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# WHITE PAPER SERIES

NO. 5

## White Paper Title:

**A Summary of Western Interconnection  
State Renewable and Clean Energy  
Standards – Application to Nuclear  
Generation Market Share**



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# NUCLEAR ENERGY RESEARCH CENTER WHITE PAPERS

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## SYNOPSIS

In recent years many states have adopted various renewable and clean energy portfolio standards, low carbon fuel standards and greenhouse gas emissions' limitations. These electric market regulatory restrictions impact the share of generation capacity available to various energy sources utilized in such states and, as a result, have an impact on electricity generated in and imported from other states. See *Importing Energy, Exporting Regulation*, James Coleman, Fordham Law Review, Volume 83 (2014) at 1359.

Nuclear resources currently face electric market share impediments resulting from state generation standards within the Western Interconnection (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). Current regulations in California, Nevada, New Mexico and Oregon will limit the electric market share available to nuclear resources in those states by 50% or more by the year 2040. While a significant portion of the western electricity markets remain available to nuclear generation, these market restrictions may impact new investments in nuclear generation capacity and require attention to the markets served by availability transmission markets. Furthermore, these policies have evolved significantly in recent years presenting a risk that the future electricity markets could be subject to further limitations. This may discourage optimal use of recently created tax credits designed to encourage nuclear generation within existing energy communities. Finally, the exclusion of nuclear generation from certain electricity markets may compound grid reliability concerns. Addressing these concerns may require policy makers and legislatures to evaluate whether to include non-carbon emitting nuclear resources within state energy standards.

## DISCUSSION - A SUMMARY OF STATE RENEWABLE AND CLEAN ENERGY STANDARDS IN THE WESTERN INTERCONNECTION: APPLICATION TO NUCLEAR GENERATION MARKET SHARE

### A. Introduction

Climate based market regulatory restrictions are, and increasingly will, have an impact on electricity generated in and imported from other states for use in the regulated state. See *Importing Energy, Exporting Regulation*, James Coleman, Fordham Law Review, Volume 83 (2014) at 1359. To mitigate greenhouse gas emissions, many states have recently adopted various renewable and clean energy portfolio standards, low carbon fuel standards and greenhouse gas emissions' limitations. These state electricity standards restrict the available electric generation capacity from various energy sources utilized within the state. Many of these regulations limit the amount of generation capacity available to electricity generated from nuclear energy resources by specifically requiring a certain amount of electricity to come from renewable energy sources. This paper analyzes the relative amount of electric generation capacity available to nuclear energy resources on the Western Interconnection by examining the current and various renewable and clean energy standards of the states on the Western Interconnection including: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

### B. Summary of Electricity Market Share Roughly Available to Nuclear Energy Resources

The following table summarizes the electricity market share roughly available to nuclear energy resources by 2025, 2030, and 2040, in the various Western Interconnection states. Many of the states studied provide exemptions or differentiate renewable energy and non-carbon emitting electric generation source requirements based on the size of utility, designation as a rural electric cooperative, or other small service provider designation. Therefore, this table provides an approximation only.

State	Available Market Share 2025	Available Market Share 2030	Available Market Share 2040
Arizona	85%	85%	85%
California	56%	40%	40%
Colorado	70%	70%	70%
Idaho	100%	100%	100%
Montana	100%	100%	100%
Nevada	66%	50%	50%
New Mexico	60%	50%	20%
Oregon	73%	65%	50%
(large utilities only)			
Utah	80%	80%	80%
Washington	85%	85%	85%
Wyoming	80%	80%	80%

## C. General Outlook - Electricity Market Regulation and Impact on Nuclear Generation

### i) Potential Barriers

The majority of Western Interconnection states have current renewable portfolio standards dictating that a certain amount of electricity utilized in such states must come from “renewable” energy resources. Most states do not consider nuclear energy to be “renewable” or otherwise a qualifying electricity to meet the portfolio requirement. See, e.g., Nev. Rev. Stat. § 704.7811(2) (2022) (“[renewable energy] does not include . . . nuclear energy”); Cal. Pub. Util. Code § 25741(a)(1) (2022) (creating a list of generation sources that may be used by a facility that is considered to be a “renewable electrical generation facility” and omitting nuclear energy from that list). These exclusions, whether explicit or implicit, limit the share of market available to nuclear energy to that remaining after excluding the portions reserved for a state’s preferred generation sources.

For some states, the percentage of the electric generation market from which nuclear energy will be restricted in the coming decades is substantial. In particular and under current laws and regulations, four states within the Western Interconnection will restrict the generation capacity market available to nuclear resources to fifty percent or less by 2040. See Cal. Pub. Util. Code § 399.15(b)(2)(B) (2022) (requiring “retail sellers” to supply sixty percent of retail electricity sales with “eligible renewable energy resources” by 2030); Nev. Rev. Stat. § 704.7821(1)(l), (9) (requiring fifty percent of electricity sold by “providers” to come from “portfolio energy systems” by 2030); N.M. Stat. Ann. § 62-16- 4(A) (2022) (requiring “public utilities” to use “renewable energy” to supply fifty percent of retail electricity sales by 2030 and eighty percent by

2040); and Or. Rev. Stat. § 469A.052(1)(h) (2022) (requiring fifty percent of electricity sold by “large electric utilities” to be “qualifying electricity” by 2040). Even more potentially problematic, these four restrictive states in the Western Interconnection contain a combined population close to fifty million people, whereas the combined population of the seven other states studied is less than thirty million. See *Explore Your State*, UNITED STATES CENSUS BUREAU, <https://data.census.gov/>. In fact, in 2019, these four more restrictive states accounted for over half of all electricity consumed by the eleven states studied. See *Electricity Consumption by State, 2019*, KANSAS INSTITUTE FOR POLICY AND SOCIAL RESEARCH, <https://ipsr.ku.edu/ksdata/ksah/energy/18ener7.pdf>.

## ii) Potential Opportunities and Incentives

While renewable energy requirements may negatively impact the total market share, nuclear energy resources may receive indirect support from states that have further adopted zero or reduced greenhouse gas and carbon dioxide emissions’ standards from electric generation sources. Nuclear energy is generally regarded as a “zero-emission clean energy source” as carbon dioxide and other greenhouse gases are not typically emitted during the nuclear fission reaction. See *3 Reasons Why Nuclear is Clean and Sustainable*, OFFICE OF NUCLEAR ENERGY (Mar. 31, 2021), <https://www.energy.gov/ne/articles/3-reasons-why-nuclear-clean-and-sustainable>. Under current laws and regulations, four states within the Western Interconnection may encourage nuclear generation to achieve their individual clean energy and non-carbon emitting goals. See Cal. Pub. Util. Code § 454.53(a) (West 2022) (stating the policy that the entire electricity market in California be renewable energy or zero-carbon emitting resources by the end of 2045); Colo. Rev. Stat. § 40-2-125.5 (requiring qualifying retail utilities in Colorado to provide electricity from one hundred percent clean energy resources by 2050); Or. Rev. Stat. § 469A.410(1) (requiring greenhouse gas emissions from retail electricity providers to be eliminated by 2040); and Wash. Rev. Code § 19.405.040 (requiring electric utilities to utilize one hundred percent “nonemitting electric generation” by December 31, 2044).

## D. State by State Overview of Clean and Renewable Energy Standards

The following provides a general overview of the renewable energy portfolio standards, clean energy standards and other electricity market regulations potentially impacting the generation capacity available to nuclear energy resources in the states within the Western Interconnection. This summary is intended to be a general overview ONLY, and, for brevity purposes, does not attempt to evaluate the various statutory and regulatory nuances and exemptions that may be available to utilities, electric cooperatives, or other small electricity service providers.

### i) Arizona

Arizona, unlike most states in the Western Interconnection, does not derive its renewable portfolio standard from a statute. Rather, Arizona leaves most regulation of utility companies to the Arizona Corporation Commission (“ACC”). See, Ariz. Const. art. XV, §§ 3, 4 and 19. The ACC is unlike most equivalent regulatory bodies in other states and has significantly more power and authority than those agencies. *State v. Tucson Gas, Elec. Light & Power Co.*, 138 P. 781, 783 (Ariz. 1914) (“no other state has given its Commission, by whatever name called, so extensive power and jurisdiction”). The ACC’s power is so unusual for a state regulatory agency that it is often referred to as its own branch of government. See *id.* at 786.

Arizona’s Renewable Energy Standard and Tariff, popularly referred to as “REST,” serves as the current renewable portfolio standard for the state and is solely created and administered by the ACC. See Ariz. Admin. Code § 14-2-1801-1816. REST applies to “affected utilities.” See Ariz. Admin. Code § 14-2-1804(A) (2022). According to Ariz. Admin. Code § 14-2-1801(A) (2022), “‘Affected Utility’ means a public service corporation serving retail electric load in Arizona, but excluding any Utility Distribution Company with more than half of its customers located outside of Arizona.”

Under REST, a “renewable energy resource” is defined as “an energy resource that is replaced rapidly by a natural, ongoing process and that is *not nuclear or fossil fuel.*” *Id.* § 14-2-1801(O) (emphasis added). Electricity produced with nuclear energy is thus a conventional energy resource and cannot be used to comply with REST’s requirements for “eligible renewable energy resources.” See *id.* § 14-2-1801(C). In particular and under REST, investor-owned utilities are required, from 2006 to 2025, to annually increase the percentage of electricity they supply from eligible renewable energy resources to fifteen percent by

2025. See Ariz. Admin. Code § 14-2-1804(B). Cooperatives are provided with separate REST requirements requiring them to submit their own implementation plans for the use of renewable energy resources subject to ACC approval. See Ariz. Admin. Code §§ 14-2-1804 and 14-2-1814.

However, new rules that were proposed in 2021 contemplate a complete overhaul of Arizona's renewable portfolio standard beginning with REST's repeal. See 27 Ariz. Admin. Reg. 957, 964 (July 2, 2021). Should the new rules be adopted, REST would then be replaced with a new set of rules collectively referred to as "Energy Rules." *Id.* at 994. The newly proposed energy requirements would require a utility to reduce its carbon emissions by one-hundred percent by the year 2070, using "clean energy resources" to displace carbon. *Id.* at 998. Should the new rules be adopted, the use of nuclear energy would be incentivized as a clean energy resource.

In addition, and despite the current requirements of REST, three of Arizona's largest electric providers have already committed to provide significantly higher amounts of their electricity from clean energy resources. See *Arizona Electric Utilities Voluntarily Commit to 100% Clean Energy*, ARIZONA CORPORATION COMMISSION (Jan. 26, 2020), <https://www.azcc.gov/news/2022/01/27/arizona-electric-utilities-voluntarily-commit-to-100-clean-energy>. Arizona Public Service Company plans to shut down all coal-fired plants by 2031 and supply its customers with one hundred percent clean energy by 2050. *Id.* Tucson Electric Power plans to provide seventy percent of its electricity from renewable energy resources by 2035. *Id.* Salt River Project plans to shut down several coal-fired plants, which the utility believes will reduce carbon emissions by ninety percent from 2005 levels by 2050. *Id.* Arizona Public Service Company and Salt River Project's plans do not appear to be limited to renewable energy resources and thus may be favorable to nuclear generation.

Overall, Arizona appears to be on a path incentivizing nuclear energy resources by crafting strong guidelines to reduce the current carbon footprint while potentially providing flexibility in energy generation source under the new proposed rules. Under current rules, roughly 85% of Arizona's electric generation capacity appears open to nuclear energy sources.

## ii) California

California first enacted its Renewables Portfolio Standard Program ("RPS") in 2002, and made significant updates most recently in 2018. See S. 1078, 2002 Reg. Sess. (Cal. 2002); S. 100, 2018 Reg. Sess. (Cal. 2018). The RPS requires utilities to supply minimum amounts of electricity from "eligible renewable energy resources." Cal. Pub. Util. Code § 399.15(a) (West 2022). Cal. Pub. Util. Code § 399.12(e) (West 2022) states that an "eligible renewable energy resource" means an electrical generating facility that satisfies the definition of a "renewable electrical generation facility" found in Cal. Pub. Res. Code § 25741 (West 2022). The list of resources that may be used by a "renewable electrical generation facility" appears to be exclusive and does not include nuclear energy. See § 25741(a)(1). Therefore, nuclear energy is not considered an eligible renewable energy resource under the RPS. See *id.*

Cal. Pub. Util. Code § § 399.15 establishes the requirements for retail sellers under California's RPS. It establishes a three-year compliance period for sellers to sell specific amounts of electricity from eligible renewable energy resources, beginning in 2011 and ending in 2030 as follows: "25 percent of retail sales by December 31, 2016, 33 percent by December 31, 2020, 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030."

In addition to California's current RPS, S. 100, 2018 Reg. Sess. (Cal. 2018) also added a clean energy goal for California. The goal states that it is the policy of California that renewable energy resources and zero-carbon resources, supply the entire electricity market in California by the end of 2045. Cal. Pub. Util. Code § 454.53(a) (West 2022). However, no statutes or regulations currently provide for further enforcement of this goal.

Overall, California's current renewable energy portfolio standards are somewhat restrictive towards nuclear energy. Under current rules, only roughly 40% of California's electric generation capacity appears open to nuclear sources by the year 2030.



### iii) Colorado

Colorado enacted its standard for renewable energy by ballot initiative in 2004. COLORADO SECRETARY OF STATE, OFFICIAL PUBLICATION OF THE ABSTRACT OF VOTES CAST FOR THE 2003 COORDINATED, 2004 PRIMARY, 2004 GENERAL 139-40 (2004). Under Colorado's renewable energy standard, by 2020 investor-owned utilities are required to supply thirty percent of their retail electricity sales from eligible energy resources. See Colo. Rev. Stat. § 40-2-124(1)(c)(I)(E). The standards each require that various market shares be dedicated to "eligible energy resources." See Colo. Rev. Stat. § 40-2-124. Importantly, nuclear energy is specifically precluded from being considered an eligible energy resource under the statutory definition. See *id.* Therefore, any market share reserved for eligible energy resources will not be available to nuclear energy. See *id.*

Colorado has separate requirements focused on eliminating carbon dioxide emissions that apply more generally than the utility-specific renewable energy standards ("zero carbon standard"). See Colo. Rev. Stat. § 40-2-125.5 (2022). These requirements apply to "qualifying retail utilities," which are specifically defined in the context of this standard to be retail utilities that provide service to more than five hundred thousand customers within the state. Colo. Rev. Stat. § 40-2-125.5(2)(c)(I). Instead of "eligible energy resources," the zero-carbon standard requires "clean energy resources," which are defined as including all "eligible energy resources" falling within the definition of Colo. Rev. Stat. § 40-2-124(1)(a), as well as "any electricity-generating technology that generates or stores electricity without emitting carbon dioxide into the atmosphere." See Colo. Rev. Stat. § 40-2-125.5(2)(b). Accordingly, nuclear energy appears to fall within this additional zero carbon standard. The zero-carbon standard first requires qualifying electric utilities, by 2030, to reduce their carbon dioxide emissions by eighty percent from their levels in 2005. See Colo. Rev. Stat. § 40-2-125.5(3)(a)(I). By 2050 and as soon as practicable, qualifying retail utilities are to provide electricity from one hundred percent clean energy resources, but only under the following three conditions: 1) doing so is economically and technically feasible; 2) doing so is in the public interest; and 3) doing so is otherwise consistent with the other requirements of Colo. Rev. Stat. § 40-2-125.5. See *id.* § 40-2-125.5(3)(a)(II).

Overall, Colorado's current renewable energy standards are somewhat restrictive towards nuclear energy. Under current rules, only roughly 70% of Colorado's electric generation capacity appears open to nuclear sources.

### iv) Idaho

Unlike many of its western neighbors, Idaho does not have a renewable portfolio standard, a clean energy standard, or conditional goals that manipulate electricity market shares for various energy resources. Idaho also does not have any goals in place to eliminate electricity generated from carbon emitting sources by a target year. Despite lacking formal grid restrictions and renewable energy generation standards, other existing energy policies could still impact Idaho's energy market. Title 67, Chapter 89 of the Idaho Code, which creates the Idaho Energy Resources Authority, states in its Declaration of Necessity and Purpose that it "is in the best interest of the state of Idaho and its people to encourage and promote the development of renewable energy resources in order to develop sustainable sources of energy supply, reduce inefficiencies in the use of electric energy and enhance the long-term stability of the energy resources and requirements of the state." Idaho Code § 67-8902(1)(g) (2022).

Idaho also has at least one statute that seems to protect potential nuclear energy generation sources. Idaho Code Ann. § 39-3027 (2022) prevents the legislature from prohibiting the use of nuclear energy to generate electricity without first submitting the issue to Idaho's electorate. Despite the protection nuclear energy receives from this statute, its effect is diminished by the fact that the electorate's response to such a submission from the legislature is merely "advisory" and does not prevent the legislature from acting to the contrary once the electorate's response has been received. See *id.*

Currently, 100% of the electric generation capacity in Idaho appears open to the use and generation from such resources.

## v) Montana

Formerly, Montana had a Renewable Portfolio Standard (“RPS”) that required specific shares of its energy market to be reserved for renewable energy. See Mont. Code Ann. § 69-3-1004 (2005). The RPS was recently repealed, an action that could bring significant changes to the state’s energy market. See H.R. 576, 67th Leg., 2021 Sess. (Mont. 2021). When in place, the RPS required public utilities to gradually increase their percentages of retail sales coming from “eligible renewable resources,” with the final increase in 2015, when such utilities were required to supply fifteen percent of their retail sales of electricity from such resources. Mont. Code Ann. § 69-3-1004(2)-(4) (2005). The RPS required the fifteen percent share to continue to remain in place in the years after 2015. *Id.* In eliminating its RPS rather than adding even more stringent requirements, as many states have done in recent years, Montana legislators stated that the repeal was about “correcting bad policy” and that the RPS imposed undue hardship on public utilities. Kayla Desroches, *Montana Legislators Look At New Renewable Energy Technologies, Carbon Bills*, YELLOWSTONE PUBLIC RADIO (Mar. 21, 2021, 1:27 PM), <https://www.ypradio.org/montana-2021-legislature/2021-03-12/montana-legislators-look-at-new-renewable-energy-technologies-carbon-bills>. In the wake of Montana’s repeal of its RPS, nuclear energy generation does not face the same market restrictions seen in other states.

## vi) Nevada

Nevada originally established its Renewable Portfolio Standard (“RPS”) in 1997, and made significant amendments in 2019. See S. 358, 80th Sess. (Nev. 2019); *State Renewable Portfolio Standards and Goals*, NATIONAL CONFERENCE OF STATE LEGISLATURES (Aug. 13, 2021), <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>. With limited exceptions, Nevada prefers for its RPS to be implemented through energy sources that fall within the definition of renewable energy resources. See Nev. Rev. Stat. § 704.7815. “Renewable energy” is defined by a list of acceptable resources under Nev. Rev. Stat. § 704.7811 (2022), expressly excludes nuclear energy. See Nev. Rev. Stat. § 704.7811(2). The current version of the statute requires a gradual increase every three years in energy generated from portfolio energy systems or efficiency measures. See Nev. Rev. Stat. § 704.7821(1). The final increase is to occur in 2030, when at least fifty percent of electricity sold by a provider must come from such renewable energy sources. See Nev. Rev. Stat. § 704.7821(1)(l).

In addition to Nevada’s RPS, the legislature has declared its intent to eliminate carbon dioxide emissions altogether by 2050. See Nev. Rev. Stat. § 704.7820(2). The legislature has not defined what resources it considers to be zero-carbon; however, it is presumed that nuclear would be considered a zero-carbon electric generating source. Presuming that this share remains available to nuclear energy, it would have access to roughly fifty percent of Nevada’s retail electricity market by the year 2030.

## vii) New Mexico

In 2019, New Mexico passed new legislation outlining the state’s transition to clean energy, broadly referred to broadly as the Energy Transition Act. 2019 N.M. Laws 65; N.M. Stat. Ann. § 62-18-1 (2022). While New Mexico previously had renewable portfolio standards in place, the 2019 legislation drastically increased the state’s commitment to renewable energy. See 2019 N.M. Laws 65.

The renewable portfolio standards for public utilities requires certain amounts of the utility’s generation capacity to come from “renewable energy” sources. See N.M. Stat. Ann. § 16-6-4(A). Specifically, beginning in 2015 and continuing every five years thereafter until 2040, public utilities are required to provide gradually increasing percentages of total retail electricity sales from renewable energy. See N.M. Stat. Ann. § 62-16-4(A)(1)-(5) (requiring forty percent renewables by 2025, fifty percent renewables by 2030, and eighty percent renewables by 2040). “Renewable energy resources” is defined to be solar, wind, geothermal, hydropower, biomass resources, fuel cells that do not use fossil fuels to create electricity, and landfill gas and anaerobically digested waste biogas. See N.M. Stat. Ann. § 62-16-3(H). Nuclear resources are omitted from the list and appear to be excluded from renewable energy resources. As additional support for this conclusion, and, although it applies in a different context (integrated resource plans for electric utilities), N.M. Admin. Code 17.7.3.7 expressly states that “renewable energy does not include . . . nuclear energy.” In addition, the renewable portfolio standards further provide that, by 2045, retail electricity sales must be supplied entirely with zero carbon resources. See N.M. Stat. Ann. § 62-16-4(A)(6). Therefore, and by 2040, electricity produced by renewable energy resources must make up eighty percent of this generation market,



and all other energy resources will be confined to the remaining twenty percent. See N.M. Stat. Ann. § 62-16-4(A)(5). Under the act, rural electric cooperatives are given the target, rather than a requirement (as is the case for public utilities), of supplying electricity exclusively from zero carbon resources by 2050 with eighty percent renewable energy market shares by 2040. See N.M. Stat. Ann. § 62-15-34.

Overall, New Mexico's current renewable energy portfolio standards pose significant challenges to nuclear generation sources. Under current rules, only roughly 20% of New Mexico's electric generation capacity appears open to nuclear sources by the year 2040.

### viii) Oregon

Oregon's Renewable Portfolio Standard ("RPS") was first passed by the state legislature in 2007. See S. 838, 74th Leg., Reg. Sess. (Or. 2007). In 2021, Oregon added Clean Energy Targets in addition to the RPS. See H.R. 2021, 81st Leg., Reg. Sess. (Or. 2021). Subject to limited exceptions, Oregon generally requires electricity used to comply with the RPS to come from "renewable energy resources." See Or. Rev. Stat. § 469A.025 (2022). Wind energy, solar power, geothermal energy, as well as wave, tidal, and ocean thermal energy are all considered "renewable energy resources." See *id.* Or. Rev. Stat. § 469.025(1). In addition, Or. Rev. Stat. § 469A.025(9) allows the Oregon Department of Energy to approve additional energy sources that may comply with the RPS provided that such resources do not include "petroleum, natural gas, coal or nuclear fission . . ."

Under the renewable portfolio standards' statute, large utilities are required to gradually increase the percentage of qualifying electricity they sell from 2011 to 2040 to come from renewable energy resources (22% in 2022, 27% by 2025, 35% by 2030, 45% by 2035, and 50% by 2040). See Or. Rev. Stat. § 469A.052(1) (e)-(h). Small utilities and electricity service suppliers are subject to separate standards. See Or. Rev. Stat. §§ 469.055 and 469A.065. However, Or. Rev. Stat. § 469A.180 (2022) and Or. Rev. Stat. § 469A.185 (2022) each provide opportunities and requirements for electric utilities to make "alternative compliance payments" in lieu of supplying their customers with qualifying electricity. Overall, the RPS for electric utilities and electricity service suppliers seeks to create anywhere from a twenty-five to a fifty percent market share for qualifying renewable energy electricity resources which excludes nuclear resources. See Or. Rev. Stat. § 469A.052.

In addition to its RPS, Oregon has enacted a Clean Energy Target. See Or. Rev. Stat. § 469A.410 (2022). This target requires "retail electricity providers" to gradually reduce greenhouse gas emissions. See *id.* The Clean Energy Targets require retail electricity providers to reduce their greenhouse gas emissions from the companies' 2010 to 2012 "baseline emissions levels" (80% below baseline by 2030, 90% below baseline by 2035 and 100% below baseline emissions' level by 2040). See Or. Rev. Stat. § 469A.410(1).

Oregon's current renewable energy portfolio standards are somewhat restrictive towards nuclear energy. Under current rules and based on classifications as a large electric utility or an electricity service supplier, only roughly between 50% and 75% of Oregon's electric generation capacity appears open to nuclear sources by the year 2040. However, the zero greenhouse gas emissions' requirements by the year 2040 may encourage use of nuclear resources for the remaining share of the electricity market.

### ix) Utah

Utah's plan for renewable energy is unique in that, unlike most states, Utah's plan is widely understood as a goal rather than a standard or mandate. See, e.g., Joshua P. Fershee, *Moving Power Forward: Creating a Forward-Looking Energy Policy Based on a National RPS*, 42 CONN. L. REV. 1405, 1416 (2010); *Renewable Portfolio Goal*, DSIRE (July 3, 2018) <https://programs.dsireusa.org/system/program/detail/2901>; *State Renewable Portfolio Standards and Goals*, NATIONAL CONFERENCE OF STATE LEGISLATURES (Aug. 13, 2021), <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>. Utah's renewable energy goal ("REG") seeks for "electrical corporations" to supply their customers with at least twenty percent of its retail electric sales from "qualifying electricity" that includes "renewable energy sources" by 2025. See Utah Code Ann. §§ 54-17-602(1)(a) and 54-17-602(1)(a). "Renewable energy source" is defined by § 54-17-601(10) as a generation facility or upgrade that becomes operational in 1995 or after and derives its energy from a list of preferred resources. Nuclear energy, although referred to in other definitions, is not included in this long list of "renewable energy sources," and thus would seemingly not be considered a renewable energy source. Compare § 54-17-601(8) (including nuclear in the definition of "qualifying zero carbon emissions

generation”), with § 54-17-601(10) (omitting nuclear energy from the definition of “renewable energy sources”). This goal, however, is only to be pursued to the extent that it is “cost effective.” See Utah Code Ann. § 54-17-602(1)(a).

Utah has further provided an optional and alternative route to aggressive implementation of renewable energy resources with the Community Renewable Energy Act. See Utah Code Ann. § 54-17-903 (2022). This act provides municipalities and counties with an option to provide participating customers with a choice pay appropriate rates for one-hundred percent renewable energy electricity by 2030. See *id.* If the Public Service Commission approves the plan, a qualified utility must allow customers to opt-in or opt-out thereby shaping the given renewable energy market share for the particular municipality or county by the percentage of customers opting into the plan. See Utah Code Ann. § 54-17-905 (2022).

Overall, Utah currently has relatively few enforceable market restrictions on nuclear resources. At least 80% of the electric market appears open to such resources. However, access to electric markets may be significantly limited in municipalities and counties developing and implementing plans under the Community Renewable Energy Act.

### x) Washington

Washington enacted the Energy Transition Act, which contains the state’s Renewable Portfolio Standard (“RPS”), by ballot initiative in 2006. See 2007 Wash. Legis. Serv. Ch. 1 (I.M. 937) (West). The legislation took effect the following year in 2007. See *id.* The RPS begins with an expression of intent to require “utilities to obtain fifteen percent of their electricity from new renewable resources such as solar and wind by 2020 and undertake cost-effective energy conservation.” Wash. Rev. Code § 19.285.010 (2022). Specifically, “eligible renewable resources” are defined to include water, wind, solar, geothermal, landfill gas, tidal power, gas from sewage treatment facilities, biodiesel fuel and biomass energy. See Wash. Rev. Code § 19.285.030(21) (2022). This list appears to be exclusive as far as what may be considered a “renewable resource” and does not include nuclear energy. See *id.*

To complement its RPS, Washington more recently passed the Clean Energy Transformation Act in 2019. See S. 5116, 66th Leg., Reg. Sess. (Wash. 2019). Under Wash. Rev. Code §§ 19.405.030(1)(a) and 19.405.040, “electric utilities” are required to eliminate “coal-fired resources” from their “allocation of electricity” by December 31, 2025 and are required to provide electricity from “renewable resources” and “nonemitting electric generation” in “an amount equal to one hundred percent of the utility’s retail electric loads over each multiyear compliance period” by December 31, 2044. “Nonemitting electric generation” is generation from sources other than renewable resources that does not emit greenhouse gases when generating electricity and presumably includes nuclear energy resources. See Wash. Rev. Code § 19.405.020(28).

Finally, Senate Bill 5985, S. 5985, 67th Leg., Reg. Sess. (Wash 2022), would create a complete change in direction for Washington’s electric utility laws if passed. The bill would repeal the RPS and the Clean Energy Transformation Act, as well as several other laws governing electric utilities in Washington finding that Washington’s current energy laws “will create intolerable economic burdens for Washingtonians in the form of increased prices for electricity, natural gas, gasoline, housing, and a variety of other goods and services that people use every day.” See *id.* If passed, the bill would deregulate Washington’s electricity market altogether and result in free competition amongst electricity generation sources.

Overall and under current rules, roughly 85% of Washington’s electric generation capacity appears to be open to nuclear energy sources. Nuclear resources may be further encouraged by the zero greenhouse gas emissions’ requirements by the year 2044.

### xi) Wyoming

Unlike most of its neighbors in the Western Interconnection, Wyoming has yet to adopt a Renewable Portfolio Standard (“RPS”) or a Clean Energy Standard (“CES”). See *Wyoming State Profile and Energy Estimates*, UNITED STATES ENERGY INFORMATION ADMINISTRATION, <https://www.eia.gov/state/analysis.php?sid=WY>. Instead, and with little precedent from surrounding states, in 2020 the Wyoming legislature passed the Energy Generation Portfolio Standard focused on low carbon electricity that is generated while using “carbon capture, utilization and storage technology . . .” See Wyo. Stat. Ann. §§ 37-18-101(a) (iii) and 37-18-102 (2022). The standards of Wyo. Stat. § 37-18-102 apply only to “public utilities,” and

do not apply to utilities owned by municipalities or “cooperative electrical generation and transmission association[s] operating in interstate commerce whose rates are not regulated by the Wyoming public service commission.” See Wyo. Stat. Ann. § 37-1-101(a)(vi)(N) (2022). At the legislation’s heart and under current public service commission rules, at least twenty percent of such a regulated utility’s electricity must be generated from sources utilizing CCUS facilities by March 31, 2024 unless the utility can establish by clear and convincing evidence that such a percentage isn’t economically or technically feasible. See Wyo. Code R. 023-0002-3 § 38(c)(i)(C).

Overall and based on the Energy Generation Portfolio Standard, roughly 80% of Wyoming’s electric generation capacity appears to be open to nuclear energy sources. Because nuclear energy resources do not typically emit carbon dioxide that could be captured and injected underground, nuclear resources could not meet the 20% of the market reserved for generation sources utilizing CCUS.

## **CONCLUSION**

Most states in the Western Interconnection limit the electricity market share available to nuclear resources by their renewable energy portfolio standards which require that a certain percentage of electricity generation come from renewable energy resources. Under current regulations, the states of California, Nevada, New Mexico and Oregon limit the electric market share available to nuclear resources by 50% or more by the year 2040. Accordingly, the available market for Wyoming nuclear electricity exports is likely to be restricted based on policies developed in other states. Uncertainty regarding the possibility of future restrictions may create additional hurdles for project developers.

Electricity market restrictions may further create grid scale reliability concerns and may create distortions in wholesale electricity markets. In light of recent safety and reliability advancements of advanced nuclear reactor designs, legislatures and policy makers may be wise to evaluate expanding preferred generation resources to include nuclear energy in state clean and renewable energy standards, thereby removing the potential market impediments.