WHY THE IDAHO LEGISLATURE SHOULD DIRECT THE IDAHO PUBLIC UTILITIES COMMISSION TO ENCOURAGE ELECTRIC VEHICLES

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ABSTRACT

This comment argues that the Idaho Legislature should direct the Idaho Public Utilities Commission (PUC) to authorize utility investments in electric vehicle charging stations and implement time-of-use volumetric rates to encourage development of privately owned charging stations.

The widespread adoption of electric vehicles in Idaho could benefit the state's economy by reducing fuel costs by two-thirds and redirecting the remaining costs back into Idaho's local energy economy. Moving to electric vehicles would also provide significant environmental benefits because electric vehicles produce far fewer greenhouse gases than gasoline vehicles.

The primary barrier to electric vehicle adoption is an insufficient number of public charging stations. Idaho has a critical shortage of direct current (DC) fast charging stations—especially in state highway corridors and rural areas. This shortage is unlikely to be resolved by investments from the federal government and national charging station networks, which tend to focus on interstates and high-population areas. But Idaho's infrastructure gap could be addressed if local electric utilities and private businesses invested in public charging stations.

This comment recommends two policy proposals to accelerate the adoption of electric vehicles in Idaho: (1) electric utility ownership of charging stations to develop charging infrastructure; (2) time-of-use volumetric rates for charging stations to incent independent business investment in electric vehicle charging infrastructure.

This comment then analyzes the legal reform needed to implement those policy proposals. It considers the legal framework of the Idaho PUC, compares that to legal approaches in other states, and concludes that narrow legal reform is required to accelerate electric vehicle adoption in Idaho. Specifically, this comment recommends the Idaho Legislature shift from granting the Idaho PUC legal permission to authorize utility investments in and alternative rate design for electric vehicle charging stations, and instead issue a legal directive for the Idaho PUC to favorably consider utility investments in electric vehicle charging stations and time-of-use volumetric rates for privately-owned charging stations.

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I. INTRODUCTION

Electric vehicles have gained significant attention in recent years for their potential to reduce greenhouse gas emissions in the transportation sector of the U.S economy.[1] The transportation sector is particularly important for greenhouse gas reduction because it generates more emissions than any other sector of the economy.[2] Although gasoline-powered vehicles have become more efficient in recent decades,[3] total greenhouse gas emissions from transportation have remained essentially unchanged since 1990.[4] In contrast, greenhouse gas emissions from the U.S. economy's electricity sector began declining in 1990, and have fallen off sharply since 2007.[5] Because total emissions from transportation have remained unchanged despite increased efficiency in passenger vehicles, extending the emissions reductions from electricity generation to passenger vehicles with electric vehicles is a powerful way to reduce transportation pollution.

Besides the environmental benefits, there is another aspect of electric vehicles that is sometimes overlooked—they cost less to own and operate than gasoline vehicles.[6] These cost savings occur largely because it is less expensive to fuel a vehicle with electricity than with gasoline—much less expensive.[7] In Idaho, a

1. Rebecca Leber, *Why electric vehicles are so hot in the 2022 Super Bowl ads*, VOX (February 13, 2022, 10:30 AM), https://www.vox.com/2022/2/13/22927509/super-bowl-2022-gm-bmw-kia-electric-car-ads.

2. U.S. ENV'T PROT. AGENCY, TRANSPORTATION SECTOR EMISSIONS, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#transportation (last visited Nov. 6, 2021).

3. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, NEW LIGHT-DUTY VEHICLE FUEL ECONOMY, 1975–2020, https://www.energy.gov/eere/vehicles/articles/fotw-1177-march-15-2021-preliminary-data-show-average-fuel-economy-new-light (last visited Jan. 5, 2022).

4. U.S. ENV'T PROT. AGENCY, *supra* note 2.

5. *Id.*

6. Benjamin Preston, *EVs Offer Big Savings Over Traditional Gas-Powered Cars*, CONSUMER REP. (Oct. 8, 2020), https://www.consumerreports.org/hybrids-evs/evs-offer-big-savings-over-traditional-gas-powered-cars/.

7. U.S. DEP'T OF ENERGY, ENERGY.GOV, EGALLON: COMPARE THE COSTS OF DRIVING WITH ELECTRICITY, https://www.energy.gov/articles/egallon-how-much-cheaper-it-drive-electricity (last visited Feb. 21, 2022) (As of February 21, 2022, the national gas price average was $2.85/gallon; the national eGallon average was $1.16; the Idaho gas price average was $2.84; and the Idaho eGallon average was $0.90) [hereinafter ENERGY.GOV].

gallon of gasoline costs over three times more than an "eGallon," the amount of electricity a driver would have to buy to travel the same distance as a gallon of gasoline.[8] Electric vehicles also require less maintenance, which further reduces costs.[9] Combining the fuel and maintenance savings, each driver can save hundreds or thousands of dollars a year by driving an electric vehicle rather than a gas vehicle.[10]

Even after accounting for the currently higher upfront purchase price of electric vehicles, electric vehicles are still less expensive to own and operate over their lifespan than gas vehicles.[11] The lifetime vehicle costs that a driver saves on transportation are then available to be spent elsewhere in the economy. Extrapolated over the 1.4 million drivers in Idaho,[12] this creates billions of dollars in newly available spending power.

But fueling cars with electricity rather than gas not only saves drivers money, it also changes where that money is spent. That is because electricity is produced in Idaho, but gasoline is not.[13] By switching from gasoline to electricity, Idaho drivers stop sending their fuel money to oil-producing states and instead spend their fuel dollars in Idaho on local electricity.

Electric utility infrastructure, specifically distribution capacity, will likely require upgrades over time to satisfy the increased demand created by electric vehicles.[14] But that higher demand would be supplied by Idaho utilities investing in

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8. *Id.*

9. Chris Harto, *Electric Vehicle Ownership Costs: Today's Electric Vehicles Offer Big Savings for Consumers*, CONSUMER REP. (Oct. 2020), https://advocacy.consumerreports.org/wp-content/uploads/2020/10/EV-Ownership-Cost-Final-Report-1.pdf.

10. *Id.*

11. *Id.*

12. IDAHO DEP'T OF TRANSP., IDAHO TOTAL PASSENGER CAR REGISTRATIONS BY COUNTY, BY CALENDAR YEAR, https://itd.idaho.gov/dmvdata/ (last visited Feb. 19, 2022) (Idaho reported 1.4 million passenger cars registrations in 2019) [hereinafter IDAHO PASSENGER CAR REGISTRATIONS].

13. *Idaho: State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/state/analysis.php?sid=ID, (last visited Feb. 3, 2022) [hereinafter *Idaho: State Profile*]; *Oil and Petroleum Products Explained: Where Our Oil Comes From*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/oil-and-petroleum-products/where-our-oil-comes-from.php (last visited Feb. 3, 2022) [hereinafter *Where Our Oil Comes From*] (Over 70% of the U.S. crude oil is produced in Texas, North Dakota, New Mexico, Oklahoma, and Colorado.).

14. Hauke Engle et al., *The Potential Impact of Electric Vehicles on Global Energy Systems*, MCKINSEY & CO. (Aug. 8, 2018), https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-potential-impact-of-electric-vehicles-on-global-energy-systems.

local electric generation, transmission, and distribution projects.[15] Consequently, widespread adoption of electric vehicles could decrease vehicle fuel costs by two-thirds while simultaneously redirecting the remaining expenditures from other states back into Idaho's economy.

It is also worth noting that the economic opportunity presented by electric vehicles in Idaho does not significantly benefit one type of in-state industry while harming another. Although some industries, most notably electric utilities,[16] stand to benefit the most from widespread electric vehicle adoption, few if any in-state industries are harmed.[17] Instead, the industries most negatively impacted will be oil producers and refineries, which are almost exclusively located outside of Idaho, and often outside of the U.S.[18]

While all states could benefit from switching to electric vehicles, the cost savings for electric vehicle drivers in a particular state depends on the difference between the price of gasoline and electricity in that state.[19] Similarly, the greenhouse gas and air quality benefits of electric vehicles in a particular state depends on the difference between gasoline tailpipe emissions and the emissions

15. Margaret Carmel, *Power Up: Idaho Power Preparing for Increased Electrical Vehicle Usage*, BOISE DEV (May 27, 2021), https://boisedev.com/news/2021/05/19/power-up-idaho-power-preparing-for-increased-electric-vehicle-usage/; F. Todd Davidson et al., *Switching to Electric Vehicles Could Save the US Billions, But Timing is Everything*, THE CONVERSATION (Dec. 4, 2018), https://theconversation.com/switching-to-electric-vehicles-could-save-the-us-billions-but-timing-is-everything-106227 (States with large seasonal variations in electricity usage can use the idle capacity to charge electric vehicles in off-peak hours and make it easier to meet the increased demand than states with flatter load curves).

16. Thomas Baker et al., *Electric Vehicles are a Multibillion-Dollar Opportunity for Utilities*, BOSTON CONSULTING GRP. (Apr. 23, 2019), https://www.bcg.com/publications/2019/electric-vehicles-multibillion-dollar-opportunity-utilities.

17. Gas stations, most of which are independently owned, may be an exception to this general rule. *Service Station FAQs*, AM. PETROLEUM INST., https://www.api.org/oil-and-natural-gas/consumer-information/consumer-resources/service-station-faqs (last visited Feb. 20, 2022).

18. *Where Our Oil Comes From*, *supra* note 13 (The U.S., Russia, Saudi Arabia, Iraq, and Canada are the world's top five oil producing countries).

19. ENERGY.GOV, *supra* note 7.

produced by the electricity generating resources used in that state.[20] States with higher gas prices, cheaper electricity, and cleaner electricity generating resources will save more money and reduce greenhouse gases more than other states.[21] States that do not have significant oil production and refining stand to further benefit by redirecting their purchasing power currently spent with out-of-state oil producers to in-state electrical producers.[22]

Idaho has all of these conditions: (1) higher than average gasoline prices;[23] (2) among the lowest electric prices in the nation;[24] (3) among the cleanest electricity in the nation;[25] (4) and no significant oil production or refining.[26] Quantifying these benefits demonstrates that Idaho is well-positioned to benefit economically and environmentally from the widespread adoption of electric vehicles.

The more electric vehicles in a state, the greater the economic and air quality benefits. Here, Idaho has great potential for growth. While electric vehicle ownership in Idaho has increased in recent years, only 2,300[27] of Idaho's 1.4 million passenger vehicles were electric in 2021.[28] Consumers have expressed considerable interest in electric vehicles, but "range anxiety" remains a major barrier.[29] Idaho's shortage of publicly available fast-charging stations is almost certainly inhibiting widespread electric vehicle adoption.

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20. *Beyond Tailpipe Emissions Calculator*, U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: WWW.FUELECONOMY.GOV, https://fueleconomy.gov/feg/Find.do?year=2015&vehicleId=37236&zipCode=83705&action=bt3 (last visited Dec. 23, 2021) [hereinafter *Beyond Tailpipe Emissions*].

21. ENERGY.GOV, *supra* note 7; *Beyond Tailpipe Emissions*, *supra* note 20.

22. Matt Frommer, *Economic and Emissions Benefits of Electric Vehicles in Nevada 10*, SWEEP (2019), http://www.swenergy.org/pubs/economic-and-emissions-benefits-of-electric-vehicles-in-nevada.

23. ENERGY.GOV, *supra* note 7.

24. *State Electricity Profiles*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/electricity/state/ (last visited Jan. 5, 2022) (Average U.S. price per kWh is 10.59 cents; Idaho's average price per kWh is 7.99 cents).

25. *Idaho: State Profile*, *supra* note 13.

26. *Id.*

27. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR, ELECTRIC VEHICLE REGISTRATIONS BY STATE, https://afdc.energy.gov/data/10962 (last updated June 2021).

28. IDAHO PASSENGER CAR REGISTRATIONS, *supra* note 12.

29. *New CR Survey Finds the Majority of Customers are Interested in Getting an Electric Vehicle*, CONSUMER REP., (Dec. 2020), https://advocacy.consumerreports.org/wp-content/uploads/2020/12/EV-Survey-2020-Fact-Sheet-12.16.20-3.pdf.

Idaho's state-regulated electric utilities could help fill the electric vehicle charging infrastructure gap by: (1) owning and operating public, fast-charging stations; and (2) offering electric rate design options that make it economical for private businesses to own and operate public, fast-charging stations. However, Idaho's current regulatory framework makes it unlikely that the Idaho Public Utilities Commission (PUC), which regulates Idaho electric utilities, will approve utility requests for either of these changes.

But relatively minor changes to state law could change that, thereby creating the necessary conditions to build a robust network of public fast-charging stations to give drivers "range confidence."[30] This comment recommends that the Idaho Legislature direct the Idaho PUC to: (1) favorably consider utility ownership of public charging stations; and (2) implement volumetric, time-of-use electric rates for charging stations to remove the economic disincentive for private businesses to invest in charging infrastructure.

II. BACKGROUND

A. Electric vehicle sales have increased significantly.

Electric vehicle sales have increased significantly in recent years because drivers enjoy the convenience, performance, and cost savings of electric engines. Conceptually, electric vehicles are relatively simple: they have a lithium-ion battery instead of a gas tank, and an electric motor instead of an internal combustion engine.[31] Electric vehicles are popular with drivers because they accelerate faster, drive smoother, and are quieter than gas vehicles.[32] But Teslas—with their 18" computerized driver dashboard, front and rear trunks, and impressive self-steering technology—have been especially captivating.[33]

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30. *Range Confidence with Ride and Drives – Electric Vehicles Charge Ahead*, UTAH CLEAN CITIES, https://utahcleancities.org/2707-2/#/find/nearest (last visited Feb. 15, 2022).

31. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., HOW DO ALL-ELECTRIC CARS WORK?, https://afdc.energy.gov/vehicles/how-do-all-electric-cars-work (last visited Nov. 10, 2021) [hereinafter HOW DO ALL-ELECTRIC CARS WORK?].

32. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: WWW.FUELECONOMY.GOV, ALL-ELECTRIC VEHICLES, https://www.fueleconomy.gov/feg/evtech.shtml (last visited Nov. 10, 2021) [hereinafter ALL-ELECTRIC VEHICLES].

33. *Model 3*, TESLA, https://www.tesla.com/model3 (last visited Dec. 27, 2021).

Most electric vehicle owners charge their vehicle at home overnight, which is easier and more convenient than a trip to the gas station.[34] Many electric vehicles can charge without any special equipment using a standard 120-volt outlet.[35] Known as Level 1 charging, this is the slowest type of charging; it can take over 12 hours to provide 60 miles of range, and two days to fully recharge a 250-mile battery.[36] For faster charging, many electric vehicle owners install a Level 2 charger, which is 240-volt and can provide 250 miles of range in five hours.[37] Most charging stations that are open to the public or available at workplaces are Level 2.[38]

The fastest type of vehicle charging is direct current (DC) fast-charging and can provide 200 miles of range in 15 to 45 minutes.[39] The shortage of public DC fast-charging stations, which allow drivers to recharge their electric vehicles almost as quickly as they can refuel a gas vehicle, is a major barrier to electric vehicle adoption.[40]

In addition to insufficient public charging infrastructure, other barriers to electric vehicle adoption have been the higher upfront purchase price, limited battery ranges, and few body style options.[41] But considerable progress has been made on these issues in recent years.[42]

First, battery manufacturing costs, which had previously made the initial purchase price of electric vehicles more expensive than gas cars, have declined

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34. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: WWW.FUELECONOMY.GOV, CHARGING YOUR PLUG-IN ELECTRIC CAR, https://www.fueleconomy.gov/feg/charging.shtml (last visited Feb. 20, 2022) [hereinafter CHARGING YOUR PLUG-IN ELECTRIC CAR].

35. *Id.*

36. *Id.*; Jessica Shea Choksey, *What is DC Fast Charging?*, J.D. POWER (May 10, 2021), https://www.jdpower.com/cars/shopping-guides/what-is-dc-fast-charging.

37. CHARGING YOUR PLUG-IN ELECTRIC CAR, *supra* note 34; Choksey, *supra* note 36.

38. CHARGING YOUR PLUG-IN ELECTRIC CAR, *supra* note 34; Choksey, *supra* note 36.

39. CHARGING YOUR PLUG-IN ELECTRIC CAR, *supra* note 34; Choksey, *supra* note 36.

40. Choksey, *supra* note 36.

41. CONSUMER REP., *supra* note 29.

42. Robert Walton, *Electric Vehicle Models Expected to Triple in 4 Years as Declining Battery Costs Boost Adoption*, UTILITY DIVE (Dec. 14, 2020), https://www.utilitydive.com/news/electric-vehicle-models-expected-to-triple-in-4-years-as-declining-battery/592061/.; U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: VEHICLE TECH. OFF., MEDIAN DRIVING RANGE OF ALL-ELECTRIC VEHICLES TOPS 250 MILES FOR MODEL YEAR 2020 (Jan. 4, 2021), https://www.energy.gov/eere/vehicles/articles/fotw-1167-january-4-2021-median-driving-range-all-electric-vehicles-tops-250 [hereinafter MEDIAN DRIVING RANGE].

steeply.[43] As a result, the purchase price of electric vehicles is expected to equal that of gas cars by 2025.[44]

Second, declining battery costs and expanded battery ranges have already made electric vehicles a cost-effective option for many people's daily driving needs.[45] Now most new electric vehicles have a 250-mile range,[46] and nearly all-electric vehicles have a 100–300 mile driving radius,[47] which significantly exceeds the approximately 30–60 miles many people drive daily.[48] That means many drivers could satisfy most of their charging needs at home, without having to depend on public charging stations. For households with more than one gas vehicle and the ability to install a residential charging station (primarily standalone homes), it often makes financial sense to replace their daily driving vehicle with an electric vehicle.[49]

Third, an expanded variety of electric vehicle body styles has also likely helped drive adoption.[50] Electric vehicles, which were originally only offered as sedans, are

43. Walton, *supra* note 42; Jack Denton, *Forget Nio and XPeng. This Company and Tesla Will Be the Top Two Electric-vehicle Plays by 2025, says UBS*, MARKETWATCH, https://www.marketwatch.com/story/forget-nio-and-xpeng-this-company-and-tesla-will-be-the-top-2-electric-vehicle-plays-by-2025-says-ubs-11615306959 (last updated Mar. 13, 2021) (forecasting 2025 for manufacturing cost parity); Roberto Baldwin, *Report: Tesla's Next Battery Will Make EVs Cost the Same as Gas Cars*, CAR AND DRIVER (May 14, 2020), https://www.caranddriver.com/news/a32476367/tesla-battery-electric-cars-cheaper/.

44. Walton, *supra* note 42; Denton, *supra* note 43; Baldwin, *supra* note 43.

45. Harto, *supra* note 9.

46. MEDIAN DRIVING RANGE, *supra* note 42.

47. ALL-ELECTRIC VEHICLES, *supra* note 32.

48. Chris Hardest, *Average Miles Driven Per Year: Why It Is Important*, KELLEY BLUE BOOK (Sept. 22, 2021), https://www.kbb.com/car-advice/average-miles-driven-per-year/.

49. *Savings Calculator*, SNAPPING SHOALS: ELECTRIC MEMBERSHIP CORP., CHOOSE EV https://snappingshoals.chooseev.com/savings_phev// (last visited Dec. 20, 2021) (Snapping Shoals is associated with Choose EV, which provides electric vehicle cost and carbon savings calculators for customers on behalf of 500 utilities in 40 states, including Idaho Power).

50. Arianna Skibell, *EV Sales Have Doubled. Is a 'Tidal Wave' Coming?*, E&E NEWS: CLIMATEWIRE (Oct. 1 2021, 6:57 AM), https://www.eenews.net/articles/ev-sales-have-doubled-is-a-tidal-wave-coming/ (Recent rise in electric vehicle demand is partially due to the increase in vehicle models).

now widely available as crossover SUVs, hatchbacks, and sportscars.[51] Harley Davidson already sells electric motorcycles,[52] and Freightliner offers an all-electric box truck and an 18-wheeler.[53] And the innovation continues: Tesla plans to deliver its CyberTruck[54] and Ford will begin selling the Lightning, its all-electric F-150, within a year.[55]

In response to these developments, electric vehicle sales have increased dramatically in recent years. National annual sales have more than doubled from 114,00 vehicles in 2015 to over 325,000 in 2019.[56] Sales leveled out in 2020 with 322,000 electric vehicles sold, likely as a result of reduced travel in the pandemic.[57] But sales surged in 2021, with 535,000 electric vehicles sold.[58] Partly as a result of this dramatic increase, there are now over 2 million electric vehicles on U.S. roads.[59] This is a remarkable trajectory, but electric cars are still only about 4% of U.S. car sales.[60]

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51. Christopher McFadden, *A Brief History and Evolution of Electric Cars*, INTERESTING ENGINEERING (July 1, 2020, 11:30 AM), https://interestingengineering.com/transportation/a-brief-history-and-evolution-of-electric-cars; Alan Lau, *Every Electric Car You Can Buy in 2022*, MOTORTREND (Jan. 6, 2022), https://www.motortrend.com/features/every-electric-car-you-can-buy/.

52. Joel Stocksdale, *Honda, Kawasaki, Suzuki, Yamaha to Make Swappable Motorcycle Batteries*, AUTOBLOG (Mar. 26, 2021), https://www.autoblog.com/2021/03/26/honda-kawasaki-suzuki-yamaha-motorcycle-batteries/.

53. *Meet Your New Fleet of Freightliner Electric Trucks*, FREIGHTLINER, https://freightliner.com/trucks/ecascadia/ (last visited Dec. 17, 2021).

54. *Tesla Cybertruck: Everything We Know So Far*, ELECTREK, https://electrek.co/guides/tesla-cybertruck/ (updated Nov. 9, 2021) [hereinafter *Cybertruck*].

55. A. Tarantola, *Ford Stops F-150 Lightning Reservations at 200,000*, ENGADGET (Dec. 9, 2021), https://www.engadget.com/ford-stops-f-150-lightning-reservations-at-200000-192434385.html.

56. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., U.S. PLUG-IN ELECTRIC VEHICLE SALES BY MODEL, STATE (Jan. 2020).

57. *How Many Electric Vehicles Sold in 2021?*, GREEN CARS, (Dec. 23, 2021), https://www.greencars.com/post/how-many-electric-vehicles-sold-in-2021.

58. Catherine Clifford, *Electric Vehicles Dominated Super Bowl Sales, but are Still Only 9% of Passenger Car Sales*, CNBC (Feb. 14, 2022), https://www.cnbc.com/2022/02/14/evs-dominated-super-bowl-ads-but-only-9percent-of-passenger-car-sales.html.

59. Michelle Lewis, *The Number of US Electric Vehicles Grows from 16k to 2 Million in 10 years*, ELECTREK (Nov. 9, 2021), https://electrek.co/2021/11/09/the-number-of-us-electric-vehicles-grows-from-16k-to-2-million-in-10-years/.

60. Clifford, *supra* note 58.

B. The automobile industry is investing heavily in electric vehicles.

Looking to capture market share in this rapidly growing space, the automobile industry has pivoted strongly towards investments in electric vehicles. Perhaps most notably, Volvo announced in March 2021 that it would make *only* electric vehicles by 2030.[61] Three months later, General Motors answered that implicit challenge by saying it would increase its investment in electric and autonomous vehicles by 75%—to $35 million—by 2025, which will include delivering thirty new electric vehicles models to the market by the same year.[62] Tesla recently announced plans to triple its Supercharger network over the next two years, and that its chargers will be compatible with all electric vehicles—not only Tesla's—to qualify for funding from the federal Infrastructure Act.[63]

Even travel companies are taking action. Hertz Rental Car company announced an agreement to buy 100,000 Teslas for its fleet by the end of 2022.[64] Hertz made clear that this was only the beginning of its turn towards electric vehicles, rather than an exclusive deal with Tesla, and that it fully intended to contract with other electric vehicle manufactures for similar purchases in the future.[65]

Customers and investors have responded enthusiastically to the automobile industry's focus on electric vehicles. By the end of 2021, General Motors had sold out pre-orders for its electric Hummer (capable of going from zero to sixty miles an hour in three seconds, with a 330-mile range), and was delivering that model to

61. Press Release, Volvo, Volvo Cars to be Fully Electric by 2030 (Mar. 2, 2021) (on file with author).

62. Press Release, General Motors, GM Will Boost EV and AV Investment to $35 Billion Through 2025 (July 16, 2021) (on file with author).

63. Fred Lambert, *Tesla Opening Supercharger Network Will Enable Access to New $7.5 Billion EV Funding in US*, ELECTREK (Aug. 3, 2021, 11:03 AM), https://electrek.co/2021/08/03/tesla-opening-supercharger-network-access-7-billion-ev-funding-us/.

64. Nathan Bomey, *Hertz to Buy 100,000 Tesla Cars as Rental Car Company Pivots Towards Electric Vehicles*, USA TODAY (Oct. 25, 2021 3:43 PM), https://www.usatoday.com/story/money/cars/2021/10/25/hertz-tesla-electric-vehicles-ev-rental-car/6171433001/.

65. *Id.*

customers.[66] Ford planned to begin delivering its all-electric F-150 Lightning to customers in mid-2022, and cut off pre-orders in December 2021 at 200,000 vehicles.[67] Rivian, an all-electric truck manufacturer—in which Amazon, Ford, and a Saudi gasoline car family business are key investors[68]—had a very successful IPO in November 2021.[69] And estimates suggest that Tesla has over a million reservations for its CyberTruck.[70]

III. IDAHO IS WELL-POSITIONED TO BENEFIT FROM ELECTRIC VEHICLES.

Replacing gasoline cars with electric vehicles can benefit every state by reducing fuel costs and lowering emissions. But electric vehicles can provide particularly large economic and environmental benefits in states that have (1) higher than average gasoline prices;[71] (2) lower than average electric prices;[72] (3) cleaner than average electricity;[73] (4) and no significant oil production or refining.[74] Idaho has all four of these conditions.

A. Economic Benefits.

Electric vehicles are significantly cheaper to operate than gas vehicles largely because electricity is a less expensive fuel source than gasoline.[75] The national

66. Emma Roth, *GM Starts Delivering Electric Hummer Pickup Trucks to Customers*, THE VERGE (Dec. 18, 2021, 11:02 AM), https://www.theverge.com/2021/12/18/22843805/gm-ev-hummer-pickup-truck-delivery; Press Release, General Motors, GM's Transition to All-Electric Future Begins with an Off-Road Supertruck and Commercial Delivery EV, Both Powered by Ultium Platform (Dec. 17, 2021), https://news.gm.com/newsroom.detail.html/Pages/news/us/en/2021/dec/1217-electric.html.

67. Tarantola, *supra* note 55.

68. Matthew Martin et al., *Rivian's IPO Turned one Family's Early Investment into an $11.5 Billion Fortune*, FORTUNE (Nov. 10, 2021, 10:05 PM), https://fortune.com/2021/11/11/rivian-stock-ipo-abdul-latif-jameel-family-11-5-billion-fortune-investment/.

69. Peter Eavis & Neal E. Boudette, *Rivian I.P.O. Is Embraced by Investors Looking for Another Tesla,* N.Y. TIMES (Nov. 11, 2021), https://www.nytimes.com/2021/11/10/automobiles/rivian-stock-price-ipo.html (Valued at $86 billion after one day of trading, which equals or exceeds the value of General Motors or Ford.).

70. *Cybertruck*, *supra* note 54.

71. *See* ENERGY.GOV, *supra* note 7.

72. *See id.*

73. *See Beyond Tailpipe Emissions*, *supra* note 20.

74. Frommer, *supra* note 22.

75. ENERGY.GOV, *supra* note 7.

average price for gasoline is $2.85 per gallon, but an eGallon of electricity only costs $1.16 (based on national average electric prices).[76] Assuming that an average gasoline passenger car travels 14,200 miles/year using 24 miles/gallon, a gas car driver spends over $1,685 on fuel every year, while an electric car driver spends about $685.[77] This national average shows that driving an electric car reduces fuel costs by $1,000/year compared to a typical gas car.

Electric vehicles are even more cost-effective for Idaho drivers because (1) Idaho electric rates are much less expensive than the national average; and (2) Idaho gas prices are usually at or above the national average. Idaho's average residential electric rate is approximately 10.60¢/kWh (the second lowest residential electric rate in the country) while the national average price for electricity is approximately 14.11¢/kWh.[78] Idaho's lower than average electric rates translate to $0.90/eGallon, below the national average of $1.16/eGallon.[79]

In contrast to its electric prices, Idaho's gas prices usually equal and often exceed the national average.[80] Idaho frequently has higher than average gasoline prices primarily because it is thousands of miles away from the Gulf of Mexico Coast, where most of our country's oil products are produced.[81] Transporting oil products across this distance results in higher distribution costs that increases the total cost of gasoline for drivers.[82]

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76. *Id.* All prices current as of Feb. 21, 2022.

77. Hardest, *supra* note 48; U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., AVERAGE ANNUAL FUEL USE BY VEHICLE TYPE (Feb. 2020), https://afdc.energy.gov/data/10308.

78. *Average Price of Electricity to Ultimate Consumers by End-Use Sector*, U.S. ENERGY INFO. ADMIN. (Oct. 2021), https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a (last visited Oct. 21, 2021).

79. ENERGY.GOV, *supra* note 7.

80. *Gas Prices*, AAA, https://gasprices.aaa.com/state-gas-price-averages/ (last visited Feb. 21, 2022). Gas price volatility means this may not be true on every single day, hence the qualified language in the assertion.

81. *See Gasoline Explained: Regional Gasoline Price Differences*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/gasoline/regional-price-differences.php (last updated Jan. 5, 2022) [hereinafter *Regional Gasoline Price Differences*].

82. *See id.*

Another factor likely driving up the cost of gas in Idaho is the absence of any in-state oil refineries.[83] Without any of its own refineries, Idaho is subject to whatever cost other states choose to impose on their refining operations.[84] For example, states with stringent environmental regulations have higher refining costs, which are then passed on to customers.[85] But building refineries in Idaho is not a solution to Idaho's high gas prices. That is because lower refining costs would not be enough to counteract the expense of transporting the oil from the Gulf of Mexico Coast, which aside from the price of crude oil, is the most significant driver of gasoline costs.[86] As a result of high transportation and refining costs, Idaho recently had the eighth highest average gasoline price in the country,[87] and will likely see above-average gas prices again.

But even without high gas prices, Idaho drivers save money by switching from gas-powered to electric-powered cars because the state's electricity is significantly cheaper than gasoline. A gallon of gas in Idaho costs $2.84, but an eGallon of electricity only costs $0.90[88]—which means that Idaho drivers *save* $1.94/gallon when they switch from a gas vehicle to an electric vehicle. Over 14,400 driving miles each year,[89] an Idaho gas vehicle driver will spend about $1,700 on fuel. But an Idaho electric vehicle driver will spend only $540—an annual fuel savings of $1,160—which is a 68% reduction compared to a gas vehicle.

The fuel savings are not the only factor that makes electric vehicles more cost-effective than gas engine vehicles. Electric cars also have lower maintenance costs because electric engines do not need oil changes or emission tests, and do not have spark plugs or a timing belt.[90] As a result, maintenance fees for electric vehicles are 6.1¢/mile, compared with 10.1¢/mile for a gasoline vehicle.[91] Over 14,400 annual miles, a gasoline car will incur about $1,450 in maintenance expenses, while an

83. *See Idaho: State Profile*, *supra* note 13.

84. *See Regional Gasoline Price Differences*, *supra* note 81.

85. *Id.*

86. *Id.*

87. *Idaho Ranked 8th in Country for Highest Average Fuel Prices*, BIG COUNTRY NEWS (Nov. 2, 2021), https://www.bigcountrynewsconnection.com/idaho/idaho-ranked-8th-in-country-for-highest-average-fuel-prices/article_615103d2-3c0c-11ec-b7e9-97dbfa408470.html.

88. ENERGY.GOV, *supra* note 7.

89. *See* Hardest, *supra* note 48.

90. *See* U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: VEHICLE TECHS. OFF., BATTERY-ELECTRIC VEHICLES HAVE LOWER SCHEDULED MAINTENANCE COSTS THAN OTHER LIGHT-DUTY VEHICLES, (June 14, 2021), https://www.energy.gov/eere/vehicles/articles/fotw-1190-june-14-2021-battery-electric-vehicles-have-lower-scheduled.

91. *Id.*

electric vehicle will have about $880 in maintenance—an annual savings of $570—and a 39% cost reduction compared to a gas vehicle.

In total, the annual cost to fuel and maintain a gas car in Idaho is $3,150, while the annual cost to fuel and maintain an electric vehicle in Idaho is $1,420—an annual operating savings of $1,730—and a 55% cost reduction. Over the twelve-year life of a vehicle,[92] a gas car driver in Idaho will spend $37,800 in operating expenses, while an electric car driver will spend only $17,040—a savings of $20,760.

The $20,760 cost savings for each electric car driver easily eclipses the $10,000 higher purchase price of electric vehicles compared to gas cars, including the $2,000 it costs to install a Level 2 residential charging station.[93] Including the higher purchase price and the residential charging station, each Idaho electric vehicle driver saves $8,760 over the life of the vehicle.

Importantly, that $8,760 savings is based on the current price of electric vehicles, but projections indicate that the cost of electric vehicles will be equal to gas engine vehicles by 2025 or earlier, mostly as a result of declining costs in the battery manufacturing process.[94] Batteries are now expected to last twelve to fifteen years, and many are under warranty for eight years, so battery replacement costs should not be a major concern for most drivers.[95] The cost-effectiveness of electric vehicles is likely to increase as their purchase price matches and then drops below the purchase price of gas vehicles.

But the cost savings of electric vehicles are not limited to individual drivers—those savings also create a major economic benefit to Idaho's statewide economy. That is because the cost savings enjoyed by electric vehicle drivers would, in aggregate, also create an enormous amount of newly available money now free to be spent in the rest of Idaho's economy. For example, if each of Idaho's 1.4 million

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92. *Understanding the Average Lifespan of a Car*, CASCADE COLLISION REPAIR, (Oct. 8, 2020), https://cascadecollision.com/blog/what-is-the-average-life-of-a-car/#:~:text=In%20the%20past%2C%20the%20average,longer%2C%20up%20to%20300%2C000%20miles [hereinafter CASCADE].

93. Mike Winters, *Here's Whether it's Actually Cheaper to Switch to an Electric Vehicle or not—and How the Costs Break Down*, CNBC (Dec. 29, 2021, 4:32 PM), https://www.cnbc.com/2021/12/29/electric-vehicles-are-becoming-more-affordable-amid-spiking-gas-prices.html.

94. Walton, *supra* note 42 (cost parity between electric and conventional vehicles anticipated by 2023 or 2024).

95. Brendan McAller, *Electric Car Battery Life: Everything You Need to Know*, CAR AND DRIVER (Oct. 26, 2022) https://www.caranddriver.com/research/a31875141/electric-car-battery-life/.

passenger cars[96] were replaced with an electric vehicle, the annual $1,730 per vehicle savings would total *$2.4 billion* in annual savings across the entire state. To put that in context, Idaho's annual tax revenue is just over $7 billion.[97]

But changing out the cars on Idaho's roads is a process that will take time. The federal government has set a goal that 60–70% of cars on the road be electric vehicles by 2050,[98] and some analysts believe that 50% by that date is more realistic.[99] But even switching half of Idaho's passenger cars to electric vehicles would save $1.2 billion by 2050 (assuming no increase in the total number of cars and no decrease in the price of electric vehicles). And significant savings would start accruing well before the 50% goal is met: if 25% of Idaho's cars were electric in 2036, drivers would save a combined $605 million.

Switching to electric vehicles would not only create hundreds of millions of dollars for Idaho's economy by reducing fuel and maintenance costs. Replacing gasoline with electricity in our vehicles would also redirect vehicle fuel costs that are currently being sent to out-of-state oil producers[100] to in-state electric utilities and local energy producers.[101] This redirection occurs because Idaho produces essentially no petroleum products, so all of the money the state currently spends on gasoline goes to other states.[102] But if Idaho switched to electricity as its transportation fuel, the state's fuel expenses would be spent with local utilities employing local employees. Thus, moving to electric vehicles would redirect massive sums of Idaho vehicle fuel money currently being sent to other states back into Idaho's local economy.

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96. IDAHO PASSENGER CAR REGISTRATIONS, *supra* note 12.

97. IDAHO LEGISLATURE, REVENUE DETAILS, https://legislature.idaho.gov/revenue-details/ (last visited March 4, 2023).

98. Feilding Cage, *The Long Road to Electric Cars*, REUTERS (Feb. 7, 2022), https://www.reuters.com/graphics/AUTOS-ELECTRIC/USA/mopanyqxwva/.

99. *Id.*

100. *See Idaho: State Profile*, *supra* note 13; *Where Our Oil Comes From*, *supra* note 13 (explaining that over 70% of the U.S. crude oil is produced in Texas, North Dakota, New Mexico, Oklahoma, and Colorado).

101. *Map of Power Generation in the Northwest*, NORTHWEST POWER & CONSERVATION COUNCIL (last visited Feb. 3, 2022), https://www.nwcouncil.org/energy/energy-topics/power-supply/map-of-power-generation-in-the-northwest/ (showing that Idaho has no coal plants, only a few natural gas plants, large-scale hydrological generation, and significant renewable energy generation) [hereinafter COUNCIL].

102. *See Idaho: State Profile*, *supra* note 13; *see Where Our Oil Comes From*, *supra* note 13.

B. Environmental Benefits.

In addition to the major economic benefits for individual drivers and the statewide economy, electric vehicles also create significant environmental benefits. Electric vehicles are cleaner than gas cars because the combination of fuel sources used to generate electricity (coal, natural gas, wind energy, solar power, etc.) produces fewer emissions than burning gasoline for vehicle fuel.[103]

The environmental impact of that difference is hard to overstate. For example, an average gas passenger vehicle produces about 11,400 pounds of CO_2 equivalent[104] every year.[105] But an electric car fueled by the national average electric energy mix will produce about 3,800 pounds of CO_2 equivalent annually—a 67% reduction compared to a gas car.[106] Over its twelve-year lifespan,[107] a gas vehicle will produce 137,000 pounds of CO_2 equivalent. But an electric vehicle powered by the national average energy mix will emit only 46,000 pounds of CO_2 equivalent—a 91,000-pound reduction.[108]

But Idaho's electricity is much cleaner than the national average, so Idaho could reduce CO_2 equivalent even more than the national average by switching to electric vehicles.[109] In Idaho, an electric vehicle emits about 1,080 pounds of CO_2 equivalent per year—a massive, 90% decrease in emissions compared to a traditional gasoline car.[110] Compared to a gas car, an Idaho electric vehicle will save 124,000 pounds of CO_2 equivalent over its lifespan. And an Idaho electric vehicle will produce less than 13,000 pounds of CO_2 equivalent over its entire lifetime—only slightly more than a typical gas car produces in a single year.[111]

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103. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., EMISSIONS FROM ELECTRIC VEHICLES, https://afdc.energy.gov/vehicles/electric_emissions.html (last visited Feb. 19, 2022) [hereinafter EMISSIONS FROM ELECTRIC VEHICLES].

104. Zeke Hausfather, *Understanding Carbon Dioxide Equivalence*, YALE CLIMATE CONNECTIONS (Jan. 20, 2009), https://yaleclimateconnections.org/2009/01/common-climate-misconceptions-co-equivalence/ (explaining that carbon dioxide equivalence normalizes all greenhouse cases in standard units).

105. EMISSIONS FROM ELECTRIC VEHICLES, *supra* note 103.

106. *Id.*

107. CASCADE, *supra* note 92.

108. EMISSIONS FROM ELECTRIC VEHICLES, *supra* note 103.

109. *Id.*

110. *Id.*

111. *Id.*

In total, Idaho's 1.4 million[112] gas passenger vehicles currently produce about 16 billion pounds of CO_2 equivalent each year.[113] If those cars were replaced with electric vehicles, Idaho's annual CO_2 equivalent would be a mere 1.5 billion pounds.[114] Less than full replacement would also create very sizeable emission savings. Replacing 50% of Idaho's gas cars with electric vehicles would reduce CO_2 equivalent to 8.7 billion pounds and replacing 25% would reduce CO_2 equivalent to 12.4 billion pounds.[115]

Electric vehicles produce far fewer emissions over their lifetime than a comparable gas engine vehicle, even including the additional emissions from battery manufacture and disposal.[116] The CO_2 avoided by fueling vehicles with electricity rather than gasoline more than makes up for the incremental CO_2 produced during battery manufacture and disposal.[117]

Valid concerns have been raised about the environmental impact of mining needed to produce materials for electric vehicle batteries. However, the mining load can be decreased by recycling electric vehicle batteries. Battery recycling companies are experiencing a large surge in private and public investment, and are rapidly expanding capacity to meet anticipated demand.[118] Beyond recycling, electric vehicle batteries can also be reused.[119] When a battery is no longer powerful enough for an electric vehicle, it can be repurposed for less demanding, but very important, needs—including electric grid storage.[120]

Idaho has cleaner than average electricity because of its abundant hydroelectric, wind, and solar resources.[121] In addition to its renewable resources, Idaho also has one large (and several smaller) natural gas electrical plants.[122]

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112. IDAHO PASSENGER CAR REGISTRATIONS, *supra* note 12; EMISSIONS FROM ELECTRIC VEHICLES, *supra* note 103.

113. EMISSIONS FROM ELECTRIC VEHICLES, *supra* note 103.

114. *Id.*

115. *Id.*

116. *Electric Vehicle Myths*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/greenvehicles/electric-vehicle-myths#Myth2 (last visited Jan. 21, 2023) [hereinafter *Electric Vehicle Myths*].

117. *Electric Vehicle Myths*, *supra* note 116.

118. Jacob Wallace, *Wave of Investment Just the Beginning for EV Battery Recycling*, WASTE DIVE (Oct. 27, 2021), https://www.wastedive.com/news/lithium-ion-battery-recycling-ev-li-cycle-retriev/608778/.

119. *Battery Second Use for Plug-in Electric Vehicles*, NREL, https://www.nrel.gov/transportation/battery-second-use.html (last visited Feb. 24, 2022).

120. *Id.*

121. COUNCIL, *supra* note 101.

122. *Id.*

Although Idaho has no coal-fired electrical plants in its borders, Idaho utilities are part-owners of several out-of-state coal plants.[123] However, those coal-fired plants are aging, have become uneconomical, and are in the process of either being retired early or converted to natural gas.[124] Burning natural gas to produce electricity still produces greenhouses gases, but natural gas-fired electric generation emits significantly less carbon dioxide than a coal-fired electric generation.[125]

In addition to generating electricity with renewable and fossil fuel resources, Idaho utilities also buy electricity in regional energy markets to meet their

123. *Id.*; IDAHO GOVERNOR'S OFF. OF ENERGY AND MIN. RES., ENERGY SOURCE: COAL, https://oemr.idaho.gov/sources/coal/ (last visited March 4, 2023) (Idaho Power is part-owner of the Bridger coal plant in Wyoming, the North Valmy coal plant in Nevada, and the Boardman coal plant in Oregon. Avista is part-owner of the Colstrip coal plant in Montana. PacifiCorp is a part-owner of the Bridger and Colstrip coal plants, in addition to over twenty coal units located in Arizona, Colorado, Montana, Utah, and Wyoming.).

124. IDAHO POWER, 2021 INTEGRATED RESOURCE PLAN 7–8 (Dec. 30, 2021), https://docs.idahopower.com/pdfs/AboutUs/PlanningforFuture/irp/2021/2021%20IRP_WEB.pdf (Idaho Power co-owns the Bridger Coal plant in Wyoming with PacifiCorp. Both utilities' analyses concluded that converting and/or retiring all or much of the plant early appears economical for customers.); *Our Path Away From Coal*, IDAHO POWER, https://www.idahopower.com/energy-environment/energy/energy-sources/our-path-away-from-coal/ (last visited Jan. 21, 2023) (Idaho Power will end its ownership in the Valmy coal plant by 2025.); AVISTA, 2021 ELECTRIC INTEGRATED SOURCE PLAN 1–7 (2021), https://www.myavista.com/-/media/myavista/content-documents/about-us/our-company/irp-documents/2021-electric-irp-w-cover-updated.pdf (Avista may end its ownership in the Colstrip coal plant before the end of the plant's useful life.); *Future of Colstrip Units 3 and 4 May Be Decided in Arbitration*, CLEARING UP (Mar. 19, 2021), https://www.newsdata.com/clearing_up/opinion_and_perspectives/future-of-colstrip-units-3-and-4-may-be-decided-in-arbitration/article_a7e21164-88df-11eb-9a7c-f3d7552e67d3.html (All but one of the plant owners, including Avista and PacifiCorp, appear to favor retiring Colstrip early.); PACIFICORP, 2021 INTEGRATED RESOURCE PLAN 14–15 (Sept. 1, 2021), https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/Volume%20I%20-%209.15.2021%20Final.pdf (PacifiCorp's resource strategy includes converting Bridger coal plant units 1–2 to natural gas in 2024, and retiring Colstrip units 3–4 in 2025.).

125. *Natural Gas*, CTR. FOR CLIMATE AND ENERGY SOLS., https://www.c2es.org/content/natural-gas/ (last visited Jan. 2, 2021) (Natural gas produces about half the carbon emissions of burning coal. But natural gas is primarily methane, which has a much higher global warming potential than carbon dioxide.).

customers' power needs.[126] Although Idaho does not have any state-mandated clean energy requirements,[127] the energy that Idaho utilities buy in these markets comes largely from states with statutory renewable energy requirements—specifically California, Washington, and Oregon.[128] As a result, much of the energy imported to Idaho from those markets is much cleaner than the national average.[129]

Even though Idaho already has some of the cleanest electricity in the nation, the state's two largest utilities, Idaho Power and Avista, have both announced plans to have 100% clean energy by 2045.[130] All of this means that Idaho's electricity resource mix is clean—and getting cleaner.

Similarly to reducing greenhouse gas emissions, switching to electric vehicles would benefit Idaho's air quality because a key feature of electric vehicles is that they do not have tailpipe emissions.[131] Idaho's summer and winter air quality problems are exacerbated by the small particulate matter from tailpipes, so reducing tailpipe emissions could improve Idaho's air quality almost immediately.[132] Idaho's notorious summer wildfire smoke—which even casual observers have noticed has become more severe in recent years—is compounded

126. *See generally Our Energy Sources*, IDAHO POWER, https://www.idahopower.com/energy-environment/energy/energy-sources/ (last visited Dec. 30, 2021).

127. *Idaho: State Profile*, *supra* note 13.

128. *Wholesale Electricity and Natural Gas Market Data*, EIA (Jan. 12, 2023), https://www.eia.gov/electricity/wholesale/ (showing Northwest Mid-Columbia price hub location).

129. IDAHO POWER, *supra* note 124, at 29; AVISTA, *supra* note 124, at 10-1; PACIFICORP, *supra* note 124, at 62–64, 212; S.B. 100, 2018, Reg. Sess. (Cal. 2018); S.B. 1547, 78th Leg., Reg. Sess. (Or. 2016) ("Clean Electricity and Coal Transition Plan"); S.B. 5400, 63d Leg., Reg. Sess. (Wa. 2013) (allowing utilities to use western renewable resources to comply with state renewable requirements).

130. *Idaho Power Announces Goal for 100-Percent Clean Energy by 2045*, 6KPVI (Mar. 26, 2019), https://www.kpvi.com/news/local_news/idaho-power-announces-goal-to-provide-100-clean-energy-by-2045/article_1824d832-4fd3-11e9-8ff4-cf7487114684.html ("Idaho Power is among the first publicly owned energy companies to set a goal for reaching 100-percent clean energy."); *Avista's View of Clean Energy*, AVISTA, https://www.myavista.com/connect/articles/2021/02/avistas-view-of-clean-energy (last visited Dec. 31, 2021) (stating Avista's goal to be carbon neutral by 2027 and have of 100% clean energy by 2045).

131. HOW DO ALL-ELECTRIC CARS WORK?, *supra* note 31.

132. E. F. Choma et al., *Assessing the Health Impact of Electric Vehicles Through Air Pollution in the United States*, ENV'T INT'L at 1 (explaining increasing use of electric vehicles in cities would reduce fine particulate air matter and create "large public health benefits in the short term").

by vehicle tailpipe pollution.[133] And Idaho's winter inversions are also worsened by vehicle tailpipe emissions that stay trapped low to the ground under a layer of warm air aloft.[134] Switching to electric vehicles would lessen the particulate matter that collects in Idaho's valleys, improving visibility and breathing conditions for the state's residents and visitors.

C. Political support.

The move towards electric vehicles has attracted important political support among Idaho's state, national, and local leaders. Idaho Governor Brad Little expressed support for electric vehicles when he declared February 14, 2019 Electric Vehicle Day.[135] The Governor's Office of Energy and Mineral Resource (OEMR), which is responsible for coordinating state policy on energy and mining policy for the state[136] has been working with the Idaho Transportation Department (ITD), and Idaho Department of Environmental Quality (IDEQ) for years to distribute over $16 million in Volkswagen settlement funds[137] for projects that reduce air pollution,

133. Press Release, Am. Lung Assoc., Idaho Has Some of the Most-Polluted Areas in the Country According to 2019 'State of the Air' Report: Wildfires Across the State Impact Air Quality (Apr. 24, 2019), https://www.lung.org/media/press-releases/idaho-has-some-of-the#:~:text=BOISE%2C%20ID%20%7C%20April%2024%2C%202019%20Idaho%20air,are%20increasing%20as%20a%20result%20of%20climate%20change; *Air Quality & Smoke*, BOISE STATE UNIV, https://www.boisestate.edu/research-hcri/resources-hazards/air-quality-and-smoke/ (last visited Nov. 20, 2021).

134. DEQ Commc'ns, *Ask an Environmental Scientist: Do More Electric Vehicles = Less Winter Inversions?*, UTAH DEP'T OF ENV'T QUALITY, https://deq.utah.gov/air-quality/ask-an-environmental-scientist-do-more-electric-vehicles-less-winter-inversions (last updated July 28, 2020).

135. Press Release, Idaho Power, Idaho Power Brings Elec. Car and Pickup to Capitol for Idaho Elec. Vehicle Day (Feb. 12. 2019) (on file with author).

136. IDAHO GOVERNOR'S OFF. OF ENERGY AND MIN. RES., https://oemr.idaho.gov/ (last visited Dec. 27, 2021).

137. *Volkswagen Clean Air Act Civil Settlement*, U.S. DEP'T ENV'T PROT., https://www.epa.gov/enforcement/volkswagen-clean-air-act-civil-settlement (last visited Jan. 3, 2021) (Volkswagen agreed to pay billions to the states for installing "defeat devices" on its cars to evade emissions standards).

including electric vehicle charging stations.[138] Idaho's U.S. Representative, Mike Simpson, supports the federal electric vehicle infrastructure investment to provide charging access in rural Idaho, so that "these types of vehicles can be available and useable for all who want them—not just those near major towns."[139] Transportation electrification is also an important part of the City of Boise's Climate Action Plan.[140] Further, all of the state's major investor-owned electric utilities, Idaho Power,[141] Avista,[142] and Rocky Mountain Power,[143] encourage their customers to consider electric vehicles. Broad support for electric vehicles in Idaho governments and institutions makes targeted legal reform to encourage widespread adoption of the technology a distinct possibility.

IV. BUILDING OUT IDAHO'S ELECTRIC VEHICLE CHARGING INFRASTRUCTURE IS CRITICAL.

Public electric vehicle charging stations are repeatedly cited as the critical barrier that must be overcome to permit widespread electric vehicle adoption.[144] As one

138. *Volkswagen and Diesel Funding*, IDAHO DEP'T OF ENV'T QUALITY, https://www.deq.idaho.gov/air-quality/improving-air-quality/volkswagen-and-diesel-funding/ (last updated Sept. 21, 2021).

139. Kevin Fixlar, *Idaho is Behind on its Electric Vehicle Chargers. Federal Funds Could Soon Change That,* IDAHO STATESMAN, (Feb. 20, 2022) ("Electric vehicles are obviously becoming more popular, and I support the infrastructure investment needed to support this growth. With Idaho's large percentage of public lands as well as our rural geography, it is appropriate that we accept the [federal] funding so that these types of vehicles can be available and useable for all who want them—not just those near major towns.").

140. CITY OF BOISE, BOISE'S CLIMATE ACTION ROADMAP 35–36 (2021).

141. *Electric Vehicles for Your Personal Car*, IDAHO POWER, https://www.idahopower.com/energy-environment/green-choices/electric-vehicles/evs-and-your-business/ (last visited Dec. 30, 2021) ("Mile for mile, it costs less than half to fuel an EV compared to a gas-powered vehicle. And with prices among the lowest in the nation, Idaho Power make charging EVs affordable. See how much you could save!").

142. *Electric Transportation*, AVISTA, https://www.myavista.com/energy-savings/electric-transportation#:~:text=Avista%20is%20running%20a%20small,businesses%20with%20multiple%20fleet%20vehicles (last visited Dec. 30, 2021) ("[Electric vehicles are] a proven technology that not only saves on fuel costs, you're also making a big difference in protecting the environment.").

143. *Electric Vehicles are Ready to Go*, ROCKY MTN. POWER, https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles.html (last visited Dec. 30, 2021) ("More drivers are making the switch to plug-in electric cars to save money on fuel costs and contribute to a healthier environment.").

144. Niraj Choksi et al., *Needed: More Places for Cars to Plug In*, N.Y. TIMES, Sept. 7, 2021, at B1.

analyst put it, "E.V. charging infrastructure is the single biggest barrier to E.V. adoption . . . . You talk to anyone who's on the fence about buying an E.V. and the No. 1 concern that comes to mind is range anxiety."[145]

A. Idaho has only ten DC fast charging stations.

In 2022, Idaho only had ten DC fast charging stations in the entire state, and almost all are along Interstate 84 and 90 or in urban areas.[146] Traveling by electric vehicle along Idaho's two interstates is relatively easy because the number of electric vehicles using those routes has been enough to incent out-of-state private investment.[147] But, there are almost no DC fast charging stations on Idaho highways 55, 95, 75, 21, 20, and 12.[148] That makes it very difficult for Idaho's rural residents to switch to electric vehicles and for Idaho's city residents to travel in-state.

B. Available funding is unlikely to resolve the shortage.

Much of the original funding for electric vehicle charging stations came from the federal government through the American Recovery and Reinvestment Act of 2009.[149] Since then private companies have invested heavily in charging

145. *Id.*

146. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., ELECTRIC VEHICLE CHARGING STATION LOCATIONS, https://afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC&location=Idaho%20&ev_levels=dc_fast (last visited Mar. 3, 2022) (Number of DC fast charging stations in Idaho as of March 2022).

147. *See id.*

148. *Id.*

149. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: VEHICLE TECH. OFF., ARRA EV PROJECT OVERVIEW, (Feb. 19, 2014), https://www.energy.gov/eere/vehicles/downloads/avta-arra-ev-project-overview ("[ARRA] supported a number of projects that together made up the largest ever deployment of plug-in electric vehicles and charges infrastructure in the U.S."); *ChargePoint Announces the Successful Completion of its ARRA-Funded ChargePoint America Program*, CHARGEPOINT (June 11, 2013), https://www.chargepoint.com/about/news/chargepoint-announces-successful-completion-its-arra-funded-chargepoint-america-program (ChargePoint installed 4,600 charging stations with a $15 million federal matching grant.).

infrastructure throughout the country.[150] Tesla's SuperCharger, Volkswagen's Electrify America, and ChargePoint are three of the largest charging networks in the country, each with thousands of charging ports.[151]

But these private investments have been centered in dense population areas with the best potential for profit for vehicle manufacturers and charging stations networks.[152] With demand for electric vehicles surging nationally, those companies will likely continue to prioritize investing their charging infrastructure in the larger, and therefore more cost-effective, urban areas across America before investing in Idaho, especially Idaho's rural areas.[153]

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150. Darrell Etherington, *Inside Tesla's Supercharger Partner Program: The Costs and Commitments of Electrifying Road Transport*, TECH CRUNCH (July 26, 2013, 11:56 AM), https://techcrunch.com/2013/07/26/inside-teslas-supercharger-partner-program-the-costs-and-commitments-of-electrifying-road-transport/ (Each Supercharger station cost Tesla between $100,000 and 175,000 in 2013); Mathew DeBord, *Tesla Inc. What Will It cost to Build Out the EV Charging Network?*, BUSINESS INSIDER (Mar. 2, 2017, 10:18 PM), https://www.businessinsider.com/tesla-supercharger-network-expansion-costs-8-billion-ubs-2017-3 (reporting that each Supercharger station cost Tesla about $250,000 in 2017); Tom Moloughney, *Does Electrify America's New Pricing Structure Mean Lower Fees for All?*, INSIDE EVS (Sept. 18, 2020, 8:24 AM), https://insideevs.com/news/444567/electrify-america-new-lower-rates/ (An Electrify America charging station with 4-6 chargers costs about $350,000); Tina Bellon & Paul Lienert, *Five Facts on the State of the U.S. Electric Vehicle Charging Network*, REUTERS (Sept. 1, 2021, 11:08 AM), https://www.reuters.com/world/us/five-facts-state-us-electric-vehicle-charging-network-2021-09-01/ (The U.S. has 43,000 public EV charging stations and 120,000 charging ports).

151. Joe Thomas, *Guide to the 6 Best Electric Vehicle Charging Networks*, MEDIUM (Mar. 7, 2021), https://medium.com/predict/guide-to-the-6-best-electric-vehicle-charging-networks-703917ef374 (showing maps of Tesla and Electrify America's charging station networks).

152. Maximilian Fischer et al., *A Turning Point for U.S. Auto Dealers: The Unstoppable Electric Car*, MCKINSEY & CO. (Sept. 23, 2021), https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/a-turning-point-for-us-auto-dealers-the-unstoppable-electric-car (explaining "EV adoption hasn't occurred evenly in all regions," it has been mostly concentrated in large metropolitan areas).

153. *Supercharger Support*, TESLA, https://www.tesla.com/en_SG/support/supercharger (last visited Dec. 19, 2021) (Tesla chooses Supercharger locations to enable "long distance travel"); Press Release, Electrify America, Electrify America Announces its "Boost Plan" to More than Double its Current EV Charging Network by End of 2025 (July 13, 2021) (on file with author) (Electrify America plans to expand in the upper Midwest and Central California, and in cities including Austin, Detroit, and Minneapolis/St. Paul.); Jaxon Tolbert, *Beyond Cities: Breaking Through Barriers to Rural Electric Vehicle Adoption*, ENV'T & ENERGY STUDY INST. (Oct. 22, 2021), https://www.eesi.org/articles/view/beyond-cities-breaking-through-barriers-to-rural-electric-vehicle-adoption ("[T]he push to electrify the automotive sector is well underway in urban and suburban areas, the same cannot be said for rural America.").

Through the federal Infrastructure Investment and Jobs Act, Idaho could receive up to $30 million in federal funding for electric vehicle charging, but it will arrive slowly—over the course of five years.[154] But that federal funding will focus first on adding charging stations along the interstate highway system, and only later build charging stations on state roads, in cities (including small cities), and in rural communities.[155]

Idaho's Volkswagen settlement funds are also unlikely to remedy the charging station shortage on state highways and in rural areas. The Volkswagen funds became available in 2017, but as of November 2021 only four charging stations had been installed, and $2.1 million of the original $2.6 million allocated for charging stations remained unspent.[156] Far more of the Volkswagen money, $5 million in 2020 and $8 million in 2019, has been spent replacing or upgrading diesel fleet vehicles, primarily school buses.[157] Vehicles upgrades are an important and immediate cost benefit to schools, but they do not improve the state's electric vehicle charging infrastructure.

Businesses along state travel routes and in smaller communities are waiting to install public charging stations until the number of electric vehicles in their area makes that investment profitable.[158] These areas remain underserved because a DC

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154. *The Infrastructure Investment and Jobs Act will Deliver for Idaho*, THE WHITE HOUSE https://www.whitehouse.gov/wp-content/uploads/2021/08/IDAHO_The-Infrastructure-Investment-and-Jobs-Act-State-Fact-Sheet.pdf (last visited Dec. 30, 2021).

155. Timothy Puko, *EV Charging Network Will Target Interstate Highways*, WALL ST. J. (Feb. 10, 2022, 5:00 AM) ("The [federal] $5 billion program to create a national network of electric-vehicle charging stations will give priority to interstate highways and fast chargers before expanding into remote rural and crowded urban areas, federal officials said."); Fixler, *supra* note 139.

156. *Electric Vehicle Supply Equipment Program Project Summary*, IDAHO DEP'T OF ENV'T QUALITY, https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11627 (last updated Nov. 17, 2021).

157. Idaho DEQ: 2020 Vehicle Replacement Program Summary, VW Settlement and DERA Funded Vehicle Replacement Total Awarded: $5,362,266, IDAHO DEP'T OF ENV'T QUALITY, https://www2.deq.idaho.gov/admin/LEIA/api/document/download/17197 (last visited Nov. 21, 2021); Idaho DEQ: 2019 Vehicle Replacement Program Summary, VW Settlement and DERA Funded Vehicle Replacement Total Awarded: $8,063,688, IDAHO DEP'T OF ENV'T QUALITY, https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11629 (last visited Nov. 21, 2021).

158.. Jennifer Hiller, *Gas Stations Face Tough, Costly Choice on EV Chargers*, WALL ST. J. (Aug. 10, 2021, 9:00 AM).

fast charging station can cost over $100,000, and the low number of electric vehicles combined with steep demand charges for electricity keep the costs of ownership and operation above the revenue generated.[159]

Idaho's state government has taken only limited steps to support electric vehicle adoption. In 2017, the Idaho Governor signed a Memorandum of Understanding with seven other western governors to establish a Regional Electric Vehicle Plan for the West ("REV West Plan") with the goal of creating an "interconnected Intermountain West Electric Vehicle Corridor" and recommitted to that goal in 2019.[160] But the December 2020 Progress Report did not indicate that Idaho has provided any funding, programs, or resources beyond what the state was awarded from the Volkswagen Settlement Funds.[161]

A significant delay in charging station infrastructure installations will likely translate into a significant delay in electric vehicle adoption in Idaho—which will likewise delay all of the associated state-wide economic and air quality benefits.[162] If this happens, Idaho households will continue to pay more than double what they should in fuel costs, while surrounding states reduce their fuel expenditures and reinvest that money back into their local economies. That reinvestment will give other states a competitive advantage over Idaho in funding education and attracting large employers.[163]

V. STATE LEGISLATURES ARE DIRECTING ELECTRIC UTILITIES TO INVEST IN PUBLIC ELECTRIC VEHICLE INFRASTRUCTURE AND PERMITTING ALTERNATIVE RATE DESIGNS.

But Idaho has another option for building out its electric vehicle charging infrastructure: electric utilities. State governments across the country are turning to local electric utilities to provide highway electrification and charging stations in

159. *Id.*

160. *Regional Electric Vehicle Plan for the West: Progress Report*, REV WEST (Dec. 2020), https://www.naseo.org/Data/Sites/1/rev-west-2020-progress-report.pdf.

161. *See id.*

162. Tolbert, *supra* note 153 ("The lack of EV charging infrastructure in rural areas is one of the most significant barriers to rural EV adoption in the United States.").

163. *See generally* Press Release, Governor Brian P. Kemp, Gov. Kemp Announces Leading Semiconductor Manufacturer to Open Design Center in Atlanta (Dec. 6, 2021) (on file with author) (Micron will open a 500-person design center in Atlanta, rather than Idaho, in early 2022).

underserved neighborhoods.[164] Idaho could mitigate its charging station shortage by taking similar legal and regulatory action to: (1) let electric utilities own and operate public charging stations; and (2) adjust electric billing structures to make it economic for small businesses to own and operate public charging stations.

A. Utility ownership of public electric vehicle charging stations.

Legislatures and utility regulators in nearly all of Idaho's neighboring states have taken recent action to encourage their local utilities to make substantial investments in electric vehicle infrastructure, including charging stations. Oregon, Utah, Washington, Nevada, and California have all passed—and in some cases expanded upon—legislation with that goal, and Colorado's PUC approved a sizable investment for the same purpose.

In May 2021, Oregon enacted H.B. 2165 which "[a]uthorizes [the PUC] to allow electric companies to recover costs from retail electricity consumers for prudent infrastructure measures to support transportation electrification if certain criteria are met."[165] The revenue collected was set to 0.25% per retail electric customer—which is about 25¢ per month on an average residential customer bill of $100.[166] The Oregon legislature included two important limits to prevent utilities from overspending on these crucial investments: it capped the revenue impact to customers and allowed cost recovery only for measures the Oregon PUC found "prudent" according to "certain criteria."[167]

In January 2021, just a few months before the Oregon bill passed, the Colorado PUC approved Xcel Energy's plan to spend $110 million on an electric vehicle program, which included utility ownership of twenty-four DC fast charging

164. National Electric Highway Coalition, EDISON ELEC. INST., https://www.eei.org/issuesandpolicy/Documents/EV%20National%20Electric%20Highway%20Coalition%20Members%20and%20Map.pdf (current as of Dec. 7, 2021) (Map of National Electric Highway Coalition Member Service Territory); Press Release, Am. Elec. Power, Electric Highway Coalition Grows to 14 Members, More Than Doubling Participation (July 26, 2021) (on file with author).

165. H.B. 2165, 81st Leg. Assemb., Reg. Sess. (Or. 2021); OR. LEG. INFO., HB 2165 Enrolled: Catchline/Summary, https://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB2165 (last visited Jan. 21, 2023).

166. H.B. 2165, 81st Leg. Assemb., Reg. Sess. (Or. 2021).

167. *Id.*

stations in underserved areas.[168] In March 2020, the Utah Legislature passed the Electric Vehicle Charging Infrastructure Amendments.[169] That bill allows PacifiCorp—Utah's largest electric utility, which also serves customers in Southeast Idaho—to spend $50 million to own and operate electric vehicle charging stations and make other investments in electric vehicle infrastructure.[170]

In 2019, Washington passed a law that allowed utilities to earn an "incentive rate of return" on capital expenditures for electric vehicle charging infrastructure behind customer's meter as long as the expenditures do not increase the annual revenue requirement of the utility by more than 0.25%—the same limit Oregon adopted.[171] The Washington Legislature stated in the bill's Findings and Intent that "utilities . . . . must be fully empowered and incentivized to be engaged in the electrification of our transportation system," and "the legislature intends to provide a clear policy directive and final incentive to utilities for electric vehicle infrastructure build-out."[172]

Two years before the Washington law, Nevada also passed similar legislation. The Nevada statute clearly established that the state policy is to "expand and accelerate the deployment of electric vehicles and supporting infrastructure throughout this State;" it authorized electric utilities to recover costs associated with the state's electric vehicle program, and it directed the PUC to create regulations for the program.[173]

California, which passed early legislation permitting utilities to develop electric vehicle infrastructure, has continued to monitor the regulatory landscape and remove specific barriers as they become more clearly understood. In 2015, the state passed the Clean Energy and Pollution Reduction Act of 2015.[174] The Act directed the PUC to "approve, or modify and approve"—but not deny—transportation electrification investments, including charging stations.[175] This allowed utilities to own and operate electric vehicle charging stations, but those stations must not unfairly compete with non-utility businesses, and 35% of the

168. Greg Avery, *Xcel Energy Charging Ahead with $110M Electric Vehicle Plan*, DENVER BUS. J. (Dec. 24, 2020) https://www.bizjournals.com/denver/news/2020/12/24/xcel-energy-electric-vehicle-plan-colorado.html.

169. H.B. 396, 2020 Gen. Sess., 63rd Leg. (Utah 2020).

170. *Id.*

171. WASH. REV. CODE § 80.28.360 (2019).

172. *Id.*

173. Nev. S.B. 145, 79th Leg. Sess, (Nev. 2017).

174. S.B. 350, 2015 Leg., Reg. Sess. (Cal. 2015).

175. *Id.*; Cal. Pub. Util. Code § 740.12(b) (2015).

stations must be located in underserved communities.[176] The California Act was amended in 2020 so that utilities no longer needed to request approval on a case-by-case basis for the distribution infrastructure required to support a charging station.[177] Instead, those expenses would be treated the same as all other distribution expenses, which are authorized on an "ongoing basis" and evaluated for cost recovery in general rate cases.[178] The Legislative explained that this change was because "the commission should not relegate electric vehicles to a lower status than any other use of electricity for which the electric corporate provides distribution infrastructure."[179]

Among Idaho's neighbors, only the Montana and Wyoming Legislatures have not directed their PUC or utilities to accelerate electric vehicle adoption.[180] Similar to Idaho, the only funding those states offer is from their share of the Volkswagen settlement funds.[181] Montana and Wyoming's reluctance to encourage electric vehicles may be because—unlike Idaho—both states have significant oil production that would be hurt by a move towards electric vehicles.[182]

States across the country are partnering with utilities to build electric vehicle charging corridors to fill in infrastructure gaps on state highways and interstates.

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176. Cal. Pub. Util. Code § 740.12 (2015).

177. Cal. Pub. Util. Code § 740.18 (2022).

178. Cal. Pub. Util. Code § 740.19(a) (2022).

179. *Id.*

180. U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., MONTANA LAWS AND INCENTIVES, https://afdc.energy.gov/laws/all?state=MT (last visited Feb. 28, 2022) [hereinafter MONTANA LAWS AND INCENTIVES]; U.S. DEP'T OF ENERGY, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY: ALT. FUELS DATA CTR., WYOMING LAWS AND INCENTIVES, https://afdc.energy.gov/laws/all?state=WY (last visited Feb. 28, 2022) [hereinafter WYOMING LAWS AND INCENTIVES].

181. MONTANA LAWS AND INCENTIVES, *supra* note 180; WYOMING LAWS AND INCENTIVES, *supra* note 180.

182. WYO. STATE GEOLOGICAL SURV., WYOMING'S OIL & GAS FACTS, https://www.wsgs.wyo.gov/energy/oil-gas-facts.aspx#:~:text=Wyoming%20produced%2085.43%20million%20barrels,an%20active%20oil%20field%20today (last visited Feb. 27, 2022); MONT. PETROL. ASS'N, QUICK FACTS: MONTANA RANKS 12TH IN OIL PRODUCTION, https://montanapetroleum.org/about-us/quick facts/#:~:text=Montana%20ranks%2012th%20in%20oil,consumer%20of%20energy%20per%20capita (last visited Feb. 27, 2022).

Utah,[183] Nevada,[184] Oregon,[185] Washington,[186] California,[187] Florida,[188] and Tennessee[189] are just a few of the states forming charging corridors—with the help of utilities—to create range confidence[190] in electric vehicle drivers.

Two of Idaho's neighboring state are working with their utilities to construct electric vehicle highways. Utah, in partnership with PacifiCorp, is installing charging stations on its interstates, but also on remote highways to provide access to the state's national parks.[191] Nevada is partnering with NV Energy to add charging infrastructure on Highway 95, between Reno and Las Vegas.[192]

Further east, Tennessee is taking a similar approach to make sure its long, rural highways are not overlooked for electric vehicle infrastructure investments. In February 2021, the Tennessee state government and the Tennessee Valley

183. Jason Lee, *'Just What We Need': Utah gets Electric Vehicle Corridor Along I-15, More than 350 Charging Stations Statewide*, DESERET NEWS (June 29, 2018), https://www.deseret.com/2018/6/29/20648111/just-what-we-need-utah-gets-electric-vehicle-corridor-along-i-15-more-than-350-charging-stations-sta.

184. Press Release, Nev. Gov. Off. Of Energy (June 16, 2015) (on file with author).

185. *West Coast Electric Highway*, W. COAST GREEN HWY.: CLEANER & SMARTER TRANS. FROM B.C. TO BAJA CA. (BC TO BC), http://www.westcoastgreenhighway.com/electrichighway.htm (last visited Dec. 5, 2021) [hereinafter *West Coast Electric Highway*]; *West Coast Clean Transit Corridor Initiative Fact Sheet*, W. COAST CLEAN TRANSIT CORRIDOR INITIATIVE, https://westcoastcleantransit.com/resources/G20-049%20West%20Coast%20Clean%20Transit%20Corridor%20Fact%20Sheet.pdf (last updated June 2020) [hereinafter *West Coast Transit Corridor Fact Sheet*].

186. *West Coast Electric Highway*, *supra* note 185; *West Coast Transit Corridor Initiative Fact Sheet*, *supra* note 185.

187. *West Coast Electric Highway*, *supra* note 185; *West Coast Transit Corridor Initiative Fact Sheet*, *supra* note 185.

188. Press Release, Governor Ron DeSantis, Governor Ron DeSantis Announces Next Steps to Strengthen Florida's Electric Vehicle Infrastructure, (July 11, 2020), https://www.flgov.com/2020/07/10/governor-ron-desantis-announces-next-steps-to-strengthen-floridas-electric-vehicle-infrastructure/.

189. TENN. DEP'T OF ENV'T & CONSERV., FAST CHARGE TN NETWORK, https://www.tn.gov/environment/program-areas/energy/state-energy-office--seo-/programs-projects/programs-and-projects/sustainable-transportation-and-alternative-fuels/sustainable-transportation-and-alternative-fuels/transportation-electrification-in-tennessee/tdec-and-tva-moa.html (last visited Nov. 18, 2021).

190. *West Coast Electric Highway*, *supra* note 185.

191. Lee, *supra* note 183.

192. NEV. GOV. OFF. OF ENERGY, NEVADA ELECTRIC HIGHWAY, https://energy.nv.gov/Programs/Nevada_Electric_Highway/ (last visited Feb. 6, 2022).

Authority (TVA) signed a Memorandum of Agreement to create a state-wide network of fast charging stations spaced fifty miles apart in primary and secondary travel corridors, and in distressed and at-risk counties.[193] Fifty charging stations are anticipated to be installed between 2022 and 2024, at a total cost $20 million.[194] The state is funding $5 million from its Volkswagen Settlement Funds, and TVA and other program partners are funding the remaining $15 million.[195] In support of this investment, TVA said that "EV adoption will spur jobs and economic investment in the region, keep refueling dollars in the local economy, reduce the region's largest source of carbon emissions, and save drivers and fleets money."[196]

States across the country working with their electric utilities to implement electric vehicle corridors appear to recognize the economic and air quality benefits that widespread adoption of electric vehicles would have for the residents of their state. Connecting smaller communities with each other and with larger urban areas is a critical way to make sure that their states capture the benefits of electric vehicles for everyone in the state—not just the city dwellers.

Recognizing that transportation electrification is a significant business opportunity for their industry and aligns with state regulatory goals,[197] regulated electric utilities have banded together. The Edison Electric Institute, the trade association for U.S. investor-owned electric companies,[198] formed the National Electric Highway Coalition (NHEC) in December 2021.[199] The NEHC includes over fifty investor-owned utilities from every state—including Montana and Wyoming—

193. TENN. DEP'T OF ENV'T & CONSERV., *supra* note 189; Michelle Lewis, *Tennessee Fund Statewide Electric Vehicle Fast Charging Network*, ELECTREK (Feb. 3. 2021), https://electrek.co/2021/02/03/tennessee-statewide-electric-vehicle-fast-charging-network/.

194. TENN. DEP'T OF ENV'T AND CONSERV., *supra* note 189; Lewis, *supra* note 193.

195. TENN. DEP'T OF ENV'T AND CONSERV., *supra* note 189; Lewis, *supra* note 193.

196. TENN. DEP'T OF ENV'T AND CONSERV., *supra* note 189; Lewis, *supra* note 193.

197. Baker, *supra* note 16.

198. *About EEI*, EDISON ELEC. INST., https://www.eei.org/about/Pages/about.aspx (last visited Dec. 27, 2021).

199. *Electric Companies Join Together to Form National Electric Highway Coalition*, EDISON ELEC. INST. (Dec. 7, 2021), https://www.eei.org/News/news/All/electric-companies-join-together-to-form-national-electric-highway-coalition#:~:text=Washington%20(December%2007,%202021),includes%20additional%20participating%20electric%20companies) [hereinafter *Electric Companies Join Together*].

in the continental United States except Nebraska.[200] The NEHC believes public utilities will play a critical role supplementing federal funds for transportation electrification:

> The federal infrastructure funding will help a great deal in [the funding and construction of charging infrastructure] effort, but this is only a down payment of a much larger effort. Electric companies, which are regulated by state commissions, can help leverage all funding sources, help fill the infrastructure gaps, and help manage the deployment of these chargers with a long-term view.[201]

Idaho could benefit from an electric highway initiative to address the lack of charging infrastructure on the state's highways. Avista and Rocky Mountain Power joined the NEHC when it was launched in December 2021.[202] Idaho's largest utility—Idaho Power— joined the NEHC in March 2022.[203] But none of them have been granted additional authority to invest in electric vehicles before or since joining the NEHC.

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200. *National Electric Highway Coalition Map*, EDISON ELEC. INST., https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Electric-Transportation/EV-National-Electric-Highway-Coalition-Members-and-Map.pdf (current as of Mar. 14, 2022) [hereinafter *March 2022 NEHC map*]; *Public Power in Nebraska*, NEB. CITY UTIL., https://www.nebraskacityutilities.com/general/public-power-in-nebraska/ (last visited Jan. 2, 2022) (Nebraska is the only state served entirely by a consumer-owned public power electric utility).

201. *Electric Companies Join Together*, *supra* note 199.

202. *Compare March 2022 NEHC map*, *supra* note 200, *with EEI National Electric Highway Coalition Facts*, EDISON ELEC. INST., (Dec. 2021) https://central.libertyutilities.com/uploads/12.3.2021_EEI_NEHC_Fact_Sheet.pdf (Showing Avista and Rocky Mountain, but not Idaho Power, as members in December 2021).

203. *Idaho Power Joins the National Electric Highway Coalition*, IDAHO POWER (April 7, 2022) https://www.idahopower.com/news/idaho-power-joins-the-national-electric-highway-coalition/. In December 2021, NEHC membership required utilities to "commit in good faith to establish a foundational EV fast charging network across their service territories using any approach they see fit by no later than the end of 2023." This language has been removed from the NEHC website, but it is not clear when or why it was taken down. But the statement can still be found at *EEI National Electric Highway Coalition Facts*, *supra* note 199 *and* Robert Walton, *Major US Utilities Plan Nationwide Charging Network, Anticipating 22M EVs by 2023*, UTILITY DIVE (Dec. 8, 2021) https://www.utilitydive.com/news/major-us-utilities-plan-nationwide-charging-network-anticipating-22m-evs-b/611150/.

B. Replacing demand charges with time-of-use volumetric rates.

Allowing utility ownership of charging stations is an important component of advancing electric vehicle infrastructure. But it is also important for legislatures and regulatory commissions to encourage private business to install charging stations to fill the infrastructure gap. But gas stations, convenience stores, and other travel-related businesses along highway corridors and in rural areas often find that installing charging stations is not economic, in part because a component of electric rates for commercial customers—a demand charge—results in bills far greater than what the business can charge electric vehicle drivers for using the charging station.[204]

Because of the large amount of electricity they use, charging stations are usually categorized by utilities as commercial customers.[205] Electric rates for commercial customers often include a demand charge, which charges customers based on the highest amount of electricity they use over a short period of time, often fifteen minutes.[206] DC fast charging stations provide large amounts of energy to charge electric vehicles over twenty or thirty minutes, and therefore trigger very large demand charges from the utility.[207] The resulting electric bill from the utility exceeds what the station owner can charge electric vehicle owners to use the station, thus making the investment uneconomic for station owners.[208] Notably, this is not a concern for utilities that own and operate charging stations because the state laws permitting utility ownership also allow utilities to recover operation costs—including electric costs—in rates collected from all customers.[209]

The combination of low numbers of electric vehicles using charging stations and demand charges for the electricity those vehicles use creates a "make or break" financial issue for independently owned charging stations.[210] Charging stations

204. Robert Walton, *Is Utility Rate Design the Key to Widespread Electric Vehicle Adoption?*, UTILITY DIVE (Apr. 12, 2017), https://www.utilitydive.com/news/is-utility-rate-design-the-key-to-widespread-electric-vehicle-adoption/440312/.

205. *See generally id.*

206. *See generally id.*

207. *See generally id.*

208. *See id.*

209. *See e.g.*, H.B. 2165, 81st Leg. Assemb., Reg. Sess. (Or. 2021).

210.. Chris Nelder, *Rate-Design Best Practices for Public Electric-Vehicle Chargers*, ROCKY MTN. INST. (Apr. 6, 2017), https://rmi.org/rate-design-best-practices-public-electric-vehicle-chargers/; Walton, *supra* note 204.

generally need to be used about 30% of the time to break even, but many are currently used about 5% of the time.[211] Usage is expected to increase as electric vehicles become more prevalent,[212] but prospective charging station owners are often unwilling to invest $100,000 or more on a connected charged station that will take years to cover its costs or be profitable.[213]

Demand charges were originally designed to incent commercial electric customers (for example, a factory) to keep their electric usage relatively stable throughout the day because a "flat" electric load from individual customers was thought to be less expensive for the utility to serve than electric use that "peaks" and later falls off.[214] Demand charges can be an effective solution to peak usage because a factory can adjust its production so that its electric use is more even throughout the day.[215]

But demand charges are not an effective solution to peak usage when customers cannot shift their usage.[216] That is the situation for DC fast charging stations because station owners do not control when drivers charge their cars—but more importantly—the express purpose of fast charging stations is to deliver a large amount of electricity in short bursts (i.e., peaks).[217] Fortunately, solutions are available.

One of those solutions is a time-of-use, volumetric rate design.[218] Volumetric rates are how most residential customers are billed; customers are charged a certain amount of money for each kilowatt-hour used in the month (for example,

211. *See generally* Hiller, *supra* note 158.

212. *Networked vs. Non-Networked Chargers for Hosts*, BLINK CHARGING CO., https://blinkcharging.com/understanding-networked-vs-non-networked-chargers-for-host-locations/?locale=en (last visited Oct. 30, 2021) (Charging stations must be networked in order for the host to collect usage fees from customers.).

213. Hiller, *supra* note 158.

214. Nelder, *supra* note 210; JIM LAZAR & WILSON GONZALEZ, SMART RATE DESIGN FOR A SMART FUTURE 37–38 (2015).

215. Nelder, *supra* note 210; LAZAR & GONZALEZ, *supra* note 214, at 37–38.

216. Nelder, *supra* note 210; LAZAR & GONZALEZ, *supra* note 214, at 37–38.

217. Nelder, *supra* note 210.

218. MELISSA WHITED ET AL., SYNAPSE ENERGY ECONOMICS, INC., BEST PRACTICES FOR COMMERCIAL AND INDUSTRIAL EV RATES 1 (2020).

$0.09/kWh), regardless of how much electricity is used in any particular fifteen-minute window.[219]

With time-of-use (TOU) rates, the volumetric kilowatt-hour rate increases during hours when the grid is most constrained and electric costs are higher.220 Time-of-use rates are effective because a utility's cost to provide electricity to their customers is primarily a function of time: the cost to meet customer demand is highest when the grid is constrained by many customers using large amounts of electricity at the same time.[221]

These "on-peak" times tend to be weather driven and thus, very predictable.[222] For example, costs to provide electricity will be highest when tens of thousands of customers are running air conditioners at the same time on a hot summer afternoon or heating with electricity on a cold winter morning.[223] Time-of-use rates keeps total electric system costs down by encouraging customers to shift their discretionary electric usage (for example, laundry or electric vehicle charging) to "off-peak" hours of the day.[224]

Customers respond effectively to peak and off-peak price signals in time-of-use pricing mechanisms because those price signals are predictable and easy to understand.[225] Many TOU plans have two simple rates: one for summer/winter, and another for daytime/evening. For example, from June to August, electricity in a typical TOU plan might cost $0.13/kWh from 3:00pm–8:00pm and $0.07/kWh all

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219. *See generally* IDAHO POWER, SCHEDULE 1: RESIDENTIAL SERVICE STANDARD PLAN (effective Mar. 1, 2012), https://docs.idahopower.com/pdfs/aboutus/ratesregulatory/tariffs/156.pdf; Alexandra Aznar, *Word of the Day: Fixed Charges and Volumetric Charges*, NREL (July 16, 2015), https://www.nrel.gov/state-local-tribal/blog/posts/word-of-the-day-fixed-charges-and-volumetric-charges.html.

220. WHITED ET AL., *supra* note 218, at 3.

221. *Id.*

222. *Electricity Explained: Factors Affecting Electricity Prices,* U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/electricity/prices-and-factors-affecting-prices.php (last visited Feb. 2, 2022) ("Prices are usually highest in the summer when total demand is high because more expensive generation sources are added to meet the increased demand.").

223. *Id.*

224. WHITED ET AL., *supra* note 218, at 3.

225. *Id.* at 9.

other hours.[226] From September to May, electricity might cost $0.10/kWh from 5:00am–9:00am and $0.70/kWh all other hours.[227] Customers know in advance when rates will be higher or lower and can plan their usage accordingly.

Demand charges, by contrast, are usually applied after the fact to whichever fifteen minute period has the highest electric usage, regardless of the time of day or season.[228] That means that a charging station owner serving an electric vehicle owner who charges their car on an early summer morning—an off-peak time when electric costs are low—will be hit with a large demand charge that is not proportional to the utility's cost to deliver electricity.[229] Sophisticated commercial and industrial customers often have the expertise to anticipate and respond to demand charges effectively. But demand charge billing is complex and unfamiliar to most small commercial customers (e.g., charging station owners) and residential customers (e.g., electric vehicle drivers), which makes it difficult for them to understand and respond to those price signals.[230]

For utilities that are reluctant to abandon demand charges entirely, one option has been to use time-of-use volumetric rates in the early years of electric vehicle adoption, and then transition to demand charges when charging stations can absorb that price structure economically.[231] A second option, under consideration in the Connecticut, Colorado, and Minnesota PUCs is a "sliding-scale approach" where "volumetric charges [start] high and demand charges start low" and higher demand charges are phased in over times as electric charging station usage grows.[232] While both of these alternatives are better than strict adherence to demand charges, neither approach is desirable because both deprive businesses of the certainty needed to invest in expensive projects.

Idaho's regional neighbors have chosen to avoid the economic hurdle created by demand charges by adopting time-of-use, volumetric rates for electric vehicle

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226. *See generally Idaho Time of Day Plan*, IDAHO POWER, https://www.idahopower.com/accounts-service/understand-your-bill/pricing/idaho-pricing/time-day-plan/ (last visited Feb. 2, 2022).

227. *Id.*

228.. LAZAR & GONZALEZ, *supra* note 214, at 37.

229. Nelder, *supra* note 210.

230. WHITED ET AL., *supra* note 218, at 4.

231. Nelder, *supra* note 210.

232. Jeff St. John, *Getting the Rates Right for a Public EV Charging Build-Out*, GREENTECH MEDIA (Feb. 16, 2021), https://www.greentechmedia.com/articles/read/getting-the-rates-right-for-a-public-electric-vehicle-charging-buildout.

charging stations.[233] These states have used a variety of legal methods to make this change. Some state legislatures passed laws requiring a specific alternative to demand charges for electric vehicles charging.[234] In other states, the PUC ordered utilities to offer volumetric, time-of-use rates without specific direction from the legislature.[235] Sometimes neither the legislature nor the PUC has taken proactive action, and instead utilities have requested—and been granted—alternatives to demand charges by their regulators.[236] But while the method has varied, each state has recognized the importance of removing the artificial disincentive of demand charges in order to encourage the infrastructure investments that underpins widespread electric vehicle adoption.

One of the best, and geographically closest, examples of alternative rate design for electric vehicle charging is from Avista Utilities, an electric and natural gas utility serving parts of Northern Idaho and Eastern Washington.237 The path to that alternative began over ten years ago when the Washington Legislature revised state law to permit electric companies to "offer battery charging facilities as a regulated service, subject to commission approval."238 Building on that "clear direction to encourage and direct regulated utilities to offers programs to promote ESVE [electric vehicle supply equipment] . . . in order to accelerate [electric vehicle] adoption," the Washington Utilities and Transportation Commission (WUTC), issued a 2017 policy statement explaining how it intended to implement that legislative guidance.[239]

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233. *See generally Washington Electric Rates and Tariffs*, AVISTA, https://www.myavista.com/about-us/our-rates-and-tariffs/washington-electric (last visited Feb. 8, 2022) (*compare* Sch. 11: General Service *with* Schedule 13: Optional Commercial Electric Vehicle Rate – General Service, *and* Schedule 21: Large General Service, *with* Schedule 23: Optional Commercial Electric Vehicle Rate – Large General Service).

234. *See generally* CAL. CODE REGS. tit. 4 §§ 4001, 4002.11 (2022).

235. *See generally* OR. PUB. UTIL. COMM'N, UM 1461: Investigation of matters related to Electric Vehicle Charging, Order No. 12-013 (Jan. 19, 2012).

236. *See generally Washington Electric Rates and Tariffs*, AVISTA, https://www.myavista.com/about-us/our-rates-and-tariffs/washington-electric (last visited Feb. 8, 2022).

237. *See generally Company Information*, AVISTA, https://investor.avistacorp.com/about-avista/company-information (last visited Feb. 8, 2022).

238. WASH. REV. CODE § 80.28.320 (2022).

239. WASH. UTIL. & TRANSP. COMM'N, DOCKET UE-160799, POLICY AND INTERPRETIVE STATEMENT CONCERNING COMMISSION REGULATION OF ELECTRIC VEHICLE CHARGING SERVICES, at 12 (2017).

That legal framework allowed Avista to implement optional electric vehicle charging rate schedules for its commercial customers in 2021. The standard rate schedules for commercial customers include a demand charge—but the optional electric vehicle charging rates structures do not.[240] Instead, the optional charging rate schedules include time-of-use, volumetric rates.[241] These schedules are not mandatory; the commercial customers can evaluate both rate schedules and determine which works best for their circumstances.[242] When it proposed this rate structure, Avista explained that it "provides for reasonable recovery of utility costs based on additional time-of-use (TOU) charges, while eliminating demand charges that currently inhibit market growth," and that "it establishes sensible electric billing rates for businesses that invest in public charging, [which] encourage[es] third-party ownership of public DC fast charging."[243]

Unfortunately, these optional electric vehicle charging tariffs are only available to Avista's Washington customers.[244] Because the Idaho PUC has not approved similar tariffs, Avista's customers in Coeur d'Alene, Moscow, Lewiston, and Grangeville must pay demand charges for commercial electric vehicle charging.[245]

The Oregon PUC has taken a more direct approach than Washington and specifically directed utilities to use volumetric rates for electric vehicle charging stations.[246] In the same order that first permitted utility ownership of charging stations, the Commission also stated that "[r]egulated utilities must provide customers with a choice of a flat rate or time of use electricity rates specific to P[lug-in] E[lectric] V[ehicle] owners."[247]

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240. *Washington Electric Rates and Tariffs*, AVISTA, https://www.myavista.com/about-us/our-rates-and-tariffs/washington-electric (last visited Feb. 8, 2022) (*compare* Sch. 11: General Service, *with* Schedule 13: Optional Commercial Electric Vehicle Rate – General Service, *and* Schedule 21: Large General Service, *with* Schedule 23: Optional Commercial Electric Vehicle Rate – Large General Service).

241. *Id.*

242. *Id.*

243. AVISTA, TRANSPORTATION ELECTRIFICATION PLAN 13 (2020) (Revision filed with the Washington Utilities and Transportation Commission for Acknowledgement on July 1, 2020).

244. *Idaho Electric Rates and Tariffs*, AVISTA, https://www.myavista.com/about-us/our-rates-and-tariffs/idaho-electric, (last visited Feb. 8, 2022) (Avista does not offer any optional electric vehicle rates for Idaho customers).

245. *Id.*; *Company Information*, AVISTA, https://investor.avistacorp.com/about-avista/company-information (last visited Feb. 8, 2022) (Avista service territory map).

246. OR. PUB. UTIL. COMM'N, UM 1461: Investigation of matters related to Electric Vehicle Charging, Order No. 12-013 (Jan. 19, 2012).

247. *Id.* at 14–15.

California—the national leader in electric vehicles—took Oregon's approach, but codified it in statute.[248] The California Code of Regulations requires that "EVSE charging rates must be based on a price per . . . kilowatt-hour."[249] Nevada, its neighbor, did not codify that requirement, but has had TOU rates for electric vehicles for over ten years.[250]

Although Western states have taken different paths to get there, most of them have decided that volumetric time-of-use rates are the most effective rate to encourage the private development of public charging stations.

VI. REFORMING IDAHO REGULATORY LAW TO SUPPORT ELECTRIC VEHICLE ADOPTION.

The Idaho Legislature has delegated to the Idaho PUC the authority to approve utility ownership of charging stations and volumetric rate design.[251] But the PUC is unlikely to act under its current legal authority. Therefore, this comment recommends that the Idaho Legislature adopt specific legal reform that directs the PUC to: (1) encourage utility ownership of public charging stations; and (2) adopt volumetric, time-of-use rate design for public charging stations.

A. The Idaho Legislature has delegated broad authority to the Idaho PUC.

Utility ownership of charging stations and electric rate design are utility functions, but they are not utility decisions. In Idaho, as in most states, the large investor-owned utilities that provide service to most residents are regulated by the state public utility commission.[252] The state grants each electric utility a service territory monopoly, a geographic area in which that utility is the only entity authorized to sell electricity.[253] In exchange for that monopoly status, the utility is

248. CAL. CODE REGS. tit. 4 §§ 4001, 4002.11.

249. *Id.*

250. Robert Walton, *Nevada Regulators Approve NV Energy's First EV Infrastructure Program*, UTILITY DIVE (July 3, 2018), https://www.utilitydive.com/news/nevada-regulators-approve-nv-energys-first-ev-infrastructure-program/526785/ ("NV Energy has had an EV time of use (TOU) rate for a decade.").

251. *See* discussion *infra* Section V.

252. IDAHO PUB. UTIL. COMM'N, https://puc.idaho.gov/ (Jan. 12, 2022); JIM LAZAR, ELECTRICITY REGULATION IN THE US: A GUIDE 11 (2d. ed. 2016).

253. LAZAR, *supra* note 252, at 6.

required to: (1) serve all customers in the service territory; and (2) submit to price regulation by the state public utility commission.[254] This arrangement is known as the "regulatory compact."[255]

The Idaho PUC is a state agency created through statute by the Idaho Legislature.[256] It is comprised of three commissioners, appointed by the governor and confirmed by the Idaho Senate, for six-year terms.[257] Only two of the three commissioners may be from the same political party, and there is no limit on the number of terms each commissioner may serve.[258] Idaho Code grants the Idaho PUC authority to hire employees such as "experts, engineers, statisticians, accountants . . . as it may deem necessary to . . . exercise the power conferred by law upon the commission."[259] Proceedings and hearings are conducted according to the Rules of Procedure of the Idaho Public Utilities Commission.[260] The Idaho Attorney General's Office is the attorney of the Commission and has the "right and duty" to represent the commission in all legal matters.[261]

As a statutory creation of the Idaho Legislature, the Idaho PUC may only exercise the authority delegated to it by the Legislature.[262] But the Idaho Legislature has delegated it broad authority: "The public utilities commission is hereby vested with power and jurisdiction to supervise and regulate every public utility in the state and to do all things necessary to carry out the spirit and intent of the provisions of this act."[263]

The PUC's core function is price regulation: it sets the rates that utilities may charge its customers.[264] A utility may spend money as it sees fit, but only the costs of investments that are approved by the PUC in an administrative proceeding or hearing may be recovered from customers in electric rates.[265] Therefore, utilities are very reluctant to make significant expenditures that are not in the regular

254. *Id.*

255. *Id.*

256. IDAHO CODE § 61-201 (2022).

257. *Id*.

258. *Id*.

259. IDAHO CODE § 61-206 (2022).

260. IDAHO ADMIN. CODE r. 31.01.01 (2021).

261. IDAHO CODE § 61-204 (2022).

262. IDAHO CODE § 61-201 (2022).

263. IDAHO CODE § 61-501 (2022).

264. IDAHO CODE §§ 61-502, 503 (2022).

265. IDAHO CODE § 61-622(1) (2022).

course of business without advance authorization from the PUC.[266] Further, utilities are prohibited from changing its rate design without advance authorization from the PUC.[267]

The PUC's orders are appealable to the Idaho Supreme Court.[268] But no new evidence may be presented on appeal, and the Supreme Court's review is limited to determining "whether the commission has regularly pursued its authority."[269] The sweeping authority to set rates and limited judicial review means that the Idaho PUC holds significant power over utility investments.

B. The Idaho PUC is unlikely to act under its current legal authority.

Although the Idaho PUC has broad discretion over utility investments and rate design, it is unlikely to act to advance electric vehicle adoption under its current legal authority.

The Idaho PUC is directed by statute to establish rates that, as commonly paraphrased, are fair, just, and reasonable.[270] In Idaho utility regulation, that directive is generally understood to mean that utility investments should be the "least cost, least risk" method to serve anticipated customer demand. For example, if population growth or a new large industrial customer in the service territory causes the utility to build or buy more electrical resources to meet that increased demand, the utility is generally expected to acquire the resource that can supply that additional amount of electricity at the lowest cost and least risk of outrage.[271] If the utility was to buy a resource that was not needed to meet customer demand, or that was not the least cost way to meet customer demand, the PUC could decline to let the utility recover those costs from customers in rates—known as a

266. Thomas P. Lyon & John W. Mayo, *Regulatory Opportunism and Investment Behavior: Evidence from the U.S. Electric Industry*, 36 RAND J. OF ECON., 628, 629 (2005) ("[T]he ability to disallow excessive costs can help regulators achieve more efficient levels of investment by curbing the incentives for overinvestment.").

267. IDAHO CODE § 61-307 (2022).

268. IDAHO CODE § 61-627 (2022).

269. IDAHO CODE § 61-629 (2022).

270. IDAHO CODE § 61-502 (2022).

271. *See generally* IDAHO PUB. UTIL. COMM'N, Case No. AVU-E-19-01: Avista's 2020 Electric Integrated Resource Plan, Staff Comments at 3 (Aug. 19, 2020), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/AVU/AVUE1901/Staff/20200819Comments.pdf.

"disallowance."[272] Company shareholders, rather than customers, would have to pay the amount of the disallowance.[273]

Under this construct, it is difficult for Idaho utilities to propose ownership and operation of electric vehicle charging stations. Charging stations increase electric usage, thereby increasing costs, which is contrary to the expectation that utilities are generally expected to minimize costs. Fueling vehicles with electricity offsets gasoline usage and provides economic and air quality benefits for all utility customers, but the Idaho PUC does not usually consider externalities like decreased gas consumption in its analyses.[274] The PUC itself recently stated, "This Commission was granted authority by the Idaho legislature to conduct economic analysis to determine rates that are fair, just, and reasonable. We have not been granted the legislative or executive authority to monetize many of the environmental attributes addressed by Parties and customers."[275]

Instead, the PUC analyzes whether the proposed investment will increase or decrease the utility's cost to serve its customers.[276] So, a utility would be permitted to recover costs associated with providing electric service to an independently owned charging station (because the utility is not causing that cost increase). But the utility would generally *not* be permitted to recover costs of owning and operating an electric vehicle charging station itself, because the utility investment in the charging station would cause electric system costs to increase by providing a way for customers to use more electricity.

This dynamic also reduces the likelihood that the Idaho PUC would approve an alternative rate design, including time-of-use and volumetric rates, for electric vehicle charging stations. Any rate design that considers a viable business model for the consumer has the potential to charge less for the electricity than it costs to

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272. *See generally* IDAHO PUB. UTIL. COMM'N, Case No. IPC-E-20-15, Order No. 34660 at 1 (May 6, 2020), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2015/OrdNotc/20200506Notice_of_Modified_Procedure_Order_No_34660.pdf ("The Commission will allow the utility an opportunity to recover its . . . expenses through [customer] rates if the Commission finds that the Company prudently incurred those expenses. However, if the Commission finds the Company did not prudently incur . . . expenses, then it will not allow the Company to recover them through [customer] rates and the disallowed expenses will be born by the utility's shareholders and not by customers.").

273. *Id.*

274. IDAHO PUB. UTIL. COMM'N, Case No. IPC-E-21-21, Order No. 35284 at 12 (Dec. 30, 2021), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2121/OrdNotc/20211230Final_Order_No_35284.pdf.

275. *Id.*

276. *Id.*

provide, especially before charging stations have consistent and steady usage.[277] The remaining costs to produce and deliver that electricity would be absorbed by other customers.[278] This is a common phenomenon—utility rate designs are never a perfect match between the costs incurred by a particular customer class and the revenue collected from that customer class.[279] State PUCs have discretion to set rates that are in the public interest, which means that customer rates need not perfectly align with costs.[280] But, it would be difficult for an Idaho utility to propose a rate design that deviated from the current framework for the general betterment of customers, the economy, or the environment, when those considerations are not included in the PUC's analysis.

C. Similarly-situated states have had little success without legal reform.

Most utilities have a good sense for the expectations of their regulators, and will usually not file applications that they know will be rejected.[281] However, there are a few examples of utilities filing applications to own and operate charging stations without a clear indication from the legislature or the PUC indicating in advance that application would be considered favorably.[282] The results were mixed.

In 2018, both the Kansas and Missouri PUCs rejected a $16.6 million utility proposal to own and operate charging stations.[283] The utility argued that the macroeconomic and environmental benefits were well worth the 10–15¢ increase in customer bills, and in Kansas, that the state "should not 'stand still' while the rest

277. Nelder, *supra* note 210.

278. *Id.*

279. Darryl Tietjen, *Tariff Development I: The Basic Ratemaking Process*, NAT'L ASS'N OF REGUL. UTIL. COMM'RS 8, https://pubs.naruc.org/pub.cfm?id=538E730E-2354-D714-51A6-5B621A9534CB (last visited Dec. 6, 2021) ("Cost allocations are subject to judgment and imprecision" and "requires many assumptions.").

280. JIM LAZAR ET AL., REGULATORY ASSISTANCE PROJECT, ELECTRIC COST ALLOCATION FOR A NEW ERA: A MANUAL 29 (Mark LeBel, ed. 2020) (explaining that "[m]ost regulators are not strictly bound" by the results of cost-of-service studies).

281. Lyon & Mayo, *supra* note 266, at 641 ("Models of regulation and regulated firm behavior typically portray an unwavering relationship between regulators and a given regulated firm.").

282. Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 605–10 (2019).

283. *Id.* at 599–603.

of the country moves forward in developing EV charging infrastructure."[284] In Kansas, the PUC rejected the rate recovery requests based on concerns over cross-subsidies between customers and questioned the claimed environmental benefits.[285] In Missouri, the PUC found that it did not have jurisdiction over electric vehicle charging stations.[286] Similar to Idaho, neither state had laws or regulatory decisions regarding electric vehicle charging stations.[287]

But there was a different outcome in Kentucky, which also did not have state laws or regulations relating to electric vehicle charging stations. There, the PUC approved two utilities' 2015 request for a small charging station pilot when the utility demonstrated it would not increase customers' costs and that there would be no "cost shifts to other customers."[288] But the Kentucky proposal was only for $500,000, compared to the Kansas and Missouri proposals which were $5.6 million and $11 million respectively.[289] A one-time, half million-dollar investment, while valuable, will only fund about five charging stations.[290] That is not enough to meaningfully advance widespread electric vehicle adoption.

Another approach to utility ownership of charging stations is rate case settlements.[291] In a rate case, a utility typically asks for an increase to customers' rates and a range of other requests, including rate design changes, program modifications, and resource acquisitions.[292] Rate cases often involve significant negotiations between the utility, PUC Staff (who function as a party independent from the commissioners), and intervenors (conservation groups, large industrial groups, and low-income groups, are common examples).[293] The negotiations may result in a settlement agreement that the parties recommend for approval to the

284. *Id.* at 599–605.

285. *Id.* at 601.

286. *Id.* at 602.

287. *Id.* at 599–603.

288. Klass, *supra* note 282, at 605–08.

289. *Id.* at 608.

290. Hiller, *supra* note 158 (One charging station costs about $100,000).

291. Klass, *supra* note 282, at 607–09.

292. *See generally* IDAHO PUB. UTIL. COMM'N, Case No. AVU-E-21-01/AVU-G-21-01, Rate Case Stipulation and Settlement (June 14, 2021), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/AVU/AVUE2101/Company/20210614Stipulation%20and%20Settlement.pdf.

293. Idaho Pub. Util. Comm'n, *How Are Rate Cases Decides and How Can I Get Involved*, YOUTUBE (Feb. 4, 2015) (Second 56).

Commission.[294] The Commission is not required to approve the settlement, but it often does.[295]

In Florida and Ohio, the PUCs both approved rate case settlements that provided $8 million and $10 million respectively for charging infrastructure. [296] The Ohio PUC declined to let the utility own the stations, but both results were a significant achievement for charging infrastructure in each state.[297] However, one author has correctly observed that funding these types of projects in rate settlements are "one-off, ad hoc" arrangements that are unlikely to be duplicated in the jurisdiction.[298]

VII. RECOMMENDED LEGAL REFORM

A. The Idaho Legislature should direct the Idaho PUC to favorably consider utility ownership of public electric vehicle charging stations and time-of-use volumetric rates.

The Idaho PUC may have the authority to approve utility requests to own and operate charging stations, but it is unlikely to do that without specific direction from the Idaho Legislature. Therefore, this comment recommends specific legal reform that shifts the Idaho PUC from having legal permission to approve utility cost recovery for charging stations, to a legal directive to favorably consider those applications. This is narrow legal reform that does not erode the PUC's authority, but instead maintains the current framework where the Idaho Legislature sets policy, and the Idaho PUC reviews utility applications according to that policy.

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294. *See generally* IDAHO PUB. UTIL. COMM'N, Case No. AVU-E-21-01, Avista's Motion for Approval of Stipulation and Settlement (June 14, 2021), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/AVU/AVUE2101/Company/20210614Stipulation%20and%20Settlement.pdf; *see also* IDAHO PUB. UTIL. COMM'N, Case No. IPC-E-18-15, Final Order No. 34509 at 6 (Dec. 20, 2019), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE1815/OrdNotc/20191220Final%20Order%20No%2034509.pdf.

295. IDAHO ADMIN. CODE r. 31.01.01.276 (2022).

296. Klass, *supra* note 282, at 607–08.

297. *Id.* at 608.

298. *Id.* at 607–08.

Nevada provides a particularly clear example of this approach.[299] To implement the Legislature's 2017 statutory policy of expanding electric vehicle infrastructure, the same bill created an electric vehicle program that would be funded by the utilities and regulated by the PUC.[300] Importantly, the Nevada law did not give the state's utilities a blank check to spend customer money on electric vehicle initiatives and it did not override the PUC's ability to review utility investments for cost recovery.[301] Instead, the law permitted the utilities to "recover its reasonable and prudent costs . . . by seeking recovery in an appropriate proceeding before the Commission."[302]

The same approach could be applied in Idaho. Utility applications would still be analyzed and vetted by the Idaho PUC's professional staff of analysts, auditors, engineers, and customer representatives. The applications would also be subjected to scrutiny by sophisticated intervenors and available for comment by members of the public. The Commission would then weigh this input when deciding which, if any, applications and requests for cost recovery and rate design changes should be approved.

Contrary to some concerns,[303] allowing utilities to own and operate charging stations will not unduly interfere with the private development of charging stations because it is the absence of private development that this legal reform is intended to remedy. Private development of charging stations will be helped—not hindered—because utility participation in this space will accelerate electric vehicle adoption and help create the demand that will let private charging stations break even or be profitable much sooner than they would have otherwise. The Idaho PUC could slow or stop authorizing utility investments in charging stations entirely when electric vehicle adoption has become widespread enough to provide an economic environment for the private development of charging stations.

Importantly, this comment also recommends that the Idaho Legislature direct the Idaho PUC to favorably consider proposals to implement time-of-use volumetric rates for public electric vehicle charging stations, similar to what California has done. This will remove an artificial economic barrier that is preventing private business from investing in electric vehicle charging stations and lessen the need for utility investment.

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299. *Id.* at 592–93.

300. *Id.*; Nev. S.B. 145, 79th Leg. Sess., (Nev. 2017).

301. Nev. S.B. 145, 79th Leg. Sess., (Nev. 2017).

302. *Id.*

303. Klass, *supra* note 282, at 549–50.

VIII. CONCLUSION

Specific legal reform in Idaho that encourages utility and private business investments in electric vehicle charging infrastructure is critical to achieving the economic and climate benefits of transportation electrification. Those benefits will be smaller in scale and slower to arrive if charging infrastructure remains limited to interstates and urban areas. Modest legal reform that encourages electric utility ownership of and private investment in charging stations is necessary to give the rest of Idaho's residents—and the statewide economy—a chance to capitalize on the opportunity that Idaho's low electric rates and high gasoline prices create for electric vehicles.