NETWORKPERFORMANCE

Getting ready for the second wave of electrification.

The powerful forces driving the electrification trend.

The second wave of electrification is gaining momentum from both the public and private sectors. Investments made today in the nation's electrification infrastructure promise significant dividends when electrification scales up to reach these second-wave buyers. The question isn't if the second wave is coming; it's when. Unfortunately, there isn't one answer to that question. Much of it depends on who's asking the question, where they are located geographically, and what auto manufacturer they are referring to.

Charging stations: the electrification elephant in the room.

Charging stations represent the tipping point for electrification. "Charging is the big challenge right now," said Joe Wiesenfelder, executive editor at Cars.com.[1] "People will want to charge at home, overnight, then unplug and drive. At-home charging doesn't work in every home without modification. And once on the road and needing a charge, even fast-charging batteries aren't as fast as the five minutes consumers are used to spending at a gas station."

The Federal Government, under the new Biden Administration, has plans to rectify that situation. It has pledged 500,000 EV charging stations by 2030. To put that in perspective, as of the end of 2020, there were 30,451 EV public charging stations in the United States, with 96,536 public charging ports,[2] compared to 115,000 gas stations.[3]

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The Biden Administration has pledged 500,000 EV charging stations by 2030, up from 30,451 at the end of 2020.

Vehicle manufacturers are also getting into the charging station business, trying to play catch-up to the significant lead Tesla has built up with a strategy that, from the beginning, embraced the need for a strong charging station infrastructure. General Motors is working with electric vehicle charging operator EVgo Services to build 2,750 fast chargers in cities and suburbs across the U.S.[4] Electrify America, a subsidiary of Volkswagen Group of America, is investing more than $2 billion over 10 years in zero-emissions vehicle infrastructure, and it expects to have 800 total charging stations with about 3,500 DC fast chargers by the end of 2021.[5]

In early March of this year, a coalition of six electric utilities announced a new initiative to build a seamless network of charging stations in and around the southeastern United States.[6] The group plans to build chargers near major highways in every southern state, stretching as far west as Texas and as far north as Indiana, Ohio, and Virginia.

Significant incentives are also encouraging third parties to get in on building charging stations. The 30C Tax Credit[7] – which covers 30% of a qualified property, up to $30,000 for businesses per location and $1,000 for a taxpayer's primary residence – has been extended through Dec. 31, 2021.[8]

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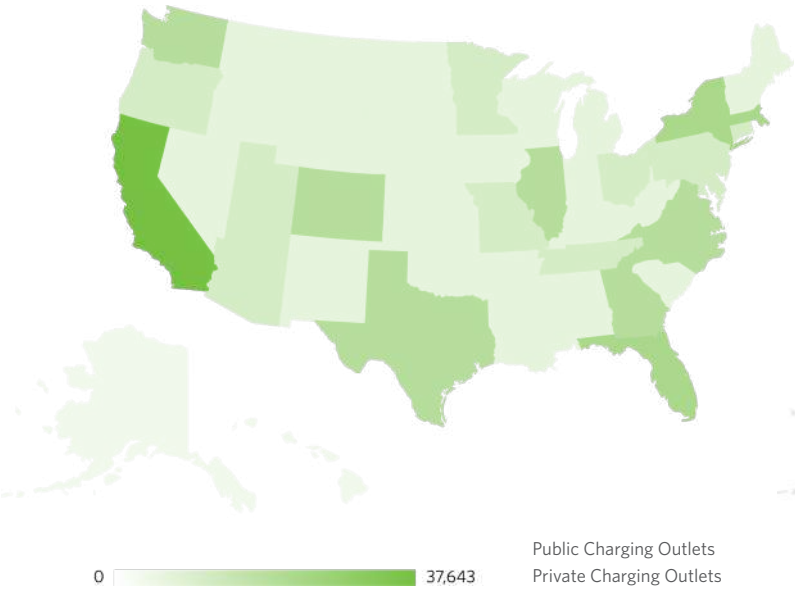
Why “apples-to-apples” comparisons won’t work for electrification.

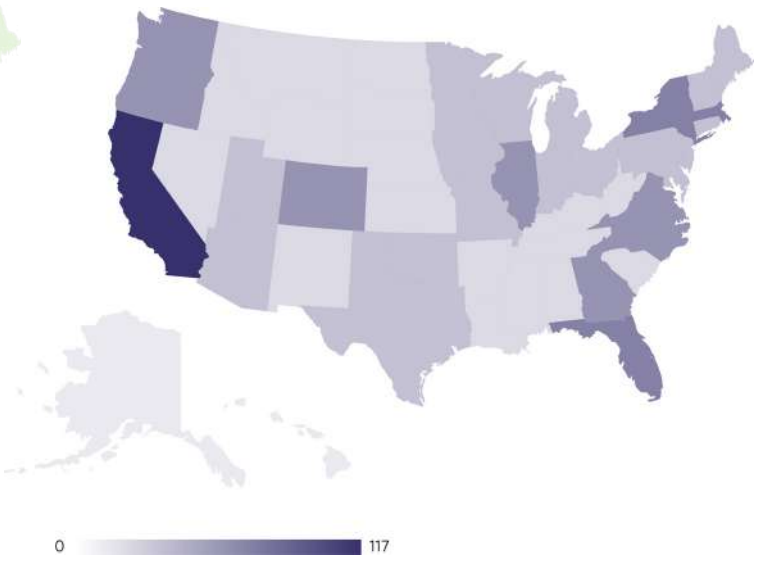
Vehicle manufacturers face different challenges, depending upon where their dealerships, current customers and potential customers are located. The two maps below illustrate how the number of electric vehicle charging stations is driven by electric vehicle laws and regulations. California (home to Tesla), has a whopping 117 laws and incentives for electric vehicles. This has led to California, with just 12% of the nation’s population, having a third of the nation’s charging outlets.[9]

Electric Vehicle Charging Outlets by State



Source: AFDC Alternative Fueling Station Locator Data (/locator/stations/)

Electric Vehicle Laws and Incentives by State



Source: AFDC Laws and Incentives Data (/laws/).

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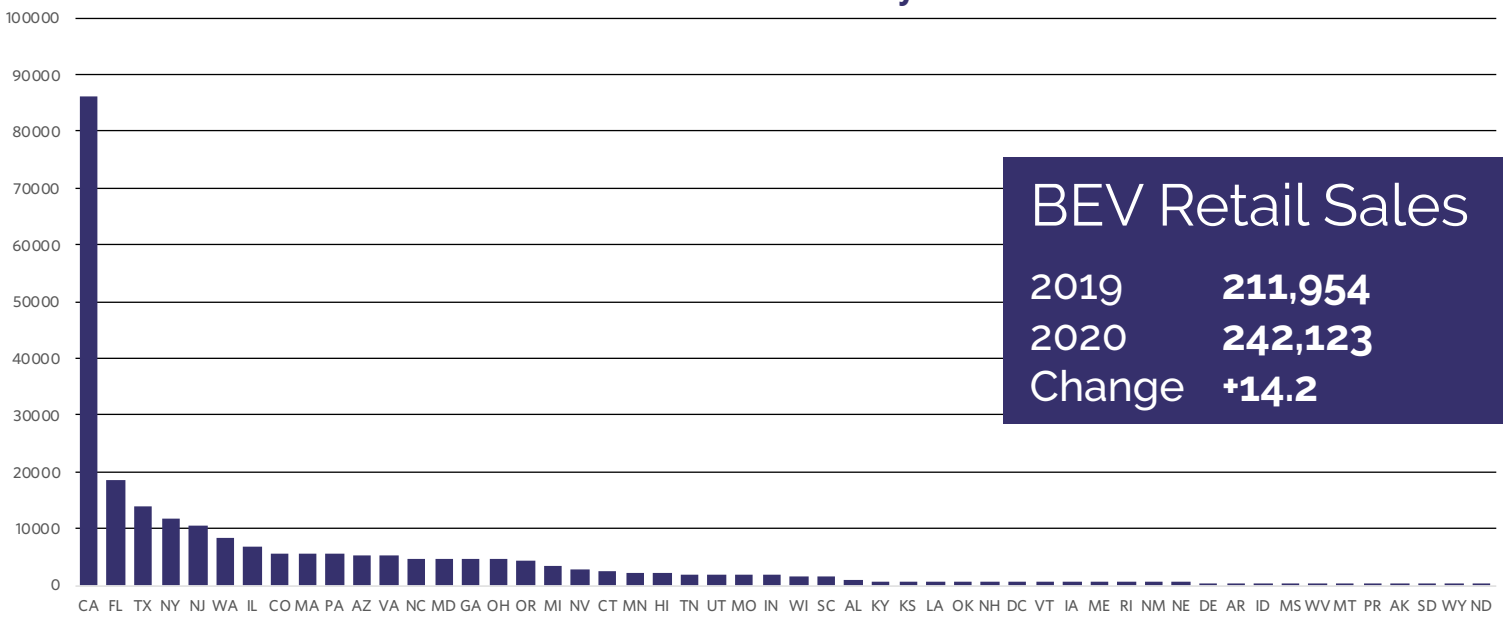
Electric vehicle registrations by state paint similar pictures. California, Washington, Florida, Texas, New York, and Arizona lead the pack, reflective once again, of the charging station infrastructure in those states.[10] Compare that to the top 10 U.S. EV registrations by vehicle make and model, and the extent of the network challenge begins to take shape.[11]

2020 BEV Retail Sales by State



BEV Retail Sales

2019	**211,954**
2020	**242,123**
Change	**+14.2**

2020 Top 10 U.S. EV Registrations

1. Tesla Model 3	95,135
2. Tesla Model Y	71,344
3. Chevrolet Bolt EV	19,664
4. Tesla Model X	19,652
5. Tesla Model S	14,430
6. Nissan Leaf	8,972
7. Audi E-tron	7,089
8. Porsche Taycan	3,943
9. Hyundai Kona	2,964
10. Kia Niro	2,807

Source: Experian

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Understanding convenience in an electrified world.

Right now, it's the wild west for electrification. Charging stations appear to be built where it is easiest or feasible. Construction is heavily influenced by local incentives and rebates, without consideration to those who need charging close to home or work. A constant regarding the planning of any network, which seems to have been partially lost on EV thus far, is what lies at its core: the necessity to plan around the concept of convenience.

Today, the definition of convenience is evolving to encompass a greater set of criteria, including convenience to charging – further exemplifying why it's necessary to plan strategically to ensure your customers have access to what they need, where they need it. The same science used to create the most efficient networks possible can be applied to solve this challenge.

The pandemic that impacted 2020 demonstrated the auto industry's ability to pivot, innovate, and rise up to the challenge. Electrification offers a different type of challenge, one that – unlike the pandemic – can be planned for. Different manufacturers, each with different challenges revolving around their specific customers, need to carefully choose their particular EV strategies. The time to ask questions, get answers, and act is now… before the second wave is upon us in full force.

The objective power of science.

It all comes back to the science. Since our founding, we've been a force for change. Our process of looking beyond what we know to what we discover through science continues to serve us and our clients very well.

At Urban Science, we pioneered a proven, scientific approach to planning, and have continued to advance and innovate our methodology for over 40 years of automotive industry changes and advances. It's an approach that has stayed ahead of the technological curve to help OEMs improve the performance of their dealership networks, and continues to be the industry standard.

To learn more about optimizing your Network Planning, call or email me.

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[1]The Big Challenge to Biden's Electric Vehicle Pledge – Not Every State is On Board, https://www.marketwatch.com/story/the-big-challenge-to-bidens-electric-vehicle-pledge-every-state-is-different-11612389231 | [2]US Public Charging Locations and Ports: Dec 31, 2020, https://evadoption.com/ev-charging-stations-statistics/ | [3]How Many Gas Stations Are In U.S.? How Many Will There Be In 10 years? https://www.marketwatch.com/story/how-many-gas-stations-are-in-us-how-many-will-there-be-in-10-years-2020-02-16 | [4]GM to Build Nationwide EV Charging Network, https://www.ttnews.com/articles/gm-build-nationwide-ev-charging-network | [5]Biden Infrastructure Plan Pushes Better Roads, EV Chargers, Mass Transit, https://www.forbes.com/wheels/news/biden-infrastructure-plan-better-roads-ev-chargers-mass-transit/ | [6]AEP, Five Others Plan to Add EV Fast Chargers Creating Electric Highway Coalition, https://www.aep.com/news/releases/read/6036/AEP,-Five-Others-Plan-to-Add-EV-Fast-Chargers-Creating-Electric-Highway-Coalition | [7]https://www.chargepoint.com/incentives/federal-tax-credit/#:~:text=What%20is%20the%2030C%20EV,to%20the%20end%20of%202021. | [8]The 2020 30C Tax Credit Has Been Extended Through 2021, https://www.evconnect.com/incentives?utm_source=adwords&utm_medium=ppc&utm_campaign=CT-AA-Dynamic+-Search&utm_term=&hsa_tgt=dsa-392257878405&hsa_grp=105392027735&hsa_mt=b&hsa_cam=10641953406&hsa_ver=3&hsa_src=g&hsa_net=adwords&hsa_kw=&hsa_acc=7281861922&hsa_ad=451180202118&gclid=CjwKCAiAp4KCBhB6EiwAxRxbpImHhj4cwVWkE0Z-JCaW3gTZd1xwP_q1iZ-TWnnr8rfmI8SMIOf91OxoCVvcQAvD_BwE | [9]U.S. Department of Energy, Alternative Fuels Data Center, Maps, https://afdc.energy.gov/data/10366 | [10]U.S. Department of Energy, Alternative Fuels Data Center, Vehicle Registrations by State, https://afdc.energy.gov/data/10366 | [11]Automotive News/Experian, https://www.autonews.com/mobility-report/teslas-commanding-lead-us-evs-illustrated-registration-report

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