier (and I haven't).

The U.S. Department of Transportation's Federal Transit Administration today announced $1.66 billion in grants to transit agencies, territories, and states across the country to invest in 150 bus fleets and facilities. Funded by the President's Bipartisan Infrastructure Law, more than 1,100 of those vehicles will use zero-emissions technology, which reduces air pollution and helps meet the President's goal of net-zero emissions by 2050. This year's funding alone will nearly double the number of no-emission transit buses on America's roadways. For the first time, five percent of low- and no-emission bus funding will be used to train transit workers on how to maintain and operate new clean bus technology.[13]

"When a transit door opens, whether it is a bus, train, or ferry, it is a great equalizer for everyone in our nation," said FTA Administrator Nuria Fernandez. "With this tremendous amount of funding, the President's Bipartisan Infrastructure Law gives more Americans access to the opportunities that transit creates, more often, in more places. These investments also help us meet our goals of cutting transportation emissions, creating good-paying American manufacturing jobs, and helping America's transit workers prepare for new vehicle technology."

FTA's Low or No Emission (Low-No) Grant Program makes funding available to help transit agencies buy or lease U.S.-built low- or no-emission vehicles, including related equipment or facilities. The Bipartisan Infrastructure Law provides $5.5 billion over five years for the Low-No Program – more than six times greater than the previous five years of funding. For Fiscal Year 2022, approximately $1.17 billion was available for grants under this program.

3.6. Big Busses also get boosted

Electric bus manufacturer Proterra and motor coach operator ABC Companies recently announced what the companies claim is the largest charging facility for motor coaches in North America. Motor coaches are larger, more luxurious buses designed for longer trips than urban transit buses. [14]

Located on a 3.5-acre site in Newark, California, the facility has 20 dual-cable EV chargers, allowing it to charge up to 40 motor coaches, with charging power up to 1.4 megawatts, according to a Proterra press release.

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[13] Steven Taubenkibel, Federal Transit Administration, "Biden-Harris Administration Announces Over $1.6 Billion in Bipartisan Infrastructure Law Funding to Nearly Double the Number of Clean Transit Buses on America's Roads," Aug 16, 2022, https://www.transit.dot.gov/1800buses

[14] Stephen Edelstein, Green Car Reports, "California Station can charge up to 40 Electric Motor Coaches," July 24, 2023, https://www.greencarreports.com/news/1140287_california-station-can-charge-up-to-40-electric-motor-coaches

Proterra has been one of the leaders for electric buses, jockeying with BYD for some of the top sales. The company has been electrifying motor coaches from Van Hool with its own battery and electric powertrain hardware, which the California charging facility will support…

The charging facility was developed with input from utility Pacific Gas & Electric (PG&E), which is expanding its charging infrastructure efforts from passenger cars to commercial vehicles. PG&E claims to have contracted with more than 180 sites to date, enabling charging for over 3,700 medium- and heavy-duty vehicles.

Electrifying larger vehicles like buses is an important piece of the emissions reduction puzzle. A 2021 study found that a shift to electric trucks and buses could prevent more than 57,000 premature deaths by reducing air pollution. A London bus charging project has also shown how this added charging infrastructure could be used to help stabilize the grid by syncing charging with the peaks and troughs of electricity demand.