EVs Mid-Winter, 2023

By John Benson

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1. Introduction

I seem to be settling in to around monthly "EV…" posts. One excuse for this post was a good article from Forbes on new EVs from next year and later.[1] Although I'm staying with my focus on medium- and low-priced EVs (less than $50K before rebates and tax credits), I've noted from the Forbes article that GM (and other manufacturers) generally seem to be leading with their more expensive variants of new models. For instance Ford introduced their $40K "Work Truck" variant of the F-150 Lightning at the approximately same time as their other models, whereas GM is leading with the more expensive variants of the Silverado, with the Work Truck version coming in 2024. Although the first Lightning delivered (May 26th, 2022) was a high end-model (go through first link below), Ford delivered the first Lightning Pro work truck in July. Go through the second link below for more details on the earliest deliveries of the Lightning Pro. Also a Lightning Pro was tested by MotorTrend during their Truck of the Year Competition (in addition to a $100K Lightning Platinum), where the Lightning won the Truck of the Year Award.

https://cleantechnica.com/2022/05/31/ford-f-150-lightning-reaches-its-first-customers/

https://www.findmyelectric.com/blog/ford-f-150-lightning-delivery-date-when-can-you-get-a-lightning/

Also, the newest automobile-EV from GM (vs SUVs) is the Cadillac Lyriq, which starts in the mid-$60K range. On the other hand the upcoming Chevrolet Blazer EV (reviewed previously in the post linked below, section 7.3), starts in the mid-$40K range, and the Chevrolet Equinox EV may start in the low-$30K range. The Equinox EV is reviewed and pictured in the section 2 below.

https://energycentral.com/c/ec/ev-late-summer-2022

This post will cover the following subjects:

- Four new EVs coming in 2023
- Three new EVs coming after 2023
- An increasing synergy between EVs and Photovoltaics (PVs)
- Tesla price reductions and other news

[1] Jim Gorzelany, Forbes, "Plug In, Turn On: The Hottest New Electric Vehicles Coming In 2023," Jan 4, 2023, https://www.forbes.com/sites/jimgorzelany/2023/01/04/plug-in-turn-on-new-electric-vehicles-coming-in-2023/?sh=3db6662b32d5&utm_source=newsletter&utm_medium=email&utm_campaign=currentclimate&cdlcid=628673ca6e1a1d1211f1d747

2. New EVs

The following are new low and medium-priced EVs (under $50K base price, before incentives).

2.1. Fisker Ocean

I did not think that the Ocean would be inexpensive enough to make it into this paper. The brief article below from reference 1, convinced me otherwise.

Henrik Fisker's fledging upscale electric car company rolls on with the expected launch of the full-electric Ocean SUV in early 2023. Built in Germany, its operating range is claimed to be 350 miles on a full charge with the available Hyper Range battery pack. Its optional all-wheel drive dual-motor configuration is claimed to produce an energetic 550 peak horsepower and send the vehicle sailing with a 0-60 mph time at a brief 3.6 seconds. An optional SolarSky roof is claimed to generate up to 2,000 miles of range annually under optimal (i.e. sunny) conditions, while a PowerBank feature can supply power to an entire home during an extended blackout. Prices range from $37,499 to $68,999, depending on the version.

I believe that the above brief article contains an error. Fisker's manufacturing partner is Magna Steyr, and the current plan is to use its main plant in Graz, Austria, not Germany as stated above. However due to U.S. Federal Tax Credits requirements for EVs, Magna Steyr is seriously considering building a plant in North America. See the quote and reference below for additional details.

Magna Steyr – an Austrian-based contract manufacturer owned by Magna International – recently shared aspirations to enter the US market and produce vehicles in a climate-friendly facility in North America. The facility overseas currently manufactures the Jaguar I-Pace and will begin production of the Fisker Ocean in November. Based on revised terms for US federal tax credits, could a move by Magna happen? [2]

Via the recently signed Inflation Reduction Act, EVs must be assembled, and their battery components must be assembled in North America and a majority of those battery materials must come from either the US or a US-approved trade partner.

Note that Fisker is located in Southern California – go through the link below for more details. Magna Steyr's parent company, Magna International, is Canadian, so it wouldn't surprise me if they sited EV component (like battery) or EV assembly plants in Canada.

https://investors.fiskerinc.com/news/news-details/2020/Fisker-Inc.-to-Establish-New-Global-Headquarters-in-Los-Angeles/default.aspx

2.2. 2023 Hyundai Ioniq 6

I have covered Hyundai and their subsidiary, Kia, frequently in the past. They manufacture a wide range of EVs, and the lower-priced versions of these meet my $50K price limit. Genesis also has EVs, and will roll out three new EVs in 2023, but since they are a luxury-brand, they can't meet my $50K max. I reviewed the Kia EV9 in my last "EV…" post (linked below). Based on early reports, its base price will be between $50K

[2] Scooter Doll, Electrek, "Magna mulls US plant – could Fisker Ocean and Jaguar I-Pace soon qualify for federal tax credits?" Sep 8, 2022, https://electrek.co/2022/09/08/magna-us-plant-fisker-ocean-jaguar-i-pace-federal-tax-credits/

and $55K, so if it qualifies for maximum federal tax credits, it might be a fit, even though it is a full-sized (three-row) SUV.

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

Also, regarding the U.S. EV federal tax credit (see above quote), Hyundai / Kia plan to start building EVs in the U.S.

Kia will start producing electric vehicles in the United States starting in 2024 in order to qualify for new EV tax credits in the Inflation Reduction Act, according to Korean news outlets Maeli Business News and SBS…[3]

One of those manufacturers is Hyundai, which already builds gas cars in the US and was planning to build EVs here, but announced last month that it wants to speed up its timeline.

Hyundai and Kia are related companies – each owns a significant stake in the other, and they share the E-GMP EV platform underpinning both the Hyundai Ioniq 5 and Kia EV6. So it's not surprising that Kia would make a similar announcement soon after Hyundai.

The 2023 Hyundai Ioniq 6 is described and pictured below:

Hyundai is aiming to compete with the Tesla Model 3 with its latest EV model, a sedan called the Ioniq 6. This four-door fits into the company's Ioniq sub-brand made up of electric vehicles and shares components with the taller and boxier Ioniq 5. This means single- and dual-motor configurations will be offered, with a single battery-pack option. In combination with the aerodynamic shape, the standard 77.4-kWh battery pack means the 6 will provide an estimated 340 miles of driving range in certain configurations. Its styling is inspired by Hyundai's dramatic Prophecy concept, and the Ioniq 6 is as quick as it is futuristic and stylish. It also offers a more luxurious interior than the Model 3 and features more onboard technology when compared with Hyundai's gas-powered Sonata and Elantra sedans...[4]

[3] Jameson Dow, Electrek, "Kia will produce electric vehicles in the US in 2024 to get EV tax credit," Sep 19, 2022, https://electrek.co/2022/09/19/kia-will-produce-electric-vehicles-in-the-us-in-2024-to-get-ev-tax-credit/

[4] Joey Capparella, Car and Driver, "2023 Hyundai Ioniq 6," https://www.caranddriver.com/hyundai/ioniq-6

Safety and Driver-Assistance Features: *We expect Hyundai will equip the US version with all manner of driver-assistance tech. For more information about the Ioniq 6's crash-test results, visit the National Highway Traffic Safety Administration (NHTSA) and Insurance Institute for Highway Safety (IIHS) websites.*[5] *Key safety features are likely to include:*

- *Standard automated emergency braking with pedestrian detection*
- *Standard lane-departure warning with lane-keeping assist*
- *Available adaptive cruise control with a lane-centering feature*

Base price of the Hyundai Ioniq 6 will probably be $44,000.

Warranty and Maintenance Coverage: *Hyundai provides one of the best warranty plans in the industry. Likewise, it comes with an impressive amount of complimentary scheduled maintenance.*

- *Limited warranty covers five years or 60,000 miles*
- *Powertrain warranty covers 10 years or 100,000 miles*
- *Battery is covered for 10 years or 100,000 miles*
- *Complimentary maintenance is covered for three years or 36,000 miles*

Author's comment: I've often said that the best tactic for an entity is competing against a 900 lb. gorilla is usually to go where they are not. In the above case, since the Ioniq 6 appears to be going up against the Tesla Model 3, it appears that Kia / Hyundai is fighting the leader for a piece of their turf, and ultimately (possibly) leadership in the light EV market. Currently, I believe they are best suited to do this.

The day before this paper was scheduled to post the following came into my in-box:

…According to the Hyundai press release, the Hyundai IONIQ 6 sedan will have a maximum range of 361 miles with its SE Rear-Wheel-Drive Long-Range configuration, a full 21 miles more than initially announced. This is thanks to a 0.22 drag coefficient and a reasonably large 77.4 kWh battery. Thankfully for consumers, this is actually the cheapest configuration to come to the United States. However, this is only because the smaller 53 kWh battery won't reach the North American market.[6]

Higher-level trims and the optional all-wheel-drive system both take away significant amounts of range. For the SE Long Range, adding AWD cuts range from 361 miles to 316. This loss is only compounded by high trims with more interior amenities and larger 20-inch wheels, cutting the range to 305 miles for the SEL AWD and 270 miles for the top-of-the-line Limited AWD configuration.

While the higher trim and optional AWD seem detrimental, they come with some valid trade-offs. For instance, the high-performance AWD system adds nearly 100 horsepower, totaling 320, and adds just over 150 pound-feet of torque, totaling 446.

At the very least, no matter what trim you choose, you benefit from some of the highest efficiencies in the EV market. The max range model achieves an "MPGe rating" of 140

[5] https://www.nhtsa.gov/ratings & https://www.iihs.org/ratings Note that neither the neither the Ioniq 6 nor the Nissan Ariya (below) is currently rated on either site.
[6] William Johnson, Teslarati, "Hyundai IONIQ 6 crushes initial range estimates ahead of launch," Jan 31, 2023, https://www.teslarati.com/hyundai-ioniq-6-range-2023/

from the EPA, matching the Lucid Air and beating out the Tesla Model 3 by eight points. The lowest range and highest trim model of the Hyundai IONIQ 6, with a rating of 103 MPGe, you are still only a stone's throw away from the IONIQ 5 with 110 MPGe…

2.3. Nissan Ariya

Coming this spring, the Nissan Ariya is the brand's second EV after the pioneering Leaf. More attractively cast than that model, the Ariya will be offered in multiple trims with operating ranges that run from between a meager 205 miles to a more-robust 304 miles. The base model outputs a just adequate 214 horsepower, while higher trims go faster with a dual-motor "e-4ORCE" all-wheel drive setup that produces 389 horses. Prices start at $43,190 and max out at $60,100. It comes with Nissan's ProPILOT Assist 2.0 that enables hands-free semi-autonomous highway operation.[1]

Unlike the Leaf, which comes only with front-wheel drive, Nissan is pulling from features developed in other cars, including the GT-R sports car's torque-split system, to offer optional all-wheel drive via a dual-front/rear-electric-motor configuration. The front-wheel drive model we tested hit 60 mph in 7.5 seconds but the more powerful all-wheel-drive Ariya should be significantly quicker. We estimate that model will zip from zero to 60 mph in less than 5.0 seconds, a feat that is similar to higher-end electric vehicles. From what we've experienced so far, the Ariya provides a calm, stable ride that should please most buyers, but it lacks the sporty nature we driving enthusiasts prefer.[7]

Safety and Driver-Assistance Features: *ProPilot 2.0, Nissan's second generation of the ProPilot driver-assistance technology, is an optional feature. The system allows drivers to remove their hands from the wheel in certain driving scenarios and in our experience it works quite well. For more information about the Ariya's crash-test results, visit the National Highway Traffic Safety Administration (NHTSA) and Insurance Institute for Highway Safety (IIHS) websites. Key safety features include:*

- *Standard automated emergency braking with pedestrian detection*
- *Standard lane-departure warning with lane-keeping assist*
- *Available adaptive cruise control with a lane-centering feature*

Warranty and Maintenance Coverage: *We predict the Ariya will come with the same basic warranty package as the Leaf when it goes on sale. That warranty should include a competitive bumper-to-bumper policy as well as battery protection that stretches over eight years or 100,000 miles.*

- *Limited warranty covers three years or 36,000 miles*
- *Powertrain warranty covers five years or 60,000 miles*
- *Battery warranty covers eight years or 100,000 miles*
- *No complimentary scheduled maintenance*

2.4. Chevy Equinox EV

Although it wears the Equinox nameplate, the 2024 Chevrolet Equinox EV has little else in common with that compact SUV. The differences start with its powertrain, which swaps gasoline power for electrons. The Equinox EV's exterior styling blends futuristic touches with more traditional crossover design cues, and it looks pretty cool. The entry-

[7] Drew Dorian, Car and Driver, "2023 Nissan Ariya," https://www.caranddriver.com/nissan/ariya

level front-wheel-drive powertrain is 210 ponies strong and is said to provide around 250 miles of driving per charge. Unlike the smaller Bolt EUV, all-wheel drive is an option on the Equinox EV, and it gooses power to a perkier 290 horsepower. Uplevel models come with a larger battery pack that can extend the range to up to 300 miles, although opting for all-wheel drive reduces that estimate somewhat.[8]

Pricing of the Base Model Equinox EV (1LT) is in the low $30K range, but apparently does not have an option for all wheel drive (AWD), and will not be available until 2024. Three models up is the 2RS, which will be introduced in fall 2023. The 2RS base price will be in the low $40K range, and it can be upgraded to AWD. The two models in between the 1LT and the 2RS, per reference 8, are the 2LT (which starts in the mid $30K range, and is available with AWD, and the 3LT (which starts in the high $30K range, and I'm not sure whether AWD is standard or an option (Chevy only described the 1LT, 2LT and 2RS on the site linked below).

https://www.chevrolet.com/electric/equinox-ev

Front-wheel-drive Equinox EVs come with a single electric motor that makes 210 horsepower, but opting for the optional all-wheel-drive system ups power to 290 ponies.

Base-level Equinox EV models come with a smaller battery pack than the rest of the lineup and carry a range estimate of 250 miles per charge. All others get a larger battery which can provide up to 300 miles of range, although going with all-wheel drive drops the estimated range down to 280 on those trims. All models come with DC fast-charging capability, and Chevrolet says that can add 70 miles of range to the battery in as little as 10 minutes.

Safety and Driver-Assistance Features: *All models will ship with basic driver-assistance features as standard, including automated emergency braking, automatic high-beam headlamps, and lane-keeping assist. For buyers seeking the most up-to-date tech, the Equinox EV will be offered with GM's Super Cruise hands-free driving system. For more information about the Equinox EV's crash-test results, visit the National Highway Traffic Safety Administration (NHTSA) and Insurance Institute for Highway Safety (IIHS) websites. Key safety features include:*

- *Standard automated emergency braking with pedestrian detection*
- *Standard lane-departure warning with lane-keeping assist*
- *Available adaptive cruise control with hands-free driving mode*

Warranty and Maintenance Coverage: *Chevrolet provides standard coverage limits for the Equinox EV's electric powertrain components. It also includes the first maintenance visit, but overall coverage doesn't come close to that of the Hyundai Ioniq 5.*

- *Limited warranty covers three years or 36,000 miles*
- *Powertrain warranty covers five years or 60,000 miles*

[8] Drew Dorian, Car and Driver, "2024 Chevrolet Equinox EV," https://www.caranddriver.com/chevrolet/equinox-ev

- *Complimentary maintenance covers one maintenance visit*
- *Electric components are covered for eight years or 100,000 miles*

3. EVs after 2023

I found several articles that looked a bit further into the future, for other manufacturers.

3.1. Honda

The excerpt below provides information the Honda / GM Partnership. This was covered in the earlier post "EVs Late Summer 2022," linked in the Introduction of this post. See section 7.3 in the earlier post.

The company aims for all its sales to be zero-emissions electrified vehicles by 2040. The projected ramp-up to this goal is 40 percent of sales by 2030 and 80 percent by 2035. To accomplish this goal, Honda has formed a couple of major partnerships and committed to investing $40 billion in EV research and development, including engineering solid-state batteries.[9]

Looking beyond cars, the automaker said in a statement, "As the world's largest power unit manufacturer with annual sales of approximately 30 million units of mobility products, including motorcycles, automobiles, power products, outboard motors and aircraft, we aim to realize carbon neutrality for all products and corporate activities Honda is involved in by 2050, striving to eliminate carbon emissions from power sources of a wide variety of products."

Honda has teamed up with General Motors, an arrangement that allows Honda to make use of GM's coming Ultium batteries, a proprietary technology that GM says will allow long-range electric travel, among other benefits. The accord also calls for mutual vehicle platform-sharing, which will allow either automaker to use the basic building blocks of GM's electric vehicle architecture in designing and building its own cars. The first model co-developed with GM is the Prologue SUV, on target for sales in 2024.[10]

2024 Acura ZDX Prototype
Photo: Acura

The 2024 Acura ZDX SUV will be produced at the GM plant in Tennessee, where GM plans to build the Cadillac Lyriq EV.

Honda announced that they had formed a joint venture with LG Energy Solution to produce lithium-ion batteries in the U.S. for upcoming Acura and Honda models. It plans to invest $3.5 billion in the new battery plant in Ohio.

For 2026, Honda will begin production of new models based on its e: Architecture platform. The company said, "Through the alliance with GM, Honda is planning to introduce affordable EVs in 2027, with a cost and range that will be as competitive as gasoline-powered vehicles, starting from North America."

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[9] Jeff S. Bartlett and Ben Preston, Consumer Reports, "Automakers Are Adding Electric Vehicles to Their Lineups. Here's What's Coming," Jan 6, 2023, https://www.consumerreports.org/hybrids-evs/why-electric-cars-may-soon-flood-the-us-market-a9006292675/

[10] See section 7.3 in "EVs Late Summer 2022" linked in the Introduction to this post for a picture of, and additional details on the Prologue.

Honda and GM are working together to enable global production of millions of EVs starting in 2027, with a particular focus on small SUVs. To accomplish that, they're cooperating on standardizing equipment and processes to keep costs down.

In addition, Honda formed a joint venture with Sony to produce battery electric vehicles together under the brand Afeela. The first prototype, shown at CES in January 2023, features electronics galore, including 45 cameras and sensors. It previews a production model. Sony Honda Mobility announced that orders would begin in 2025, with deliveries scheduled for 2026.

Afeela prototype
Photo: Sony Honda Mobility

3.2. Stellantis

In early 2021, the auto manufacturer formerly known as Fiat Chrysler Automobiles merged with Groupe PSA, the company that houses the French Peugeot and Citroën brands, to become Stellantis. In North America, Stellantis includes the Alfa Romeo, Chrysler, Dodge, Fiat, Jeep, Maserati, and Ram truck brands…

In the U.S., the company aims to have its first battery electric vehicle by 2025 and to have an all-electric lineup by 2028. Stellantis said it expects battery costs to drop significantly over the next few years, helping it with the ambitious transition. By 2024, it expects to have two battery technologies in place (a high-density option and a nickel cobalt-free version), with solid-state batteries available by 2026.

Among the product plans, Jeep aims to introduce four all-electric vehicles by 2025, and it plans to offer 4xe plug-in models by then across the entire portfolio. (The automaker says the Wrangler 4xe is the best-selling plug-in hybrid in America.) The automaker projects that half of its sales in the U.S. will be battery-electric vehicles by 2030…

Ram 1500 Revolution BEV concept
Photo: Ram

Ram plans to launch a full-sized electric pickup truck in 2024, as previewed by the Ram 1500 Revolution BEV concept. That show vehicle has several notable convenience features, such as the ability to stow pass-through items that stretch up to 18-feet long due to a folding mid-gate separating the cabin from the bed; third-row jump seat; four-wheel steering; and Shadow Mode, the ability for the truck to independently follow the driver walking.

4. The Intersection of Photovoltaic (PV) & EVs

Although I've recently written about EVs with a few PV cells on their top-side, this is not what I'm talking about here. I will also not discuss the subject of this subsection for urban or rural residents. I've lived in suburbia for my whole life, and I strongly believe that one needs to live it to know it. But this is really a no-brainer for me – EVs and (stationary) PV can potentially have very strong synergies, and some major corporations and a long-time environmental organization recently formed a partnership to promote this.

In a revolutionary partnership, Ford, General Motors, Google, SunPower, and Sunrun are teaming up to highlight the additional benefits electric vehicles offer beyond producing zero emissions.[11]

Electric vehicles are rolling out at a record pace as consumers' preference for zero-emission electric cars soars. Nearly every automaker – new and legacy – is selling electric vehicles as fast as they are making them, with most experiencing significant backlogs.

Why is this? Research has shown that pure EVs are better for the environment with zero tailpipe emissions.

The enhanced driving experience also captures new EV drivers, leaving them to never look at a gas-powered vehicle the same. With instant acceleration and a smooth ride, it's no wonder people are switching to electric vehicles at a historic rate.

Meanwhile, electric vehicles offer more than just a thrilling, zero-emission drive experience. EVs can essentially serve as backup energy sources with large, powerful batteries.

Contrary to what many claim, EVs can help stabilize the energy grid. Some automakers offer bidirectional charging capabilities or vehicle-to-grid (V2G), allowing energy to be sent from the EVs battery to the grid and vice versa.

Other companies have teamed up to take this idea a step further in what's called a virtual power plant (VPP). VPPs use the concept of "V2G" on a mass scale, drawing from many EVs and other clean energy devices…

Author's comment: Regarding V2G, see section 3.2 in the earlier post linked below. An increasing percentage of EVs are offering V2G capability. The section / post referenced in this comment is regarding a major V2G commitment by my local utility, PG&E.

https://energycentral.com/c/ec/evs-late-fall-2022

RMI, a leading nonprofit dedicated to accelerating the global energy transformation, announced the formation of the Virtual Power Plant Partnership (VP3) Tuesday. In recognition of the critical work needed to tackle scaling the market for virtual power plants, initial funding of the VP3 effort was made possible by General Motors and

[11] Peter Johnson, Electrek, "Ford, GM, Google, and solar providers unite to showcase the full potential of electric vehicles," Jan 10, 2023, https://electrek.co/2023/01/10/ford-gm-google-solar-providers-unite-to-showcase-ev-potential/

Google Nest. Today, VP3 includes founding members Ford, General Motors, Google Nest, OhmConnect, Olivine, SPAN, SunPower, Sunrun, SwitchDin, and Virtual Peaker.[12]

VP3 is an initiative based at RMI that works to catalyze industry and transform policy to support scaling VPPs in ways that help advance affordable, reliable electric sector decarbonization by overcoming barriers to VPP market growth. Virtual power plants are portfolios comprised of hundreds or thousands of households and businesses that offer the latent potential of their electric vehicles (EVs), smart thermostats, appliances, batteries, solar arrays, and additional energy assets to support the grid. VP3 follows in the path of successful institutional spinoffs in the electric sector space previously incubated by RMI including the Clean Energy Buyers Association and the Energy Web Foundation.

"Virtual power plants are poised for explosive growth, and RMI is committed to being at the forefront of their success by launching VP3," said RMI CEO Jon Creyts. "Our analysis shows that VPPs can reduce peak power demand and improve grid resilience in a world of increasingly extreme climate events. A growing VPP market also means revenue opportunities for hardware, software, and energy-service companies in the buildings and automotive industries. For large energy users, VPPs can significantly reduce energy spend while providing new revenue streams."

Author's comment: RMI (Rocky Mountain Institute) is one of the oldest nonprofits in the U.S. that is focused on energy-related issues. They and I have crossed paths throughout my career. Although RMI is headquartered at various locations is Colorado, they also have many offices around the U.S., and an office in China. RMI was founded by Amory Lovins in 1982.

My home state (California) has been successful in promoting residential PV installations:

In 2006, then-Governor Schwarzenegger signed the Million Solar Roofs Initiative into law, which set a goal of building one million solar energy systems on homes, schools, farms, and businesses throughout the state. In 2019, the idea that once made international headlines for its "wow factor" is now a reality.[13]

"California is leading the way to a clean energy future," said Governor Arnold Schwarzenegger. "13 years ago, we set a huge goal: to build a million solar roofs in our state by 2019. Republicans and Democrats came together behind a policy that would be successful years after we all left office - it wouldn't be ready for our re-election campaigns - because we understood that big, worthwhile goals were more important than politics. Today, we celebrate the vision and the hardworking Californians that made a million solar roofs a reality."

As they celebrated the one million solar roofs milestone, solar advocates kept their focus on the future with a call for one million solar-charged batteries by 2025. With today's batteries, homeowners and businesses can store solar energy for use after sundown or during a blackout. This smooths out prices, takes pressure off the electric grid, and gives consumers a degree of independence previously unheard of.

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[12] Adam Beitman, RMI Press Release, "RMI Launches "Virtual Power Plant Partnership" With Support from General Motors & Google Nest," Jan 10, 2023, https://rmi.org/press-release/rmi-launches-virtual-power-plant-partnership-with-support-from-general-motors-google-nest

[13] USC Schwarzenegger Institute, "California Has Reached it 1,000,000 Solar Roofs Goal," Dec 18, 2019, http://schwarzenegger.usc.edu/institute-in-action/article/california-celebrates-reaching-one-million-solar-roofs-milestone

There is a problem going forward with our Million Solar Roofs, almost none of these currently have energy-storage capability, and when the PV panels start fading daily in the late afternoon to early evening (especially in the summer when we have late demand peaks in this period), there is no associated energy storage to take over. This means that natural gas fueled plants must take up most of the slack. This is one reason the CPUC is moving away from supporting PV without storage via a net energy metering tariff, and towards tariffs that encourage home-owners to incorporate storage capabilities. V2G is a quick fix for this, assuming EVs can reserve storage capacity for late afternoon to early evening, and otherwise support V2G. This requires an EV, charger and electric utility that supports V2G.

5. Tesla News

5.1. Tesla Reduces Model 3 & Y Pricing

Tesla has been running very high margins for the last few years, and Elon felt a need to compensate by reducing prices for their most popular models. Also, this moved a major variants into the price range for the IRA Tax Credits. See subsection 5.2 below for additional Tesla comments on these reductions.

For the Tesla Model 3, the vehicle's base RWD variant now costs $43,990, $3,000 less than its previous cost of $46,990. The top tier Model 3 Performance, on the other hand, now costs $53,990, $9,000 less than its previous $62,990 price.[14]

The Model Y Long Range price has been reduced to $52,990, a full $13,000 less than its previous price of $65,990. The Model Y Performance, the top-tier variant of the vehicle, has been adjusted to $56,990, which is also $13,000 less than its previous price of $69,990.

With these price adjustments in place, Tesla has ensured that the Model Y Long Range would qualify for the Inflation Reduction Act's $7,500 federal tax credit. Prior to its price reduction, this was not the case, since the vehicle — which happens to be too light to be considered an "SUV" under the IRA's regulations — had a price above the program's $55,000 cap for "all other" vehicles.

Author's comments: Note two things:

1. With the above reduction and the IRA Tax credit, this brings the Model Y Long Range well below my $50K maximum for a "medium-price EV."
2. In my last EV Post (EVs Early Winter 2023, linked in section 2.2 above), I explored methods Tesla could use to reduce their costs. See section 4.1 in the earlier post.

5.2. Tesla Stock Bounces on Related News

The tone from Tesla (TSLA) is that the price drops on key models are due to falling costs in the supply chain and logistics, instead of any indication that demand is lagging or the

[14] Maria Merano, Teslarati, "Tesla reduces Model 3 and Model Y prices in the United States," Jan 12, 2023, https://www.teslarati.com/tesla-model-3-model-y-price-cut-united-states-update/

company is desperate for market share. That may have calmed some investors worried about a protracted 2023 EV pricing war.[15]

As for the EV mother ship, Tesla (TSLA) was showing a 9.66% gain at 10:28 a.m. on Thursday and traded as high as $161.42. It was only about three weeks ago that Tesla was bordering on dropping below the $100 mark. Tesla is now back over the $500B market cap level.

Tesla Earnings Report: "*If it's a smooth year ... without some big supply chain interruption or massive problem, [we] have the potential to do 2 million cars this year," Musk says.*[16]

Tesla (TSLA) shares surged higher Thursday after the carmaker posted better-than-expected fourth quarter earnings and vowed to exceed its own forecast of a 50% annual delivery growth rate over the long term.

CEO Elon Musk also said orders for the month of January to date were "the strongest in our history" and were nearly twice the rate of Tesla's global production, adding that without disruption, the company could deliver 2 million cars this year.

The group's stated forecast, however, calls for a delivery target of 1.8 million, a 37% increase from last year's levels that clashes with its 50% forecast but comes amid what Musk predicted will be a "pretty difficult recession this year."

5.3. Other Tesla News

Semi Ramping: *The electric-vehicle company led by Elon Musk said on Tuesday (Jan 24) it will invest more than $3.6 billion to add two more production facilities to the Giga-Nevada site — one that will become its first high-volume factory for its recently launched Semi truck, and another to produce its new 4680 battery cell.*[17]

Author's comment: Note the Semi uses 4680 batteries in massive numbers. Regarding paragraph below, delays were mainly caused by the Semi's appetite for these batteries, which are also used by the Model Y and probably by the upcoming redesigned Model 3.

Tesla's announcement will be welcomed by customers on the waitlist for the automaker's new all-electric Semi truck. The company unveiled the vehicle in 2017, but multiple production delays meant the first one wasn't delivered until the end of 2022.

Cybertruck: …*Production of the electric truck should begin this summer, but don't get too excited about the timing because the numbers will be small, Tesla CEO Elon Musk told investors on a call to report fourth-quarter 2022 earnings.*[18]

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[15] Clark Schultz, Seeking Alpha, "Electric vehicle stocks rally with Tesla halo shining bright again," Jan 26, 2023, https://seekingalpha.com/news/3928466-electric-vehicle-stocks-rally-with-tesla-halo-shining-bright-again

[16] Martin Baccardax, The Street, "Bullish Tesla CEO Musk Pushes Case for Big 2023 Gains," Jan 26, 2023, https://www.msn.com/en-us/money/topstocks/bullish-tesla-ceo-musk-pushes-case-for-big-2023-gains/ar-AA16LdvO

[17] Trevor Mogg, Digital Trends, "Tesla invests billions in U.S. gigafactory to boost Semi production, Jan 24, 2023, https://www.msn.com/en-us/money/companies/tesla-invests-billions-in-us-gigafactory-to-boost-semi-production/ar-AA16Iz36

[18] Alisa Priddle, MotorTrend, "Tesla Cybertruck Now Coming Summer 2023, Volume Production in 2024," Jan 26, 2023, https://www.motortrend.com/news/elon-musk-tesla-cybertruck-production-summer-2023-2024/

Volume production of the Cybertruck will not be until 2024, well after Ford, Rivian, and General Motors have entered the electric pickup market…

Final author's comment: In addition to the above, as had been previously announced, the Cybertruck will be produced at Giga-Austin. Also, the Cybertruck uses 4680 batteries (from multiple articles), and this is a main reason for the delay of the major production-ramp until 2024 (the Cybertruck has a moderately healthy appetite for these batteries).