Simone Anter

Attached, please find Columbia Riverkeeper, Friends of the White Salmon, and Sierra Club's comments* on the scope of the EIS for the Goldendale Project.

*Note: Appendix 4: The Native American Graves Protection and Repatriation Act has been loaded as a separate comment due to file size limits.

February 12, 2021

Sage Park
Washington Department of Ecology
1250 West Alder Street
Union Gap, WA 98903-0009
Attn: Goldendale Scoping

Submitted via email to: sage.park@ecy.wa.gov.

RE: SEPA Scoping Comments on the Proposed Goldendale Pumped Storage Project, FERC Docket No. P-14861-002.

Dear Washington Department of Ecology,

On January 14, 2021, the Washington Department of Ecology (Ecology), announced its intent to prepare an Environmental Impact Statement (EIS) on the proposed Goldendale Energy Storage Hydroelectric Project (Project), pursuant to the State Environmental Policy Act (SEPA). *See generally* RCW 43.21C. Columbia Riverkeeper, the Washington Chapter of the Sierra Club, Friends of the White Salmon and Washington Environmental Council (collectively, "Commenters") commend and appreciate Ecology's Determination of Significance for the Project. The following comments are submitted on behalf of Commenters to help Ecology identify issues that must be addressed during the environmental review process. Ecology's EIS must thoroughly document and explain the human health risks and environmental impacts posed by the Project. Ultimately, Ecology may and should deny Rye Developments (Rye) pending applications based on Ecology's substantive SEPA authority. *See* WAC 197-11-660.

I. Statement of Interest and Background on the Goldendale Pumped Storage Project.

Columbia Riverkeeper (Riverkeeper) is a 501(c)(3) non-profit organization whose mission is to protect and restore the water quality of the Columbia River and all life connected to it from the headwaters to the Pacific Ocean. The organization's strategy for protecting the Columbia River and its tributaries includes working in river communities and enforcing laws that protect public health, salmon, and other fish and wildlife. Riverkeeper has been actively engaged

in Rye, dba Free Flow Power 101, LLC's proposed Project since 2017 and closely followed other pumped storage projects proposed in this area, the most recent iteration rejected by FERC in 2016. *See* Public Utility District No.1 of Klickitat County, Washington & Clean Power Development, LLC, 155 F.E.R.C. ¶ 61,056 (2016).

The Washington State Chapter of the Sierra Club is a 501(c)(4) non-profit organization with over 100,000 members and supporters in Washington State and over 3.8 million nationally. Headquartered in Seattle, the Washington State Chapter members and supporters live throughout the state of Washington. The Sierra Club works to protect communities and the planet.

Friends of the White Salmon River is a non-profit 501(c)(3) organization that has worked since 1976 to protect and restore naturally-reproducing anadromous fish populations, and to protect the shorelines, water resources, and habitat areas that affect wild salmonid populations within Klickitat County. Friends of the White Salmon River has an interest in protecting and conserving water resources affecting wild salmonid populations.

Washington Environmental Council (WEC) is a nonprofit, statewide advocacy organization that has been driving positive change to solve Washington's most critical environmental challenges since 1967. WEC's mission is to protect, restore, and sustain Washington's environment for all. Commenters appreciate the opportunity to provide these comments and supporting materials, including the Appendices with this letter.

Rye proposes the Northwest's largest pumped storage hydroelectric project along the Columbia River in Klickitat County, Washington, near the John Day Dam, with transmission facilities extending into Sherman County, Oregon. The project would occupy 18.1 acres of land with a portion of the Project within an existing transmission right-of-way owned by the U.S. Army Corps of Engineers and administered by Bonneville Power Administration. The Project includes an off-stream, pumped-storage complex with: (1) a 61-acre upper reservoir formed by a 175-foot-high, 8,000-foot-long rockfill embankment dam at an elevation of 2,950 feet mean sea level (MSL) with a vertical concrete intake-outlet structure; and (2) a 63-acre lower reservoir formed by a 205-foot-high, 6,100-foot-long embankment at an elevation of 590 feet MSL with a horizontal concrete intake-outlet structure and vertical steel slide gates. *See* Scoping Document at 6. According to Rye, the Project consists of over 2,400 feet of maximum gross head that involve no river or stream impoundments, allowing for relatively small water conveyances. Other features include an underground water conveyance tunnel, underground powerhouse, 115 and 500 kilovolt transmission line(s), a substation/switchyard, and other appurtenant facilities. Goldendale Pumped Storage Project CWA 401 Certification Application at 1 (June 23, 2020).

Rye would site the Project's lower reservoir on lands that previously housed the CGA smelter (also known as Harvey Aluminum, Martin Marietta Aluminum, Commonwealth

Aluminum, or Goldendale Aluminum), now a Resource Conservation and Recovery Act (RCRA) contaminated site, which include contaminated lands and groundwater. *Id*. at 2. The Project is expected to require 9,000 acre feet of Columbia River water for the initial fill and an additional 390 acre feet per year to offset evaporative losses. Goldendale Energy Storage Final FERC License Application, FERC Project No. 14862 (FLA) at 14.[1]

The Project threatens irreplaceable tribal cultural and religious resources, water quality, fish, and wildlife. The Project would permanently destroy large segments of unique waterbodies, including "waters of the United States," in the scenic Columbia Hills and cause downstream impacts to perennial waterbodies. *See* Columbia Riverkeeper et. al, Public Comments on Free Flow Power 101, LLC Goldendale Pumped Storage Project Clean Water Act 401 Water Quality Certification, (Nov. 9, 2020). The Project requires withdrawing millions of gallons of Columbia River water, threatening designated uses and impacting water quality in an already degraded river. *Id.* Tribal, federal, and state fish and wildlife agencies have raised significant concerns about the Project's impacts on water quality, fish, and wildlife. *Id.* All of these issues, discussed in greater detail below, must be addressed in Ecology's EIS.

Like many people in the Pacific Northwest and nationally, Commenters are deeply concerned about a decision that will authorize the construction of a Project with such detrimental and unavoidable environmental justice concerns. At a time when our nation is supposedly reconciling with its deeply ingrained systemic racism, pushing forward an alleged "green-energy" project of this magnitude that will obliterate tribal cultural and religious resources; hinder, if not prohibit, tribal access; and continue the nation's pattern of deep disregard for tribal cultural resources, is unacceptable. As the state of Washington sets de-carbonization goals, projects with such blatant disregard for environmental justice cannot be allowed a fast track through the licensing process. Green energy cannot be built on the backs of tribal nations.

II. Washington's State Environmental Policy Act

In adopting the State Environmental Policy Act, the Washington State Legislature declared the protection of the environment to be a core state priority. RCW 43.21C.010. SEPA declares that "[t]he legislature recognizes that each person has a fundamental and inalienable right to a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment." RCW 43.21C.020(3). This policy statement, which is stronger than a similar statement in the federal counterpart of NEPA, "indicates in the

[1] The numbers in Rye's FLA are higher than those in FERC's Scoping Document, which read: "The initial fill would require 7,640 acre-feet of water and would be completed in about six months at an average flow rate of approximately 21 cubic feet per second (cfs) (maximum flow rate available is 35 cfs). It is estimated that the project would need 360 acre-feet of water each year to replenish water lost through evaporation." Scoping Document 1 for the Goldendale Pumped Storage Project, FERC Project No. P-14861-002, at 7 (Oct. 29, 2020).

strongest possible terms the basic importance of environmental concerns to the people of the state." *Leschi v. Highway Comm'n,* 84 Wn.2d 271, 279-80 (1974).

At the heart of SEPA is a requirement to fully analyze the environmental impact of projects that have a significant impact on the environment. RCW 43.21C.031(1). An EIS is required for any action that has a significant effect on the quality of the environment. WAC 197-11-330. Significance means a "reasonable likelihood of more than a moderate adverse impact on environmental quality." WAC 197-11-794. The purpose of this analysis is not to generate paperwork. Rather, the EIS allows decision-makers to make judgments based on a fully informed appreciation for the environmental impacts of decisions, the available alternatives, and any mitigation that may be appropriate. To facilitate reasoned decision-making, an EIS must include and evaluate "reasonable alternatives" to the proposed action, including a "no-action" alternative. WAC 197-11-440(5). To fully capture a project's impacts, EISs must examine the direct, indirect, and cumulative impacts of projects. WAC 197-11-792(c); WAC 197-11-060(4)(d).

SEPA regulations also explicitly direct that environmental impacts outside the jurisdiction of the deciding agency should be considered. WAC 197-11-060(c). Crucially, agencies are required to assess both the direct impacts of the proposal as well as the indirect impacts. WAC 197-11-060(4)(d). For example, when considering a government action, a SEPA document must also consider the effects of private growth that may be encouraged by this government action. *Id.*; *Cheney v. City of Mountlake Terrace,* 87 Wn.2d 338, 344 (1976) (SEPA requires that decision makers consider more than the "narrow, limited environmental impact" of the current proposal…agency "cannot close its eyes to the ultimate probable environmental consequences" of its current action).

III. Scope of the Project's EIS

A. The EIS Must Define the Proper Purpose and Need for the Project and Consider an Appropriate Range of Alternatives.

The consideration of alternatives is the heart of the environmental review process. It is through the identification of reasonable alternatives, the examination of the environmental impacts that will result under each alternative, and the comparison of those impacts, that the agency and the public can fully understand the impacts of a proposed project. "SEPA requires that 'alternatives to the proposed action' be included in the EIS." *Citizens for Safe & Legal Trails v. King County*, Wash. App. LEXIS 2092, *20 (2003). RCW 43.21C.030(c)(iii). Additionally, "an EIS must provide sufficient information to allow officials to make a reasoned choice among alternatives." *Citizens for Safe & Legal Trails,* Wash. App. (2003), *Solid Waste Alternative Proponents v. Okanogan County*, 66 Wn. App. 439, 442, 832 P.2d 503 (1992); *see also* WAC 197-11-440(5). Courts have gone as far to say that, "SEPA is essentially a procedural statute to ensure that environmental impacts and alternatives are properly considered by the decision makers." *Save Our Rural Env't v. Snohomish Cy.,* 99 Wn.2d 363, 371, 662 P.2d 816 (1983). As such, an agency may not undermine this process by defining a project's purpose so narrowly as to preclude consideration of reasonable alternatives. *Cf. Muckleshoot Indian Tribe v.*

U.S. Forest Service, 177 F.3d 800, 814 n.7 (9th Cir. 1999)(discussing defining a project's purpose under NEPA.).

"SEPA borrows heavily from NEPA" and reference to NEPA analysis is appropriate when construing SEPA's requirements." *Coalition for a Sustainable 520 v. United States DOT*, 881 F. Supp. 2d 1243, 1259 (2012). *See also Eastlake Cmty. v. Roanoke Assocs,* 82 Wn.2d 475, 488 n. 5, 513 P.2d 36 (1973). In explaining the purpose and need and reasonable alternatives that Ecology's EIS must address, Commenter's analysis draws on some NEPA analysis and case law, which are relevant to explaining the SEPA requirements.

1. The Purpose and Need.

The first step in the SEPA process, is for the agency to "make certain that the proposal that is the subject of environmental review is properly defined." WAC 197-11-060(3)(a).

According to Rye, the purpose of and need for this Project, or the Project's objective, is to assist Washington, Oregon, and California in meeting their "carbon reduction and environmental policy goals," and specifically Washington's goal of ensuring that "all of its electricity come from carbon-free sources by midcentury." FLA at 2. Stated differently, Rye's goal, and thus the "underlying purpose and need" for the project, is to "facilitate the transition to Washington's clean energy future." *Id*. at 3. Ecology must assess all reasonable alternatives that will support this goal. To do less would be to artificially restrict the purpose and need for this project to no other end than to prevent the consideration of reasonable alternatives.

Arguably, this project is limited to the development of "utility-scale storage to solve the operational challenges of integration." *Id.* at 2. If Ecology accepts this more limited purpose and need for this project, it must conduct an corresponding alternative analysis. Indeed, Rye admits that there are other "viable, least-cost energy storage options available," in addition to its preferred pumped storage technology. *Id*. "Proposals should be described in ways that encourage considering and comparing alternatives. Agencies are encouraged to describe public or nonproject proposals in terms of objectives rather than preferred solutions." WAC 197-11-060(3)(a)(iii). Ecology is thus obligated to identify these alternatives and explore the relative environmental impacts of implementing these technologies to meet Washington's goal of moving to all renewable electricity generation.

2. Reasonable Alternatives.

Under SEPA, the EIS must contain a detailed discussion of alternatives to the proposed action. RCW 43.21C.030(2)(c)(iii). Alternatives that the EIS must consider are, "actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation. WAC 197.11.440(5)(b), *OPAL v. Adams County*,

128 Wn.2d 869, 875 (Sup. Ct. Wa.1996). However, the number of alternatives must be reasonable. *Id*. *See also City of Mukilteo v. Snohomish County*, 2017 Wash. App. LEXIS 129 *1, *24 (2017) (using this definition to describe a reasonable alternative.).

First, as required by the law and to establish the baseline against which any environmental impact of any specific alternative can be compared, Ecology must consider a no action alternative. Next, given Rye's broadly stated project goal, Ecology must consider alternatives that look well beyond the four corners of this specific project, to include alternatives that ensure Washington can meet its energy generation goals and to explore alternatives for utility-scale storage. In any case, Ecology must identify and analyze reasonable alternatives to the specific proposed project. This analysis must examine alternative locations for this project and alternative designs at the chosen site.

i. No Action Alternative.

Ecology must define and explain impacts of not licensing this project, or any project, at this location, this the no action alternative. The no action alternative must be compared to the other alternatives. WAC 197-11-440(5). This description of the impacts of various alternatives, and the comparative analysis allowed by the development of such information, is the true benefit of the SEPA process. To be meaningful the SEPA document must include the information necessary to allow a thorough and objective assessment of the alternatives. To this end, the identification and review of a no action alternative is essential. Indeed, the no action alternative acts as the starting point for the comparison of the impacts, be they beneficial or adverse, of the proposal and reasonable alternatives.

Here, because this is a new project, the no action alternative is not permitting this project to go forward. Thus, Ecology must describe the value of the site as it exists and the ecological, cultural, recreational, and commercial benefits and activities the site does and could support if the project is not developed.

ii. The EIS must consider clean energy alternatives.

Ecology must evaluate alternatives to the Project. Washington's Deep Decarbonization Analysis does not call out the Project as necessary energy infrastructure to meet the state's decarbonization goals. *See* Evolved Energy Research, Washington State Energy Strategy Decarbonization Demand and Supply Side Results (Aug. 2020) (Appendix 1). The state's analysis is still underway and, to date, does not demonstrate a "need" for the Project. Even if large-scale pumped-storage hydroelectric power is called out as necessary to meet the state's deep decarbonization goals, it is not clear Rye's Project is necessary to meet that demand. For example, pumped storage at a different location could meet that need. Furthermore, Governor

Inslee, a national climate leader, has not taken a position in favor of the Project. Rye's FLA includes "Letters of Support"; Rye did not produce a letter of support from the Governor's Office.

In considering alternatives, Ecology must consult with the Governor's Office, the Washington Department of Commerce, Ecology staff, and other experts on the state's deep decarbonization efforts to verify if Rye's alleged "benefits" pencil out.

Even if the Project would provide climate benefits, Ecology must consider: (1) the lengthy permitting and construction timeline for pumped storage in general, (2) the added complexity for Rye's Project due to scale of tribal cultural tribal resources, and (3) the need for the Project a decade or more in the future given the rapidly-changing and dynamic nature of energy markets.

According to a third-party economic analysis, the Project cannot provide renewable energy integration and replacement capacity to support regional decarbonization goals affordably and reliably. Anthony Jones, Critique of the Goldendale Energy Storage Hydroelectric Project, Notification of Intent (December 3, 2019)(Appendix 2). The Rocky Mountain Econometrics analysis concludes that a combination of rising construction costs and decreasing open-market energy prices undercut Rye's claims that the project is necessary to meet the state's decarbonization goals. Overall, Ecology must analyze alternatives to the Project, including alternative site locations, designs, and developments.

iii. FERC must consider alternatives to pumped storage to provide utility-scale storage to solve the operational challenges of integration.

In support of its application Rye claims that "[o]f the viable, least-cost energy storage options available, pumped storage is the best-proven, least-cost energy storage technology at scale." This raises precisely the question Ecology must answer: what other "viable, least-cost energy storage options" are available? The answer to this question must be found in Ecology's analysis of the reasonable alternative to the Project. In the FLA, Rye briefly analyzes wind, solar, and Lithium Ion batteries as potential green energy alternatives to pumped storage. FLA Exhibit C at 7. In comparing pumped storage to wind and solar energy, Rye quickly concludes that "[p]umped hydro storage is the only asset that provides large-scale, cost-effective renewable energy storage capacity and a range of essential grid reliability services, the value of which will increase as penetration of intermittent renewable resources rises." FLA Exhibit C at 8. However, comparing renewable energy generation to storage is like comparing apples to oranges. Thus, Rye's only adequate alternative analyzed is Lithium Ion batteries. That being said, Ecology must include an analysis of Lithium Ion batteries as an alternative to pumped storage. In addition,

there are several other renewable energy storage technologies that Rye's FLA failed to analyze and that Ecology must include in its analysis. These include, but are not limited to:

1. Stacked Blocks, which store energy by "automating a six-armed robotic crane to stack thousands of purpose-built, 35-metric-ton monoliths into a Babel-like tower and drop them down again...to release the power." Julian Spector, GREEN TECH MEDIA, *The 5 Most Promising Long-Duration Storage Technologies Left Standing* (March 31, 2020). This technology adapted pumped hydro's gravity storage in a format with more geographic diversity. *Id.*
2. Liquid Air, a mechanism that "cools down air and stores it in pressurized above-ground tanks," and uses them for grid storage. *Id.*
3. Underground Compressed Air, whereby you "use excess electricity to pump compressed air into a suitable underground formation that acts like a giant storage tank. Releasing the pressurized air allows the plant to re-generate electricity when needed." *Id.*
4. Flow Batteries, particularly Avalon Batteries, which found a way around material cost challenges associated with flow batteries. *Id.*

iv. Ecology must analyze alternative sites for a pumped storage project.

When the purpose of a project is not, but its own terms, tied to specific location, the agency must assess alternative locations for the project. *'Ilio'ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1098 (9th Cir. 2006)(discussing alternative sites in the NEPA context). The history of tribal opposition to developments in this area and the extensively documented cultural resources should have made this location a non-starter for Rye. Despite this, the location alone does not represent the sole location for siting of this Project. The proliferation of proposed pumped storage projects on the West Coast alone demonstrates this. *See Generally* Courtney Flatt, NORTHWEST PUBLIC BROADCASTING, *New Energy Storage Project on Upper Columbia Brings Jobs — and Concerns from Colville Tribes* (Dec. 23, 2019), Julian Spector, GREEN TECH MEDIA, *Montana Developer Ready to Build Modern-Day Pumped Hydro Storage* (Aug. 13, 2019), Brian Gailey, KLAMATH FALLS NEWS, *CIP Acquires Swan Lake pumped hydro project* (Nov. 11, 2020), Sammy Roth, LA TIMES, *Environmental Disaster or to a Clean Energy Future? A New Twist on Hydropower* (Mar. 5, 2020), Bloomberg News Editors, RENEWABLE ENERGY WORLD, *In quest for bigger batteries, California mulls pumped hydro* (Jun. 10, 2019). Furthermore, studies have undertaken "to develop a series of advanced Geographic Information System algorithms to locate prospective sites for off-river pumped hydro across a large land area such as a state or a country." Bin Lu, et al., *Geographic information system algorithms to locate prospective sites for pumped hydro energy storage*, 222

APPLIED SCIENCE 300, (2018). The Project need not be built at this site and Ecology must look at alternative sites for the Project.

v. Ecology must consider alternative project designs.

Finally, Ecology must explore alternatives to design and proposed operations of the facility as proposed. In its application Rye discusses its efforts to "evaluate the cost-benefit of various reservoir sizes." FLA Exhibit A at 8. This analysis falls well short of what is required under SEPA. For example, Rye claims that it merely changed the size of the reservoirs, but retained "a total generating capacity of 1,200 megawatts (MW), which is considered most appropriate for the site and market conditions." *Id.* Alternative generating capacities, and the resulting impact on the footprint of the Project must also be explored. Further, Ecology must consider the locations of the reservoirs, and the potential alternatives for other locations within the property boundary. Moving the various elements of the facility within the Project site will likely change the on-the-ground impacts. These alternatives must be considered.

The same is true for the other equipment and infrastructure that will be needed to run the facility. Ecology must consider and disclose the impacts for alternative designs and layouts.

In addition, Ecology must consider the impact from alternative operational parameters for the project. According to Rye's application, "The Project is designed to generate for 12 hours a day of full power generation, at a maximum of 1,200 MW and a minimum of 100 MW, and pump water from the lower reservoir to the upper reservoir in about 15 hours." FLA, Exhibit B at 6. In order for the Project to produce the maximum amount of energy (1,200MW), it will need to generate power (run all water from the upper reservoir to the lower) for 12 hours. Ecology must require the development of alternative operational patterns and reveal and discuss the potential resulting impacts to the environment.

Finally, Ecology must explore alternatives that mitigate the known adverse impacts that will result from the Project, as proposed. As discussed in detail below, the Project will have significant impacts on the environment, including but not limited to, direct, indirect, and reasonably foreseeable negative impacts to the people, fish, and wildlife in the vicinity of the proposed facility.

IV. Ecology is Legally Obligated to Evaluate Direct, Indirect, and Cumulative Impacts as part of the EIS.

Under SEPA, an EIS must consider direct effects, indirect effects, and cumulative effects. WAC 197.11.792(2)(c)(i)-(iii). This scoping comment does not attempt to discuss in detail every issue that should be covered in the EIS. Instead, this comment lists some of the most pertinent direct and indirect impacts that the Project's EIS should analyze.

A. The EIS Must Acknowledge that not all Affected Tribal Nations Have Finished Surveying the Area and thus not all Unavoidable Environmental Impacts have been Identified.

Under RCW 43.21C.030(c), the EIS must include a detailed statement on, "(i) the environmental impact of the proposed action; (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented." RCW 43.21C.030(C)(i),(ii). Because numerous archeological and cultural resource surveys of the area have yet to be conducted, finished, and filed with FERC on the Project, it will be impossible for Ecology to include this detailed statement. The EIS must include this uncertainty as part of its summary. *See* WAC 197.11.440(4)(stating, "the summary shall briefly state the proposal's objectives, specifying the purpose and need to which the proposal is responding, the major conclusions, significant areas of controversy and uncertainty, if any.").

First, the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), which has been actively involved in Rye's proposal since at least 2017, and were contracted by Rye to conduct archaeological and cultural resource surveys of the area, have yet to conclude and submit the final cultural resource survey. Rye's FLA states that "the APE (Area for Potential Effect) has been surveyed for archaeological and historic architectural resources, as well as TCPs (Traditional Cultural Properties) that are significant to the ***Yakama Nation***. [emphasis added]. FLA Exhibit E at 78. But, the FLA goes on to list numerous cultural resource surveys that have yet to be finished by the Tribe including:

> •Conducting additional survey to correct the boundary of the Push-Pum TCP so that it properly incorporates connected plant resources as documented in 1995 and 2019 (per the recommendation of Yakama Nation);
> • Evaluating the Columbia Hills Multiple Property Documentation (MPD) TCP under NRHP Criterion B, C, and D (per the recommendation of Yakama Nation);
> • Evaluating Sites 45KL566, 45KL567, 45KL570, 45KL744, 45KL746, and LS-3 for the NRHP both individually and for their contribution to the Push-Pum TCP, Columbia Hills MPD TCP, and Columbia Hills Archaeological District assessing Project effects to the Push-Pum TCP, Columbia Hills MPD TCP, the Columbia Hills Archaeological District.

FLA Exhibit E at 78.

Second, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) have yet to conduct their cultural and archaeological surveys of the area, despite participating in the FERC process early.[2] Rye's FLA includes the following as surveys yet to conducted, including

> • Identifying historic properties of religious and cultural significant to the Confederated Tribes of the Umatilla Indian Reservation (CTUIR);
> • any identified historic properties of religious and cultural significance to the CTUIR, and any of the archaeological resources that are determined to be eligible for the NRHP.

FLA Exhibit E at 78.

Third, on October 16, 2020, the Nez Perce Tribe requested that Rye conduct an ethnographic study to identify any Nez Perce-specific resources in the Project area that could be affected by construction of the project, stating that because the Tribe did not know about the development they did not have the opportunity to submit study requests to determine detrimental impacts to their Tribe. Letter from Patrick Baird to FERC (Oct. 16, 2020), In FERC Docket No. 14861 & Telephone Memo from Suzanne Novak to FERC (Oct. 7, 2020), In FERC Docket No.14861. On October 29, 2020, FERC directed Rye to conduct that survey.

Lastly, it is unclear if Rye has contacted or been in sufficient contact with representatives from the Confederated Tribes of Warm Springs (Warm Springs) to allow the Tribe time to contribute surveys of the area if appropriate.

At this time, Yakama Nation, CTUIR, Nez Perce, and Warm Springs, the Columbia River Inter-Tribal Fish Commission Tribes, have not been afforded the opportunity to identify tribal cultural and religious resources that risk destruction from the Project. Rye's FLA states, "[o]nly the Yakama Nation can determine what is significant to the tribe," presumptively this suggests that Rye would agree that only CTUIR, Nez Perce, and Warm Springs can determine what is significant to their tribes. Conducting the EIS now may undermine these surveys because without them it is near impossible that Ecology will be able to identify all significant issues that the Yakama Nation, CTUIR, Nez Perce, and Warm Springs will raise and therefore the EIS must identify and discuss this uncertainty.

B. Tribal Archaeological and Cultural Resources.

[2] *See* Letter from Kristen Tiede to FERC (Jan. 21, 2018), In FERC Docket No. 14861. Letters submitted by CTUIR have been filed confidentially to protect tribal cultural resources.

Ecology must fully account for tribal nations' input on Rye's proposal in the EIS. Rye sited the Project in an area of incalculable significance for tribal nations, an area that includes multiple documented Traditional Cultural Properties (TCPs), tribal-access agreements, and TCP's either: 1) eligible for inclusion on the National Historic Register of Historic Places (NHR); or 2) already included. Moreover, Rye has, for years, failed to change the Project's location over the objections of sovereign tribal nations.

Yakama Nation has opposed the Project since its inception. Yakama Nation also opposed earlier iterations of a pumped-storage hydroelectric proposed at the site.

According to the Tribe, Rye's development would destroy archeological, ceremonial, burial, petroglyph, monumental, and ancestral use sites—and cause significant harm to the Yakama way of life. Letter from Yakama Nation to Erik Steimle (Feb. 14, 2018), *In* FERC Docket No. 14861. A Yakama Nation representative explained the Tribe's opposition at a Washington State Senate hearing in early 2020:

> As you're aware, the Columbia River was dammed over the last century. In doing so, that impacted many of our rights, interests and resources. All of these things have been impacted: our fish sites, our villages, our burial sites up and down the river. This is another example of energy development, development in the West, that comes at a cost to the Yakama Nation.

Courtney Flatt, OPB, *Northwest Clean-Energy Advocates Eye Pumped Hydro to Fill Gaps, with Tribes Noting Concerns* (July 27 2020) (Appendix 3).

Rye has repeatedly misstated Yakama Nation's position on the Project, which has confused federal and state agencies, as well as public understanding of the Tribe's position. Yakama Nation in comment letters to FERC, has gone as far as to say that Rye is not operating in good faith. A letter submitted by Yakama Nation in February 2019 states:

> The Yakama Nation does not believe that Rye Development conducted the pre-application in a good faith effort. This is the first time that the Yakama Nation has been afforded the opportunity to read any preliminary studies conducted by Rye Development. Nor were we aware that a draft Historic Properties Management Plan was being drafted as part of this document.

Confederated Tribes and Bands of the Yakama Nation, Comment to FERC, (Feb. 21, 2019), *In* FERC Docket No. 1486.

Yakama Nation's archaeological resource survey, completed in 2019, concluded that multiple sites of cultural and religious importance are located within the Project boundary.[3]

[3] The Yakama Nation is still in the process of completing their 2020 Cultural Resources Survey of the Project area.

According to Rye's FLA, "the proposed Project area is within a NRHP-eligible [National Register Historic Properties] TCP (Traditional Cultural Property) (Push-pum) and a NRHP-eligible Multiple Property Documentation TCP (Columbia Hills) and one Archaeological District (Columbia Hills District)." FLA Appendix G at 12. The FLA states:

> The entire Columbia Hills and the archaeological sites contained within are significant to the understanding of how Yakama people lived and utilized the land. Information yielded from 'archaeological' resources is important to Yakama elders to determine what kinds of activities took place at a specific location. It also lends itself useful in identifying what kinds of resources are present.

FLA Exhibit E at 76. The proposed Project will also have a serious impact on the health and safety of the Yakama people, who use the Push-pum site to gather traditional medicines and foods that underlie ceremonial practices. Rye's FLA states that, "[w]ithin that Project area, there is a stipulation for BPA to create a plan that will allow tribal members to access Push-pum to gather foods and medicine significant to the tribe." FLA Exhibit E at 78. However, there is no discussion of how construction or management of the Project will interfere with this access or interfere with the integrity of the foods and medicines gathered.

The significance of this area to the Yakama Nation cannot be overlooked. While the Yakama Nation has filed tribal cultural resource surveys as "confidential" with FERC, available information, including FLA Appendix G, details the Project area's importance for tribal cultural and religious resources.

The Yakama Nation is not the only affected Tribal Nation. CTUIR has also weighed in on the development. While most letters submitted by CTUIR have been filed confidentially to protect tribal cultural resources,[4] the Tribe has publicly said that "The proposed Project is likely to have substantial, harmful impacts on tribal cultural resources, including sites and artifacts," and are poised to conduct their own cultural resources survey of the area. CTUIR NEPA Scoping Comments (Dec. 28, 2020), *In* FERC Docket No. 14861. On October 16, 2020, the Nez Perce Tribe requested that Rye conduct an ethnographic study to identify any Nez Perce-specific resources in the Project area that could be affected by construction of the project, stating that because the Tribe did not know about the development they did not have the opportunity to submit study requests to determine detrimental impacts to their Tribe. Letter from Patrick Baird to FERC (Oct. 16, 2020), *In* FERC Docket No. 14861 & Telephone Memo from Suzanne Novak to FERC (Oct. 7, 2020), *In* FERC Docket No. 14861. On October 29, 2020, FERC directed Rye to conduct that survey.

[4] *See* Appendix 4 and 5, for historical context surrounding the treatment of Indian remains and cultural property in the United States resulting in the need for tribes to file cultural resource information confidentially.

Both CTUIR and the Nez Perce Tribe have not been afforded the opportunity to identify tribal cultural and religious resources that may be impacted by the Project. *See infra* at Section IV(A).

In addition to the cultural resources impacted within the Project footprint, Project construction and operation would impact off-site, adjacent tribal and non-tribal use of an irreplaceable cultural and historic treasure: an array of over 60 bear-paw petroglyphs on the basalt walls above the Columbia River. Located in the channel of the John Day Dam Lock, the petroglyphs are open to public viewing. Rye's application fails to mention, let alone analyze, how Project construction and operations would impact the experience of tribal and non-tribal members who view and reflect on the renowned petroglyph collection.

When looking at the impacts to tribal cultural and religious resources from this Project the EIS must analyze: the destruction of TCPs unique to this geographic location, the destruction of TCPs eligible for, or already included, on the NRH, the serious impacts to public health and safety of indian people who rely on foods and medicines in the area, the cumulative impacts that the Project will have on archeological and cultural resources of at least four tribes, the future implications that developing this Project will have on this site, including opening the area to more development, and the socio-economic impact to the community, including Indian people. WAC 197-11-44.

The EIS must analyze how the Project's construction and cultural resource destruction, cumulatively impacts the Yakama Nation, CTUIR, Nez Perce, and Warm Springs and must look at these impacts in conjunction with and through the lens of government sanctioned cultural genocide that has impacted these tribes and threatened their life ways. Ecology's EIS analysis must not and cannot take the Project's destruction of archaeological and cultural resources out of the context of history, otherwise the cumulative and future impacts of the Project will evade analysis.

C. Water Quality Issues.

The Project would permanently destroy large segments of unique waterbodies, including "waters of the United States" and "waters of the state" in the scenic Columbia Hills. The Project would also cause downstream impacts to perennial waterbodies. The Project requires withdrawing millions of gallons of Columbia River water, threatening designated uses and impacting water quality in an already degraded river. Columbia Riverkeeper and other commenters submitted detailed technical comments to the Washington Department of Ecology on Rye's 401 water quality certification application, which outline in great detail the water quality issues from the Project and are incorporated herein by reference. *See* Columbia

Riverkeeper et. al, Public Comments on Free Flow Power 101, LLC Goldendale Pumped Storage Project Clean Water Act 401 Water Quality Certification, (Nov. 9, 2020) (Appendix 1). Ecology must analyze the water quality issues identified in Columbia Riverkeeper et al.'s 401 certification comments in the EIS.

D. Avian, Terrestrial, and Aquatic Wildlife Impacts.

The Project will have significant impacts on wildlife. On March 10, 2020, comments to FERC, the Washington Department of Fish and Wildlife (WDFW) noted: "We disagree with the applicant's opinion that the habitat near the upper reservoir is not unique or uncommon. The uniqueness of this habitat is linked to the close proximity to golden eagle and prairie falcon nesting habitat." Comments by WDFW and the U.S. Fish and Wildlife Service (USFWS) detail the Project's impacts to wildlife, including increased mortality of bats and raptors by nearby wind turbines, and wildlife habitat. WDFW Comment to FERC, (Mar. 10, 2020), *In* FERC Docket No. 14861; USFWS Comment to FERC (Mar. 3, 2020), *In* FERC Docket No. 14861. Furthermore, the Oregon Department of Fish and Wildlife (ODFW) and WDFW collectively identified four threatened, endangered, candidate, or proposed species, as well as one critical habitat within the project boundary.[5] *See* Letter from U.S. Dep't of Interior Fish & Wildlife Service to FERC (Oct. 14, 2020), *In* FERC Docket No. 14861. Rye elected to site its Project adjacent to and, in the case of the upper reservoir, within a wind turbine complex. In multiple comments to FERC, USFWS and WDFW describe how building large reservoirs will attract birds—including threatened, sensitive, and candidate species—and, in turn, increase birds killed by the wind turbine complex. USFWS explains:

> As recently as January 2020, a golden eagle wind turbine strike mortality occurred southwest of the proposed Project (Figure 1). Five additional golden eagle mortalities have been documented to the northeast of the proposed Project. Two golden eagle nests also occur within close proximity to the proposed Project. This history of mortalities shows a landscape already compromised by wind power infrastructure. Currently golden eagles appear to have a difficult time navigating the wind currents affected by existing wind power infrastructure near the project area. The potential of the proposed Project to further the remaining laminar wind currents lends credence that resulting impacts to avian species would not be exclusive to wind power production in the area.

USFWS Comment to FERC (Mar. 3, 2020), *In* FERC Docket No. 14861. USFWS also notes that radio telemetry data collected in 2007 for eight months "indicates significant use of the entire project area" by golden eagles. *Id.* at 2. USFWS explains: "Since prey availability is a primary

[5] ODFW and WDFW collectively identified the following species: 1. The Western Distinct Population Segment of Gray Wolf; 2. Gray Wolf; 3. Yellow-Billed Cuckoo; and 4. Bull Trout. WDFW also identified Bull Trout critical habitat as within the project boundary.

factor in governing habitat selection of golden eagles . . . the habit in the area of the proposed upper reservoir is a determining factor in golden eagle nesting preference for the area." *Id.* at 2 - 3 (internal citations omitted). The Project also threatens bats. WDFW notes:

> The construction of a new body of water at the upper reservoir, will likely provide habitat for and attract insects in close proximity to wind turbines. In turn the insect[s] will attract foraging bats to the area, putting them in close proximity to the wind turbines. Bats are also attracted to water features to drink from. Bat fatalities have been found to be caused by wind turbine blade strikes and bats flying close to the turbine blades in an effort to avoid them resulting in barotrauma. There are no available bat survey data specific to the Project upper reservoir site. Bats are known to have a long life span and slow reproductive rate. Loss of large numbers of bats may have significant impacts to local or regional populations.

WDFW, Comment to FERC, (Mar. 10, 2020), *In* FERC Docket No. 14861. USFWS and WDFW comments detail the direct and indirect wildlife-habitat impacts from the Project's infrastructure, and how the Project's location, adjacent to a large wind turbine complex, will harm threatened, sensitive, or candidate species. Both WDFW and USFWS provided detailed recommendations for the Project's Draft License Application compensatory wildlife mitigation plan. To date, Rye has yet to produce a mitigation plan that incorporates key agency recommendations. *See* FLA Appendix D, *Wildlife Mitigation Plan* (June 2020).

Ecology's EIS must address the Project's impacts on wildlife, including the loss of habitat as a result of the new development, the future implications of siting a large scale development here on wildlife, the increase in avian mortality from wind turbines as a result of increased avian activity next to reservoirs, and the impacts to threatened, endangered, candidate, and/or proposed species.

E. Wind Turbines near Proposed Project.

Rye chose to site the upper reservoir within and directly adjacent to an existing wind turbine complex. FLA Exhibit E at 5 (Figure 2.1-1A). The upper reservoir and the 62-wind-turbine complex, are located on land that is leased by the Tuolumne Wind Project Authority (TWPA) and contains TWPA's wind turbines, which TWPA uses to supply energy and capacity to the Turlock Irrigation District (TID). TID is an irrigation district organized under the laws of the State of California (California Water Code §§ 20500-29978) and supplies electric power and energy to the residents and businesses within its service area. *See* Turlock Irrigation District, Comment to FERC, (Mar. 11, 2020), *In* FERC Docket No. 14861. TID raised five concerns regarding the Project. Specifically, TID raised concerns that the Project would: (1) redirect the wind used by the turbines, which would reduce their energy output; (2) increase wind turbidity, which would reduce their energy output and increase wear and tear on the turbines; (3)

saturate and thereby weaken the foundations of some of the turbines; (4) increase the wildlife around the turbines, which will increase animal strikes and interfere with TWPA's operations and output; and (5) interfere with the operations of the turbines' underground power lines when constructing the Project's underground components. *Id.* at 2–3. The concerns raised by TID must be analyzed by Ecology in their environmental review because they involve unique risks on the environment in this geographic location.

Furthermore, Rye has failed to provide adequate information in response to Commission staff's request for more information following Rye's deficient FLA. Specifically, FERC states that,

> In order to assess the compatibility of the proposed project with existing land uses and the potential indirect effects of the proposed project on the golden eagle, staff requested in comments on the draft license application, that you conduct studies (e.g., modeling) to demonstrate how project construction and operation would influence air flow above the upper reservoir and around the wind turbines and how it would affect wind turbine operation and generation and include the modeling results in the final license application.
>
> Without elaboration, in the final license application, you acknowledge the potential influence of the project on wind turbine performance and wind flow, but state that a thorough analysis can only be performed during final project design.

Letter from FERC to Erik Steimle, (Jul. 23, 2020), *In* FERC Docket No. 14861. In a December 17, 2020 letter from FERC, the Commission denied Rye's request to use the Expedited Licensing Process because of the information deficiencies in the FLA, stating that "[b]ased on staff's analysis, FFP's November 20, 2020 and December 4, 2020 filings only partially address staff's July 23, 2020 and October 29, 2020 information requests." *Id.* at 12. One such filing was Rye's wind analysis, which it committed to expand by February 2021. *Id.* The results of this wind analysis must be analyzed by Ecology because the presence of the wind turbines create and involve unique risks if this Project is implemented, including risks that would impact wildlife.

F. Aluminum Smelter Cleanup Site

According to FERC's NEPA Scoping Document,

> Portions of the project's proposed infrastructure (such as the proposed lower reservoir) would be located on the site of the former Columbia River Gorge Aluminum (CGA) Smelter, which is now a Resource Conservation and Recovery Act (RCRA) contaminated site that is currently owned by NSC

> Smelter, LLC, and is subject to ongoing management and clean-up by Washington Department of Ecology (Washington DOE).

Scoping Document at 1. Previously proposed pumped storage projects in the area have been denied licenses by FERC because of the ongoing cleanup activities associated with CGA RCRA cleanup. *See Public Utility District No.1 of Klickitat County, Washington, Clean Power Development, LLC,* 155 F.E.R.C. ¶ 61,056 (2016). Rye's FLA states that,

> The impoundment has tested as having non-hazardous and non-dangerous material; however, this area will be characterized further prior to being excavated as part of the construction of the lower reservoir. Because the material is unsuitable fill, it will be excavated and properly disposed of pursuant to full characterization in collaboration with the Washington Department of Ecology.

It is concerning that Rye has not completed characterization of this area as part of the FLA, nor has the developer created a plan for dealing with the material excavated during construction, if further characterization conflicts with prior testing. If material is excavated during construction and tests as being hazardous or dangerous waste, Rye must have a plan in place for properly disposing of that material in accordance with state and federal law. That being said, Ecology must include an analysis of the status of CGA as part of its environmental review, particularly focusing on any incremental benefits to cleanup that may occur from Project construction and adverse significant effects. 40 C.F.R. § 1508.27(b)(1). Additionally, Ecology must analyze whether or not Project construction activities may threaten a violation of State, Federal, or local law in regards to ongoing cleanup of the CGA RCRA site.

1. Other Issues to Evaluate in the EIS

Ecology must also examine the following issues in the EIS:

- The Project's environmental justice impacts, including the Project's direct, indirect and cumulative impacts to Tribal Nations and Indigenous people, described above, and low-income ratepayers.

- The Project's scenic and other aesthetic impacts, including the aesthetic impacts of additional transmission lines.

- The direct, indirect, and cumulative impacts of additional transmission lines in the Columbia Basin and in the Project vicinity.

- The Project's impacts on the reliability and capacity of the BPA transmission lines and the Northwest grid.

- The Project's construction and operational impacts on air quality and noise.

- The Project's post-operation site restoration plans, including enforceable funding requirements to ensure those plans are completed.

- The Project's impacts on the Columbia River in the event of a reservoir failure.

- The Project's impacts on recreation, including paragliding, fishing, boating, birdwatching, petroglyph viewing, hunting, hiking, windsurfing, kiteboarding, kayaking, and other forms of recreation.

- The Project's construction and post-construction traffic impacts.

- The Project's socioeconomic impacts, including impacts to ratepayers.

G. Conclusion.

Commenters respectfully reiterate that the EIS must examine the full direct, indirect, and cumulative impacts of the proposed Project. This Project will significantly affect the quality of the human environment. Commenters identify pertinent issues that Ecology must address in its environmental review and which emphasize that the intensity of this project, i.e. the severity of the impact, is extremely high, destroying irreplaceable tribal cultural and religious resources and archeological sites, infringing on tribal peoples' access to food and medicine gathered in the area, impeding access to culturally significant areas, and impacting water quality and wildlife.

Sincerely,

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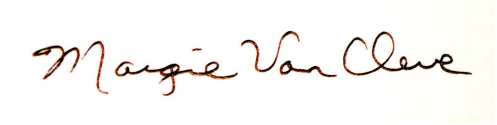

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Anthony Aronica, Yakama Nation
Chris Marks, CTUIR
Carl Merkely, CTUIR

Nakia Williamson-Cloud, Nez Perce Tribe

APPENDIX 1

APPENDIX 2

APPENDIX 3

APPENDIX 4

APPENDIX 5

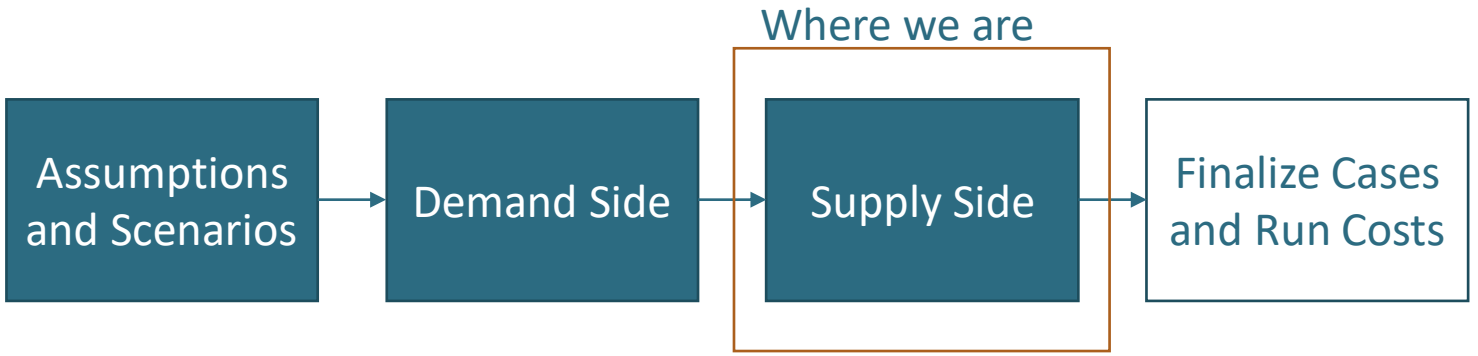
Washington State Energy Strategy Decarbonization Demand and Supply Side Results

August 25, 2020

EVOLVED ENERGY RESEARCH

Agenda

- Review of State Targets
  - Where is Washington going and how does it compare to present day?
- Scenario Descriptions
- Demand Side Review
- Supply Side Results
  - Draft findings
- Key Findings
- Technical Appendix
  - Methodology overview
  - Key assumptions



State Targets

Clean Energy Transformation Act (CETA)

CETA Requirements

- 2025: Eliminate coal-fired electricity from state portfolios
- 2030: Carbon neutral electricity, >80% clean electricity with up to 20% of load met with alternative compliance:
  - Alternative compliance payment
  - Unbundled renewable energy certificates, including thermal RECs
  - Energy transformation projects
  - Spokane municipal solid waste incinerator, if results in net GHG reduction
- 2045: 100% renewable/non-emitting, with no provision for offsets

CETA Implementation

- 2025: Retire all WA coal contracts
- 2030: Constrain delivered electricity generation serving WA loads to be 80% or more from clean sources
  - Accounting on retail sales rather than production, i.e., losses are not included
- 2030: Constrain the remaining 20% to come from non-delivered RECs
  - Linear transition to 100% delivered clean energy by 2045
- 2045: 100% delivered clean electricity
  - Accounting on all electricity production for in state consumption, i.e., losses are included
  - Fossil generation can supply out-of-state load

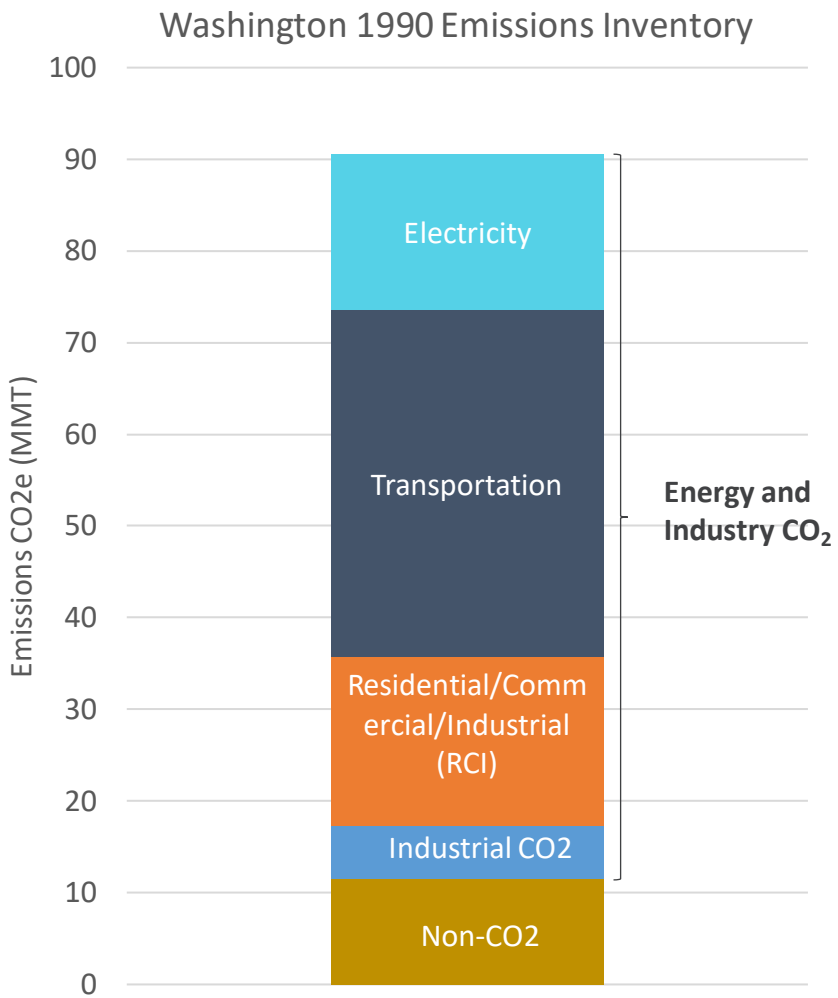
CETA Renewable Energy Credit Accounting

- **Implementation of delivered clean electricity (delivered RECs)**
  - Investments in new clean energy resources are specified, and only delivered MWhs to WA loads count towards CETA delivered energy compliance
  - Delivered RECs included in hourly system balancing
  - Available transmission required for delivery
- **Implementation of non-delivered RECs**
  - Accounting on an annual basis: WA requires clean energy credits equal to non-delivered portion of energy compliance each year
  - No hourly delivery or transmission required

West Wide RPS/CES Targets

	Reference Case						
Year	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Arizona	6%	15%	15%	15%	15%	15%	15%
California	33%		60%		87%	100%	100%
Colorado	30%		30%		30%		30%
Idaho	None						
Montana	15%	15%	15%	15%	15%	15%	15%
Nevada	22%	25%	50%		75%		100%
New Mexico	20%		50%		80%	100%	100%
Oregon	20%		35%		50%	50%	50%
Utah	0%	20%	20%	20%	20%	20%	20%
Washington	12%		80%			100%	100%
Wyoming	None						

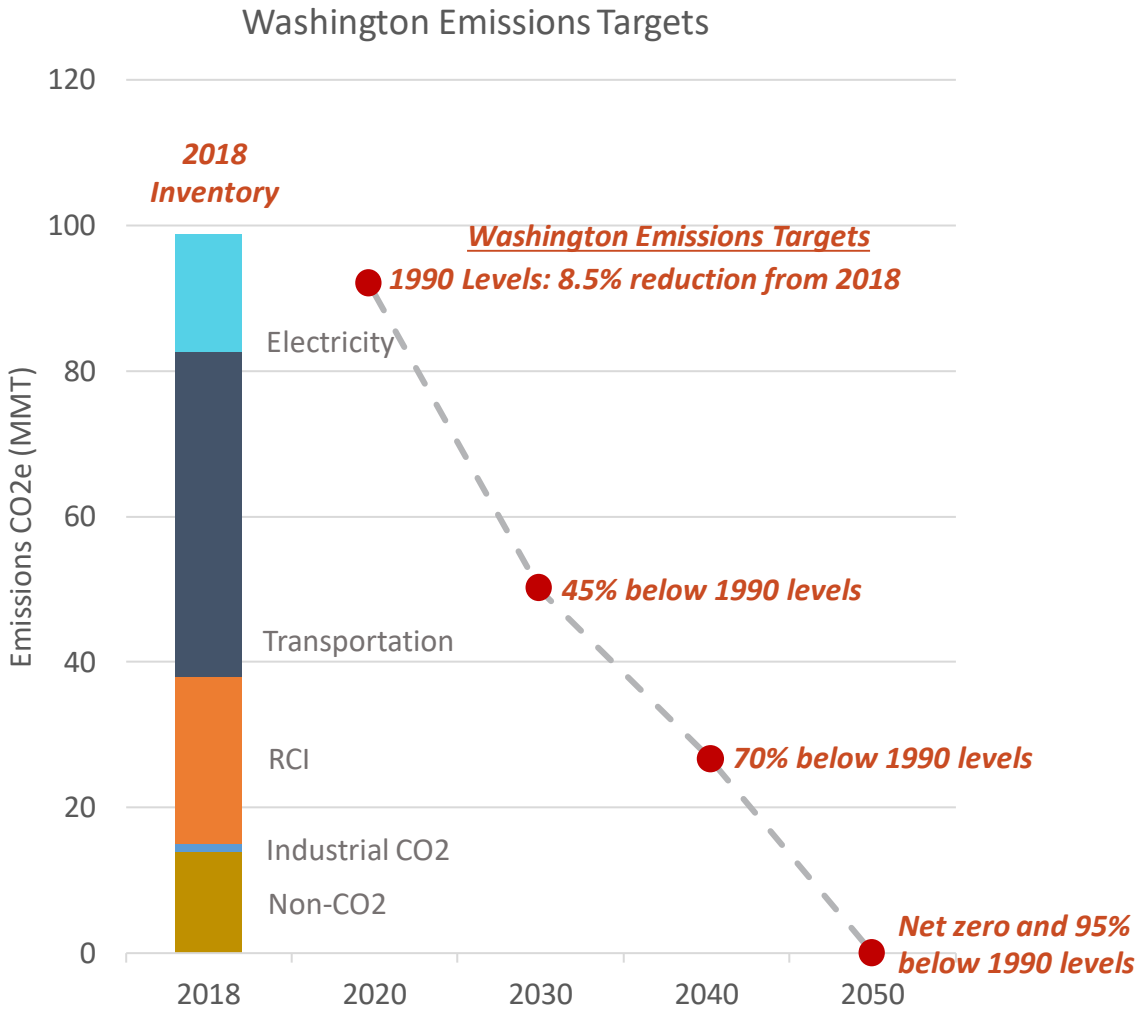
Emissions Targets Set Based on the State's 1990 GHG Footprint



- Washington's 1990 GHG emissions footprint was **90.5 million metric tons**
- Energy and industry related CO_2 emissions represent ~87% of all emissions
  - CO_2 emissions from **electricity generation** were from coal, representing 19% of total emissions
  - Transportation (42%), RCI (20%), and Industrial CO_2 (6%) make up the remainder of energy and industry related CO_2 emissions
  - Non-CO_2 emissions (13%) make up the remainder
- Washington starts from a smaller share of emissions from electricity than other states because of the large hydro electric fleet producing clean energy

Notes: Industrial CO_2 includes industrial process emissions not from fuel combustion; non-CO_2 emissions includes agriculture, waste management, and industrial non-CO_2 emissions

Washington Emissions Targets



- Washington established economy-wide emissions goals of net zero and 95% reduction in gross emissions by 2050
  - In line with IPCC targets
- Implementation of emissions goals:
  - 95% gross emissions reductions target is independent of land-based emissions reductions
  - Emissions reductions possible in non-energy and non-CO_2 sources are uncertain and need more research to develop reduction measures
    - We assume that the limited land use mitigation potential will offset the emissions from this category
- **Target for the energy sector: <u>Net zero by 2050</u>**

Emissions Targets by Year

Million Metric Tons

Forecasted from latest WA non-CO_2 inventory using EPA growth rates

Starting target of 76 MMT: COVID-19 drops emissions below this target

~50% reduction in energy emissions over 10 years

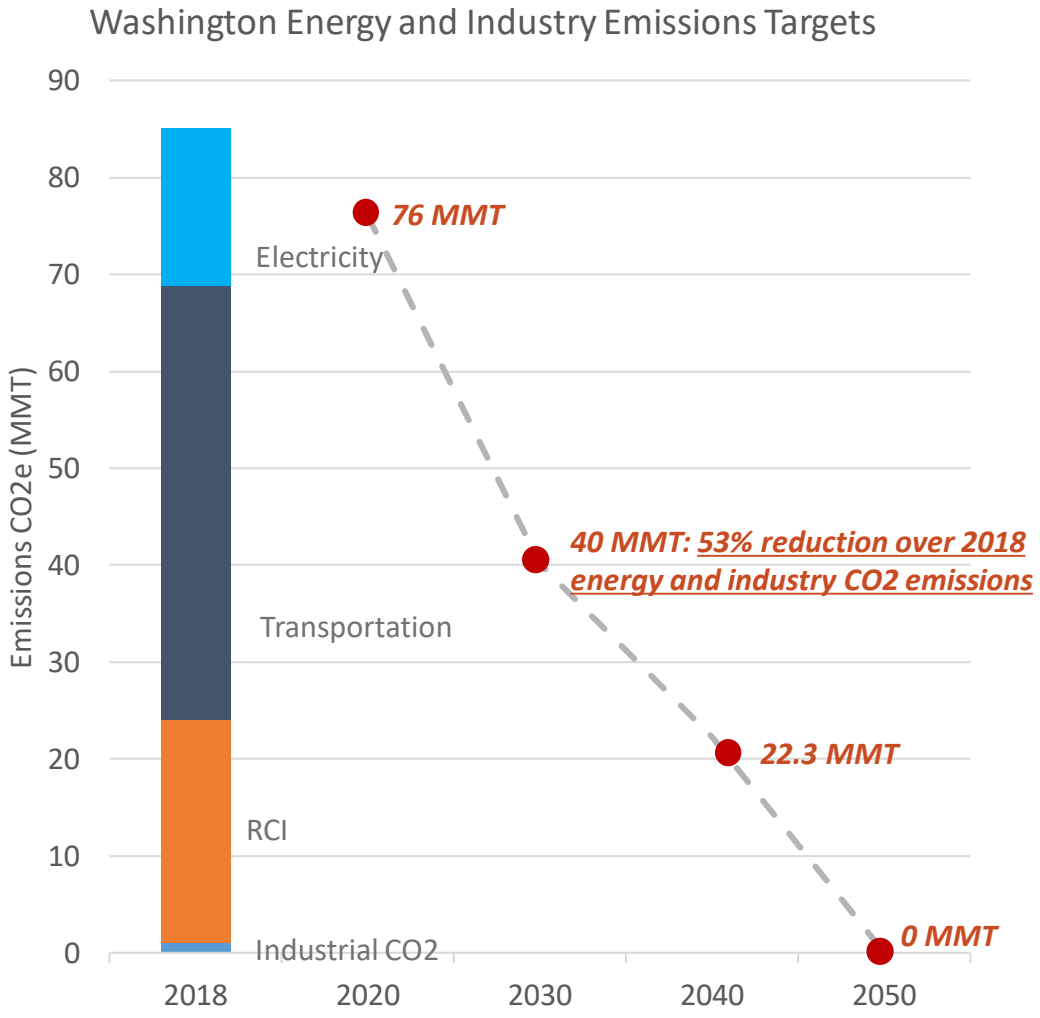
Year	Non-CO_2/Non-Energy Emissions	Incremental Land Sink	CO_2 Energy and industry	Economy wide CO_2 Target to reach statewide GHG limits
1990	11.4	0.00	79.2	90.5
2020	14.5	0.00	76.0	90.5
2025	12.8	-0.75	58.1	70.1
2030	11.1	-1.50	40.1	49.8
2035	9.5	-2.25	31.2	38.5
2040	7.8	-3.00	22.3	27.2
2045	6.2	-3.75	11.2	13.6
2050	4.5	-4.5	0.0	0.0

5% gross emissions from non-CO_2, 100% offset by incremental land sink

Non-CO_2 emissions reductions significant but uncertain and requires future research

Net zero target in energy and industry

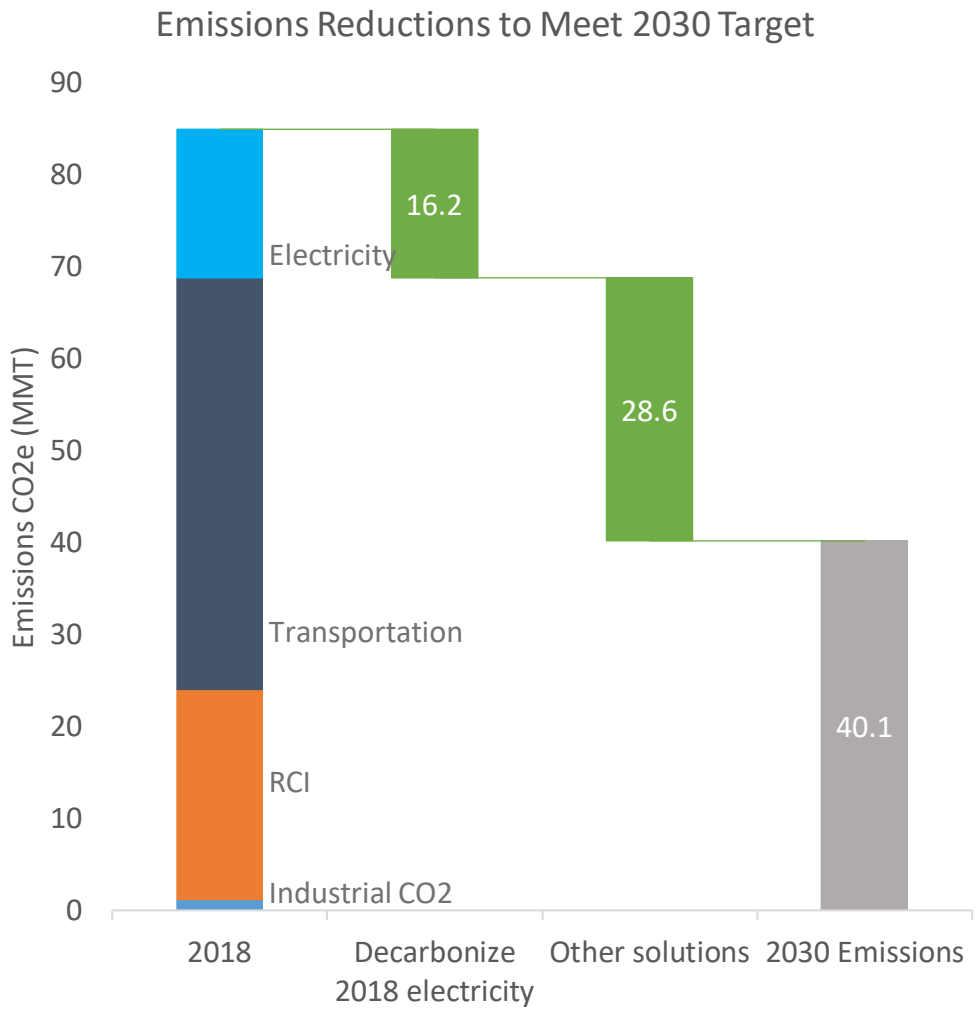
2030: The Energy Emissions Challenge



- 2030 emissions target for energy and industry less than half of 2018 emissions
  - 40 MMT assumes linear decreases in non-CO_2 emissions and linear increases in incremental land sink through to 2050
- Washington's electricity sector is already very clean: Early emissions reductions are required from actions in other sectors to meet the 2030 target
- **The 2030 challenge: How to cut emissions in half in 10 years?**

Electricity

Options and Obstacles to Reaching 2030 Targets



- Decarbonizing all electricity generation from 2018 leaves 28.6 MMT to decarbonize (40% of remaining emissions)
- What are the options?
  - **Energy Efficiency**: Reduce energy use through more efficient appliances, processes, and vehicles
  - **Electrification**: Electrify end uses and supply with clean electricity
  - **Decarbonize fuels**: Displace primary fossil fuel use with clean fuel
- What are the obstacles?
  - Efficiency and electrification require new demand-side technology investments
    - Dependent on customers replacing inefficient technologies with efficient and/or electrified options
    - Dependent on stock rollover: A customer with a new ICE vehicle won't replace it the next year with an electric one
  - Decarbonized fuels require bio or synthetic fuels technologies that have yet to be deployed at scale
  - **<u>Limits to what can be achieved in 10 years</u>**

West-Wide Emissions Targets

States without targets follow trajectory for 80% economy wide emissions reductions in decarb cases

	Reference Case							Decarbonization Cases						
Year	2020	2025	2030	2035	2040	2045	2050	2020	2025	2030	2035	2040	2045	2050
Arizona	None									60		34.4		8.8
California	340		211		70.3	0	0	340		211		70.3	0	0
Colorado	95		47		23.2		-0.6	95		47		23.2		-0.6
Idaho	None							8.7		14.1		4.3		2.1
Montana	None							25		15.6		5.4		2.6
Nevada	45		26.7		9.1		0.3	45		26.7		9.1		0.3
New Mexico	60		30.5		10.2		0	60		30.5		10.2		0
Oregon	55		35.7		12.8		6.2	55		35.7		12.8		6.2
	None									41.3		24.4		7.6
Washington	None							75.3		39.6		27.2		0
Wyoming	None									43		25.5		7.9

Scenario Descriptions

Scenario Descriptions and Implications

Scenario	Description
Reference	**Business as usual energy system through 2050** Assumes current policy is implemented
Electrification	**Investigates economics of a rapid shift to electrified end uses** Aggressive electrification, aggressive efficiency, relatively unconstrained technology availability in state and out of state
Transport Fuels	**Investigates reaching decarbonization targets with reduced transportation electrification** What alternative investments are needed when larger quantities of primary fuels remain in the economy?
Gas in Buildings	**Investigates reaching decarbonization targets with lower building and industry efficiency and electrification** What is the impact of not achieving a transition from gas to electricity in the Electrification Scenario?
Constrained Resources	**Investigates a future that limits potential for transmission expansion into Washington** What alternative investments in in-state resources would Washington make if transmission expansion is limited due to siting/permitting challenges?
Behavior Changes	**Investigates how lower service demands could impact decarbonization** Shows the economic benefits in terms of reduced energy infrastructure and fuel burn of behavior change policy if social structure or economic changes naturally drive lower service demands (i.e., more telecommuting post COVID-19)

Scenario Summary

Scenario Assumptions	Reference (R)	Electrification (E)	Transport Fuels (TF)	Gas in Buildings (GB)	Constrained Resources (CR)	Behavior Change (BC)
Clean Electricity Policy	CETA: Coal retirements 2025; 100% carbon neutral 2030 (with alternative compliance); 100% RE 2045					
Economy-Wide GHG Policy	None	Reduction below 1990: 45% by 2030; 70% by 2040; 95% and net zero by 2050				
Buildings: Electrification	AEO	Fully electrified appliance sales in most sub-sectors by 2050		**Half electrification of other four cases**	Fully electrified appliance sales in most sub-sectors by 2050	
Buildings: Energy Efficiency	AEO	Sales of high efficiency tech: 50% in 2025, 100% in 2030		**25% in 2025, 50% in 2030**	Sales of high efficiency tech: 50% in 2025, 100% in 2030	
Transportation: Light-Duty Vehicles	AEO	100% electric sales by 2035	**50% electric sales by 2035**	100% electric sales by 2035		
Transportation: Freight Trucks	AEO	Same as GB, CR, and BC Cases	**Half the electric sales/no hydrogen adoption**	HDV long-haul: 25% electric, 75% hydrogen sales by 2045 HDV short-haul: 100% electric sales by 2045 MDV: 70% electric sales by 2045		
Industry	AEO	Generic efficiency improvements over Reference of 1% a year; fuel switching measures; 75% decrease in refining and mining to reflect reduced demand				
Service Demand Reductions	Baseline service demand informed by AEO					**VMT by 2050: 29% LDV, 15% MDV/HDV 15% Com, 10% Res**
Resource Availability	NREL resource potential; 6 GW of additional transmission potential per path; SMRs permitted				**Washington: No new TX, 50% of RE potential, no SMRs**	Same as R, E, TF, and GB Cases

Results

Structure of results

- The results in this section are structured as follows:
  - **Economy-wide GHG emissions** – Emissions reductions by fuel to reach net zero
  - Changes to **energy demand**
  - **Electric sector investments and operations** metrics are shown to better understand the scale and rate of change required
  - Transformation to **fuel demand and supply**, including gas, hydrogen and liquid fuels

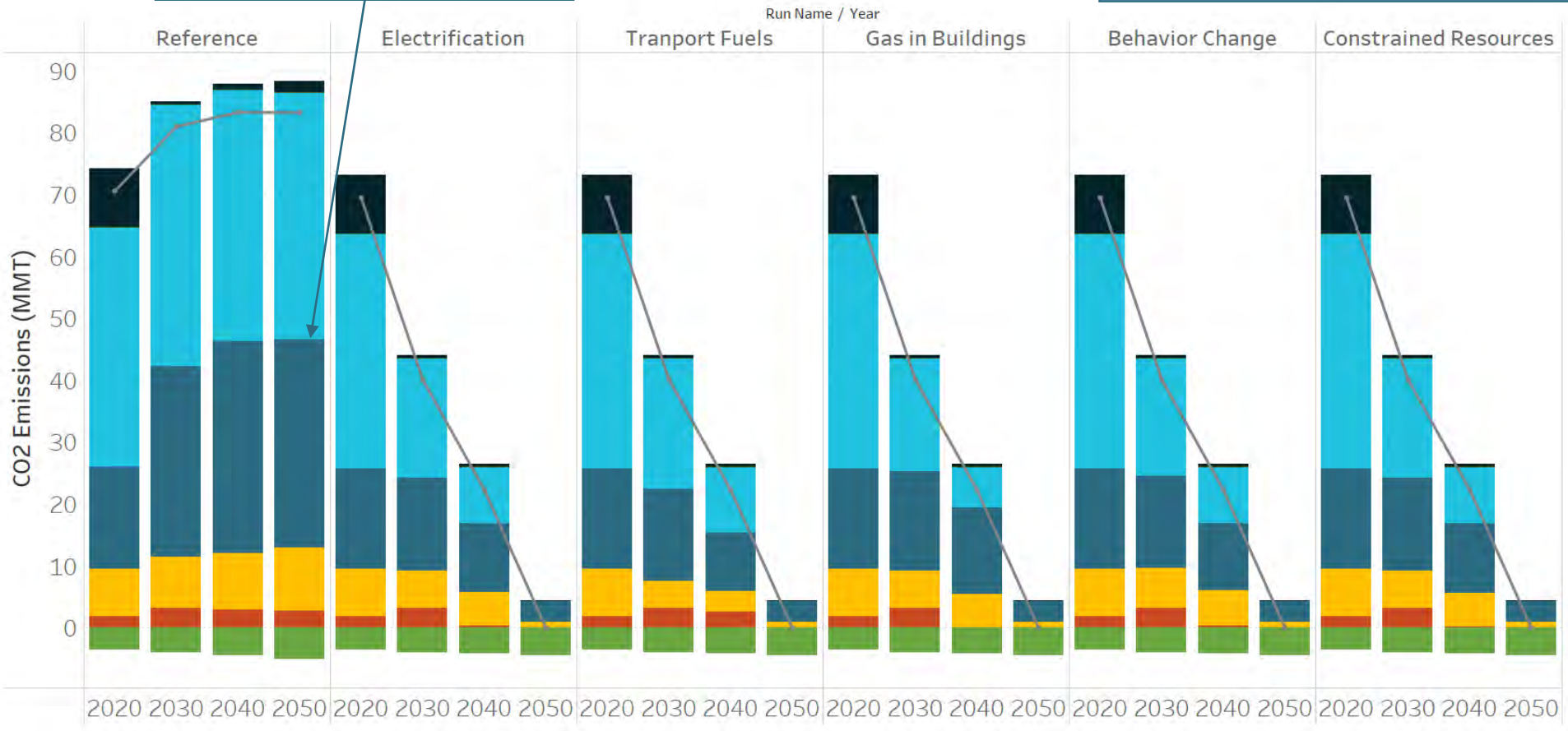
Emissions by Scenario

Similar emissions profile to achieving net zero in energy by 2050 across scenarios

Additional gas emissions from exports in Reference Case: not counted in inventory

Product and bunkering CO_2 provide negative emissions in accounting

Similar trajectories as end use demand drives reductions in gas use while liquid fuels are decarbonized



Demand Side

Final Energy Demand

Electrification and efficiency drive lower total energy demand

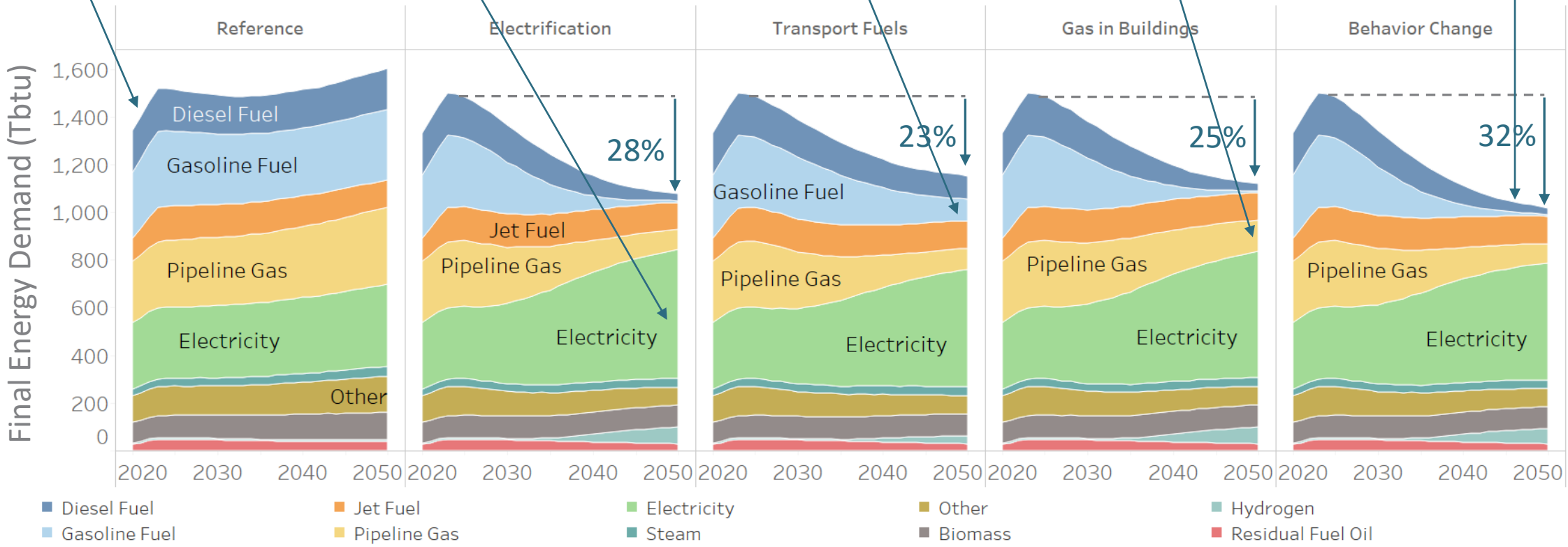
COVID: **10% drop in demand in 2020** due to COVID impact

Electrification: **90% growth in electricity sector** over 2020 levels, displacing fuels

Transport Fuels: Demand for **fuels remains in 2050**

Buildings: **Higher demand for gas** due to less electrification

Behavior: Fewer energy services **drive demand lower**



EVOLVED ENERGY RESEARCH

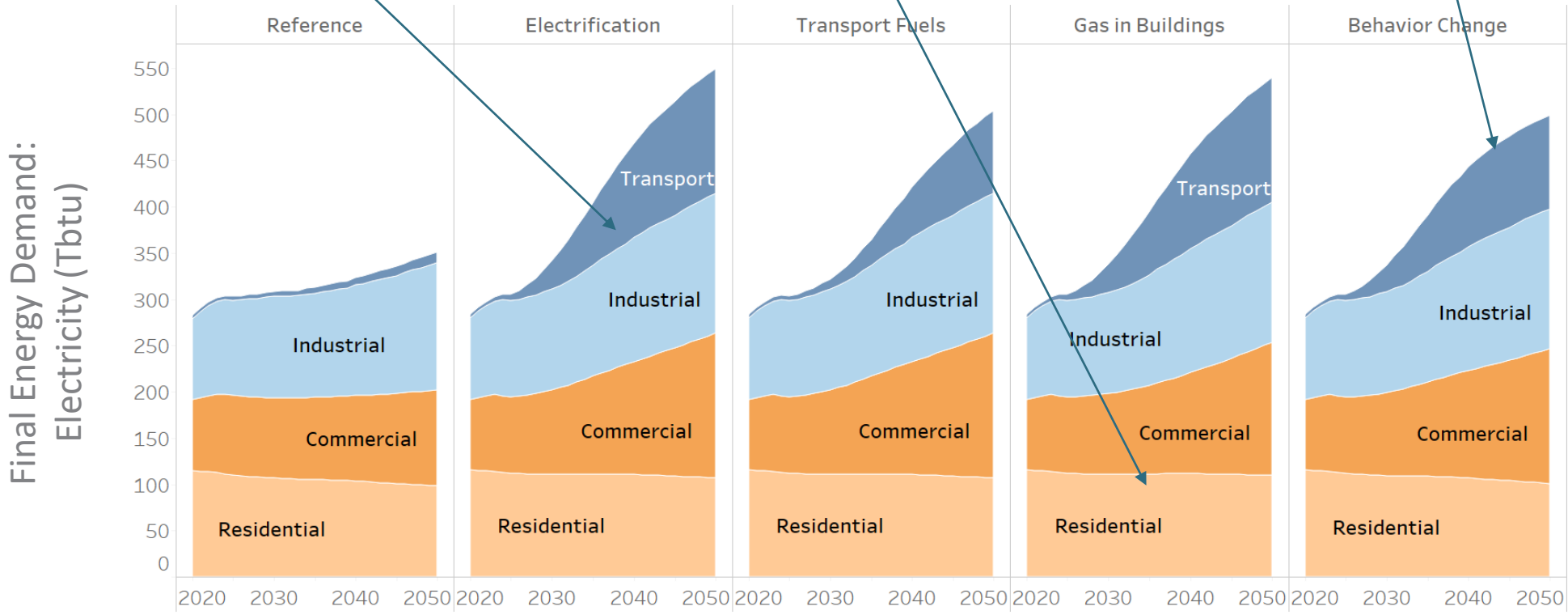
Final Energy Demand: Electricity

Electricity use in all decarbonization scenarios grows significantly

Transport electrification largest differentiator between cases

Lower electrification in buildings offset by lower levels of efficiency

Behavior Change drives lower demand in transport and buildings



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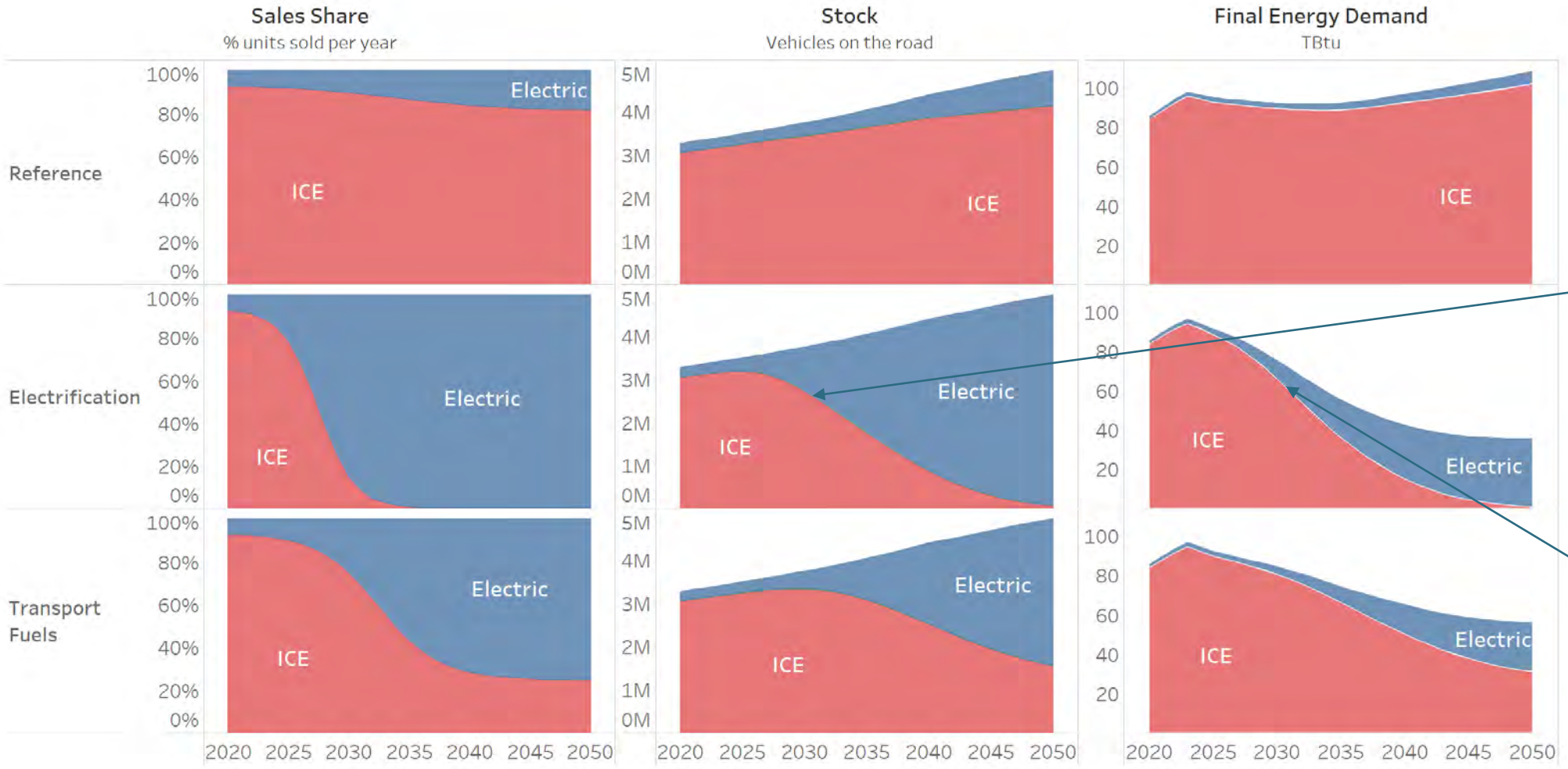
Light-Duty Vehicles: BEVs are Key to Lower Energy Demands

Lower energy demands reduce the need for investment in clean energy technologies to meet net zero

Projected Sales, Stock, and Final Energy Demand



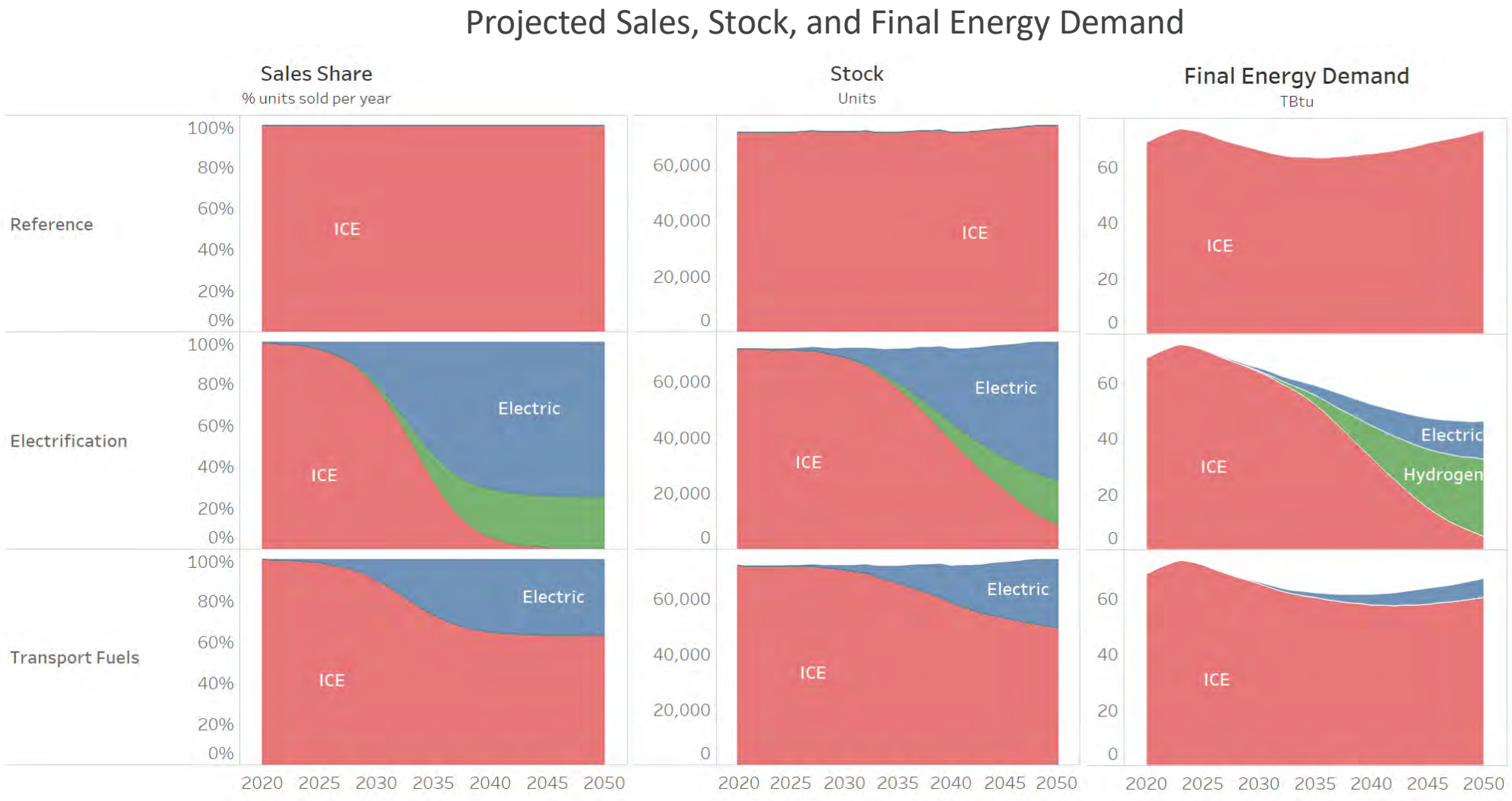
73% of vehicles are ICE in 2030 in the Electrification Case

Electrification Case final energy demand for fuels remains high in 2030: 74% of Reference in 2030

EVOLVED ENERGY RESEARCH

Heavy-Duty Vehicles: Hydrogen Demand in Long Distance by 2050

Adoption of hydrogen in long-haul and electric in long and short-haul drives changes in demand



EVOLVED ENERGY RESEARCH

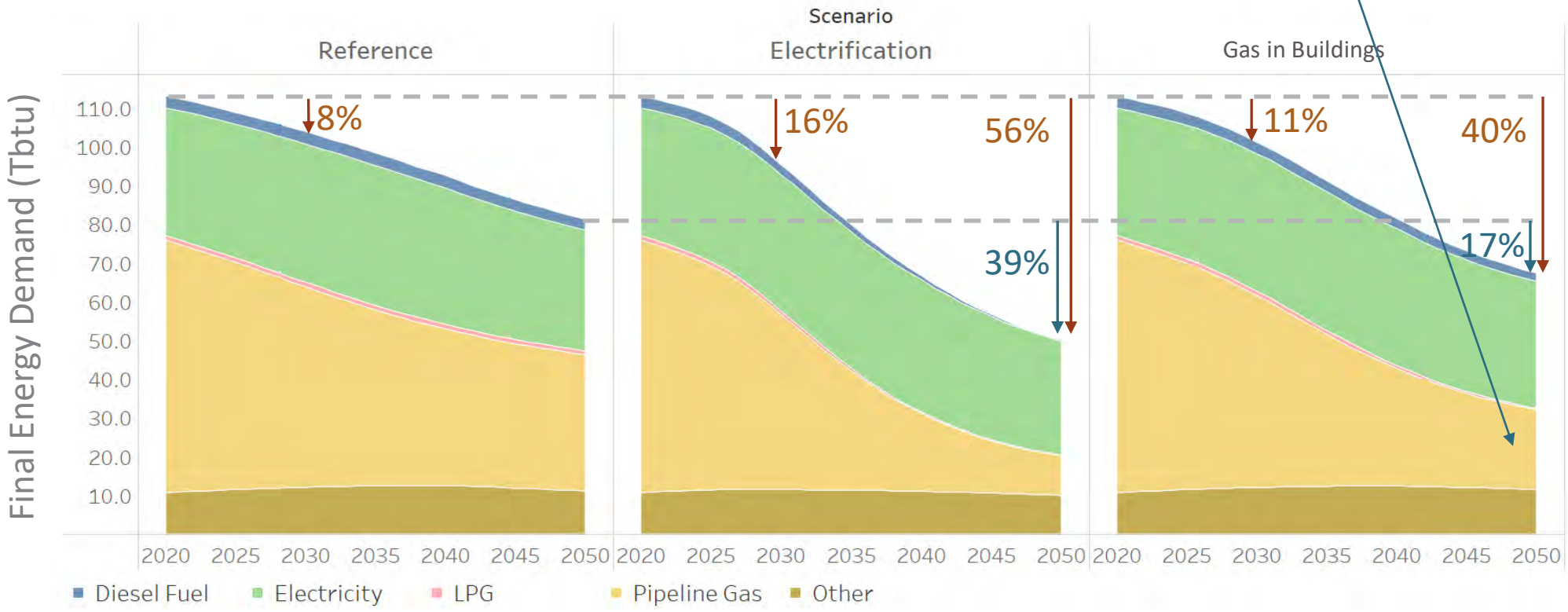
Residential Space Heating

More efficient home heating is driven by adoption of more efficient and/or electrified technologies

2030 Challenge: Delay in stock rollover turning sales into stock and energy changes

Significant reductions in energy demand by 2050 due to efficiency and electrification

Fuel use for heating can be served by fossil or clean fuel alternatives



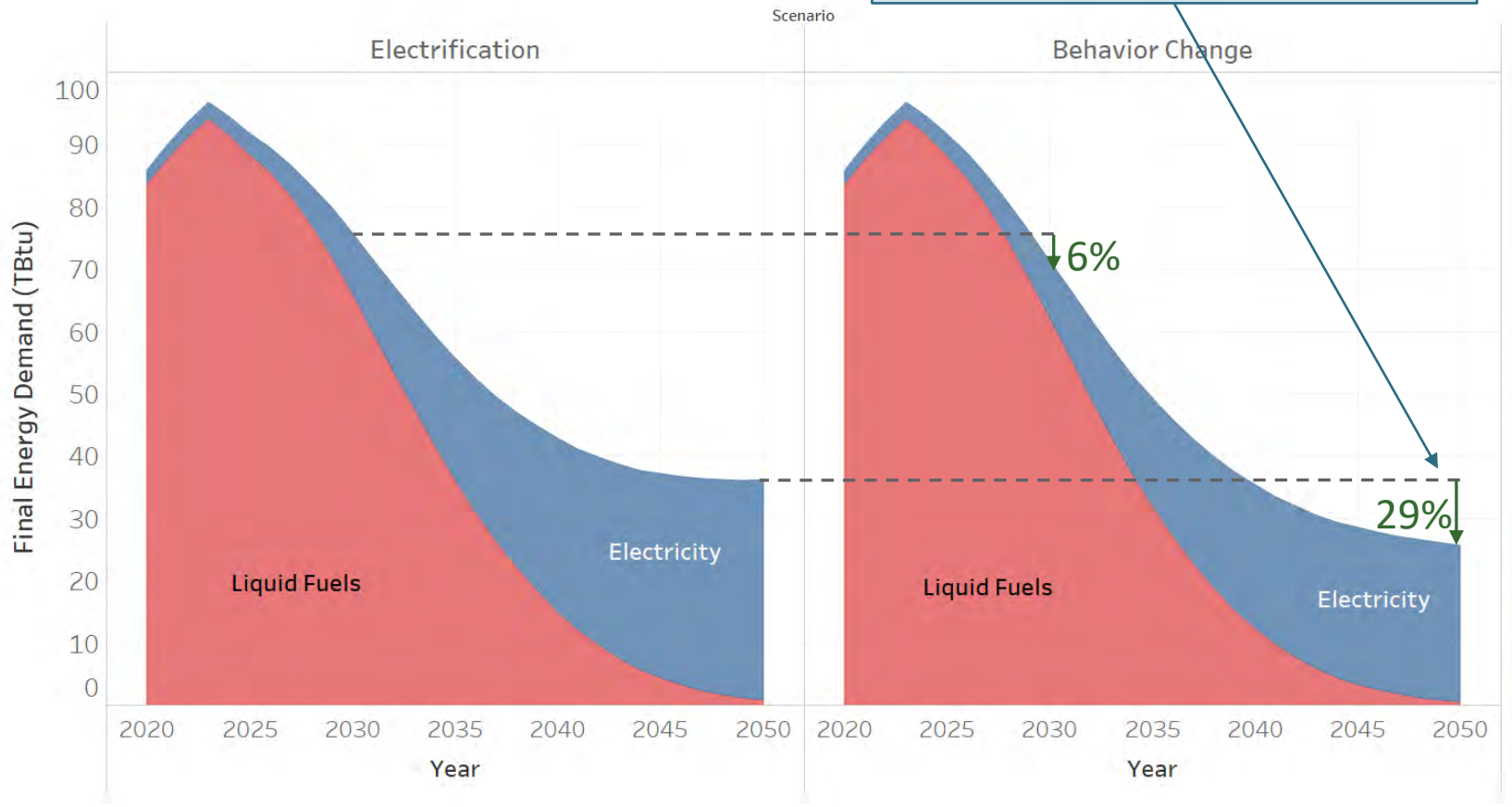
EVOLVED ENERGY RESEARCH

Behavior Change: Transportation

- VMT reductions increasing over time
  - 29% in light-duty vehicles by 2050
  - 15% in medium- and heavy-duty vehicles by 2050
- 2030 reductions are modest and provide little help to solving the 2030 Challenge
  - Are there more aggressive behavior change measures that can happen faster?

Example: Final Energy Demand from Light-Duty Autos

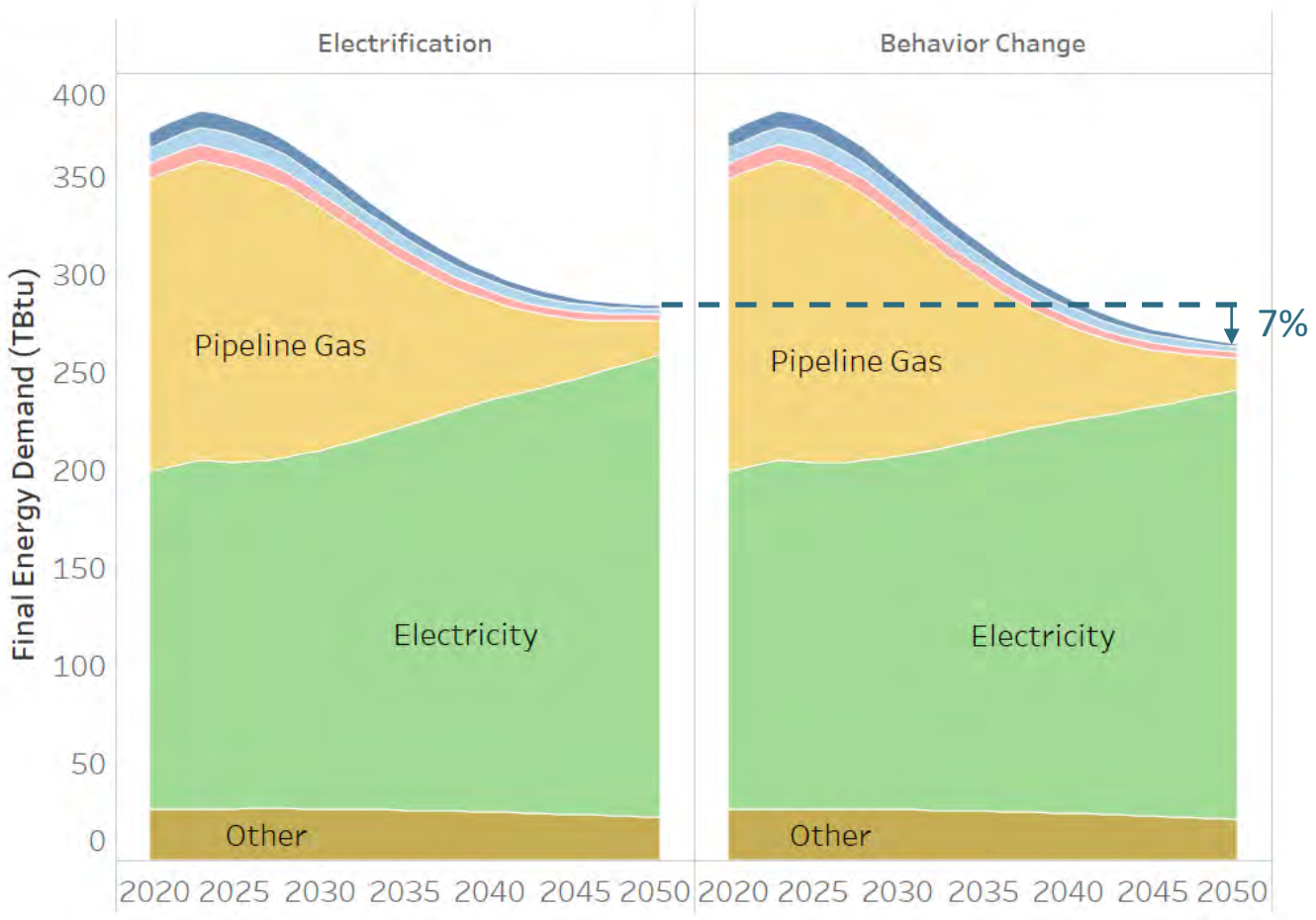
29% percent reduction in sales of fuels and electricity vs. Electrification Case by 2050



EVOLVED ENERGY RESEARCH

Behavior Change: Residential and Commercial

- Package of service demand measures for residential and commercial sectors
  - Reductions for several subsectors, including air conditioning, heating, lighting, and water heating
- Service demand measures achieve 7% overall reduction by 2050 in the residential and commercial sectors
  - 2% reduction in 2030



Supply Side

Electricity Capacity in Washington

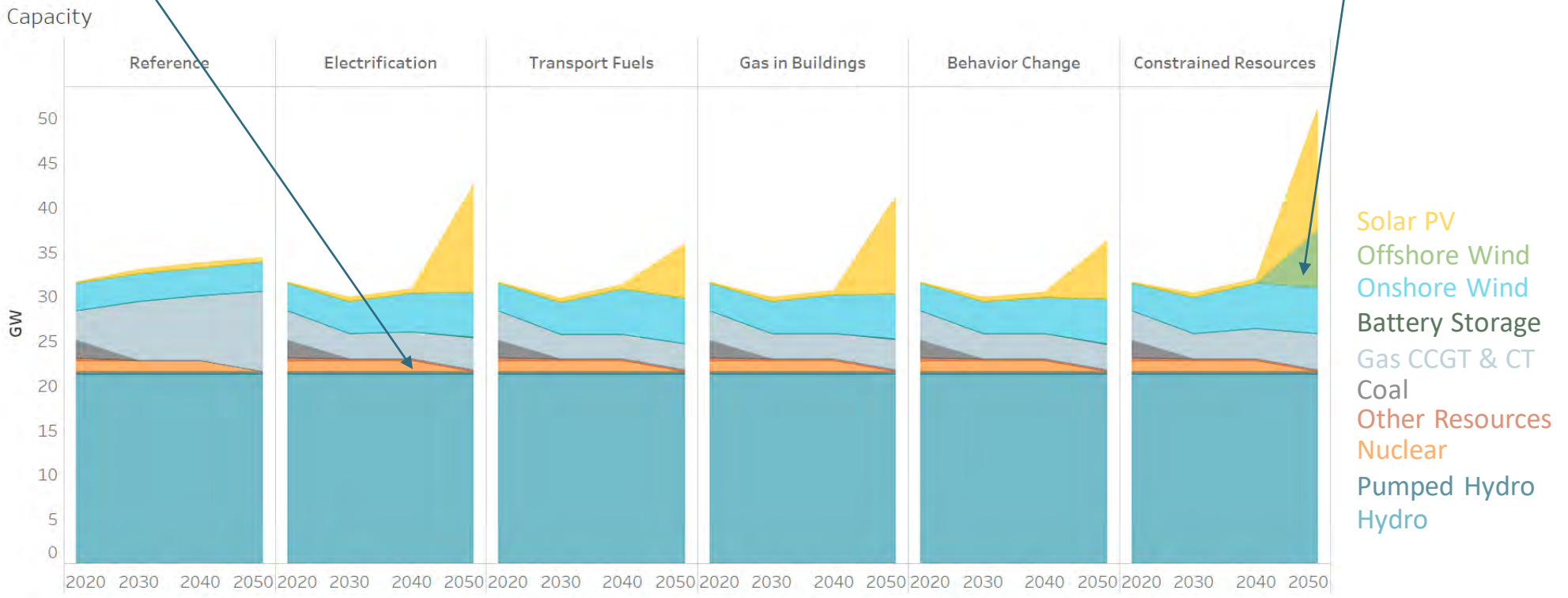
Washington relies heavily on imports of clean energy so capacity builds stay relatively flat

CGS not extended. O&M costs too high compared to alternatives

Similar builds across decarbonization cases other than Limited Resource Case

Limited Resource Case builds offshore wind and more solar to compensate for lost TX

Relatively little growth in capacity due to significantly increased imports



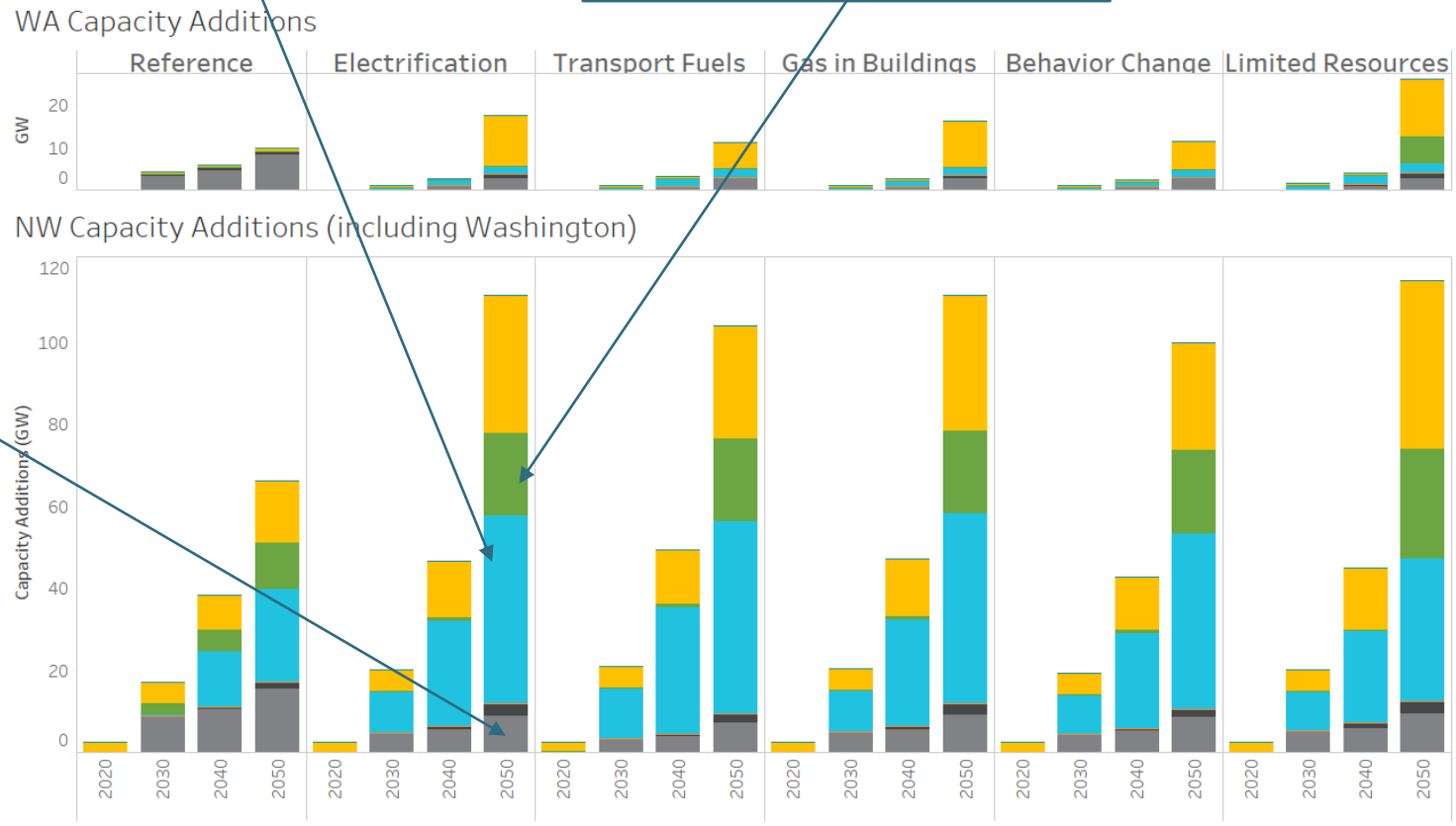
Capacity Additions in Washington and the Northwest

Washington past of a larger integrated electricity system

Wind-dominant system complements solar resource of the Southwest

Lower forecasted costs drive large offshore wind resource by 2050

9 GW of gas capacity additions provide reliability, operated at low capacity factors



Battery Storage
Solar PV
Offshore Wind
Onshore Wind
Combustion Turbine
Combined Cycle Gas Turbine

Generation and Load in Washington

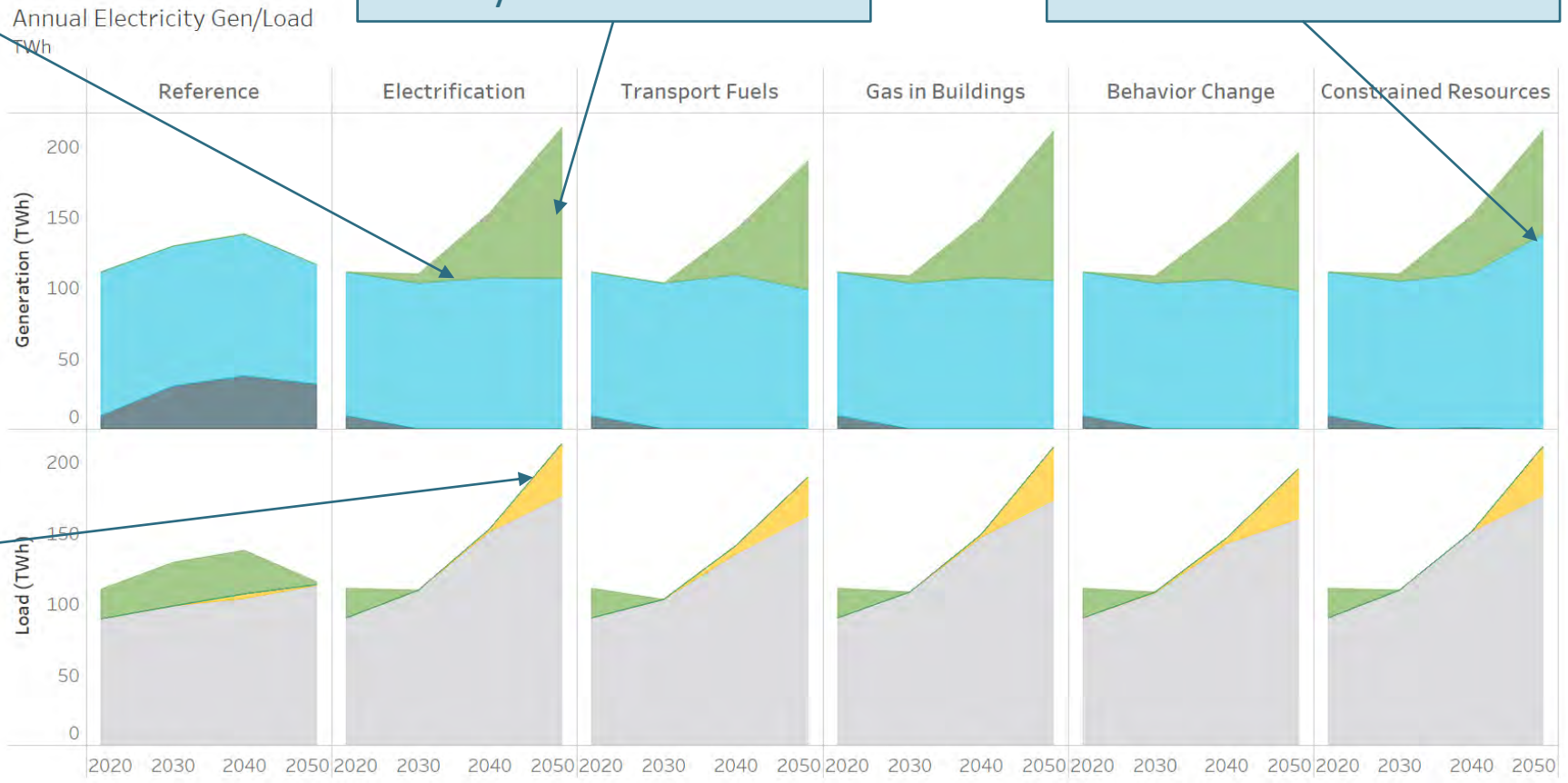
Rapid increases in imports provide clean energy for expanding electricity sector

Growing reliance on clean imports to meet load growth, CETA and emissions goals

Imports provide 50% of electricity in Electrification Case by 2050

Growth in clean electricity in Constrained Resources case due to offshore wind

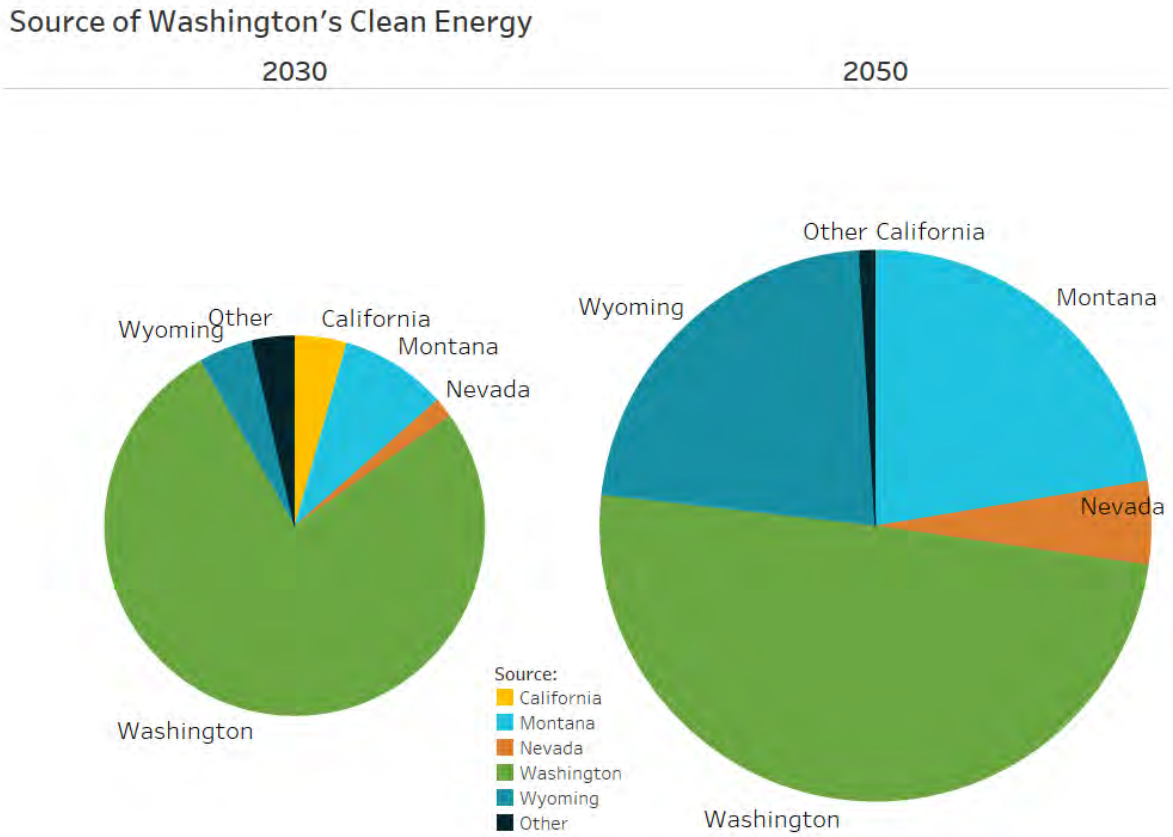
Added flexible loads by 2050 (electrolysis, boilers) more than double 2020 load

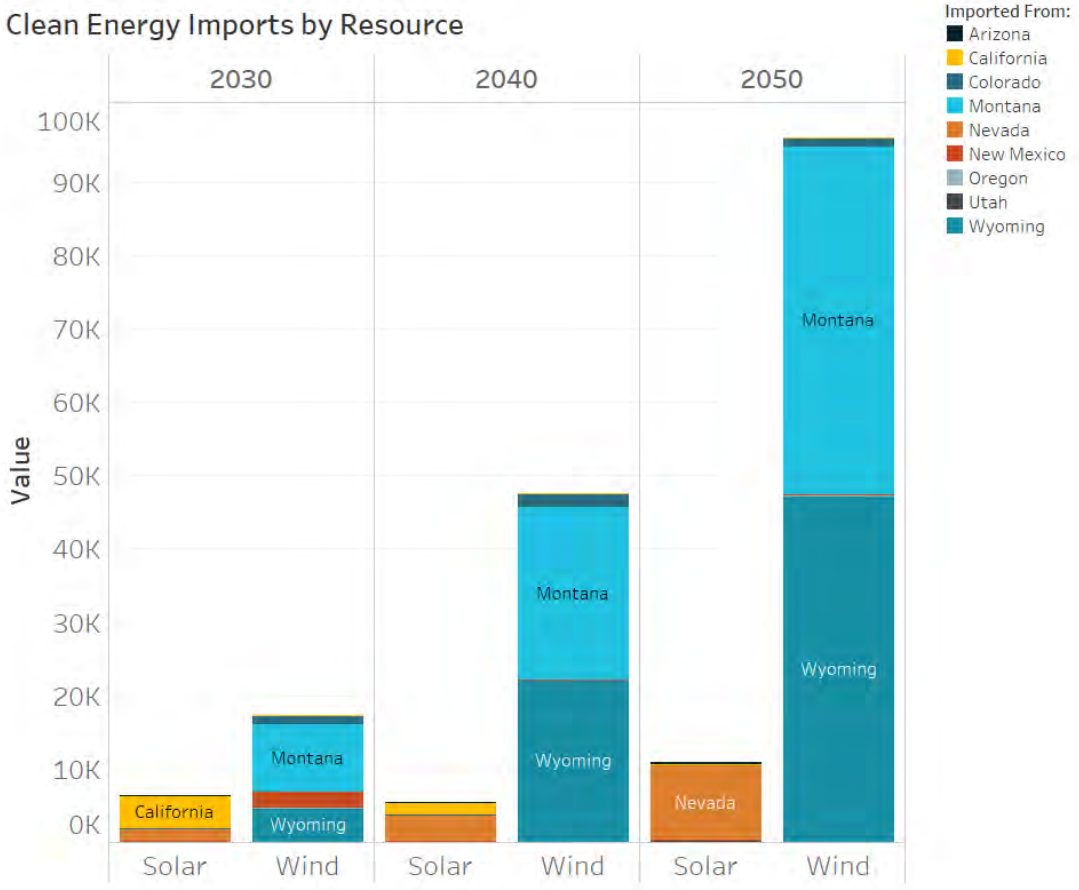


Where do Imports Come from?

Clean electricity imports from Electrification Case

High quality wind resources from Wyoming and Montana account for 45% of WA clean electricity in 2050

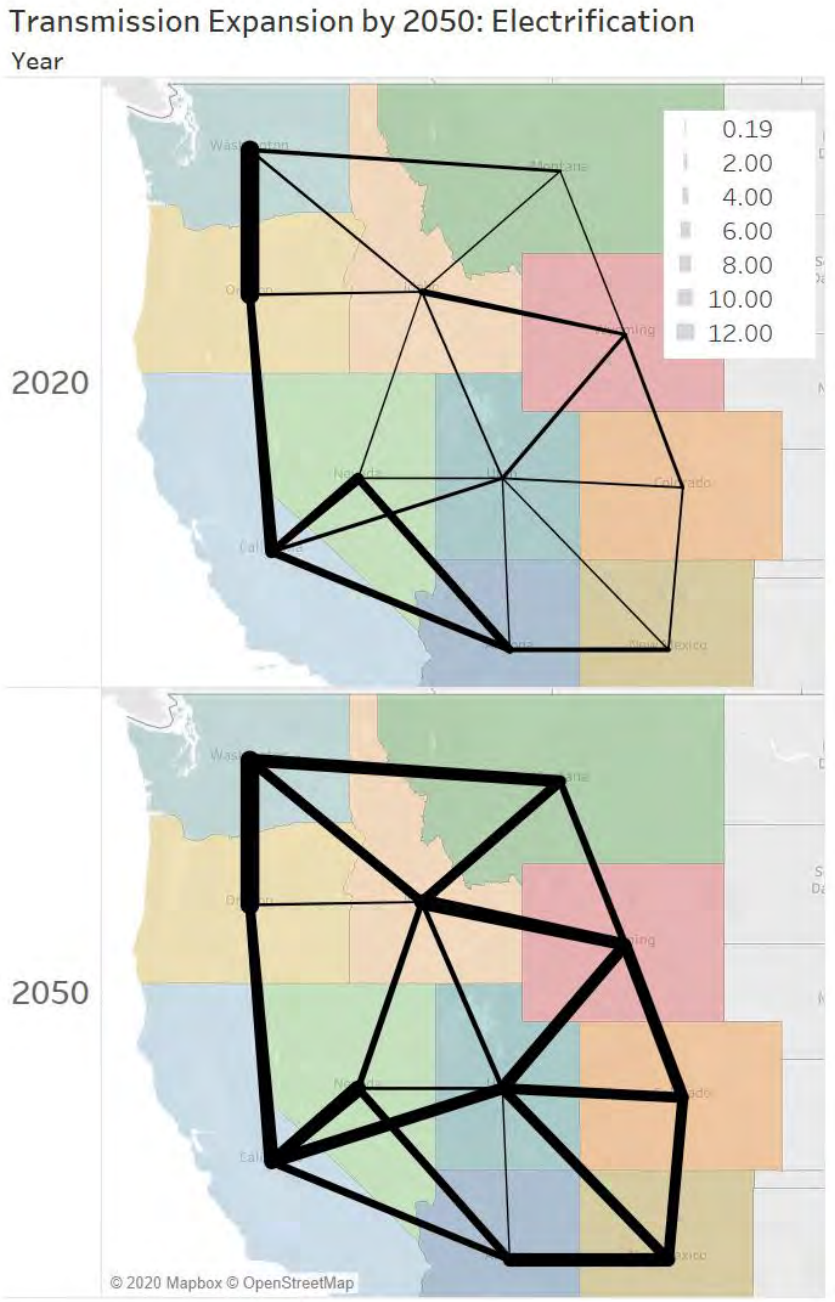




Expanding Transmission Facilitates Imports

Increased TX capacity required to import so much energy

- Expansion of up to 6 additional GWs of TX between states permitted in the model
  - MT->WA: Maximum 6 GW added
  - ID->WA: 5 GW added
- Western states become far more interconnected, taking advantage of least cost clean energy resources
- Additional solar and offshore wind build in Constrained Resources Case from inability to expand interties



Regional Capacity in 2050

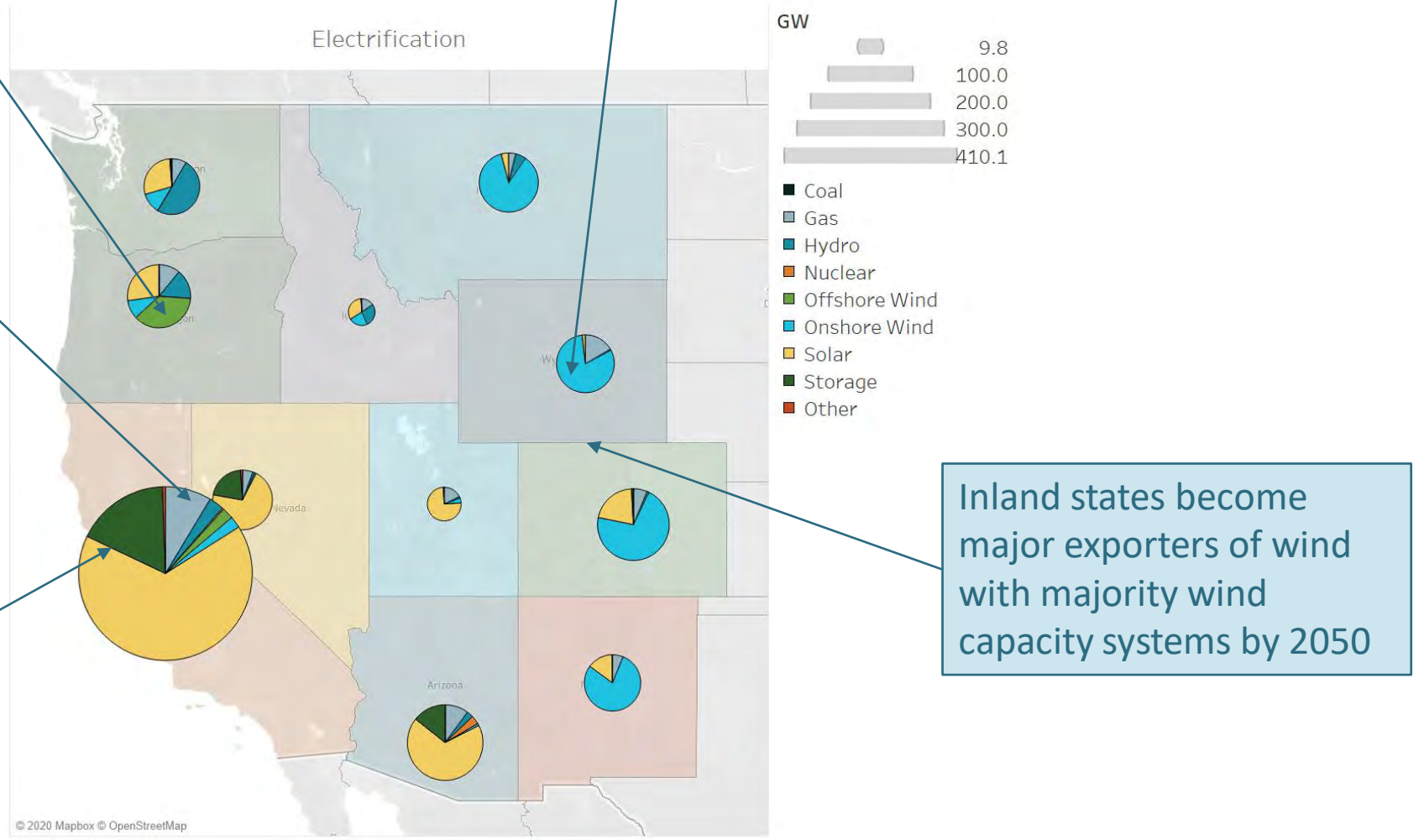
Electrification Case

Offshore wind built in Northwest and California to meet 2050 clean energy needs

Gas capacity provides reliability but very little energy in 2050

Large quantity of storage built in solar states for diurnal balancing

Large wind resource complements Southwestern solar resource

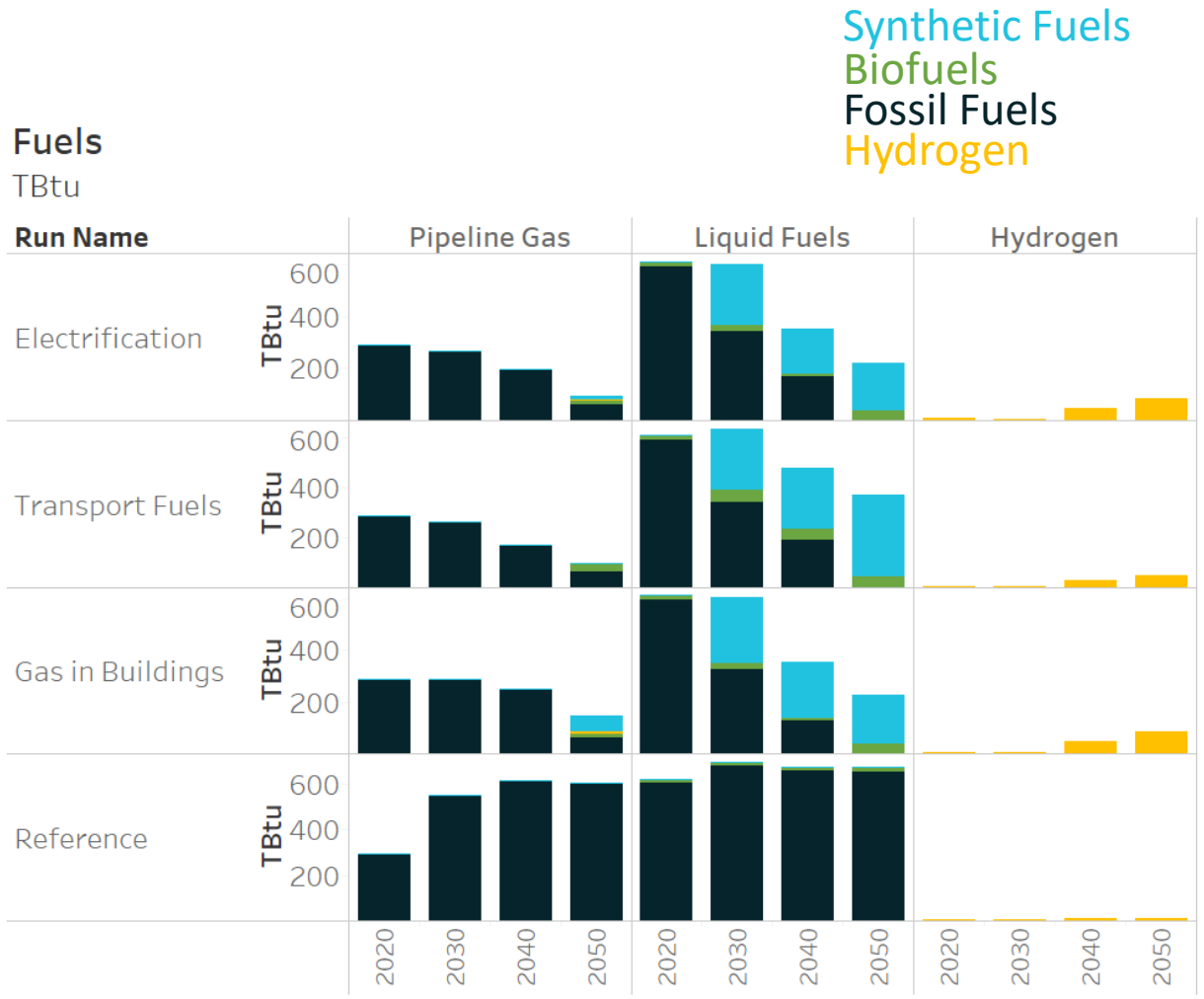


Inland states become major exporters of wind with majority wind capacity systems by 2050

Clean Fuels are Important to Reach Decarbonization Targets

Washington starts from a clean electricity sector and needs emissions reductions from other sectors

- All liquid fuels are fully decarbonized by 2050
- Decreasing fuel consumption over time with electrification and efficiency
- Liquid fuels (gasoline, diesel, jet fuel, others) significantly decarbonized by 2030
  - Significant growth in synthetic and biofuels industries with few current commercial operations
  - Challenge for Washington to reach 2030 targets
- Hydrogen demand driven by long-haul trucking fleet
- Majority emissions in 2050 from natural gas in primary end uses



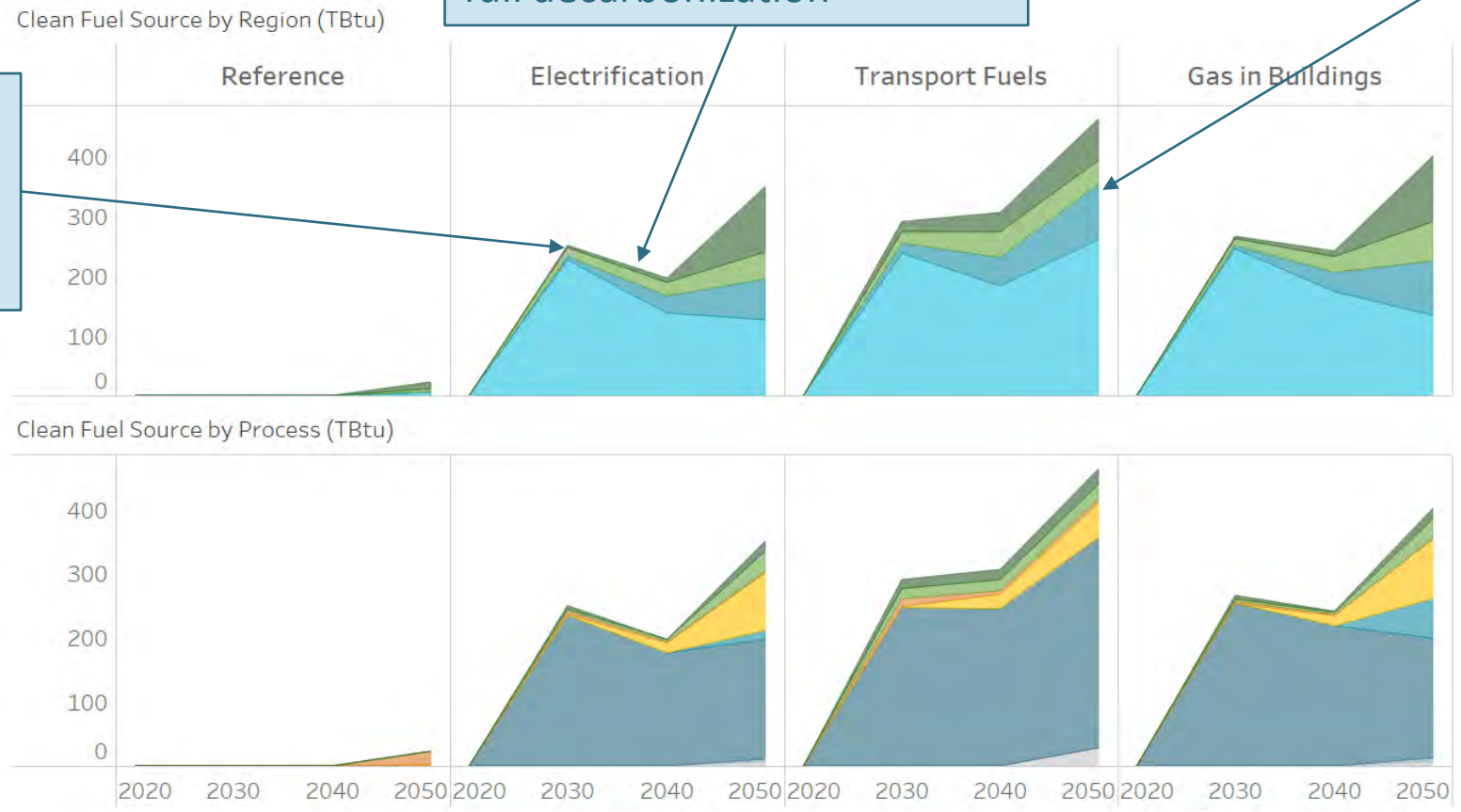
Where do Clean Fuels Come from?

Heavy reliance on clean fuel imports from the rest of the country in Washington

Decline as ICEs are electrified followed by increase to reach full decarbonization

33% higher clean fuel demand in Transport Case vs Electrification

2030 peak in clean fuel demand due to large number of ICEs still on the road

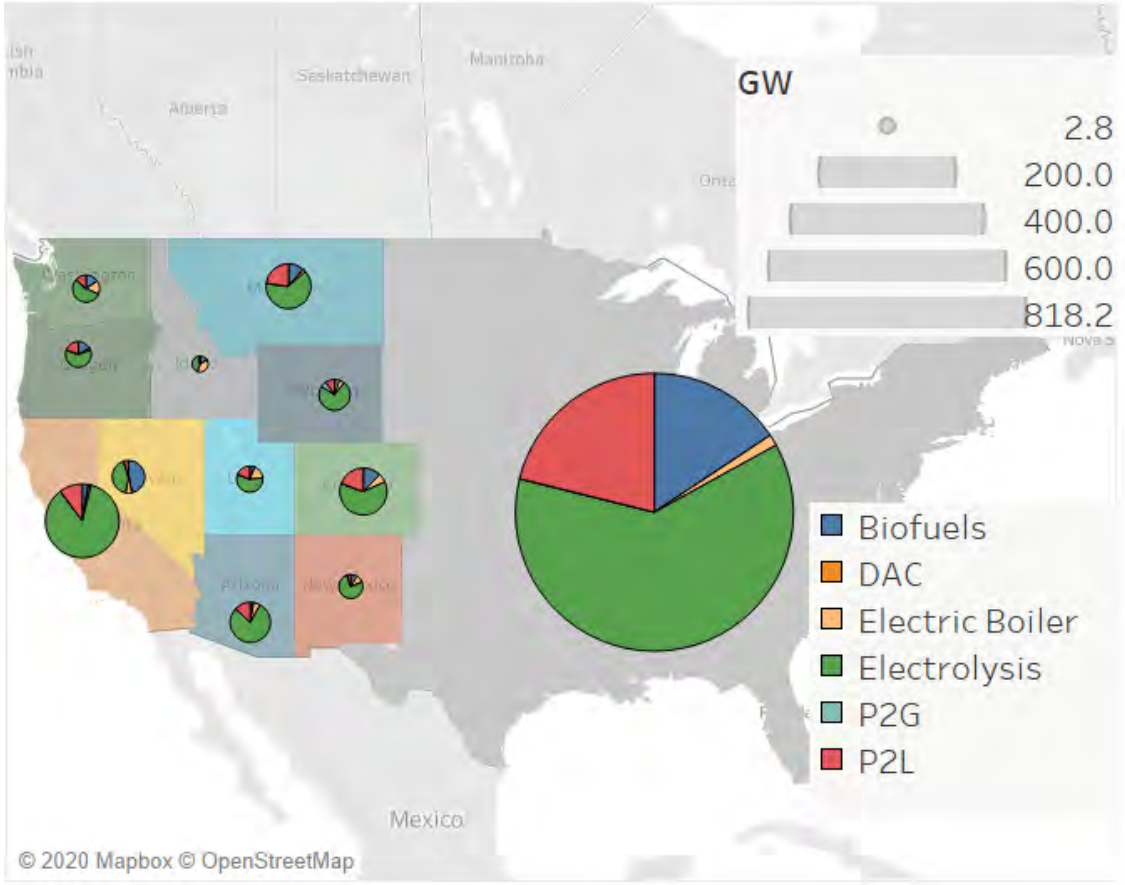


EVOLVED ENERGY RESEARCH

Fuels Production Capacity by 2050

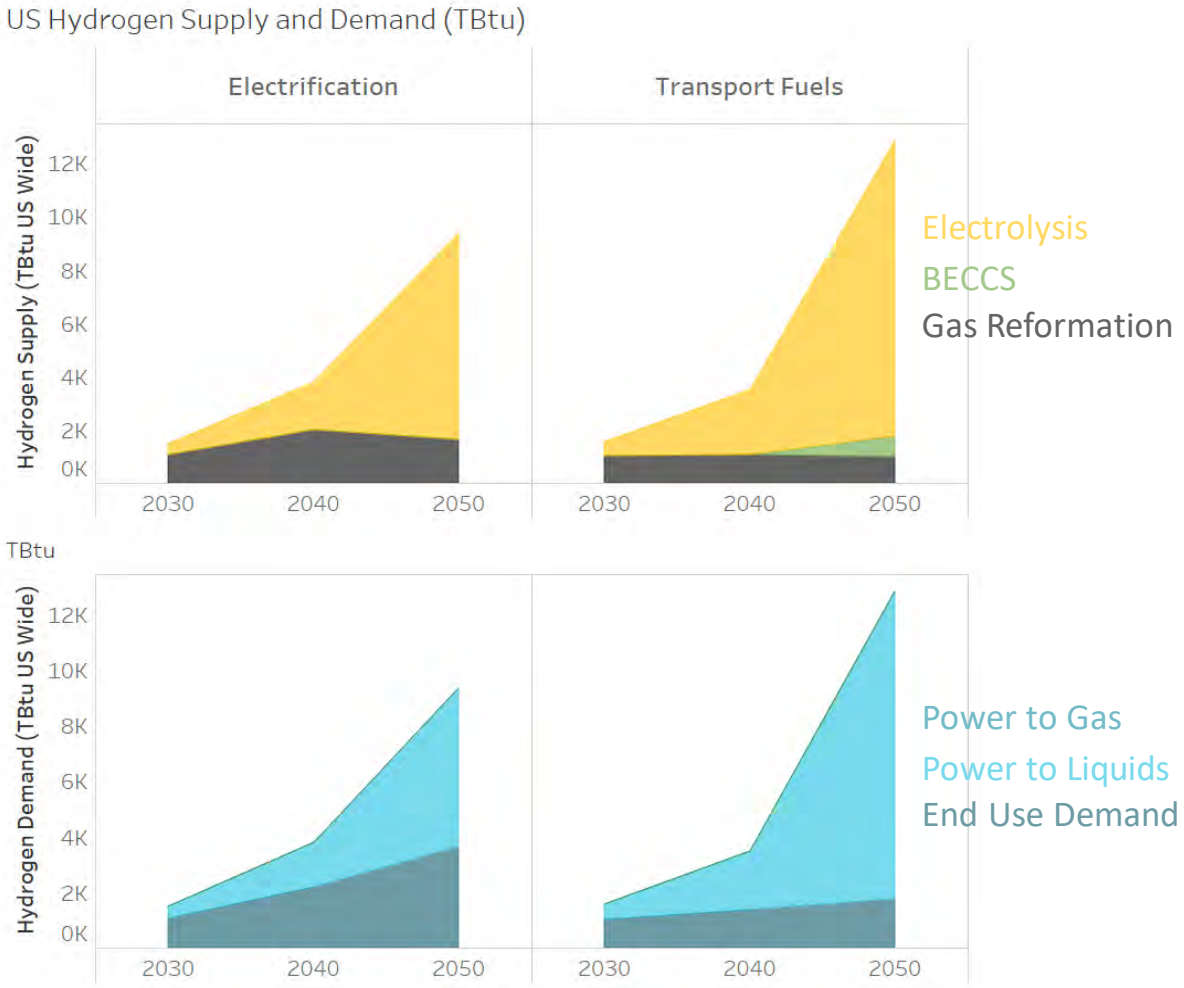
National production capacity to serve US needs: Electrification Case

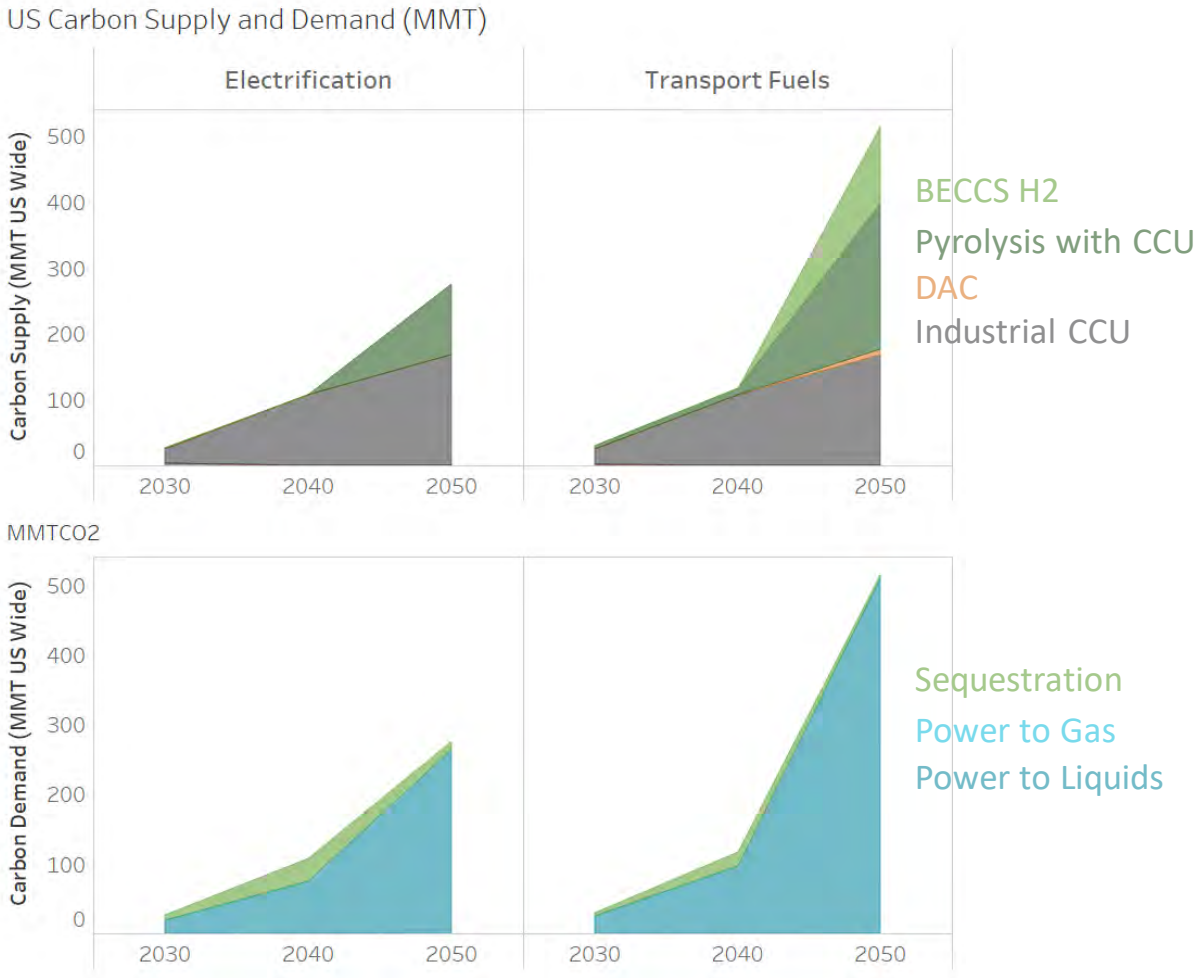
- Large total conversion capacity investment needed across the US to produce clean fuels
  - Includes demand from other states
- WA demand met with investment in fuels conversion infrastructure, biomass, and clean electricity
- Greater capacity investment needed to meet bio and synthetic fuels demand in Transport Fuels Case
  - Increased WA demand met with investment in fuels production infrastructure



National Fuels Industry in 2050: Hydrogen and Carbon

Building blocks of synthetic fuels, drives demand for biomass and renewable energy





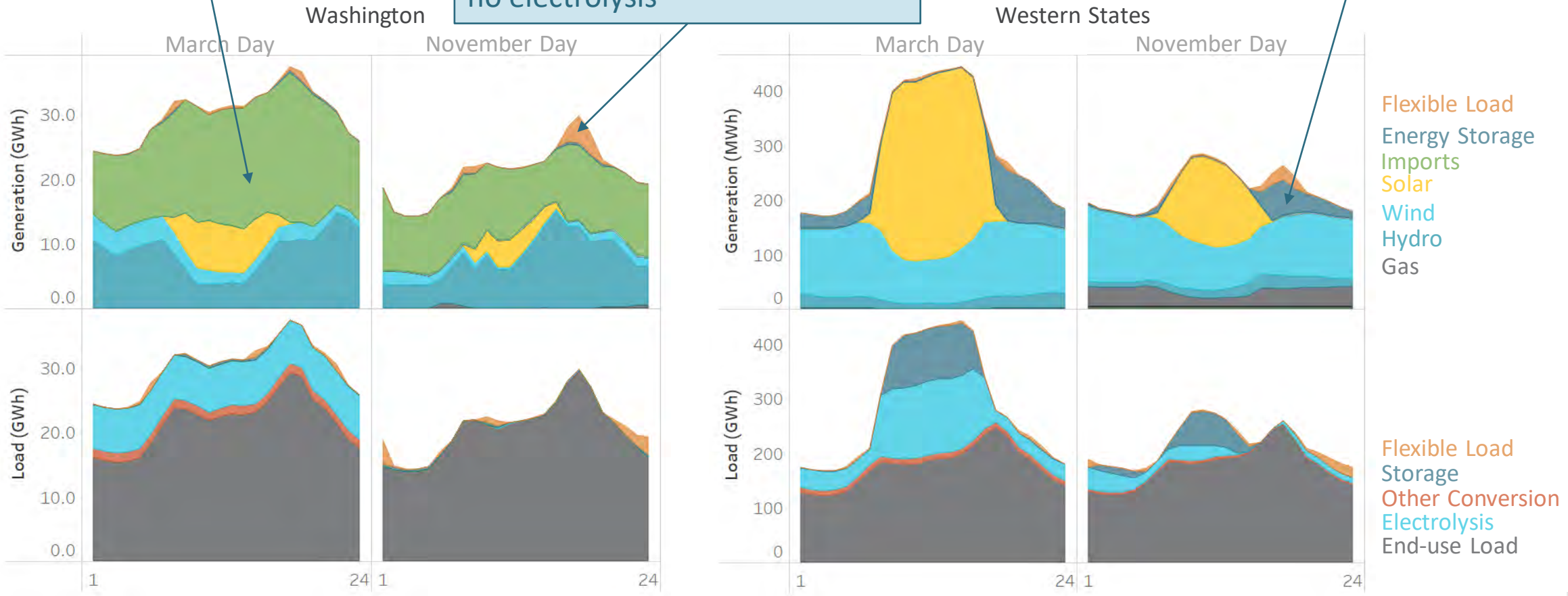
Balancing the System: High Energy and Low Energy Days in 2050

Washington relies on flexible loads, imports, hydro, and electrolysis to balance load

Unconstrained energy day in March: imports and electrolysis

Constrained energy day in November: flexible loads, clean gas generation, reduced imports, no electrolysis

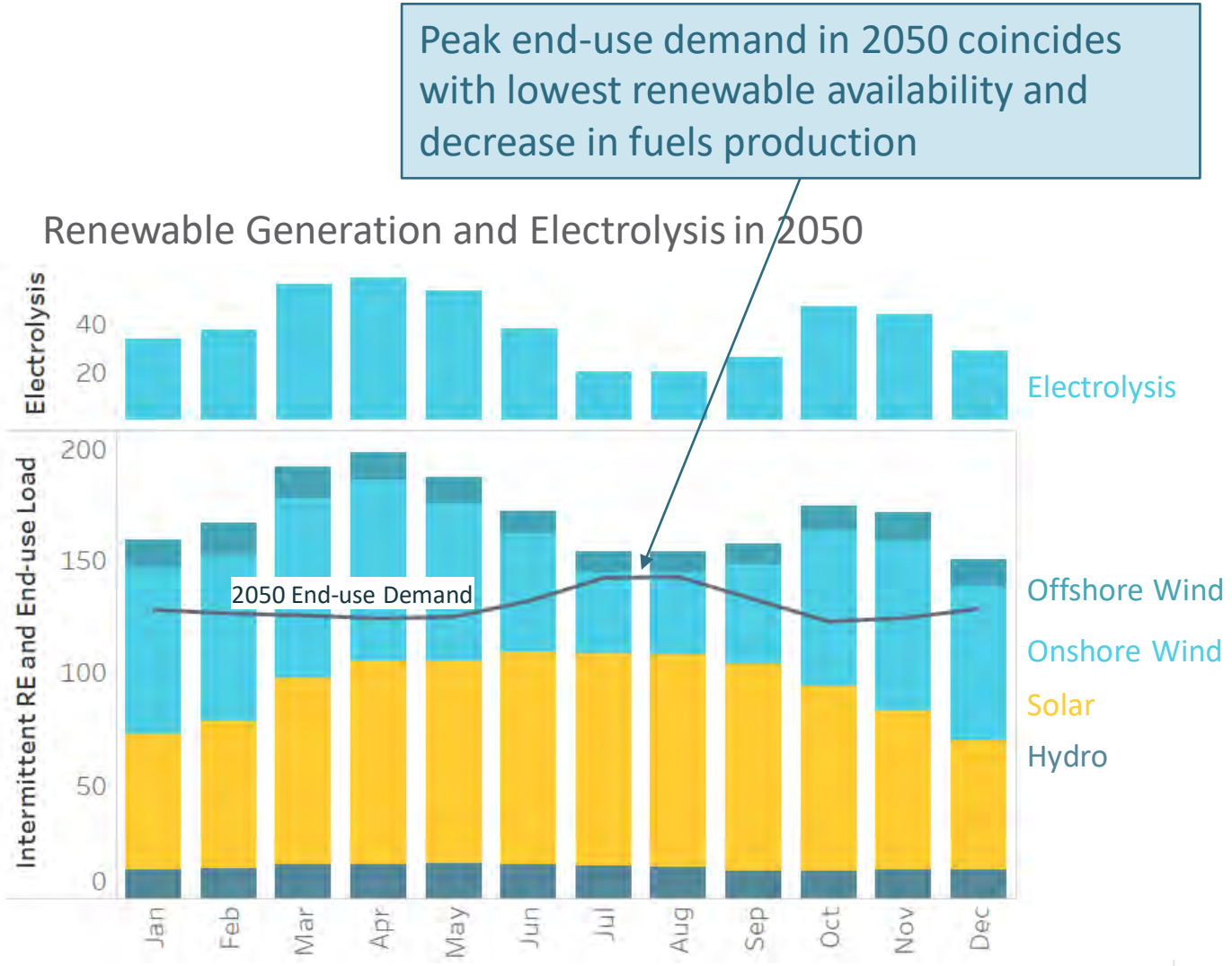
Significant storage build in the rest of the west helps balance diurnal solar shape



Seasonal Balancing in 2050: West Wide

Fuels production an integral part of balancing the electricity grid in 2050

- Seasonal imbalance of intermittent renewable energy availability
  - Shifting energy across seasons difficult with current storage technologies such as lithium ion
- Clean fuels demand is an opportunity for seasonal balancing
  - Store electricity in liquid fuels
- Large flexible electrolysis loads can help balance the grid over different time scales



EVOLVED ENERGY RESEARCH

Washington's Main Balancing Resources

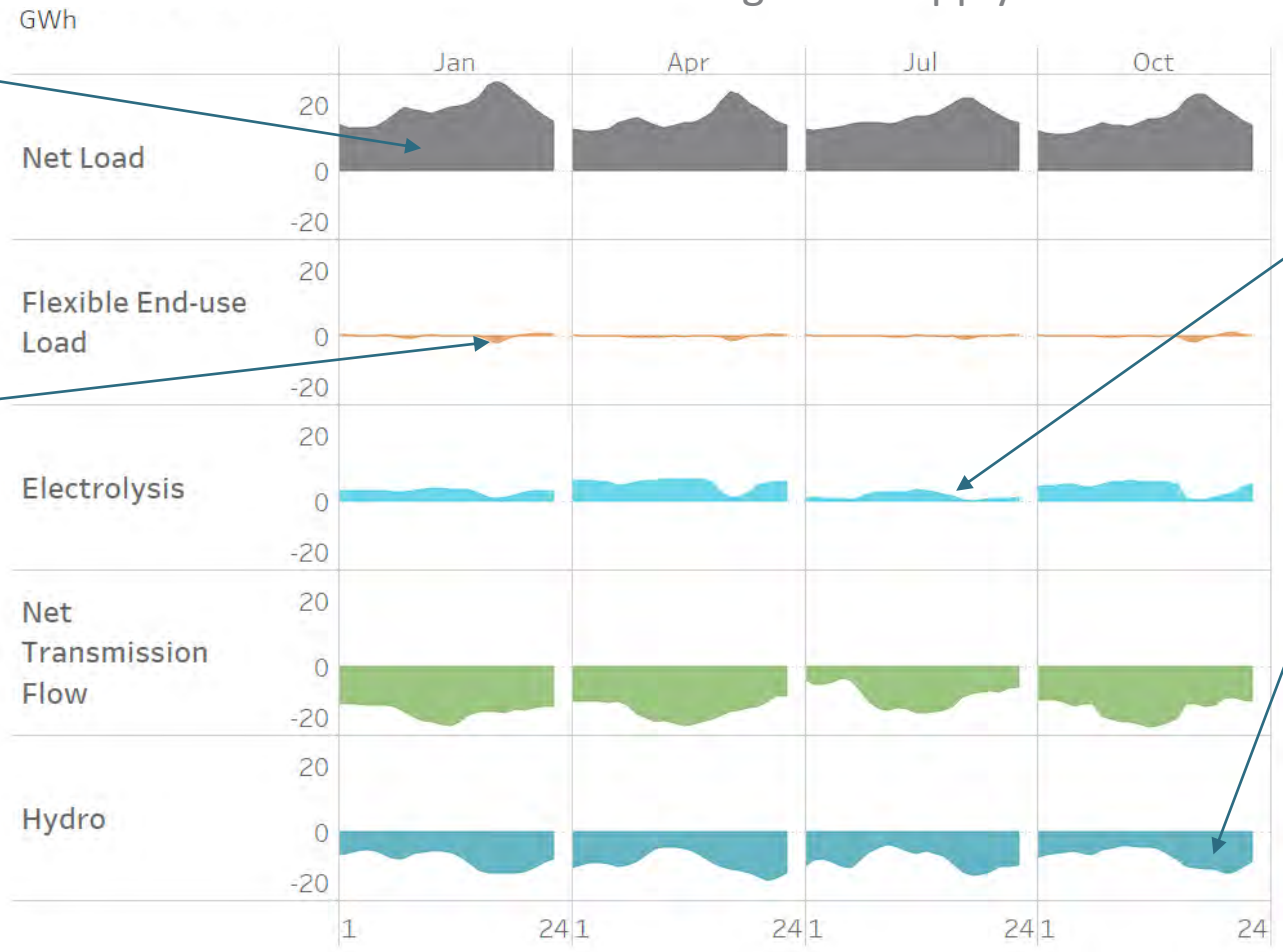
Hydro, imports, electrolysis, and flexible loads are principle balancing resources in WA

Washington loads higher in the winter in contrast to the West as a whole

Flexible loads drive down peak loads

Average Dispatch in 2050

+ Positive: Load
- Negative: Supply



Lower summer electrolysis due to reduced imports

Hydro operated flexibly, adhering to historically observed minimum flow, ramp, and energy constraints

Takeaways by Scenario

- There are common trends across all of the scenarios
  - Strengthened Western grid to take advantage of resource and geographic diversity
  - Large build of solar in the Southwest and wind in the inland states
  - A large synthetic fuels industry developed based on hydrogen and carbon from electrolysis and biofuels
- The scenarios show how Washington would respond differently under different conditions
  - Transport fuels drive a 33% increase in clean fuel use in the state with reduced electricity consumption
  - Gas in buildings drives synthetic gas production not seen in other cases to ensure decarbonization goals are met
  - Behavior change reduces Washington's need for clean energy and fuels
  - Constrained resources drives additional solar build and offshore wind in Washington
- Bottom line: how much will these solutions cost relative to one another?
  - Next step in the analysis

Key Findings

Key Findings

- Because Washington's electricity supply is 80% clean to begin with, decarbonizing electricity cannot play a large role in accomplishing the 2030 goal
- Even with GHG-neutral electricity under CETA, 2030 emissions target is very challenging
  - Focus must be on demand side and fuels: Energy efficiency, electrification, decarbonized fuels
  - Stock rollover of technologies with long lives raise the question of how much can be accomplished in 10 years?
- Some actions to meet 2030 target may not contribute to 2050 target
  - Diesel and gasoline use reduces dramatically with electrification of transportation by 2050
  - Infrastructure to decarbonize fuels should focus on fuels that remain in the economy through 2050

Key Findings

- Significant imports of clean energy from wind-rich states support Washington's electricity needs – 48% by 2050 in Electrification Case
  - Regional coordination is key to Washington and Western decarbonization
  - By how much and how fast can transmission be expanded?
- Synthetic fuels production plays a major role in decarbonizing Washington's economy as well as balancing the electricity grid
  - Both through electrolysis in the state and as part of the regional balancing solution
  - Early need for clean fuels to meet Washington targets
- 9 GW of natural gas added for reliability by 2050
- Washington state resource balancing provided by hydro, electrolysis, flexible loads, and imports as part of the integrated balancing capability of the rest of the West

Initial Policy Direction

- What policies can we put in place in 2020 to push as hard as possible on energy efficiency, electrifying end uses, flexible loads, and low-carbon fuels to get on the path to 2030 emissions goals and beyond?
- What policies can help develop a clean fuels industry rapidly and cost effectively?
- What are the policies that would encourage behavior changes that could be done early, fast, and cost effectively?
- What actions need to be taken to develop greater regional coordination and interregional balancing?

Thank you

Jeremy Hargreaves, Principal, Evolved Energy Research

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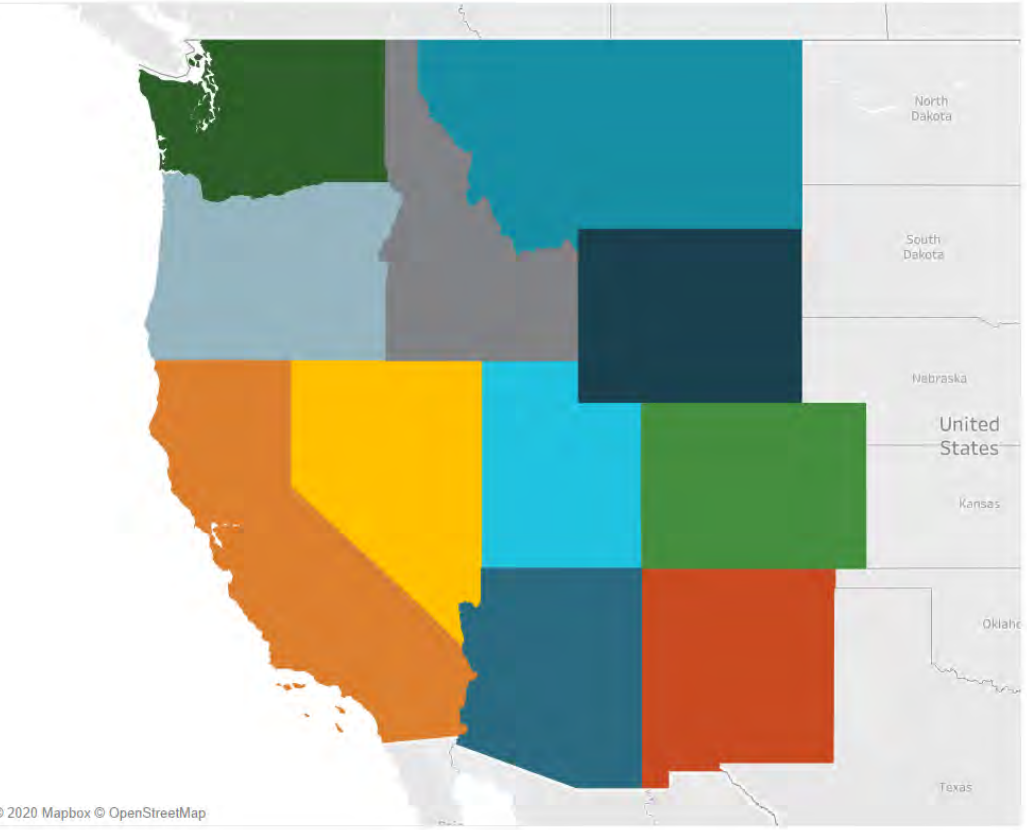
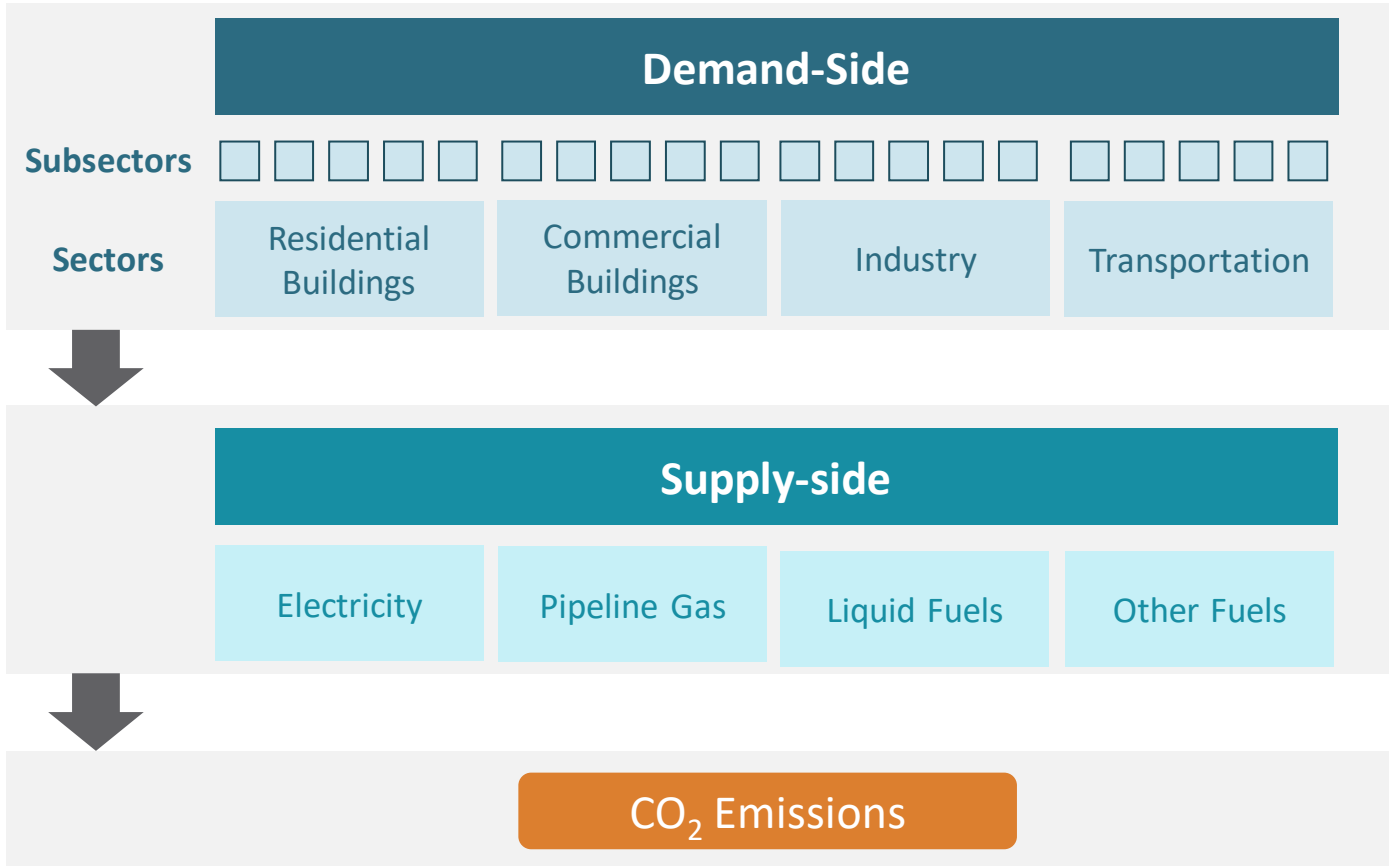
Appendix: Study scope and methodology

Study evaluates deep decarbonization of Washington's economy



- All energy sectors represented
  - Residential and commercial buildings, industry, transportation and electricity generation
- Regional representation
  - Other state's actions will impact the availability and cost of solutions Washington has to decarbonize
  - State representation in the west captures electricity system operations and load, transmission constraints, biofuel and sequestration potential, and competition for resources as others meet their own targets
- Remainder of the U.S.: also modeled to factor in electricity sector dynamics and the availability of renewable resources, biofuels and sequestration

Analysis covers Washington's entire energy system



- **EnergyPATHWAYS** model used to develop demand-side cases
- Applied electrification and EE levers
- Strategies vary by sub-sector (residential space heating to heavy duty trucks)

- **Regional Investment and Operations (RIO)** model identifies cost-optimal energy supply
- Net-zero electricity systems
- Novel technology deployment (biofuels; hydrogen production; geologic sequestration)

Demand-side modeling

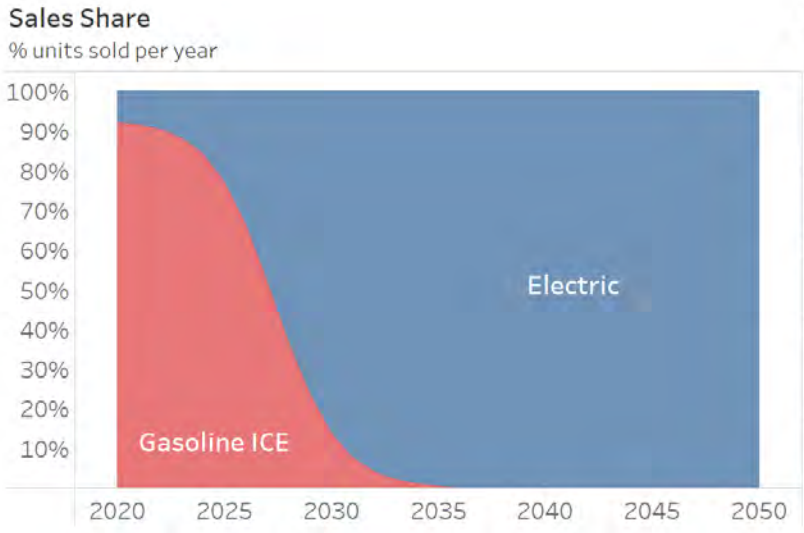
ENERGY PATHWAYS

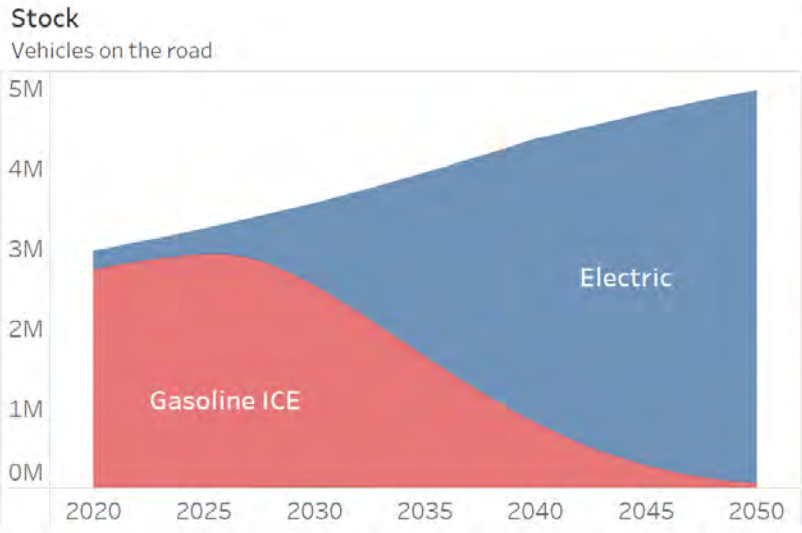
- Scenario-based, bottom-up energy model (not optimization-based)
- Characterizes rollover of stock over time
- Simulates the change in total energy demand and load shape for every end-use
- Illustration of model inputs and outputs for light-duty vehicles

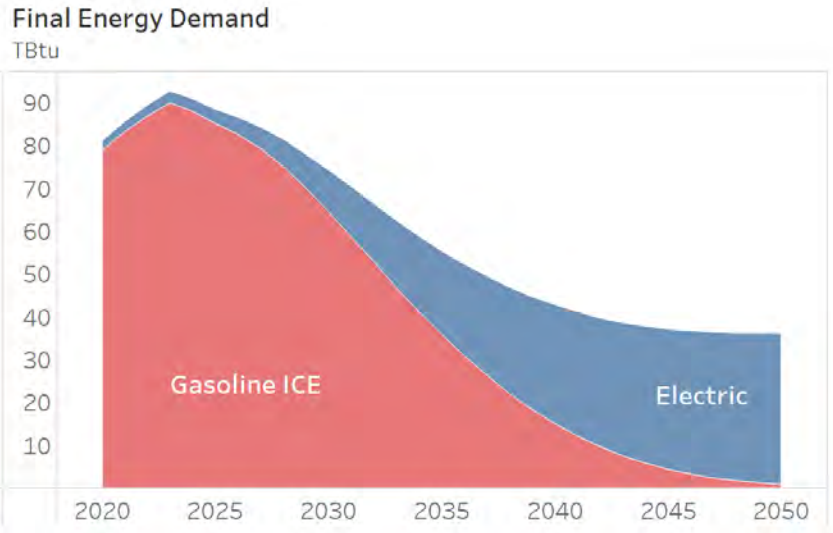
Input: Consumer Adoption
EV sales are 100% of consumer adoption by 2035 and thereafter

Output: Vehicle Stock
Stocks turn-over as vehicles age and retire

Output: Energy Demand
EV drive-train efficiency results in a drop in final-energy demand

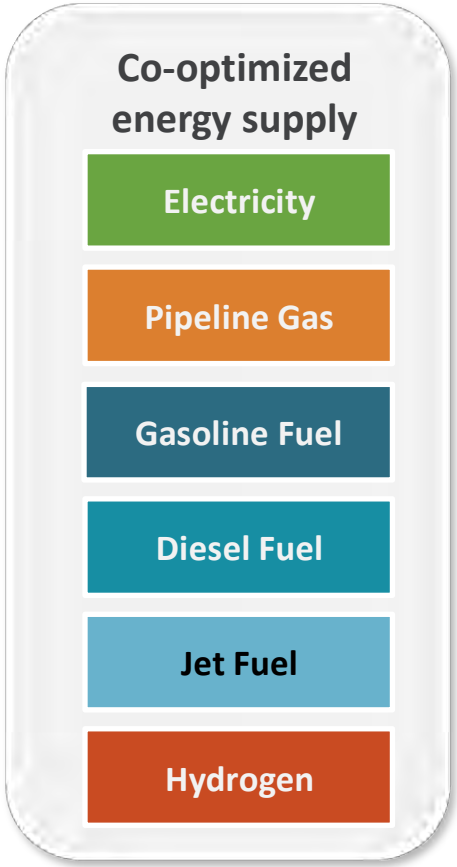






Supply-side modeling

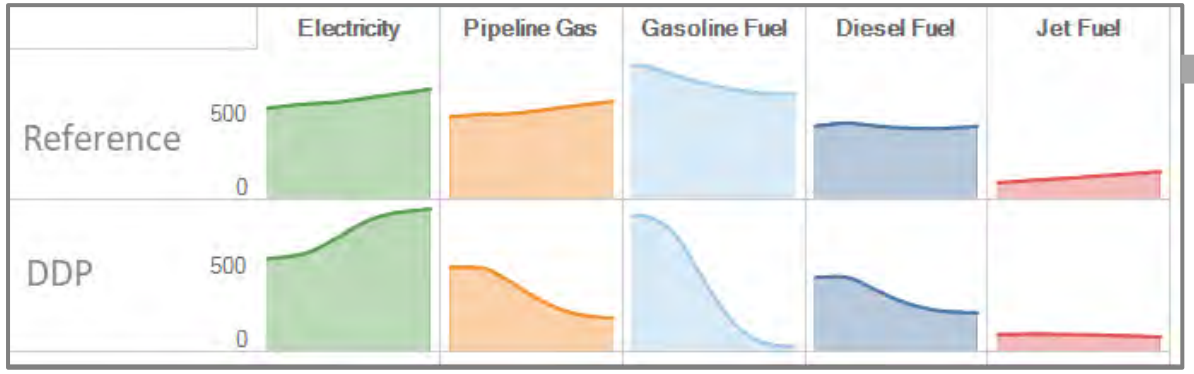
- Capacity expansion tool that produces cost optimal resource portfolios across the electric and fuels sectors
  - Identifies least-cost clean fuels to achieve emissions targets, including renewable natural gas and hydrogen production
- Simulates hourly electricity operations and investment decisions
  - Electric sector modeling provides a robust approximation of the reliability challenges introduced by renewables
- Electricity and fuels are co-optimized to identify sector coupling opportunities
  - Example: production of hydrogen from electrolysis



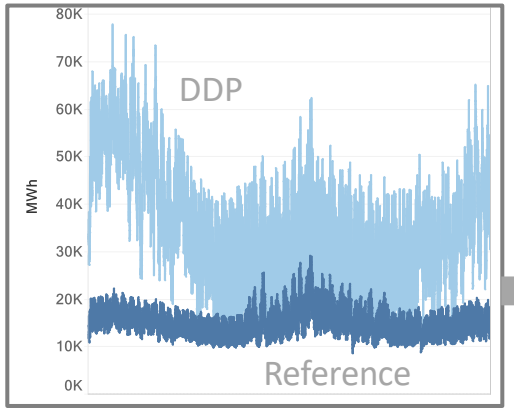
Demand- and supply-side modeling framework

EnergyPATHWAYS (EP)

Annual End-Use Energy Demand



Hourly Load Shape



Regional Investment and Operations (RIO)

Inputs

- End-use energy demand
- System emissions constraints
- RPS or CES constraints
- Technology and fuel cost projections
- New resource constraints
- Biomass and CO_2 Sequestration costs
- Hourly load shape

Outputs

Electricity sector
- Wind/solar build
- Energy storage capacity/duration
- Capacity for reliability
- Curtailment
- Hourly operations

Hydrogen production

Synthetic electric fuel production (H2/SNG)

Biomass allocation

CO_2 sequestration

Appendix: Key Assumptions

Demand-subsectors

- EnergyPATHWAYS database includes 67 subsectors
  - Primary data-sources include:
    - Annual Energy Outlook 2020 inputs/outputs (AEO; EIA)
    - Residential/Commercial Buildings/Manufacturing Energy Consumption Surveys (RECS/CBECS/MECS; EIA)
    - State Energy Data System (SEDS; DOE)
    - NREL
  - 8 industrial process categories, 11 commercial building types, 3 residential building types
  - 363 demand-side technologies w/ projections of cost (capital, installation, fuel-switching, O&M) and service efficiency

commercial air conditioning
commercial cooking
commercial lighting
commercial other
commercial refrigeration
commercial space heating
commercial ventilation
commercial water heating
district services
office equipment (non-p.c.)
office equipment (p.c.)
aviation
domestic shipping
freight rail
heavy duty trucks
international shipping
light duty autos
light duty trucks
lubricants
medium duty trucks
military use
motorcycles

residential clothes washing
residential computers and related
residential cooking
residential dishwashing
residential freezing
residential furnace fans
residential lighting
residential other uses
residential refrigeration
residential secondary heating
residential space heating
residential televisions and related
residential water heating
Cement and Lime CO2 Capture
Cement and Lime Non-Energy CO2
Iron and Steel CO2 Capture
Other Non-Energy CO2
Petrochemical CO2 Capture
agriculture-crops
agriculture-other
aluminum industry
balance of manufacturing other

food and kindred products
glass and glass products
iron and steel
machinery
metal and other non-metallic mining
paper and allied products
plastic and rubber products
transportation equipment
wood products
bulk chemicals
cement
computer and electronic products
construction
electrical equip., appliances, and components
passenger rail
recreational boats
school and intercity buses
transit buses
residential air conditioning
residential building shell
residential clothes drying

Load Shape Sources

Shape Name	Used By	Input Data Geography	Input Temporal Resolution	Source
Bulk System Load	initial electricity reconciliation, all subsectors not otherwise given a shape	Emissions and Generation Resource Integrated Database (EGRID) with additional granularity in the western interconnection	hourly, 2012	FERC Form No. 714
Light-Duty Vehicles (LDVs)	all LDVs	United States	month-hour-weekday/weekend average, separated by home vs. work charging	Evolved Energy Research analysis of 2016 National Household Travel Survey
Water Heating (Gas Shape)[a]	residential hot water		month-hour-weekday/weekend average	Northwest Energy Efficiency Alliance Residential Building Stock Assessment Metering Study (Northwest)
Other Appliances	residential TV & computers			
Lighting	residential lighting			
Clothes Washing	residential clothes washing			
Clothes Drying	residential clothes drying			
Dishwashing	residential dish washing			
Residential Refrigeration	residential refrigeration			
Residential Freezing	residential freezing			
Residential Cooking	residential cooking			
Industrial Other	all other industrial loads			California Load Research Data
Agriculture	industry agriculture			
Commercial Cooking	commercial cooking			
Commercial Water Heating	commercial water heating	North American Electric Reliability Corporation (NERC) region		EPRI Load Shape Library 5.0
Commercial Lighting Internal	commercial lighting			
Commercial Refrigeration	commercial refrigeration			

Load Shape Sources, Continued

Shape Name	Used By	Input Data Geography	Input Temporal Resolution	Source
Commercial Ventilation	commercial ventilation			
Commercial Office Equipment	commercial office equipment			
Industrial Machine Drives	machine drives			
Industrial Process Heating	process heating			
electric_furnace_res	electric resistance heating technologies	IECC Climate Zone by state (114 total geographical regions)	hourly, 2012 weather	Evolved Energy Research Regressions trained on NREL building simulations in select U.S. cities for a typical meteorological year and then run on county level HDD and CDD for 2012 from the National Oceanic and Atmospheric Administration (NOAA)
reference_central_ac_res	central air conditioning technologies			
high_efficiency_central_ac_res	high-efficiency central air conditioning technologies			
reference_room_ac_res	room air conditioning technologies			
high_efficiency_room_ac_res	high-efficiency room air conditioning technologies			
reference_heat_pump_heating_res	ASHPs			
high_efficiency_heat_pump_heating_res	high-efficiency ASHPs			
reference_heat_pump_cooling_res	ASHP s			
high_efficiency_heat_pump_cooling_res	high-efficiency ASHPs			
chiller_com	commercial chiller technologies			
dx_ac_com	direct expansion air conditioning technologies			
boiler_com	commercial boiler technologies			
furnace_com	commercial electric furnaces			
Flat shape	MDV and HDV charging	United States	n/a	n/a

[a] natural gas shape is used as a proxy for the service demand shape for electric hot water due to the lack of electric water heater data.

Supply-Side Data

Data Category	Data Description	Supply Node	Source
Resource Potential	Binned resource potential (GWh) by state with associated resource performance (capacity factors) and transmission costs to reach load	Transmission – sited Solar PV; Onshore Wind; Offshore Wind; Geothermal	(Eurek et al. 2017)
Resource Potential	Binned resource potential of biomass resources by state with associated costs	Biomass Primary – Herbaceous; Biomass Primary – Wood; Biomass Primary – Waste; Biomass Primary – Corn	(Langholtz, Stokes, and Eaton 2016)
Resource Potential	Binned annual carbon sequestration injection potential by state with associated costs	Carbon Sequestration	(U.S. Department of Energy: National Energy Technology Laboratory 2017)
Resource Potential	Domestic production potential of natural gas	Natural Gas Primary – Domestic	(U.S. Energy Information Administration 2020)
Resource Potential	Domestic production potential of oil	Oil Primary – Domestic	(U.S. Energy Information Administration 2020)
Product Costs	Commodity cost of natural gas at Henry Hub	Natural Gas Primary – Domestic	(U.S. Energy Information Administration 2020)
Product Costs	Undelivered costs of refined fossil products	Refined Fossil Diesel; Refined Fossil Jet Fuel; Refined Fossil Kerosene; Refined Fossil Gasoline; Refined Fossil LPG	(U.S. Energy Information Administration 2020)
Product Costs	Commodity cost of Brent oil	Oil Primary – Domestic; Oil Primary - International	(U.S. Energy Information Administration 2020)
Delivery Infrastructure Costs	AEO transmission and delivery costs by EMM region	Electricity Transmission Grid; Electricity Distribution Grid	(U.S. Energy Information Administration 2020)
Delivery Infrastructure Costs	AEO transmission and delivery costs by census division and sector	Gas Transmission Pipeline; Gas Distribution Pipeline	(U.S. Energy Information Administration 2020)
Delivery Infrastructure	AEO delivery costs by fuel product	Gasoline Delivery; Diesel Delivery; Jet Fuel; LPG Fuel Delivery; Kerosene Delivery	(U.S. Energy Information Administration 2020)

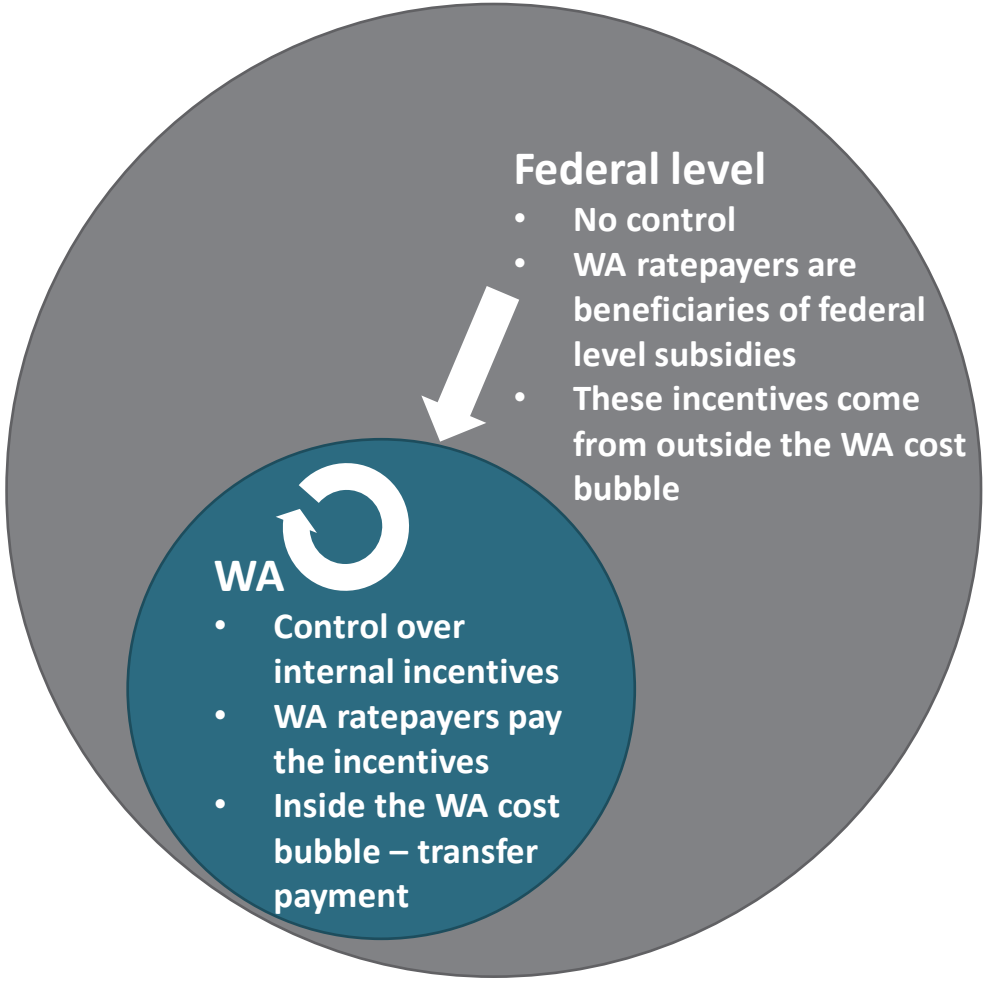
Supply-Side Data Continued

Data Category	Data Description	Supply Node	Source
Technology Cost and Performance	Renewable and conventional electric technology installed cost projections	Nuclear Power Plants; Onshore Wind Power Plants; Offshore Wind Power Plants; Transmission – Sited Solar PV Power Plants; Distribution – Sited Solar PV Power Plants; Rooftop PV Solar Power Plants; Combined – Cycle Gas Turbines; Coal Power Plants; Combined – Cycle Gas Power Plants with CCS; Coal Power Plants with CCS; Gas Combustion Turbines	(National Renewable Energy Laboratory 2020)
Technology Cost and Performance	Electric fuel cost projections including electrolysis and fuel synthesis facilities	Central Hydrogen Grid Electrolysis; Power – To – Diesel; Power – To – Jet Fuel; Power – To – Gas Production Facilities	(Capros et al. 2018)
Technology Cost and Performance	Hydrogen Gas Reformation costs with and without carbon capture	H2 Natural Gas Reformation; H2 Natural Gas Reformation w/CCS	(International Energy Agency GHG Programme 2017)
Technology Cost and Performance	Nth plant Direct air capture costs for sequestration and utilization	Direct Air Capture with Sequestration; Direct Air Capture with Utilization	(Keith et al. 2018)
Technology Cost and Performance	Gasification cost and efficiency of conversion including gas upgrading.	Biomass Gasification; Biomass Gasification with CCS	(G. del Alamo et al. 2015)
Technology Cost and Performance	Cost and efficiency of renewable Fischer-Tropsch diesel production.	Renewable Diesel; Renewable Diesel with CCS	(G. del Alamo et al. 2015)
Technology Cost and Performance	Cost and efficiency of industrial boilers	Electric Boilers; Other Boilers	(Capros et al. 2018)
Technology Cost and Performance	Cost and efficiency of other, existing power plant types	Fossil Steam Turbines; Coal Power Plants	(Johnson et al. 2006)

Federal Tax Incentives

We include federal incentives but not local incentives

- Federal incentives included because they benefit WA by lowering total costs
  - ITC 26% in 2020, then 10% afterwards (for commercial solar only)
  - PTC expires too soon to impact build decisions
- Any local incentives are not included because they are transfer payments and do not lower total costs
- In current policy 10% ITC is available in perpetuity. We roll off ITC in 2030, forecasting a change in policy
  - Near term support for renewable investments, driving recovery in jobs and investment coming out of Covid
  - Won't last forever, particularly as renewable prices continue to drop
  - Federal incentives may be better spent on emerging clean technologies in the future



In-state Solar

- NWPCC has developed estimates of rooftop solar through 2045
  - https://www.nwcouncil.org/sites/default/files/2019_0917_p1.pdf
- We schedule NWPCC adoption of rooftop solar for WA through 2030 of 500 MW
  - Simulation, assumes customer behavior based on existing trends, rates etc. through 2030
- In addition, the model can select solar as part of the optimization
- Though bulk system solar is cheaper than rooftop and will be selected ahead, we do not preclude rooftop solar as part of a future resource portfolio
  - Model does not pick up all of the benefits of rooftop solar because no detailed distribution system model
  - Rooftop may be desirable for other reasons such as promoting jobs within state, or avoiding land use challenges siting bulk system level solar
- Bulk system solar potential capped using NREL's Regional Energy Deployment System

Columbia Generating Station (CGS) Extension

- We assume that the CGS can be extended for an additional 20 years of life at 1210 MW gross output
- Extending CGS:
  - Cost assumptions developed by Energy Northwest and consistent with NWPCC 2021 Power Plan
  - License renewal
    - $50M extension capital cost
    - $400M fixed O&M based on O&M estimates in the Energy Northwest Fiscal Year 2021 Budget

Small Modular Reactors (SMRs)

- SMRs are included as a resource option in the model for Washington State
- Costs assumptions from NWPCC 2021 Power Plan
  - https://nwcouncil.app.box.com/s/nnfkfiq9vuqg3umtb2e8np0tqm78ztni
- Capital Cost: $5400
- Earliest online date: 2030
- Maximum resource build by 2030: 500 MW
- Maximum resource build by 2050: 3420 MW
- Operating costs from NREL

Climate impacts on load forecast

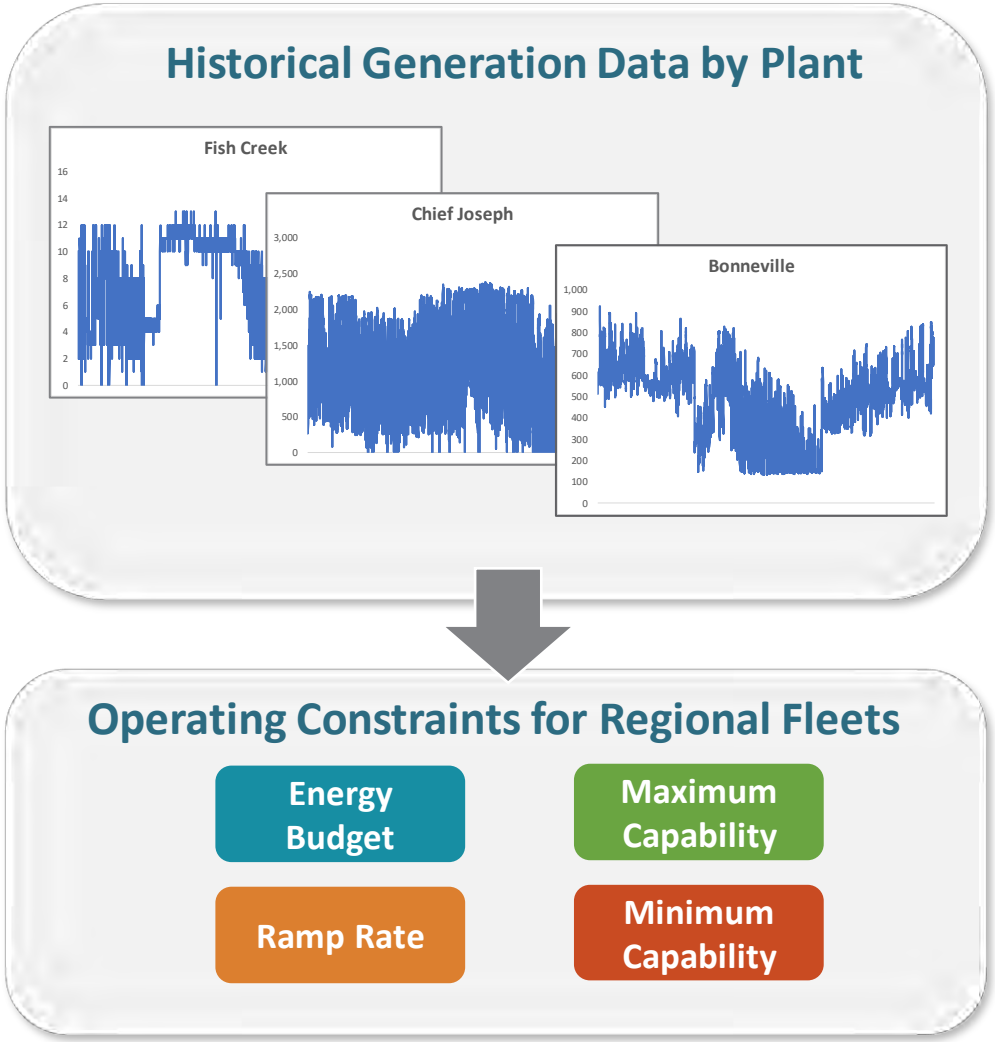
- We investigated the climate impact assumed in the load forecasts used in the study to ensure that climate change is adequately accounted for, as it is by NWPCC
- Rhodium Group has also looked at impacts on load due to climate change by region
- EIA incorporates climate impacts into AEO based on extrapolated change in heating degree days (HDD) and cooling degree days (CDD) from the past 30 years (p17)
  - For the Pacific region, change in number of HDD: -0.7%/year, number of CDD: 1.2%/year
    - https://www.eia.gov/outlooks/aeo/pdf/appa.pdf (table A5)
  - Comparing to the Rhodium estimates is imperfect given the available data, however these roughly align with a continued fossil fuel use scenario (RCP8.5)
  - Increases in CDD in AEO are slightly higher than in the NWPCC work, but approximately aligned (https://www.nwcouncil.org/sites/default/files/2019_0917_p1.pdf p6)
- We use the EIA AEO load forecasts because of their alignment on climate change with other forecasts and the consistency of load forecasting methodology used across the study region (though RCP8.5 is not a likely pathway with climate action taken, it is not significantly different in regional HDD and CDD from RCP4.5)

Climate Impacts on Hydro

- Seattle City Light finds no clear trend in impacts on hydro across models reviewed – some models project wetter conditions, others predict drier conditions
- Lower summer rainfall predicted (6% to 8%, with some models predicting >30%) but rainfall is very low in the summer anyway
- Predicted changes in precipitation extremes – more frequent short-term heavy rain
- Predicted reduced snowpack, increased fall and winter stream flows and reduced summer stream flows
- Not a clear path forward to adjustments in hydro availability
  - Shape changes as well as total energy availability
- More work needed to characterize this impact for future studies
- We use 3 hydro years – low, average, and high hydro energy availability to capture challenges of meeting clean energy requirements

Hydroelectric System

- The Pacific Northwest's hydroelectric system includes more than 30 GW of capacity, but its operational flexibility and generating capability varies year-to-year
- We model each study zone's hydro resources as an aggregated fleet and apply constraints based on historical operations
  - Maximum 1-hour and 6-hour ramp rates
  - Energy budgets
- Operational constraints for regional hydro fleets are derived using hourly generation data from WECC for 2001, 2005 and 2011, which represent dry, average and wet hydro years, respectively
  - Operational constraints vary by week of the year (1 through 52) and hydro year (dry, average and wet)



Existing Efficiency Policy in Buildings

What are the efficiency policies that impact Reference and Decarbonization case assumptions?

- Energy Independence Act (EIA) I-937
  - *"Utilities must pursue all conservation that is cost-effective, reliable and feasible. They need to identify the conservation potential over a 10-year period and set two-year targets."*
- Clean Energy Transition Act (CETA)
  - Same requirement as EIA but applicable to all utilities, not just those over 25000 customers
- Clean Buildings Bill
  - Incentives and mandates applied to commercial buildings over 50000 square feet and incentives applied to multi family buildings
    - 2021-2026: voluntary incentive program
    - 2026 onwards: mandatory requirements (for large commercial buildings)
  - Require demonstration of energy reduction to below energy use intensity target
- Efficiency standards

Modeled Efficiency

- NWPCC work in efficiency
  - https://www.nwcouncil.org/sites/default/files/2020_03_p2.pdf
  - Lays out achievable potential by sector and year
  - Not directly useful for inputs
- Aggressive efficiency improvements are being driven through existing policy
  - Not modellable with the complexity of the compliance process and the way that the programs are defined
- Modeling approach: set high level targets that reasonably align with levels of ambition in Reference and other cases

Buildings

- Energy Efficiency
  - Reference Case: 50% sales HE by 2035, 75% sales HE by 2050
  - Electrification Case: 100% by 2035
  - Low Electrification Case: 10-year delay over electrification case, 75% sales HE by 2045
- Electrification Rates
  - Reference Case: No electrification
  - Electrification Case: NREL EFS High scenario
  - Low Electrification Case: 15% of sales electrified by 2035, 30% of sales electrified by 2045

Renewable Resources

- Candidate onshore wind and solar resources
  - State-level resource potential, capacity factor and transmission costs are derived from NREL's Regional Energy Deployment System
  - Capital cost projections are from NREL's Annual Technology Baseline 2019
- We incorporate hourly profiles for wind and solar resources throughout the WECC for weather years 2010 through 2012
  - Wind profiles are from NREL's Wind Integrated National Dataset (WIND) Toolkit
  - Solar profiles are derived using data from the NREL National Solar Radiation Database and simulated using the System Advisor Model

Vehicle Electrification Targets

Scenario	Class	Sub class	Target Sales Share	By Year
Electrification	HDV	long haul	25% Electric	2045
Electrification	HDV	long haul	75% Hydrogen FCV	2045
Electrification	HDV	short haul	100% Electric	2045
Low Electrification	HDV	long haul	12.5% Electric	2045
Low Electrification	HDV	long haul	0% Hydrogen FCV	2045
Low Electrification	HDV	short haul	50% Electric	2045
Electrification	MDV		70% Electric	2045
Electrification	MDV		30% Hydrogen FCV	2045
Low Electrification	MDV		35% Electric	2045
Low Electrification	MDV		0% Hydrogen FCV	2045
Electrification	LDV	autos	100% Electric	2035
Electrification	LDV	trucks	100% Electric	2035
Low Electrification	LDV	autos	75% Electric	2045
Low Electrification	LDV	trucks	75% Electric	2045
Electrification	Buses		100% Electric	2040
Low Electrification	Buses		50% Electric	2040

Industrial Sector Targets

- Great deal of uncertainty about industrial opportunities
  - Not a lot of information
  - Specific to industry/company/geography
  - Tied to competitiveness/labor force considerations
- Using “Keep it simple” approach
  - 1% per year improvement in energy intensity across industrial subsectors
  - Designed to model some benefits of reductions in energy efficiency while acknowledging industrial sector improvements will come from negotiation
- Maintaining industrial activity as forecast by AEO, except mining and refining
  - Refining in Washington assumed to drop by 75% from reduced fossil fuel demands

Data Center Loads

- Data center load not well represented in the AEO load representation of Washington
  - Updated to NWPCC data center assumptions for Washington and Oregon from 7th Power Plan
    - https://www.nwcouncil.org/sites/default/files/7thplanfinal_appdixe_dforecast_1.pdf
  - Washington and Oregon total assigned to each state based on population

Vehicle Miles Traveled Reduction

Included in the Behavior Change Case

- Vehicle miles traveled reductions in Behavior Change case based on consultation with Climate Solutions on their report Washington and Oregon Transportation Modeling
  - personal and freight vehicle assumptions about what reductions in vehicle miles traveled may be possible
- Overall total for the state: 29% personal VMT reduction
- Freight reduction: 15%
- We assume that people retain vehicles but drive them less, thus total vehicle numbers are not impacted

Category	Passenger Miles Traveled Reduction	Equivalent Vehicle Miles Traveled Reduction	Equivalent to Region
Urban	35%	47%	London
Suburban	35%	39%	Washington DC and London Average
Small City	15%	20%	New York State
Rural	10%	10%	CA, CT, NJ, IL

Biomass: Updated Estimates for Woody Biomass using LURA Model

Northwest woody biomass potential update

- Billion Ton Study 2016 Update the default source of cost and potential data for biomass
  - https://www.energy.gov/eere/bioenergy/2016-billion-ton-report
  - Supply curve by state and year developed for the US, supporting modeling of a biomass and biofuels market
- Reviewed by WSU and Commerce: inadequate representation of Northwest woody biomass potential
- Michael Wolcott and team at WSU updated estimates for woody biomass in the Northwest using the LURA model for this study
  - These have been incorporated into the assumptions

Acronyms used in this Presentation

- BEV: Battery Electric Vehicle
- CES: Clean Energy Standard
- CETA: Clean Energy Transformation Act
- HDV: Heavy-Duty Vehicle
- ICE: Internal Combustion Engine
- IPCC: Intergovernmental Panel on Climate Change
- LDV: Light-Duty Vehicle
- MDV: Medium-Duty Vehicle
- MMT: Million Metric Tons
- O & M: Operations and Maintenance
- RCI: Residential, Commercial, Industrial
- RE: Renewable Energy
- RECs: Renewable Energy Credits
- RPS: Renewable Portfolio Standard
- SMR: Small Modular Reactor
- TBtu: Trillion British Thermal Units
- TX: Transmission
- VMT: Vehicle Miles Traveled

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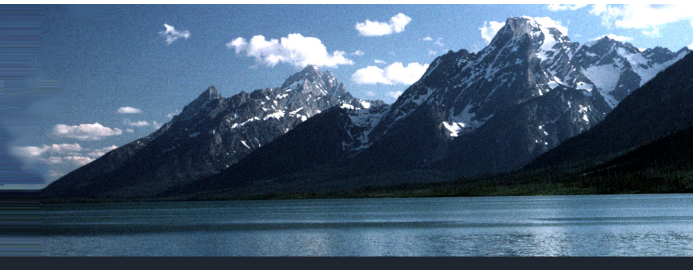

CRITIQUE OF THE Goldendale Energy Storage Hydroelectric Project (FERC No. 14861) NOTIFICATION OF INTENT

Prepared for

American Rivers

December 3, 2019

Anthony Jones
ROCKY MOUNTAIN ECONOMETRICS
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TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

- On January of this year, 2019, FFP Project 101, LLC, notified FERC of its intent to file an application for an original license for the Goldendale Energy Storage Project No. 14861 (Goldendale), a closed-loop pump storage project, in Washington State close to the Columbia River near to the John Day Dam.[1]

- In the Notice of Intent (NOI) Goldendale's stated purpose for the project is that:
  - "Within the region, renewable energy development is growing, primarily through wind power generation. The Project would provide necessary ancillary services and energy storage to the Northwest region, and allow for more reliable management and integration of disparate renewable energy sources into the grid. The Project would provide additional ramping capacity (both up and down) as well as firming for wind energy regulation, coordination, and scheduling services, automatic generation control, and support of system integrity and security (reactive power, spinning, and operating reserves)."[2]
  -
- Rocky Mountain Econometrics (RME) finds that while the project may be technically able to serve in the stated capacity for a portion of each day, it will not be able to serve in that capacity for a large portion of each day when its upper reservoir has been partially or wholly used for power production and needs to be refilled. It is also extremely unlikely that Goldendale will be financially viable.

- While Goldendale's description of project operations are preliminary in nature and not overly detailed, the parameters of pump storage project operations are well understood, Goldendale's construction costs are sufficiently well defined, and the wholesale energy environment in which it will operate are clear. As a result RME is able to conclude that the Goldendale project is very unlikely to operate profitably given the state of current and future west coast and northwest energy pricing.

- As briefly as possible, Goldendale's challenge is that to service its debt and cover the cost of M&O, as well as the cost of filling its supply reservoir as a prerequisite to generate power, Goldendale will have to charge almost double the going rate of peak hour open market (NP15) energy. Worse, since pump storage project sales hours are necessarily restricted to the portion of the day when the upper reservoir is not being filled, the opportunity to absorb overhead by operating more than about eight hours per day is precluded. Finally, while Goldendale's costs of operation will likely increase with inflation over time, NW energy prices for the past two decades have been flat or declining as the market transforms to accommodate proportionally larger and larger amounts of solar power, a trend that is destined to continue.

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[1] Goldendale Energy Storage Hydroelectric Project, (FERC No. 14861), Klickitat County, Washington, NOTIFICATION OF INTENT, Prepared for FFP Project 101, LLC.

[2] Ibid., pp. 2.

II. PROJECT DESCRIPTION

From Goldendale's NOI: Goldendale Energy Storage Project FFP Project 101, LLC, FERC Project No. 14861 Page 4 January 2019

> The Project area has the suitable geography for a closed-loop pumped storage facility and is strategically located at the northern terminus of the Pacific AC and DC Interties operated by BPA, Los Angeles Department of Water & Power, and the California Independent System Operator (CA-ISO).
>
> The interties allow for the bulk seasonal exchanges of power between British Columbia, Canada, the Northwest, and California and provide benefits of coordinated markets to the regions.
>
> The Project is also located in close proximity to substantial existing, abundant, high quality, and untapped wind power generation that can be developed with relatively low environmental conflict and cost. The Project's location can also support the daily inter-regional exchanges of California massive mid-day solar oversupply and the significant power generation ramping needed by CA-ISO.3
>
> The proposed Project is a closed-loop pumped storage hydropower facility located off-stream of the Columbia River at John Day Dam, located on the Washington (north) side of the Columbia River at River Mile 215.6. The Project will be located approximately 8 miles southeast of the City of Goldendale in Klickitat County, Washington.
>
> The proposed Project will involve no river or stream impoundments, allowing for minimal potential environmental impact. Initial fill water and periodic make-up water will be purchased from Public Utility District No. 1 of Klickitat County, Washington (KPUD) using a KPUD-owned conveyance system and municipal water right.
>
> The Project facilities include:
> • _An upper reservoir consisting of a rockfill embankment dam approximately170 feet high, 8,000 feet long, a surface area of about 59 acres, storage of 7,100 acre-feet (AF), at an elevation of 2,940 feet above mean sea level (AMSL);
> • _A lower reservoir consisting of an embankment approximately 170 feet high, 7,400 feet long, a surface area of about 62 acres, storage of 7,100 AF, and an elevation of 580 feet AMSL.
> • _An underground water conveyance tunnel and underground powerhouse; and
> • _230-kilovolt (kV) transmission line(s).
>
> The rated (average) gross head of the Project is 2,400 feet, and the rated total installed capacity is 1,200 megawatts (MW).

[3] Ibid., pp. 4.

Project Characteristics

Approximate Installed Capacity	1,200 MW
Assumed Number of Units (Variable Speed)	3
Assumed Average Static Head	2,360 feet
Assumed Usable Storage Volume	7,100 AF
Approximate Energy Storage	14,745 MWh
Approximate Hours of Storage @ 1,200 MW	12 hours

Underground Powerhouse

Rated Head (Gross)	Approximately 2400 feet
Max Flow Generating Mode	8,280 cfs
Max Flow Pumping Mode	6,700 cfs
Generating Capacity	Up to 1,200 MW
Number of Units	3 x 400 MW units

III. MARKET PRICES

Understanding Goldendale requires understanding the west coast wholesale energy market with which it will interface.

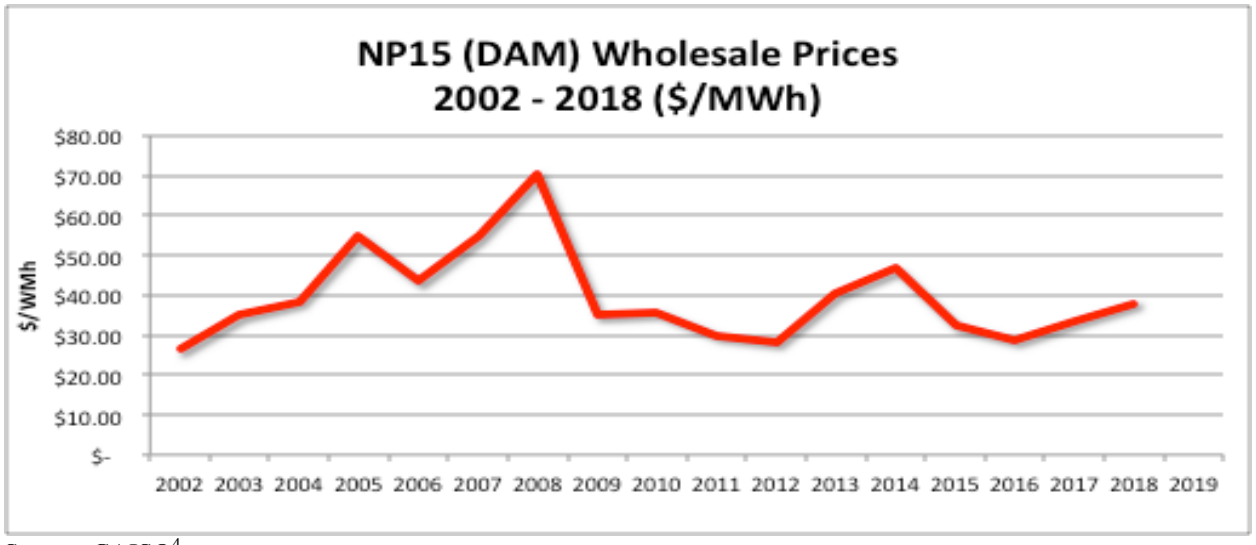
Unlike many, perhaps most, pump storage projects that are built in conjunction with a relatively fixed output, often thermal, generating station, Goldendale will be a free standing, independent operation buying and selling power on the western transmission grid, from and to the west coast wholesale energy markets.

The NOI talks broadly about supporting other regional power producers but makes no mention of contracting with any of them. For the purposes of this analysis RME assumes Goldendale will be a freelance operation, attempting to buy low and sell high on the wholesale market, to the extent of their ability, at their discretion. In the absence of contractual requirements for energy used to fill their upper reservoir or sell their production, it is to market prices that we must look to understand the forces that will shape Goldendale's potential for success or failure.

Pre 2009, Prelude to a Crash

In the years leading up to 2009, west coast and northwest wholesale energy prices were escalating rapidly. From 2002 through 2008, NP15 prices climbed from about $25/MWh to over $70/MWh, a 180 percent increase in a scant six years. In 2008, FERC, BPA, and most NW utilities were predicting energy prices to continue escalating, at a somewhat slower rate, on upward toward $80, $90, and $100/MWh within 10 years.

Chart 1



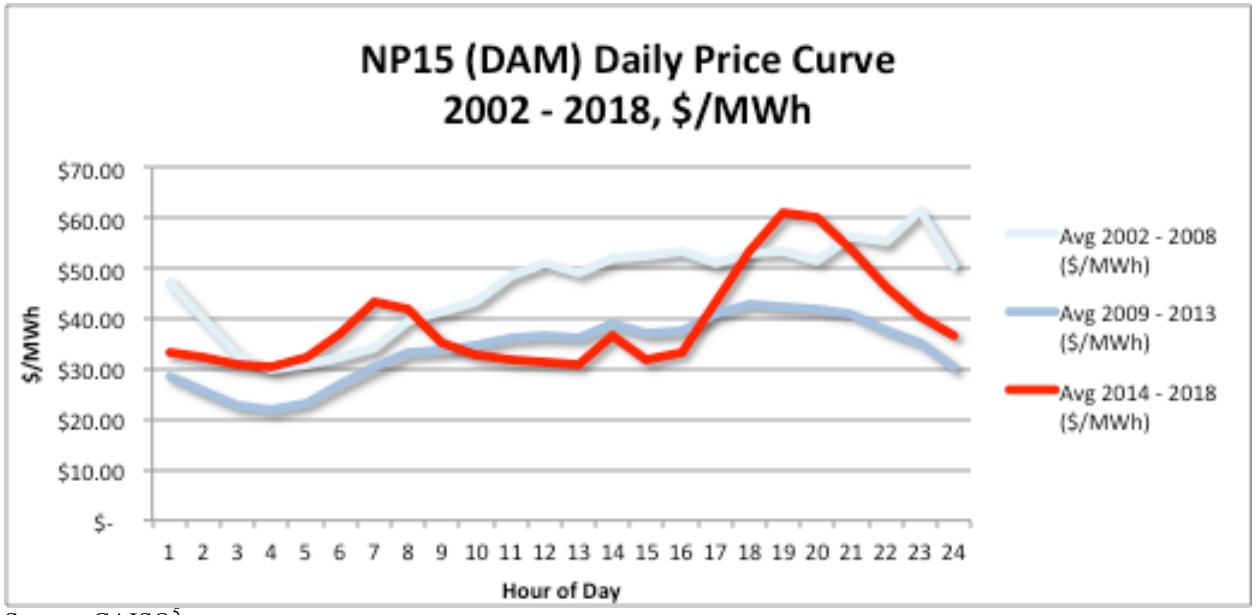
Source: CAISO[4]

[4] http://oasis.caiso.com/mrioasis/logon.do

That line of thinking collapsed in 2009, the first year of the Great Recession. That year saw the collapse of gas prices (a major factor in the price of power produced by gas generating plants) and the point where solar capacity in California started gaining traction. In one year, from 2008 to 2009, NP15 prices dropped by 50 percent and have never recovered to any substantive degree for more than a year or two. Nine years after the 2009 price collapse 2018 prices averaged about $38/MWh, roughly half of price levels ten years previous. And, the 2018 number would likely have been lower still if not for the effect of the Camp Fire in California that took several major PG&E generating plants offline for several months of the year, thus reducing supply and driving prices higher. Please refer to Chart 1, above.

Prices from 2009 to 2013 followed a daily price curve similar to but lower than the daily price curve prior to 2009. Daily prices continued to bottom out in the hours from midnight to about 6:00 AM and then began climbing to a peak in the late afternoon or early evening. Where pre 2009 prices bottomed out at about $30/MWh, post 2008 prices bottomed out about $10 lower at $20/MWh. Where pre 2009 prices topped out as high as $60/MWh in the late evening, post 2008 prices topped out about $20 lower at about $42/MWh as early as 6:00 PM.

Chart 2



Source: CAISO[5]

Prior to 2009 the range from minimum to maximum price for the day averaged a little more than $30/MWh. From 2009 - 2014 the daily average price range from minimum to maximum was about $8 less, at roughly $22/MWh. Please see Chart 2, above.

[5] http://oasis.caiso.com/mrioasis/logon.do

The lower overall prices and the narrowing of total price range after 2008 was probably due to a combination of factors including reduced demand due to the recession, lower gas prices used by thermal generating plants, and the beginnings of the solar power revolution associated with California investing in renewable energy.

High Spot Market Prices May Not Be Enough

If Goldendale would have made this proposal back in 2008, the year before market prices collapsed from the $70/MWh range or higher, it would be more difficult to find fault with the proposal. Even the most respected forecaster has difficulty selling an audience on the likelihood of $30 market prices when they looking at prices averaging as much as $80/MWh for months at a time.

But this is not 2008 and prices have not averaged greater than $50/MWh on an annual basis in ten years. In fact, the price collapse was fully expected. The precipitousness of the decline might seem a little severe but the price correction was completely normal. High prices, while inconvenient, are the mechanism that triggers innovation and investment in the market. They lead to new construction that results in more capacity, greater supply, and ultimately lower prices.

The run-up to 2008 was not the first of its kind and is unlikely to be the last. Similarly, price corrections such as the one in 2009 are equally as normal as the preceding price spike. It is for that reason that RME cautions against any prophesy that market prices will return to pre 2009 levels for anything more than brief periods. As Chart 1 demonstrates, 2013-2014 looked like prices were once again heading towards pre 2009 $60 and $70 levels. But, again, price changes of that nature are the events that trigger new investment, more construction, and more supply that drives prices back down to $30/MWh and lower.

One final point before leaving the subject of pre-2009 high market prices. As we will see, high prices are a necessary condition for Goldendale to cover their costs construction costs, but not a sufficient condition for to cover their operating costs.

High peak hour prices are little benefit to pump storage projects if it means similarly high off-peak hour prices. Projects of this nature also need situations that increase the spread between high and low daily prices. Years like 2008 when average prices were much higher than after 2009 present a situation in which the daily price spread is potentially higher, but not necessarily as high as needed.

Emergence Of The Duck Curve

Even more significant for this discussion is the transformation of the western energy market that started in about 2014. That year marked the emergence of the "Duck Curve". The Duck Curve, named for the curve's late in the day resemblance to the profile of a duck's head, is the result of solar power becoming a major force in the California energy market.

Starting in 2014 prices from about 3:00 AM to about 8:00 AM returned to or even exceeded pre 2008 price levels, the difference being that by about 9:00 solar energy sources stared producing in sufficient volume that prices, instead of continuing to increase, dropped back to pre-dawn levels of about $30/MWh where they remained until about 5:00 PM when the late in the day peak begins. As with the morning peak, the late day peak is as high or higher than the pre 2009 peak but it is much shorter in duration. Again, please refer to Chart 2, above.

Dual Daily Supply Curves

Classical economic theory holds that as demand increases, it shifts the demand curve to the right and the equilibrium price increases. At first glance that result would seen to be violated in the western wholesale energy markets where midday prices are now typically lower than earlier in the day even though the amount of energy demanded is substantially higher. However, the west coast currently operates with, effectively, two supply curves, a nighttime curve and a daytime curve.

Early in the day, in the first few hours of peak demand before sun-up, energy load begins to ramp up and, with the nighttime supply curve in play, prices begin to rise in response. Later in the morning, with load ramping up even further, the supply curve begins to shift to the right as solar generation comes online. This process not only counters the earlier increase in prices but also typically over-compensates and drives prices lower than they were before the sun rises.

It is this price environment in which Goldendale proposes to operate. In an effort to recharge the upper reservoir during the 10 lowest cost hours of the day, Goldendale will have to pump for five hours from about midnight to 5:00 AM, for another four hours from about 10:00 AM to about 1:00 PM, and finally for one hour at 3:00 PM.

About half of Goldendale's pumping will occur during the relatively low priced but high load middle of the day.

In an effort to sell power during the 8 highest hourly prices of the daily load and price cycle, Goldendale will need to run its generators for an hour during the morning price peak at about 7:00 AM, and for 7 hours from about 5:00 PM through 11:00 PM. Please see Chart 3 below.

One final takeaway for the post 2008 open market price history is that inflation has been outpacing NP15 prices and that the difference between peak prices and off peak prices, as

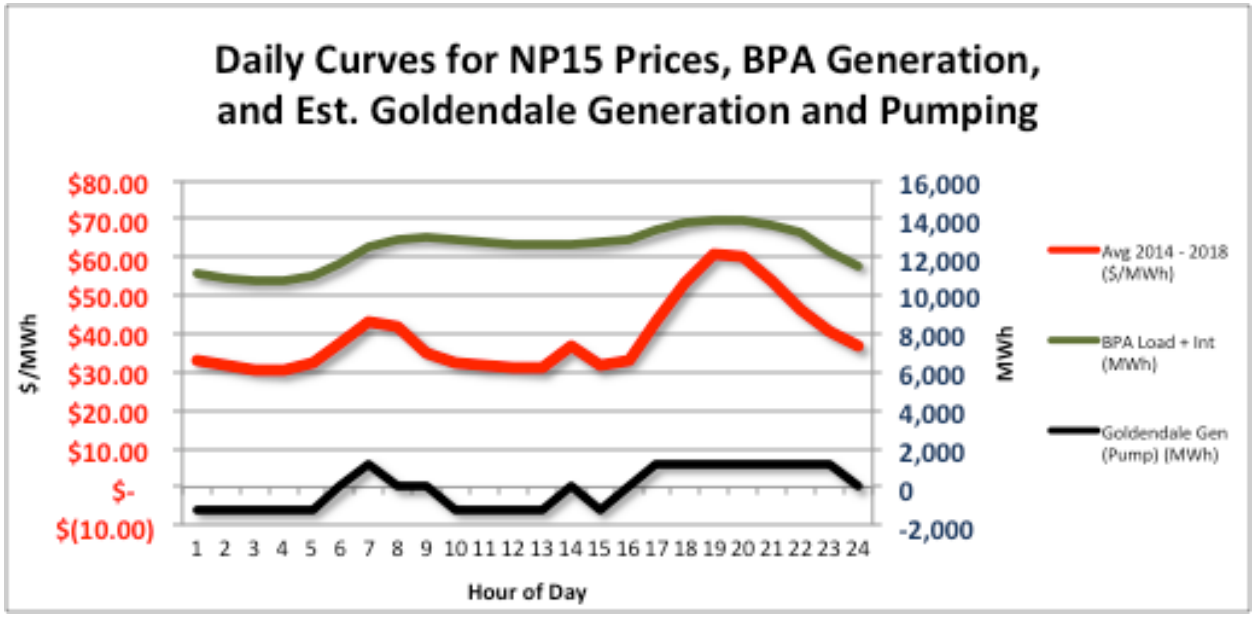
constrained by Goldendale's profit maximizing operation curve, is a relatively stable $16 - $18/MWh.

For the purpose of this analysis of Goldendale's finances, RME will use the 2014 – 2018 minimum and maximum prices of $32.0475 and $50.2530 respectively. The reason for using these two numbers is that it provides a slightly greater range in prices than the full 2009 – 2018 record provides, a factor that gives the benefit of doubt to Goldendale in recognition that they may bring more sophisticated modeling to the operation than RME has at its disposal.

NP15 Prices

	Avg. Minimum Prices	Avg. Minimum Prices	Avg. Price Spread
2014 - 2018	$32.0475	$50.2530	$18.2055
2009 - 2018	$29.5999	$45.9677	$16.3679

Chart 3



IV. GOLDENDALE FINANCIALS

The Goldendale NOI estimates that the project will cost $2.2 billion. The inclusion of Washington State sales tax and capitalized pre-completion interest will bring the startup cost of the project to about $2.6 billion. Servicing the interest on $2.6 billion will cost Goldendale about $208 million per year.

The NOI indicates that M&O costs will come to about 8.5 million per year, bringing the total for debt service and M&O to about $216 million per year, roughly $62/MWh without accounting for pumping costs.

Goldendale - With Amortization

Capital Cost		
PAD Cost Estimate	$2,200,000,000	1
WSST @ 6.5%	$143,000,000	2
Total Estimated Direct Cost	$2,343,000,000	
Pre Cost Interest (60 Months)	$246,310,804	3
Installed Cost	$2,589,310,804	
Maintenance and Plant Cost		
Cost	$2,589,310,804	
Interest Rate	5.0%	5
Term (Yrs.)	20	6
Annual Interest Pmt.	$207,772,998	
Wages	$3,860,000	1
Other	$4,620,000	
M&O	$8,480,000	1
Total	$216,252,998	

Based on Goldendale's estimates in the NOI, the project will produce about 3.5 million MWh of energy. At an estimated peak-hours average price of $50/MWh for the 8 highest NP15 daily prices, Goldendale will see revenues of about $175 million per year.

Also from the NOI, Goldendale will use about 4.4 million MWh each year to power its pumps to fill the upper reservoir. At average market prices for the 10 lowest priced NP15 daily hours Goldendale will have to pay an average of about $32/MWh and will spend about $140 million in pumping costs each year.

The relatively narrow differential between peak and off peak market prices, combined with the 20 percent efficiency penalty associated with pumping, Goldendale will net about $35 million per year at the cash flow level. However, M&O costs and debt service will lead to Goldendale losing about $181 million per year, a loss of $52/MWh of production.

Cash Flow From Operations[6]

Generation		
Capacity	1,200	4
Hrs / Day	8	4
Days /Yr.	365	4
Annual Prod (MWh)	3,504,000	4
Generation $/MWh	$50	3
Revenue from Generation	175,200,000	
Pumping		
Pumping Rate	1,200	4
Hrs / Day	10	4
Days /Yr.	365	4
Annual Pumping (MWh)	4,380,000	4
Pumping $/MWh	$32	3
Annual Pumping Cost	140,160,000	
Net Cash Flow from Operation	$35,040,000	
Profit (Loss)	**($181,212,998)**	
Cost of Production ($/MWh)	$101.72	
Profit (Loss) $/MWh	($51.72)	

[6] Goldendale, PAD, pp 182; ttp://www.salestaxstates.com/sales-tax-calculator-washington;' RME; and Goldendale, PAD, pp 18.

To summarize, the minimum cost to cover debt service and O&M is about $61/MWh. The minimum market price spread for Goldendale to cover its pumping costs is 20 percent above the price Goldendale pays to fill the upper reservoir. Combined, for Goldendale to operate profitably it needs to see market prices of $61/MWh plus a price spread of about $8/MWh on top of the $32/MWh[7] estimate for the lowest cost 10 hours of pumping. Thus, with the lowest 10 hours of a typical day averaging about $32/MWh, efficiency losses will increase the value of water in the upper reservoir to about $40/MWh. Adding the $61.72/MWh necessary to cover debt service and O&M means Goldendale will need to see average prices for the 8 highest priced hours of the day of $102/MWh or higher.

[7] With efficiency losses of 20% $32/MWh pumping costs equate to $40/MWh at the generating level.

V. GENERAL DISCUSSION

Large Producer

Unlike many hydro type power producers that typically only run at full capacity during spring runoff or brief moments to match peaking demand, Goldendale can be expected to run at or near full capacity for most of its daily 8-hour operation as it attempts to maximize revenue.

When generating, Goldendale output will be one of the larger single-plant power sources in the northwest. It will be capable of out producing Bonneville Dam for the eight hours per day it generates. In terms of nameplate capacity it will be larger than McNary Dam. In terms of average production, when running, it will be on par with Chief Joseph dam and second only to Grand Coulee in the NW.

Larger Consumer

During the 10 hours per day that Goldendale will be pumping, it will be a major load center. When pumping, Goldendale will have the load equivalent of about 720,000 households, about the same as the all the residential households in Idaho![8]

Net Consumer of Electricity

Goldendale estimates that the project is 20 percent less efficient in pumping mode than it is in generating mode. The result is that to produce 3.5 million MWh of electricity Goldendale will consume about 4.4 million MWh, an annual loss to the system of about 877,000 MWh.

General Operating Characteristics

Goldendale combines some of the features of a hydro project and some of the features of a thermal project and some features unique to pump storage projects.

Like any substantial hydroelectric generating plant, Goldendale's will be a major capital investment. Servicing the interest payment on its debt will be a major challenge. In the absence of high prices in the wholesale energy market, the alternative method for absorbing overhead is

[8] Goldendale will consume 1,200 aMW in pumping mode. Idaho has about 720,000 residential electrical customers who consume an average of about 1,200 KWh per month. (720,000 Residents X 1.2 MWh/month = 864,000 MWh. 864,000 MWh / 30 Days / 24 Hours = 1,200 MWh

to operate as many hours per year as possible. That, combined with minimal marginal operating costs, is the reason most hydro facilities operate as close to 24/7 as possible.

However, a 24/7 generating schedule will not be possible in Goldendale's case.

The requirement to spend more time filling the upper reservoir than time generating energy, plus potentially waiting out shoulder hours when the price differential is insufficient to cover pumping losses, tends to limit Goldendale's capacity utilization rate to about 33 percent. If Goldendale could generate power 16 hours per day it could double its overhead absorption and cut its pre-pumping cost of production by half. However, again, that will not be possible.

Like a thermal project, the water in the upper reservoir has value in that it costs money to pump the water the 2360 vertical feet up from lower reservoir. Like a thermal project, Goldendale cannot generate electricity profitably unless it receives at least as much per MWh as the water in the upper reservoir cost to pump it up there, plus the 20 percent efficiency penalty.

If it cost $40/MWh to fill the reservoir ($32/MWh plus a 20 percent efficiency penalty for a total of about $40 /MWh generating equivalent.), that tends to suggest that the cost minimizing operation level is when sales prices are $40/MWh or higher. That logic works well enough until about 5:00 in the afternoon when the need to absorb overhead starts to conflict with the need to cover pumping costs. In other words, just because it cost $40/MWh to fill the reservoir on one day does not mean the same water will be worth the same amount the next day. If, having paid $40/MWh to fill the reservoir there is no guarantee peak prices the next day (or the day after that, ad infinitum) will not be even lower. In that event Goldendale would be smarter, toward the end of the day, to treat the pumping costs as sunk costs and produce as much power as possible during the late afternoon / evening peak price period in an effort to absorb overhead cost, to the extent possible.

In that manner, Goldendale would cover some of its overhead and recoup at least a portion of the day's pumping cost prior to beginning the next day of operation.

Clearly, no project of this type can profitably operate in that manner on a continuing basis, but it serves to illustrate the complex nature of Goldendale's business model as it attempts to minimize losses and maximize profits.

Finally, unlike the vast majority of both thermal and hydro projects, Goldendale will never be more than about 12 hours from running out of "fuel", exhausting the water in the upper reservoir, and having to stop generating electricity.

Emergency Generating Capability

Goldendale's data table claims that the plant's approximate hours of storage @ 1,200 MW is 12 hours. The implication seems to be that Goldendale will provide 12 hours of backup for a variety of ancillary services including emergency generation in the event some other project fails.

This claim fails for a variety of reasons. First, if 1,200 MW generation requires 8,280 cfs of water flow, the 7,100 acre foot reservoir will be exhausted in a little over 10 and hours, not 12. But that misses the second and broader point, the assumption that any event triggering the need for 12 hours, or 10.5 hours, of Goldendale production will occur when the upper reservoir is at full capacity.

Barring the unlikely event that Goldendale is paid to sit patiently, 24/7, with a full upper reservoir laying in wait for a moment when its services are needed, it seems far more likely that any emergency calling for Goldendale's services will happen when the project has already been generating for some period of time. Clearly, the length of time that Goldendale can provide backup is directly proportional to the amount of water remaining in the upper reservoir.

Assuming Goldendale operates a daily pumping and generating schedule consistent with maximizing revenue from the daily price swings, any emergency calling for Goldendale's production is most likely to occur when the upper reservoir is substantially depleted. If any emergency happens after Goldendale is more than 4 hours into its daily generating cycle, or fewer than 5 hours into its daily pumping cycle, the upper reservoir will be half empty. In that manner, if emergencies happen at random times of day, the expectation is that Goldendale's ability to respond to emergencies is only about 6 hours, not 12.

Finally, if some other power plant were to go offline and need backup while Goldendale is already in generating mode as part of its daily production schedule, it is not clear that there will be a benefit to the system if Goldendale ceases putting power onto the grid under its own name to begin putting power onto the grid in the name of some other power producer. This scenario results in a zero net increase in production.

Market Price Impacts

Classical economics suggests that, at the margin, Goldendale will drive off-peak prices up and peak prices down.

Traditionally, pump-storage projects have been built in conjunction with other specific generation projects in an attempt to extend the efficiency range of the main generating plant into other parts of the day, week, month, or year.

That description does not apply to Goldendale as presented in the NOI.

Goldendale, as currently proposed, is not linked to any individual power producer, or group of power producers. It will be a parasitic operation in that it will attempt to purchase power from other existing regional suppliers during the lower cost portions of the daily price curve in an effort to resell the energy later in the day when prices are relatively higher.

Regional power producers will hope the potential for higher off-peak prices they receive when Goldendale operates its pumps will be enough to offset the potentially lower peak prices they will see later in the day when Goldendale is producing power.

On the other side of the equation, Goldendale will hope its potential to drive up off-peak prices and the potential amount it will drive down peak-prices will not narrow the price spread to the point that they cannot operate profitably.

Finally, retail consumers will hope that the net reduction in supply and the resulting potential increase in energy costs will not adversely affect their retail rates.

Minimal Price Impact

Goldendale will be one of the regions larger power producers when generating and one of the regions larger load center when pumping. As mentioned in previous sections, that tends to suggest that Goldendale will depress market prices when generating and increase wholesale prices when pumping, at least at the margin. The amount of these effects is hard to predict but will probably be fairly small.

The reason the effect will likely be small is that, while Goldendale will be a major northwest load center when pumping and a large northwest power producer when generating it will not be a large producer or load center by California standards, and it is the California wholesale markets that are the price setters.

People in the northwest tend to forget that California utilities are sized to supply the peak needs of about 40 million people while northwest utilities are sized to serve the peak needs of about 13 million people.

Goldendale may be as much as five percent of northwest capacity when generating but it will be only about one percent of California capacity. Since Goldendale will be directly connected to the west coast wholesale markets by way of the west coast power grid Goldendale will be a price taker in most cases rather than a price setter.

Self-Defeating Market Price Impact

While any market price impact resulting from Goldendale's operation will likely be small, any effect will be self-defeating for Goldendale's needs.

For example, in its analysis of Goldendale's potential profitability RME estimated peak hour and off-peak hour prices would average $50/ MWh and $32/MWh respectively. If Goldendale's operation reduces peak hour prices by $1 and raises off-peak hour prices by $1, to $49 and $33/MWh respectively, the resulting $2/MWh narrowing of the daily price spread will reduce Goldendale's annual net revenue by nearly $8 million and increase its per MWh loss by over $2/MWh to $53.97/MWh.[9]

"Quick Response" May Not Mean Lower Rates.

Goldendale lists "quick response time" as one of the project's assets. It is not clear to RME that this is a net benefit to the region.

From Goldendale's perspective, its proposed ability to supply power in response to "emergency" changes in load and or reduce the supply of power as necessary to help balance system load, is a benefit to the system.

However, quick response time can just as easily be used to respond, pumping or generating, in efforts to grasp low cost pumping opportunities or switch to generating mode to take advantage of fleeting moments of high wholesale prices. Responding to emergencies may be a benefit to the system but chasing momentary price changes can increase chaos, uncertain, and risk, and be detrimental to the system.

For instance, Goldendale has the potential to switch from consuming 1,200 MW per hour in pumping mode to producing 1,200 MW per hour in generating mode, and vice versa, in an unspecified but presumably brief period of time, perhaps as quickly as a few minutes or even quicker. To other entities on the grid, power producers, energy aggregators, and consumers, this would be seen as a 2,400 MW swing in load volume, the equivalent of a substantial western city suddenly going off line, or Grand Coulee switching arbitrarily off and on, with little or no warning!

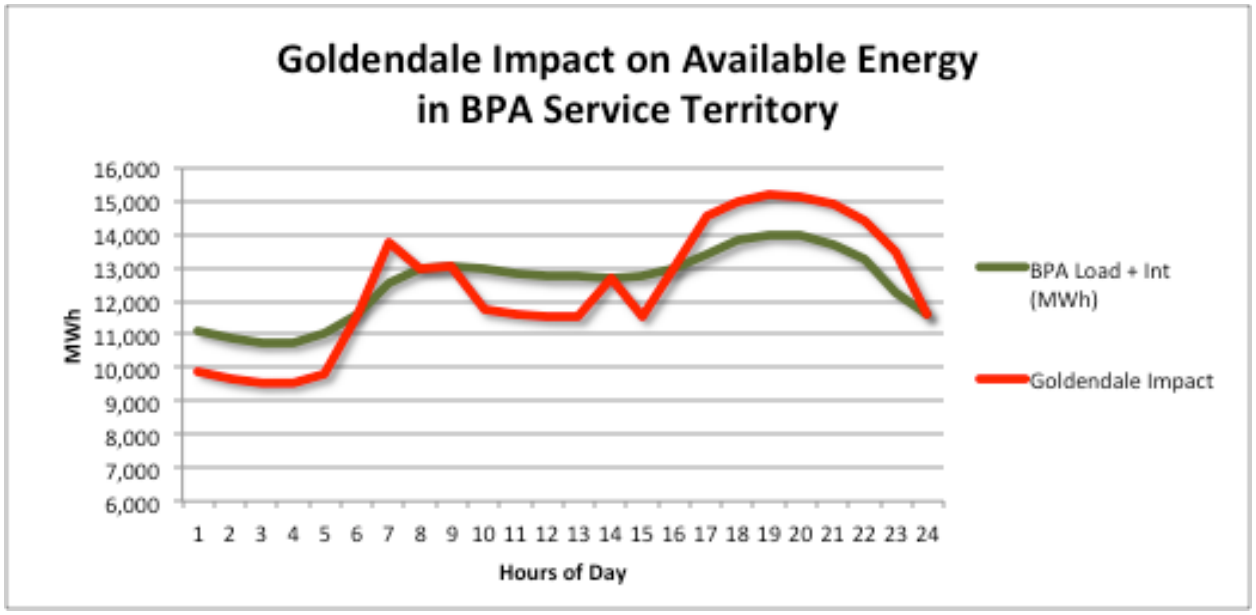
Given Goldendale's precarious financial situation, and in the absence of regulatory or contractual operational constraints, increased wholesale market chaos appears to be the most likely result of Goldendale's operation.

[9] RME is highly skeptical of Goldendale's potential to operate profitably. However, by choosing options and assumptions that tilt the scale in Goldendale's direction, and not including price impacts such as this, RME generally gives the benefit of the doubt to Goldendale.

Chart 4 below provides a graphical example of this discussion. If Goldendale's operation were grafted onto BPA's load curve[10] it would make BPA's available power curve substantially less "smooth" and it would make the spread, the range of power, from low point to high point, available to consumers broader by about 2,400 aMW. The power currently available to contract customers exemplified by the green line, would instead follow the red line.

Would NW producers modify their production in recognition that Goldendale is operating in that fashion? The answer is undoubtedly yes, to at least some degree. However, it is important to remember that the curve shown by the green line is the result of BPA servicing load as well as chasing the same daily price curves in search of higher revenues as Goldendale will be chasing. In other words, yes, Goldendale's operation will cause changes in the operations of other NW utilities, but it is not clear that the result will smoother or less chaotic. Absent any regulatory or contractual mandate, the opposite seems most likely.

Chart 4



As hinted at in the preceding paragraph, regulating the manner and the degree, the when and the how much if you will, to which Goldendale can enter the market could conceivably alleviate the potential for Goldendale to increase market uncertainty. That, of course, would reduce Goldendale's ability to profit from swings in market demand and prices, and make their already precarious financial picture look even worse.

[10] BPA is used here because their production numbers are roughly half of the NW, they are readily available and transparent. The inclusion of the remaining NW producers would tend to minimize this impact to some degree, but not eliminate it.

Contracting

As mentioned above, Goldendale is not directly linked to any one, or any group, of generating entities. As currently configured, it is a freelance operation.

To that end power producers in need of load shaping services may look to Goldendale for assistance. The question then becomes whether or not Goldendale can compete with other regional load shaping service providers. The evidence suggests not.

Again, Goldendale's breakeven production cost exceeds $100/MWh.

Competing with Goldendale will be most of the other NW entities with excess capacity, particularly utilities with hydro power plants that have some potential to shift their time of day production schedules. This will include BPA that touts its load shaping ability for around $40/MWh. Other hydro intensive utilities such as Idaho Power and Avista offer similar services for roughly similar prices.[11]

For companies looking for load shaping services but hoping to avoid fixed contracts there is always the option of playing the same wholesale market as Goldendale. Here, the prices may be more volatile than would be seen with a fixed contract, but with average daily prices of around $30/MWh it is hard to find justification for $100 Goldendale power.

Finally, Goldendale will have to compete with new power producers that are increasingly entering the market with rates as low as $20/MWh, including battery backup. This might seem especially galling to Goldendale since Goldendale will have trouble filling its upper reservoir for $20/MWh, let alone generating power that inexpensively.

[11] And, those prices may be a bit high. CAISO staff concludes load shaping in California only adds about $0.85/MWh to market prices. For this analysis that means Goldendale, with its $100+ / MWh cost structure trying to compete with $33/MWh market prices.

VI. APPENDIX – ALTERNATIVE DEBT STRUCTURES

Goldendale Without Amortization

In recognition that it is fairly common for utilities to not amortize debt on major projects, RME looked at the affect of Goldendale limiting its debt service to paying only the interest on the $2.6 billion startup cost. This has the benefit of reducing the debt service charge by $75 million from $219 million to about $144 million per year. Carrying the $75 million annual cost reduction through to the bottom line reduces Goldendale's losses from $192 million to $117 million per year, a loss of $33/MWh of production.

Goldendale With Bankruptcy

In the forgoing analysis RME used assumptions generally favorable to Goldendale. For example, for the market price spread, RME used the 2014 – 2018 spread of $18/MWh. The 2009 – 2018 spread is perhaps more relevant, but with a spread of only $16/MWh would have made the project look still worse. The same is true for interest rates. RME chose to use the lowest prime rate on record at the time of writing. Prime plus one or two is perhaps more accurate, especially given the speculative nature of this project, but that too would have made the project look even worse.[12]

Given that in this analysis RME made assumptions generally favorable to Goldendale and the financial results are still abysmal, RME is left to speculate on what it is that the project's sponsors see that RME does not.

Looking at the reports produced to date, and the resources at Goldendale's disposal, RME must assume the sponsors are intelligent, successful people. They must see all the same market forces and interest charges that RME sees. At the same time, the project as currently proposed appears from all angles to be destined to fail, in short order. RME is hesitant to make the following statement but feels it may be true and must be addressed: It is possible that the Goldendale Pump Storage Project is being proposed with full knowledge that it will fail. Further, bankruptcy may be an unstated but integral part of the Goldendale business plan as a means of shedding sufficient debt to survive in the current wholesale power market.

If we look at bankruptcy as an unstated but intended method of shedding the bulk of the construction cost, the project begins to make financial sense. If, in the course of a bankruptcy proceeding, the tunnels and reservoirs are declared sunk costs, and total debt is reduced to a hypothetical $75 million by salvaging the turbines and generators ($25 million apiece for three used turbines and control structures) annual debt service drops to a very reasonable $4.9 million.

[12] At the time of this writing, November 28, 2019, the prime rate is 4.75% and RME in this analysis is using a rate of Prime plus 0.25%.

Adding M&O only brings the total up to about $13.4 million. Using the same cash flow stream as in the previous examples, but with the restructured debt, Goldendale might see an annual profit of about $6.18/MWh, $21.7 million per year. Its cost of production would be about $44/MWh, comfortably lower than the average peak wholesale prices of $50/MWh.[13]

Goldendale - Without Amortization

Capital Cost	
NOI Cost Estimate	$2,200,000,000
WSST @ 6.5%	$143,000,000
Total Estimated Direct Cost	$2,343,000,000
Pre Const Interest (60 Months)	$246,310,804
Installed Cost	$2,589,310,804
Maintenance and Plant Cost	
Cost	$2,589,310,804
Interest Rate	5.0%
Term (Yrs.)	1000
Annual Interest Pmt.	$129,465,540
Wages	$3,860,000
Other	$4,620,000
M&O	$8,480,000
Total	$137,945,540

Goldendale - With Bankruptcy

Capital Cost	
NOI Cost Estimate	$75,000,000
WSST @ 6.5%	$4,875,000
Total Estimated Direct Cost	$79,875,000
Pre Const Interest (60 Months)	$8,396,959
Installed Cost	$88,271,959
Maintenance and Plant Cost	
Cost	$88,271,959
Interest Rate	5.0%
Term (Yrs.)	1000
Annual Interest Pmt.	$4,413,598
Wages	$3,860,000
Other	$4,620,000
M&O	$8,480,000
Total	$12,893,598

[13] One simple waty to eleimiante the possibliity of bankruptcy as an unstated but integral part of Goldendale's business plan is to include a clause in any regulatory approval of the project requiring Goldendale to set aside funding to remove the turbines and destroy the tunnel in the event the project fails.

Cash Flow From Operations	
Generation	
Capacity	1,200
Hrs. / Day	8
Days /Yr.	365
Annual Prod (MWh)	3,504,000
Generation $/MWh	$50
Revenue from Generation	175,200,000
Pumping	
Pumping Rate	1,200
Hrs. / Day	10
Days /Yr.	365
Annual Pumping (MWh)	4,380,000
Pumping $/MWh	$32
Annual Pumping Cost	140,160,000
Net Cash Flow from Operation	$35,040,000
Profit (Loss)	**($102,905,540)**
Cost of Production ($/MWh)	$79.37
Profit (Loss) $/MWh	($29.37)

Cash Flow From Operations	
Generation	
Capacity	1,200
Hrs. / Day	8
Days /Yr.	365
Annual Prod (MWh)	3,504,000
Generation $/MWh	$50
Revenue from Generation	175,200,000
Pumping	
Pumping Rate	1,200
Hrs. / Day	10
Days /Yr.	365
Annual Pumping (MWh)	4,380,000
Pumping $/Who	$32
Annual Pumping Cost	140,160,000
Net Cash Flow from Operation	$35,040,000
Profit (Loss)	**$22,146,402**
Cost of Production ($/MWh)	$43.68
Profit (Loss) $/MWh	**$6.32**

SCIENCE AND ENVIRONMENT

Northwest clean-energy advocates eye pumped hydro to fill gaps, with tribes noting concerns

By Courtney Flatt (OPB)
July 27, 2020 12:43 p.m.

Many states – including Oregon and Washington – have set renewable energy goals. But, there's a problem. The wind isn't always blowing and the sun isn't always shining. Advocates say pumped hydro could solve those problems.

Looking over the edge of a Columbia River Gorge slope, you can see the river more than 2,000 feet below. A former aluminum smelter sits to the left at the bottom of the cliff. Wind turbines spin nearby, lining the cliff's edge.

This site near Goldendale, Washington, in Klickitat County, could one day help solve a downside of current renewable energy technology: reliability. But it's not without controversy.

The Goldendale Energy Storage Project would be the largest of its kind in the Northwest. It's an old technology that's recently received a lot of study and interest from companies looking to build energy storage projects in Washington, Oregon and Idaho.

Related: How lakes can work like batteries to charge the electrical grid

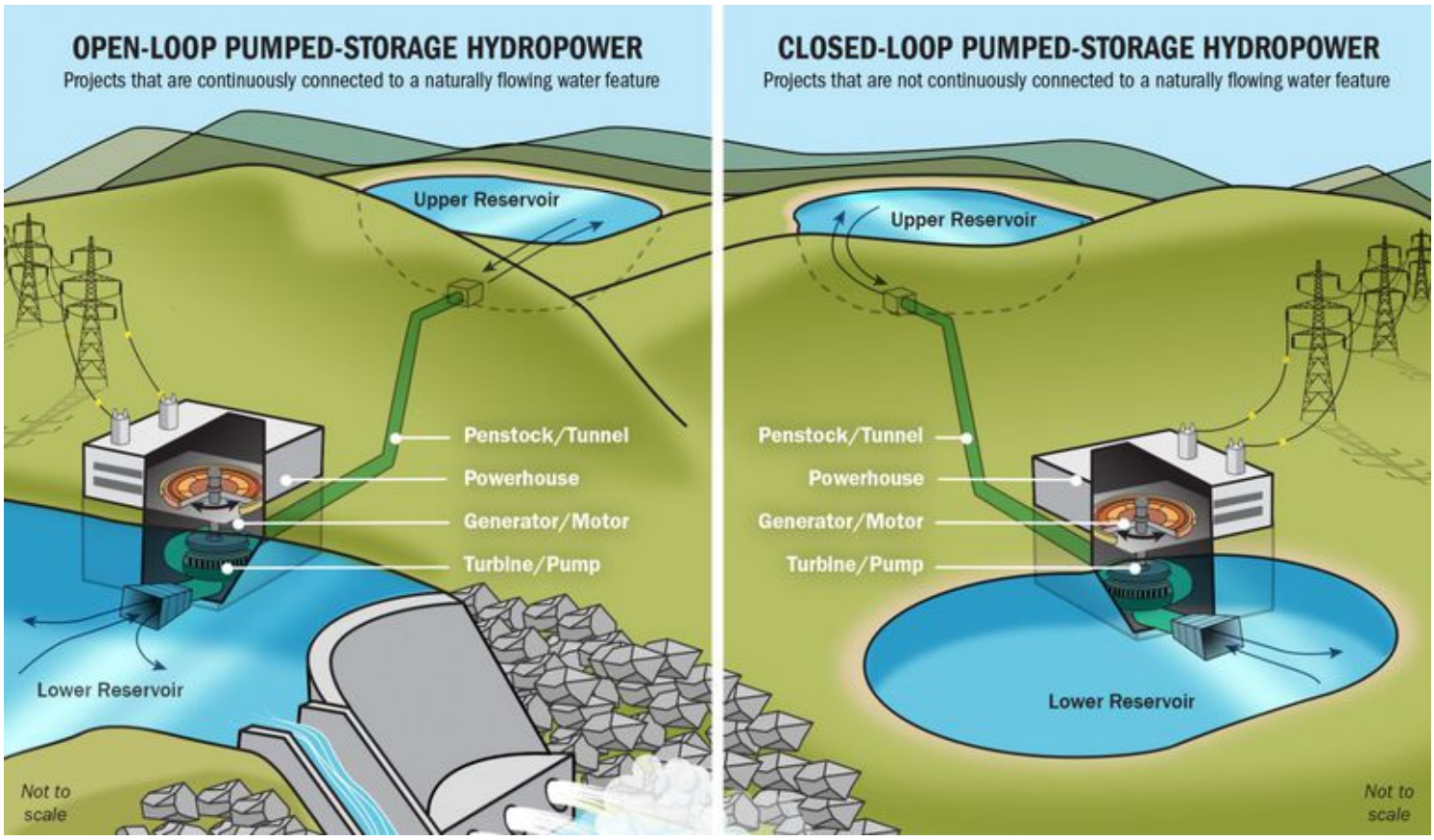
"If we want to have a green and clean power system, we definitely need a lot of storage," said Vladimir Koritarov, a program manager at Argonne National Laboratory in Illinois.

always shining. That's why wind and solar power are variable, or intermittent.

Storage facilities, like pumped hydropower or batteries, can keep some of that energy "on tap," Koritarov said, and then release it when it's needed.

"Storage will be key for a high level of variable renewables in the system and effectively operating the system," he said.

Pumped hydropower is an old technology. To make it work, there are two reservoirs, typically one high up on a hilltop, the other down below. When there's a lot of electricity available, water is pumped from the lower reservoir into the higher one.



Pumped hydro projects can generally be described as "open loop" or "closed loop" systems.
Courtesy of Rye Development

Then, when more electricity is needed, the water in the upper reservoir is released through turbines and back into the lower reservoir.

"Why is pumped storage hydro really good for large-scale applications?" Koritarov asked. "Because of the size."

grid, said Vish Viswanathan, an energy storage researcher at Pacific Northwest National Laboratory in Richland, Washington.

“I like to use the analogy of marathon versus a sprinter versus a middle-distance runner,” Viswanathan said.

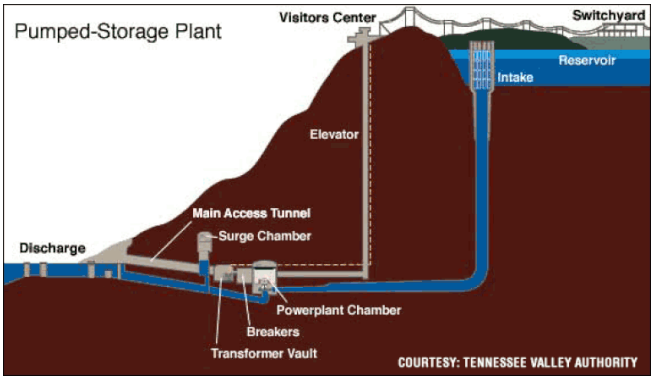
Smaller lithium-ion batteries generate energy for shorter amounts of time, like a sprinter. Another type of battery called a flow battery is more of a middle-distance runner. And, pumped storage, with its large reservoirs, would be a marathoner.

Pumped storage operates at more of a utility-scale. There are already at least 40 pumped hydro plants in the U.S., many in the East. Very few new plants have been built in 30 years.

Most of the new pumped hydro projects have been proposed in the West, according to the U.S. Department of Energy. At least four new plants are proposed in Washington, two in Oregon, one in Idaho and two in Montana.

‘Fits the correct profile'

Washington already has one pumped hydro plant near Grand Coulee, which started generating energy at a portion of the pumping station in 1973. Before that, it delivered irrigation water to the Columbia Basin Project.



This diagram illustrates how pumped hydro storage works with an upper and lower reservoir.

Tennessee Valley Authority

Investors often have to study several locations before they decide where to site a pumped hydro facility, said Kendall Mongird, an economist with Pacific Northwest National Laboratory.

She said many facilities might be proposed in the region because “it fits the correct profile where it’s actually going to provide a valuable need while also providing a return.”But there are drawbacks. The application process can be lengthy and expensive.

systems.

Researchers say these types of designs should have fewer environmental concerns than pumped storage projects that continuously draw water directly from a natural waterbody. Most newly proposed pumped storage projects are closed-loop designs.

Recently, Washington Reps. Cathy McMorris Rodgers and Dan Newhouse have introduced legislation that would further speed up the permitting process for those types of closed-looped pumped hydro systems. Permitting and construction can take up to 10-years for these types of projects, making them costly and time-consuming for investors.

Kurt Miller, with Northwest RiverPartners, said it's important to fast-track some of these "low-impact technologies that will help be an important contributing factor to our clean energy goals."

Researchers at PNNL say getting investors to buy in quickly is important, but environmental regulatory steps shouldn't be skipped.

Not without complications

The pumped hydro project near Goldendale is one of the first in the country to apply for an expedited licensing process with the Federal Energy Regulatory Commission.

That concerns some groups who have opposed the project. Like many large energy projects, the Goldendale project is not without complications.

The Yakama Nation has opposed the Goldendale facility from the start. They say the site footprint would impact sacred cultural resources, "including archeological, ceremonial, burial petroglyph, monumental and ancestoral use sites," according to Paul Ward, Yakama Nation Fisheries Program manager.

"As you're aware, the Columbia River was dammed over the last century. In doing so, that impacted many of our rights, interests and resources," Ward said at a Washington

energy development, development in the West, that comes at a cost to the Yakama Nation."

Similar concerns have been raised for a much smaller "hydro battery" project on the Upper Columbia River. The Confederated Tribes of the Colville Reservation recently sent a letter to federal regulators stating they didn't believe their concerns about cultural resources that would be harmed by the project were being heard.

"We reiterate to the Commission the cultural significance of the location selected for the Project and highlight areas where our concerns were ignored or minimized based on the inherent ethnocentric bias in the [Federal Energy Regulatory Commission] process," the letter states.

The Goldendale Energy Storage Project would be built just outside Goldendale in Klickitat County, Wash. If built, it would be the largest pumped storage facility in the Northwest. The lower reservoir is proposed in the flat area below, by John Day Dam.

Courtesy of Rye Development

The Colville Tribes would like the developers, Shell Energy North America, to consider alternate locations for the project, which would test out a small-scale modular type of pumped storage facility.

At the site of the Goldendale project, the Yakama Nation also has concerns about the facility's location near an old aluminum smelter. Project developers say the storage reservoirs would not be built in contaminated areas.

Other groups have also raised concerns about golden eagles that nest nearby. They say the birds already run into trouble with a nearby wind farm – one of the largest wind projects in Washington. They're also concerned about the amount of water the project would initially take out of the Columbia River.

Related: Federal environmental policies during the COVID pandemic raise concerns across the Northwest

Project developers Rye Development and National Grid say they're working with the Washington Department of Fish and Wildlife to come up with a "protection enhancement plan." The department had initially raised wildlife habitat concerns about the project. Developers also say they're creating an adaptive water quality monitoring plan with the Washington Department of Ecology.

The federal environmental process to study those plans is expected to begin this fall.

"We are very interested in developing an environmentally benign project that's a great benefit to the community. To that extent, we proposed a project we feel has very limited impacts on the landscape," Erik Steimle, with Rye Development, said.

Strong support

The project has received strong support from the Klickitat County Public Utility District, where it would purchase its water rights to initially fill the reservoirs and periodically make up for water that's evaporated or potentially leaked. It's also seen support from the Goldendale Chamber of Commerce and county commissioners, who've called it "a game-changer in Klickitat county and the whole region."

"This particular site has been studied for pumped storage for more than 30 years," Steimle said. "It's identified as one of the best locations in the United States from a grid connectivity standpoint. It also has good geology and geography to support a project."

Steimle said project developers expect a decision on the permit application in 2022. Rye Development and National Grid have already received a federal license for another pumped storage project near Klamath Falls, Oregon. If built, Swan Lake North would be the largest pumped storage project in the region – that is, until the Goldendale project potentially comes online. It would be around triple the size of Swan Lake North.

At a time when states are trying to reduce their dependence on fossil fuels that release heat-trapping greenhouse gases, new storage projects could be an important step forward, according to Argonne National Laboratory's Vladimir Koritarov. But, he said, pumped storage is only one of the steps.

“Pumped storage technologies are very beneficial. All storage technology is very useful – all of them have certain advantages. We need a variety of energy storage technologies. Depending on their characteristics, all of them have some good uses in the power systems,” Koritarov said.

Correction: July 30, 2020. *An earlier version of this story misspelled Kendall Mongird’s last name.*

Tags: Science & Environment

INDIAN REMAINS, HUMAN RIGHTS: RECONSIDERING ENTITLEMENT UNDER THE NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

by Angela R. Riley*

I. INTRODUCTION

> Tribal representatives described a gruesome scene where pieces of caskets, the outlines of additional graves, and parts of human burials were exposed and lying on the surface of the drawdown zone.[1]

When the federal government undertook to build Fort Randall Dam in 1949, it was known that the Indian cemetery downstream would become the site of Lake Francis Case. According to the government's relocation plan, the bodies in the cemetery would be exhumed and reburied in a new location. But, decades later, as the U.S. Army Corps of Engineers (the Corps) raised and lowered the lake's water levels, the remains of dead Indians began to emerge in the tide. By the time the Yankton Sioux Tribe was notified, caskets, bones, pots, and burial shrouds had floated to the surface of Lake Francis Case.[2]

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1. *See* South Dakota: Drawdown of Francis Case Reservoir, *at* http://www.achp.gov/casearchive/cases6-00Sd1.html (last visited Nov. 14, 2002).

2. *See infra* Part III.B.4.

Burial practices exist in almost every human society. They embody cultural traditions and spiritual beliefs, linking the living to the dead, and the present to the past. As evidence of their significance, grave preservation laws have been developed in almost every state in the United States. However, most have proven incapable of protecting Indian burial grounds and accommodating the unique mortuary practices and distinct historical context of American Indians.[3]

In order to remedy this social injustice, Congress enacted the Native American Graves Protection and Repatriation Act (NAGPRA, or the Act) in 1990.[4] Intended to protect Indian cultural property, NAGPRA established guidelines for repatriation, criminalized trafficking of Indian cultural property, and set forth consultation procedures to govern future excavations of Indian human remains and funerary objects. Since its enactment, however, NAGPRA has been applied almost exclusively in the context of repatriation. In contrast, significantly less attention has been devoted to NAGPRA's provisions designed to prevent future excavations of Indian burial grounds.[5] The few published judicial opinions that do address this aspect of NAGPRA, however, demonstrate that, while NAGPRA undoubtedly marked a major victory for indigenous peoples in regards to repatriation, traditional property models continue to thwart the human rights objectives that NAGPRA was enacted to preserve.

This article posits that human rights and property rights are inextricably linked. The ability to hold property and wield power is essential to the exercise of other basic human rights.[6] Thus, the

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3. This Article uses the terms "Indian" and "American Indian" interchangeably to refer to the indigenous peoples of the United States.

4. Native American Graves Protection and Repatriation Act, 25 U.S.C. §§ 3001–3013 (2000).

5. *See* Hartman Lomawaima, *NAGPRA at 10: Examining a Decade of the Native American Graves Protection and Repatriation Act*, *in* Implementing the Native American Graves Protection and Repatriation Act 1, 2 (Roxana Adams ed., 2001) ("The legislation seems to have less to do with graves protection, though that's in its title, than it does with repatriation. Graves protection is something that has been on the minds of Native people for a very long time. I would like to see that emphasized as equally as repatriation.").

6. Leslie Kurshan, *Rethinking Property Rights As Human Rights: Acquiring Equal Property Rights For Women Using International Human Rights Treaties*, 8 Am. U. J. Gender Soc. Pol'y & L. 353, 357 (2000); *see* Yoram Barzel,

recognition of property rights is critical, as it allows groups to function as "economic actors" in society.[7] Because classical property models operate to deprive indigenous peoples of the right to control their own property—tangible and intangible—they are often powerless to exercise their human rights. This article contends that the human rights goals of NAGPRA will only be realized through a fundamental shift in thinking from an individual rights-oriented property model to one capable of accommodating both the rights and responsibilities inherent in property ownership.[8]

Part II briefly sets forth the history and goals of NAGPRA, providing a background to the Act and detailing the human rights initiatives at its core. Part II also discusses the significance of cultural property to indigenous communities and its role in the cultural survival of indigenous groups. Part III describes NAGPRA's excavation provisions and explains the process through which either lineal descendents or culturally affiliated Indian tribes are to proceed under the Act to achieve, first, a right of consultation, and, second, an opportunity to take possession of the subject human remains and/or funerary objects. Part III further demonstrates how the interpretation and application of NAGPRA by the courts—operating pursuant to limited conceptions of traditional property models—has resulted in the deprivation of indigenous peoples' property rights and human rights. Part IV explores the role of international human rights instruments and norms in securing the rights of indigenous peoples, and focuses, specifically, on the groundbreaking case of *The Mayagna (Sumo) Indigenous Community of Awas Tingni v. Nicaragua* (*Awas Tingni*) decided by the Inter-American Court on Human Rights.[9] Part IV uses *Awas Tingni* as an example of the

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Economic Analysis of Property Rights 4 n.3 (James E. Alt & Douglass C. North eds., 2d ed. 1997) ("The distinction sometimes made between property rights and human rights is spurious. Human rights are simply part of a person's property rights.").

7. Kurshan, *supra* note 6, at 357.

8. *See* Deborah L. Nichols et al., *Ancestral Sites, Shrines, and Graves; Native American Perspectives on the Ethics of Collecting Cultural Properties, in* The Ethics of Collecting Cultural Property 27, 37 (Phyllis Mauch Messenger ed., 1989) ("But most important is the need for a change in attitudes. Archaeologists and museums have a special responsibility to broaden public awareness and knowledge of Native Americans, which includes a responsibility to respect Native American values.").

9. The Mayagna (Sumo) Indigenous Community of Awas Tingni v.

increasingly prevalent shift in international law towards more fluid conceptions of property and ownership that are better suited to ensure the continued survival of indigenous peoples. Finally, Part V suggests new property models capable of accommodating individual property rights in the classical sense, while making room for the protection of indigenous peoples' human rights. Part V discusses the possible consequences of new property models as applied to the NAGPRA cases discussed herein, as well as their effect on other struggles of indigenous peoples in Western legal systems. This article concludes that it is necessary to move beyond the classical property model—one which considers the rights but not the obligations of individual property owners—to new models of property capable of reconceptualizing ownership and entitlement for the protection of indigenous peoples' human rights and continued existence.

II. NAGPRA: ITS HISTORY AND AIMS

The history of the deplorable treatment of Indian remains and cultural property in the United States is a sad and sickening tale.[10] Some of the earliest writings by colonists reveal European fascination with Native American remains and funerary objects. An early example is recorded in the journal of a Mayflower Pilgrim who wrote about uncovering an Indian grave: "We brought sundry of the prettiest things away with us, and covered the corpse up again."[11] To accommodate this morbid curiosity with Indian dead during the early periods of forced assimilation and extermination, museums were created to serve as repositories for Indian artifacts, thus contributing to the fetishism of Indians by Europeans and capturing colonists' love

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Nicaragua, 79 Inter-Am. Ct. H.R. (ser. C) (Aug. 31, 2001), *available at* http://www.corteidh.or.cr/seriecing/serie_c_79_ing.doc.

10. Because the history of the treatment of Indian graves in America is well documented and easily accessible, I will not recount it here in detail. For a more thorough account of this history, see, for example, Jack F. Trope & Walter R. Echo-Hawk, *The Native American Graves Protection and Repatriation Act: Background and Legislative History*, *in* Repatriation Reader: Who Owns American Indian Remains? 123, 126 (Devon A. Mihesuah ed., 2000). *See also* Mary Lynn Murphy, *Assessing NAGPRA: An Analysis of Its Success from a Historical Perspective*, 25 Seton Hall Legis. J. 499, 502 (2001) (discussing colonial views of Indians as inferior, and the disregard of Indian religion, culture, and property norms during the development of America's legal system).

11. Mourt's Relation: A Journal of the Pilgrims at Plymouth 28 (Dwight B. Heath ed., 1963).

affair with the romantic West.[12] With Western expansion, Indians were viewed as a vanishing people, and Indian "trinkets" and bodies were coveted out of blatant curiosity.[13] In congressional debates over NAGPRA, Congress found that during much of the history of the United States digging and removing the contents of Native American graves for reasons of profit or curiosity had been common practice.[14]

The mistreatment of Indian dead extended beyond individual curiosity, becoming formal federal policy in 1868, when the Surgeon General ordered all U.S. Army field officers to send Indian skulls and other body parts to the Army Medical Museum for studies comparing the sizes of Indian and White crania.[15] Pursuant to this order, the heads of thousands of Indians, many of whom died during infamous massacres by the federal government, were cut off their bodies and sent to museums for display or study.[16] Then, in 1906 Congress passed the Antiquities Act, intended to protect "archaeological resources" located on federal lands.[17] The Antiquities Act, however, considered Indian remains on federal lands "archeological resources," thus converting them into federal property and allowing them to be kept and displayed in public museums.[18] These and other federal policies led to the mass excavation of Indian bodies and the looting of Indian graves. By 1986, the Smithsonian Institution alone held the remains of over 18,000 American Indians in its collections.[19]

The unlawful excavation of Indian bodies and the looting of graves was, in part, a result of racism, with a belief in Indians' racial inferiority certainly contributing to the epidemic.[20] But perhaps even

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12. *See* Murphy, *supra* note 10, at 500–01.

13. *Id.*

14. Trope & Echo-Hawk, *supra* note 10, at 126.

15. *Id.*

16. *Id.* ("Government headhunters decapitated Natives who had never been buried, such as slain Pawnee warriors from a western Kansas battleground, Cheyenne and Arapaho victims of Colorado's Sand Creek Massacre, and defeated Modoc leaders who were hanged and then shipped to the Army Medical Museum.").

17. Antiquities Act of 1906, Pub. L. No. 209, 34 Stat. 225 (codified as amended at 16 U.S.C. §§ 431–433 (2000)).

18. Trope & Echo-Hawk, *supra* note 10, at 127.

19. *Id.* at 136.

20. *See, e.g.*, Robert E. Bieder, A Brief Historical Survey of the Expropriation of American Indians (1990) (recounting the goal of Dr. Samuel

more invidious was the complete devaluation of indigenous perspectives and cultures in American jurisprudence that set the stage for mass theft of Indian cultural property. Eurocentric property conceptions, which contemplated property rights as individual rights, regarded ownership as an individual safeguarding his or her own goods.[21] As such, the vast majority of White graves were marked and walled off from society, whereas Native peoples maintained traditional practices of storing items in open areas or caves. The Eurocentric point of view thus diminished Indian burial traditions and did not respect unique Native mortuary practices, such as scaffold, canoe, or tree burials.[22] Nor did it protect unmarked graves, treating them as abandoned, even though many of the graves were left behind by tribes that were forcibly removed from their ancestral homelands by the government.[23] Native burial practices, which were so unlike European burials, deterred government officials from prosecuting cases of theft of Native cultural property, since such property was kept in the open and was free for the taking by whomever "discovered" it.[24] As such, the private property values of Western law contributed not only to the displacement of Indian peoples but also to the "abandonment" by Indians of their own burial grounds.[25] It was not until the 1980s that state burial laws were extended to protect unmarked graves or those outside of specifically designated cemeteries.[26]

Morton, a physical anthropologist, who sought to prove that the American Indian was a racially inferior "savage" doomed to extinction).

21. Sherry Hutt & C. Timothy McKeown, *Control of Cultural Property as Human Rights Law*, 31 Ariz. St. L.J. 363, 365 (1999).

22. Trope & Echo-Hawk, *supra* note 10, at 130.

23. *Id.*

24. Hutt & McKeown, *supra* note 21, at 369.

25. *See* Murphy, *supra* note 10, at 506–07.

26. Current cases nevertheless indicate that many jurists still do not understand the differences between Western and Indian property values. *See, e.g.*, Castro Romero v. Becken, 256 F.3d 349 (5th Cir. 2001). In *Castro Romero v. Becken*, the Fifth Circuit rejected the claim of the lineal descendant of the Lipan Apache Chief dealing with the protection of cemeteries, holding that Castro's allegation that "the oral history of the Lipan Apache establishes the Universal City land as a burial ground is not sufficient to convert the land into a 'cemetery' for purposes of the statute" because the plaintiff had not alleged that the land "was publicly dedicated as a cemetery, that the land was enclosed for use as a cemetery, or that the land even if once used for burial purposes has not been abandoned." *Id.* at 355.

In response to the mistreatment of Indian dead and the continued devaluation of Indian cultural property, NAGPRA was finally enacted in 1990.[27] Perhaps most significantly, the passage of NAGPRA symbolized the tacit recognition that cultural property rights have been obstructed by the disparity between Eurocentric views of personal private property, which dominate American jurisprudence, and the less formalized system of property rights seen in Native communities.[28] In this regard, NAGPRA is significant as it stands as one of the first American statutes which incorporates indigenous peoples' perspectives and confirms the belief that indigenous peoples' right to control the fate and integrity of their cultural property is a valuable tool of self-determination and a necessary component of cultural survival.[29]

Similarly, international legal doctrines contemplate and recognize the right to maintain group culture and identity and place particular emphasis on the rights of indigenous peoples.[30] As such,

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27. 25 U.S.C. §§ 3001–3013 (2000).

28. Sherry Hutt, *Native American Cultural Property*, 34 Ariz. Att'y 18, 20 (1998).

29. *See, e.g.*, Rosemary J. Coombe, *Intellectual Property, Human Rights & Sovereignty: New Dilemmas in International Law Posed by the Recognition of Indigenous Knowledge and the Conservation of Biodiversity*, 6 Ind. J. Global Legal Stud. 59, 87 (1998). Rosemary J. Coombe notes that:

> [I]f human rights were to be "recognized as truly interdependent and individual, then [intellectual property rights] would also have to be compatible with the rights enshrined in the International Covenant on Civil and Political Rights. Civil and political rights may, in many circumstances, come into conflict with the exercise of [intellectual property rights].

Id.

30. *See* International Covenant on Civil and Political Rights, *opened for signature* Dec. 16, 1966, art. 27, S. Exec. Doc. E, 95-2, at 31 (1978), 999 U.N.T.S. 171, 179 (entered into force Mar. 23, 1976) [hereinafter ICCPR] (affirming the right of persons belonging to minorities to enjoy their own culture in community with the other members of their group); *id.* art. 1 (defining indigenous groups as "peoples" within the meaning of Article 1, which holds that "all people have the right to self determination"). The right to self-determination through cultural integrity for groups is also a generally accepted principal of customary international law. *See* S. James Anaya, *Environmentalism, Human Rights and Indigenous Peoples: A Tale of Converging and Diverging Interests*, 7 Buff. Envtl. L.J. 1, 9 (2000).

these doctrines capture and acknowledge the importance of group cultural property in giving meaning to human existence.[31] Cultural property situates indigenous peoples in time, linking them to their place of origin. For a tribe, controlling collective cultural property, particularly that which is sacred and intended solely for use and practice within the group, is a crucial element of self-determination. As with other forms of collective ownership seen in indigenous communities, objects of cultural property derive their status from community use and recognition rather than individual ownership.[32] Legal enforcement of group ownership of cultural property supports self-determination principles by placing the destiny of tribal cultural property into the hands of indigenous peoples, affirming their ability to determine themselves as a people through their culture. When a group has exclusive authority to prescribe the employment of its most valuable creations, the entire community benefits.[33] As Sarah Harding argues, "[c]ultural property takes on a life and meaning of its own; it acquires something like a soul and it is this soul, not a specific human end, which shapes our relationship with cultural property."[34]

Because recognition of indigenous peoples' property rights—to a traditional land base, preservation of the environment, and communal intangible knowledge—is essential for cultural survival, battles are now waged on every front to ensure the continued existence of indigenous peoples worldwide.[35] Conflicts over land have long been a hallmark of Indian-White relations in this country, and Indians' struggle to maintain or recover a traditional land base or right of occupation seems never-ending.[36] Similarly, because of the

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31. Hutt, *supra* note 28, at 19.

32. Susan Scafidi, *Intellectual Property and Cultural Projects*, 81 B.U. L. Rev. 793, 811 (2001).

33. Angela R. Riley, *Recovering Collectivity: Group Rights to Intellectual Property in Indigenous Communities*, 18 Cardozo Arts & Ent. L.J. 175 (2000).

34. Sarah Harding, *Justifying Repatriation of Native American Cultural Property*, 72 Ind. L.J. 723, 760 (1997).

35. *See, e.g.*, Anaya, *supra* note 30, at 8 (discussing indigenous peoples' property interest in land as also linked to their cultural integrity, "insofar as these cultures are connected with land tenure"); Rebecca Tsosie, *Land, Culture, and Community: Reflections on Native Sovereignty and Property in America*, 34 Ind. L. Rev. 1291, 1306 (2001) (arguing that to "[n]ative peoples, land is vital to political ideology . . . self-sufficiency, and also to cultural identity").

36. *See, e.g.*, United States v. Dann, 470 U.S. 39 (1985) (discussing the

unique cultural relationship of indigenous peoples to the land, many scholars now claim indigenous peoples possess a human right to preservation of the environment.[37] For indigenous groups whose existence depends on and is identified through their relationship to the land and nature, it is impossible to differentiate between environmental injustice and human rights abuses.[38]

In addition, arguments are being made, both domestically and internationally, for the recognition of group rights to intellectual property in indigenous communities as a mechanism to "allocate rights over knowledge."[39] Recognizing some form of intellectual property rights for indigenous peoples "could be a valuable tool for

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viability of a claim of tribal title by Shoshones, where compensation for the land had been paid into a trust for, but not yet disbursed to, a Shoshone tribe); United States v. Sioux Nation of Indians, 448 U.S. 371 (1980) (holding that the 1877 act that relinquished the Sioux Nation's rights to the Black Hills amounted to a taking of tribal land for which just compensation was required); The Mayagna (Sumo) Indigenous Community of Awas Tingni v. Nicaragua, 79 Inter-Am. Ct. H.R. (ser. C) (Aug. 31, 2001), ¶ 4, *available at* http://www.corteidh.or.cr/seriecing/serie_c_79_ing.doc (ordering Nicaragua to recognize and protect tribal lands).

37. *See, e.g.*, Anaya, *supra* note 30, at 3 (commenting that related to the discourse that joins human rights and environmentalism is a discourse "that focuses directly on the human rights of indigenous peoples. This discourse views indigenous groups and their cultures as valuable, and it constructs a series of rights and entitlements that are deemed to pertain to these communities and their members on the basis of broadly applicable human rights standards.").

38. *See* Arctic Refuge: A Circle of Testimony 5 (Hank Lentfer and Carolyn Servid eds., 2001) (quoting Sarah James, member of the Gwich'in Nation, discussing her opposition to plans to drill for oil in the Arctic National Wildlife Reserve: "But our fight is not just for the caribou . . . . [O]ur fight is a human rights struggle—a struggle for our rights to be Gwich'in, to be who we are, a part of this land."); Sevine Ercmann, *Linking Human Rights*, 7 Buff. Envtl. L.J. 15, 17 (2000).

39. David R. Downes, *How Intellectual Property Could Be A Tool to Protect Traditional Knowledge*, 25 Colum. J. Envtl. L. 253, 256 (2000); *see* Rosemary J. Coombe, *The Recognition of Indigenous Peoples' and Community Traditional Knowledge in International Law*, 14 St. Thomas L. Rev. 275, 284 (2001) ("Intellectual property rights are not merely technical matters. They increasingly involve crucial questions not only of economic interest, competitiveness, and market power, but also of environmental sustainability, human development, ethics and international human rights."); James D. Nason, *Traditional Property and Modern Laws: The Need for Native American Community Intellectual Property Rights Legislation*, 12 Stan. L. & Pol'y Rev. 255, 260–63 (2001) (asserting the need for "new legal approaches to intellectual property that would protect intangible Native American cultural property").

communities to use to control their traditional knowledge and to gain a greater share of the benefits."[40] In this respect, intellectual property rights are significant insofar as the protection of traditional knowledge is integral to cultural heritage and ensures "the right to maintain and take part in cultural life."[41]

But no cultural practice is more fundamental to group identity and survival than treatment of the dead. Burial practices are, in almost all cultures, indicative of religious beliefs, value for human life, reverence for the land, and relationships with nature.[42] This is particularly true for indigenous peoples, who are forever linked to their dead, as they define themselves through their history and place as connected to ancestors, the environment, and the earth.[43] For indigenous peoples, "[h]uman remains generally hold great religious significance, both for present day descendants and for the spiritual well-being of deceased ancestors."[44] For example, many

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40. Downes, *supra* note 39, at 256. David R. Downes states that:

> An international human rights perspective on the protection of indigenous knowledge through [intellectual property rights] would presuppose that State governments not only have obligations to indigenous peoples subject to their own jurisdictions, but also that these obligations involve respect for and protection of the indigenous knowledge of indigenous peoples . . . globally.

Id. See also Coombe, *supra* note 29, at 90; Riley, *supra* note 33, at 215 (noting that the "communal approach to entitlements in cultural property will not only preserve group property generally, but it will secure the work in the cultural context from which it arose, ensuring that the creation endures through time to be enjoyed by individuals whose identity is inextricably bound to the cultural work").

41. Downes, *supra* note 39, at 255.

42. *See, e.g.*, Trope & Echo-Hawk, *supra* note 10, at 124 (arguing that "respect for the dead is a mark of humanity and is as old as religion itself").

43. When Geronimo, the famous Apache leader and warrior was held prisoner at Fort Sill, he was approached by a school teacher to give his life story and he began by recounting the Apache tribal creation story. Robert J. Conley, The Witch of Goingsnake and Other Stories, at xii (1988).

44. Dean B. Suagee, *Tribal Voices In Historical Preservation: Sacred Landscapes, Cross-Cultural Bridges, and Common Ground*, 21 Vt. L. Rev. 145, 203 (1996); *see* Harding, *supra* note 34, at 765 ("[G]rant[ing] Native Americans the same legal rights as other Americans have concerning their ancestral remains is pivotal to cultural integrity and pride and thus the preservation of

Indian people are buried with pottery or other goods because it is believed they will need these items in the afterlife. As Tessie Naranjo, a Santa Clara Pueblo tribal member, stated:

> Traditional Native Americans see an essential relationship between humans and the objects they create. A pot is not just a pot. In our community, the pots we create are seen as vital, breathing entities that must be respected as all other living beings. Respect of all life elements—rocks, trees, clay—is necessary because we understand our inseparable relationship with every part of our world.[45]

A tribe may pursue repatriation of a pot or beaded belt buried with the dead not because of the tribe's appreciation for its physical dimensions per se, but for what it symbolizes metaphysically. While indigenous peoples revere land and earth and all that it embodies, human remains are valued not only because they represent physical property that belongs to the tribe but because human remains connect living Indians to their past and to their future.

For Indian peoples, burial ceremonies and burial sites are sacred. Although the philosophical and religious ideas of Native peoples are diverse, the vast majority of Indians hold one core belief: that the dead remain connected to the living and to the physical remains they left behind.[46] For example, when the Tennessee Valley Authority threatened to flood the Little Tennessee Valley in the late 1970s, Eastern Cherokees mounted fierce resistance to the project based on the threat that it posed to their cultural heritage and religious beliefs.[47] The Cherokees believed that the knowledge of the deceased was placed in the ground with them at the time of burial.[48] Exhumation of an Indian grave would destroy the knowledge and beliefs of the deceased and everything they have taught, including, in

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cultural identity, regardless of particular Native American beliefs about the spiritual afterlife of their ancestors.").

45. Tessie Naranjo, *Thoughts On Two World Views*, *in* Implementing the Native American Graves Protection and Repatriation Act 22 (Roxana Adams ed., 2001).

46. *See* Trope & Echo-Hawk, *supra* note 10, at 151.

47. *See* Sequoyah v. Tenn. Valley Auth., 620 F.2d 1159, 1160 (6th Cir. 1980).

48. Sequoyah, 620 F.2d at 1162, *cited in* Laurie Anne Whitt et al., *Belonging to Land: Indigenous Knowledge Systems and the Natural World*, 26 Okla. City U. L. Rev. 701, 701–02 (2001).

the case of the Eastern Cherokee, their spiritual leader's knowledge of medicine.[49] Thus, for many Indians, the looting of a grave goes beyond legal transgression and is treated as "an act of desecration that violates deeply held religious beliefs that are essential to the spiritual well-being of Native Americans."[50]

NAGPRA's role in the preservation of cultural property, and thus, cultural survival, has designated it, first and foremost, a human rights law.[51] A triumph for Indian peoples, NAGPRA represents the culmination of "decades of struggle by Native American tribal governments and people to protect against grave desecration, to repatriate thousands of dead relatives or ancestors, and to retrieve stolen or improperly acquired religious and cultural property."[52] As such, NAGPRA is "one of the most significant pieces of human rights legislation since the Bill of Rights."[53] NAGPRA is recognized as having created the opportunity to allay the breach between living and dead by restoring bones and possessions to the earth from which they were torn in the name of science, profit, or idle curiosity.[54]

NAGPRA has undoubtedly produced major successes in the repatriation context. According to C. Timothy McKeown, NAGPRA Program Leader for the National Park Service Archeological Assistance Program, by 1998 over 1000 NAGPRA summaries were received from federal agencies and institutions receiving federal funding. Approximately 700 of these institutions had completed inventories, some 400 of which included human remains. It is estimated that up to 200,000 individual remains will eventually be accounted for through the NAGPRA process.[55]

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49. *Id.*

50. Nichols et al., *supra* note 8, at 37.

51. *See, e.g.*, Trope & Echo-Hawk, *supra* note 10, at 123 ("On November 23, 1990, President Bush signed into law important human rights legislation.").

52. *Id.*

53. David Hurst Thomas, Skull Wars: Kennewick Man, Archaeology, and the Battle For Native American Identity 214 (2000).

54. John W. Ragsdale, Jr., *Some Philosophical, Political and Legal Implications of American Archeological and Anthropological Theory*, 70 U. Mo. Kan. City L. Rev. 1, 46 (2001).

55. Nichols et al., *supra* note 8, at 256.

However, NAGPRA's role in preventing future excavations of human remains and/or funerary objects remains uncertain.[56] In practice, when courts apply NAGPRA in the excavation context, they consistently do so within the traditional paradigm of Anglo-American law. This approach fails to consider indigenous perspectives, resulting in the diminishment of indigenous peoples' human rights and the rejection of non-Western, community-based property conceptions. As a result, NAGPRA's human rights objectives remain unsatisfied, and the cultural survival of indigenous peoples is threatened.

III. RAISING THE DEAD

A. NAGPRA's Excavation Procedures

NAGPRA establishes three mechanisms to ensure the protection of Indian cultural property.[57] First, it creates procedures through which culturally affiliated Indian tribes can recover human remains and funerary objects from federally funded museums.[58] Secondly, NAGPRA criminalizes the trafficking of Indian human

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56. *See, infra* Part III.B; Thomas, *supra* note 53, at 214. David Hurst Thomas quotes the late Northern Cheyenne Elder William Tallbull:

> How would you feel if your grandmother's grave were opened and the contents were shipped back east to be boxed and warehoused with 31,000 others and itinerant pothunters were allowed to ransack her house in search of 'artifacts' with the blessing of the U.S. government? It is sick behavior. It is un-Christian. It is [now] punishable by law.

Id. Brian Patterson writes:

> In many ways, [NAGPRA] is a wonderful law because it has helped many Indian nations protect their sacred sites and restore the artifacts of their heritage. However, this law worries me because of what it says about our society. I have three children, and I do not have to tell them that it is wrong to go into a cemetery and dig people up. They know it is wrong. No one would consider building a parking garage on top of Arlington National Cemetery. Congress does not have to pass a law saying that would be wrong. Everybody knows it is wrong.

Brian Patterson, *Preserving the Oneida Nation Culture*, 13 St. Thomas L. Rev. 121, 123 (2000).

57. 25 U.S.C. §§ 3000–3013 (2000).

58. *Id.* § 3005.

remains and cultural items.[59] Finally, it sets forth notification and consultation procedures for intentional or inadvertent excavation of Native American human remains and cultural objects on tribal and federal lands.[60] It is this final portion of the Act that is the subject of this article.

NAGPRA creates mandatory excavation procedures that govern ownership and control of cultural items discovered in the future on tribal or federal lands. The procedures vary, depending on whether the artifacts are to be intentionally excavated or have been inadvertently discovered.[61] Because NAGPRA applies only on tribal and federal lands, it functions solely within these geographical limitations. Under the Act, "tribal lands" are defined as: "(A) all lands within the exterior boundaries of any Indian Reservation; (B) all dependent Indian communities; (C) any lands administered for the benefit of Native Hawaiians pursuant to the Hawaiian Homes Commission Act, 1920, and section 4 of Public Law 86-3."[62] Allotted Indian trust lands outside reservation boundaries do not fit the statutory definition of "tribal lands" unless they also are within a dependent Indian community.[63] However, because such lands are held in trust by the United States and are subject to federal control, they are treated as "federal lands" for purposes of NAGPRA.[64]

The statute defines "federal lands" as "any land other than tribal lands which are *controlled or owned* by the United States."[65] The implementing regulations state, further, that "United States'

59. *Id.* § 3007.

60. *Id.* § 3011.

61. *Id.* § 3002.

62. *Id.* § 3001(15).

63. This limited definition raises problems not addressed by this Article, but that are a major subject of concern for Native Alaskans in light of the Supreme Court's decision in *State of Alaska v. Native Village of Venetie*, 522 U.S. 520 (1998), wherein the Court found that Congress intended the Alaska Native Claims Settlement Act to divest Alaskan Native tribes of their jurisdiction over remaining territories, determining that the land was not "Indian Country." This makes application of NAGPRA's excavation procedures in the State of Alaska, insofar as applied to "tribal lands," highly uncertain. For a thorough discussion of the Court's decision, see Kristen A. Carpenter, *Interpreting Indian Country In* State of Alaska v. Native Village of Venetie, 35 Tulsa L.J. 73 (1999).

64. *See* 25 U.S.C. § 3001(15) (2000); 43 C.F.R. § 10.2(f)(1) (2002); Suagee, *supra* note 44, at 205.

65. 25 U.S.C. § 3001 (2000) (emphasis added).

'control,' as used in this definition, refers to those lands *not owned by the United States* but in which the United States has a legal interest sufficient to permit it to apply these regulations without abrogating the otherwise existing legal rights of a person."[66] Additionally, with respect to the amount of federal "control" necessary to bring lands within the purview of NAGPRA, the Department of the Interior has taken the following position: "Such determinations must necessarily be made on a case-by-case basis. Generally, however, a federal agency will only have sufficient legal interest to 'control' lands it does not own when it has some other form of property interest in the land such as a lease or an easement."[67]

Future excavations of cultural items only fall within the purview of NAGPRA if they are embedded in either tribal or federal lands. Accordingly, lands owned by individual states, municipal governments, corporations, or other private owners do not fall within the NAGPRA rubric. Though the Southwestern United States contains Indian reservations that are expansive in size, most reservations in the United States are small, and are surrounded by non-Indian towns, farms, and commercial forests. Additionally, many tribes in the U.S. were forcibly removed from their ancestral homelands—and, thus, ancestral burial grounds—by the government, leaving many Indian graves on land that was intentionally opened up for White settlement.[68] Discoveries on these lands are outside of NAGPRA's protections as well.[69]

1. Intentional Excavation

In the case of a planned, intentional excavation on tribal lands, NAGPRA requires both notification and consent of the appropriate Indian tribe prior to excavation.[70] If the intentional

66. 43 C.F.R. § 10.2(f) (2002) (emphasis added).

67. *Id.*; *see* Suagee, *supra* note 44, at 205.

68. Trope & Echo-Hawk, *supra* note 10, at 130.

69. *See* Russell L. Barsh, *Grounded Visions: Native American Conceptions of Landscapes and Ceremony*, 13 St. Thomas L. Rev. 127, 140 (2000). Indian burial grounds continue to be discovered on state and municipally owned lands. *See, e.g.*, Don Behm, *Bridge Foes Cite Indian Remains*, JSOnline, Apr. 8, 2002, *at* http://www.jsonline.com/news/OzWash/apr02/33691.asp (noting that a plan to widen a state-owned road met opposition due to the discovery of Indian human remains).

70. 25 U.S.C. § 3002(c)(2) (2000).

excavation is set to take place on federal lands, NAGPRA calls for prior consultation with the appropriate Indian tribe, but consent is not required.[71] Procedures regarding consultation with Indian tribes are set forth in detail in the Act's implementing regulations.[72] Responsibility for compliance with consultation procedures on federal lands lies with the appropriate land managing agency.[73] The federal agency in charge of administering the excavation must also complete a written plan of action with the appropriate tribe regarding the disposition of the remains. Once the agency has complied with the consultation procedures, the process of allowing the tribe to exhume human remains and cultural items from the site begins.[74]

Intentional excavations of cultural items are also subject to the permit requirements of the Archeological Resources Protection Act of 1979 (ARPA).[75] ARPA provides, in pertinent part:

> If a permit issued under this section may result in harm to, or destruction of, any religious or cultural site, as determined by the federal land manager, before issuing such permit the federal land manager shall notify any Indian tribe which may consider the site as having religious cultural importance.[76]

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71. *Id.* § 3002(c)(2), (c)(4).

72. 43 C.F.R. §§ 10.3(b), 10.5 (2002).

73. Charles Carroll, *Administering Federal Laws and Regulations Relating to Native Americans: Practical Processes and Paradoxes*, *in* Implementing the Native American Graves Protection and Repatriation Act 34 (Roxana Adams ed., 2001).

74. The implementation of the Native American Graves Protection and Repatriation Act (NAGPRA, or, the Act) to the excavation context has not always been smooth. The consultation and notification procedures have, at times, proven confusing to both tribes and the federal government. *See, e.g.*, Yankton Sioux Tribe v. U.S. Army Corps of Eng'rs, 83 F. Supp. 2d 1047, 1058 (D.S.D. 2000) (holding that, where there was a conflict within the statute, the Act's provisions protecting Native American cultural items take precedence over its provisions requiring consultation with Indian tribes).

75. 16 U.S.C. § 470aa–mm (2000); 25 U.S.C. § 3002(c)(1) (2000); *see also* Trope & Echo-Hawk, *supra* note 10, at 126.

76. 16 U.S.C. § 470cc(c) (2000); *see* Carroll, *supra* note 73 (discussing five federal laws that prompt consultations between federal agencies and Indian tribes, including: the National Environmental Policy Act of 1969; the National Historic Preservation Act of 1966; the American Indian Religious Freedom Act of 1978; Archeological Resources Protection Act of 1979; and the Native American Graves Protection and Repatriation Act of 1990).

A permit may be issued pursuant to ARPA upon a showing that the applicant is qualified, the resources will remain the property of the United States and be preserved in an appropriate institution (this provision has been modified by NAGPRA), the activity is undertaken to further archaeological knowledge, and the activity is consistent with the applicable land management plan.[77]

2. Inadvertent Discovery

In cases where cultural items or remains have been inadvertently discovered as part of another activity, such as construction, mining, logging, or agriculture, the person who has discovered the items must temporarily cease activity and notify the responsible federal agency (in the case of federal land) or the appropriate tribe (in the case of tribal land).[78] If notice is provided to the federal agency, that agency, in turn, has the responsibility to promptly notify the appropriate tribe.[79] The purpose of this provision is to "provide a process whereby Indian tribes and Native Hawaiian organizations have an opportunity to intervene in development activity on Federal or tribal lands in order to safeguard Native American human remains, funerary objects, sacred objects or objects of cultural patrimony."[80]

In cases of inadvertent discovery, the tribe is afforded thirty days to make a determination as to the appropriate disposition of the human remains and objects.[81] Activity may resume thirty days after the secretary for the appropriate federal department or the Indian tribe certifies that notice has been received, provided that resumption of the activity does not require excavation or removal of human remains or cultural items.[82] If human remains or cultural items must be excavated or removed, then the permit procedures for intentional excavations apply.[83]

77. 16 U.S.C. § 470cc(b) (2000).

78. 25 U.S.C. § 3002(d) (2000).

79. *Id.*

80. S. Rep. No. 101-473, at 10 (1990).

81. 25 U.S.C. § 3002(d) (2000).

82. *Id.*

83. *Id.* § 3002(d)(1).

While NAGPRA indisputably affords tribes greater rights in the preservation of Indian remains and funerary objects than has ever existed under American law, vast portions of land in the United States contain Indian remains and/or cultural items, but are not covered by the Act.[84] When discoveries are made on such lands, tribes have no right to notification or consultation under NAGPRA.[85] This gap in the Act is exacerbated by the limitations imposed by courts applying NAGPRA within the unyielding parameters of the classical property model. The following cases, which address future excavations of Indian remains and/or cultural items pursuant to NAGPRA, further illustrate this point.

B. Excavation Cases

1. *Castro Romero v. Becken*[86]

In 2000, Daniel Castro Romero, Jr. (Castro), General Council Chairman of the Lipan Apache Band of Texas, lineal descendent of the great Lipan Apache Chief, Cuelgas de Castro, sued the City of Universal City (the City) over the construction of a golf course on the ancient burial grounds of the Lipan Apache.[87]

Through gifts from private landowners, the City acquired enough land to build an eighteen-hole golf course.[88] The U.S. Army

84. At the time of this Article, there were thirteen published cases addressing NAGPRA claims, of which at least three, or twenty-three percent, addressed the issue of "federal control" under NAGPRA, but declined to apply the Act. *See infra* Part III.B.

85. Although some other federal statutes provide for consultation with tribes in some similar circumstances, they are also inapplicable on state or privately owned lands. *See, e.g.*, National Historic Preservation Act, 16 U.S.C. § 470 (2000) (requiring consultation with tribes as well as local governments and the public in assessing adverse effects of federal undertakings upon historic properties); National Environmental Policy Act, 42 U.S.C. § 4321 (2000) (requiring the federal agency to consider whether a proposal to conduct some action on federal lands or with federal funds will have a significant effect upon the environment).

86. Castro Romero v. Becken, 256 F.3d 349 (5th Cir. 2001).

87. The court of appeals indicated in dicta that Castro did not have standing to bring the NAGPRA claim because "the Lipan Apache Band of Texas is not a federally-recognized tribe." *Id.* at 354. However, the court did not base its decision to dismiss Castro's claims on this ground. *Id.* at 354–55.

88. *Id.* at 352.

Corps of Engineers surveyed the proposed site, as required by the Clean Water Act. In the course of the survey, human remains were found in one section of the site thought to be a prehistoric campsite.[89]

Shortly after the discovery of the remains, Castro sent a letter to the U.S. Army Corps of Engineers, demanding the return of the remains to the Lipan Apache Band of Texas, Inc. for reburial.[90] Castro received a written response from the Texas Historical Commission, informing him that the Corps agreed with its decision to turn the remains over to the City for reburial. Castro then filed suit, alleging violations of various state burial laws and federal statutes, including NAGPRA. The district court dismissed his case for failure to state a claim. Castro appealed.[91]

As to Castro's NAGPRA claim, the Court of Appeals for the Fifth Circuit acknowledged NAGPRA's broad enforcement procedures, stating that the Act "grants the district courts 'the authority to use such orders as may be necessary to enforce the provisions of the Act.'"[92] The court determined, however, that "[b]y its plain terms, the reach of the NAGPRA is limited to 'federal or tribal lands.'"[93] Thus, the court held that, "the district court correctly held that Castro's claims suffer from a fundamental flaw—that the human remains were found on municipal rather than federal or tribal land."[94] Specifically, the court asserted that, even though the U.S. Army Corps of Engineers, a federal agency, held a supervisory role with regards to construction of the golf course, this did not convert the property into "federal land" within the meaning of the statute.[95]

Accordingly, the court upheld the district court's dismissal of Castro's complaint, and the remains of the Lipan Apache were turned over to the City for reburial in a state cemetery.[96]

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89. *Id.*

90. *Id.* at 352–53.

91. *Id.* at 353.

92. *Id.* at 354 (citing 25 U.S.C. § 3013 (1994)).

93. *Id.* (citing 25 U.S.C. § 3002(a) (1994)).

94. *Id.*

95. *Id.*

96. *Id.* at 355.

2. *Abenaki Nation of Mississquoi v. Hughes*[97]

The Village of Swanton, Vermont (the Village) has operated a hydroelectric facility since 1928. In 1979, a proposal was created to upgrade the facility. In order to proceed with the project, the Village was required to apply for a license from the Federal Energy Regulatory Commission pursuant to the Federal Power Act.[98] It also needed to procure a permit from the U.S. Army Corps of Engineers for the discharge of dredged material into the Mississquoi River.[99] In 1992, after various phases of the project were considered and approved, the Corps issued a conditional authorization for the proposed project.[100]

Immediately after the Corps issued its authorization, the Abenaki Nation sought to enjoin defendants from all actions associated with the Corps's authorization for the Village to raise the spillway elevation of the hydroelectric facility. The tribe sued under a variety of statutes, including NAGPRA.[101] The tribe contended that the Corps's plan violated NAGPRA by leaving the fate of unearthed Indian remains and artifacts in the hands of the Corps, the State, and the Village.[102]

In assessing the Abenaki Nation's claims, the court noted that the Tribe's proposed construction of "federal control" would include the regulatory powers of the Corps, as well as its involvement in devising and supervising the construction plan.[103] Although the

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97. Abenaki Nation of Mississquoi v. Hughes, 805 F. Supp. 234 (D. Vt. 1992).

98. *Id.* at 237.

99. *Id.*

100. *Id.* at 239.

101. This court also questioned the standing of the Abenaki Nation because it "is not an 'Indian tribe' recognized by the Secretary of the Interior," but determined that it did "fall within the class protected by NAGPRA." *Id.* at 251. This case was decided prior to the promulgation of final rules implementing NAGPRA. In the preamble to the final rules, the Department of the Interior has taken the position that the term "Indian tribe" includes only federally recognized tribes, but that recognition may be through a federal agency other than the Bureau of Indian Affairs. 43 C.F.R. § 10.4 (2002).

102. *Abenaki Nation*, 805 F. Supp. at 251; *see* William A. Haviland & Marjory W. Power, The Original Vermonters: Native Inhabitants, Past and Present 264 (2d ed. 1994).

103. *Abenaki Nation*, 805 F. Supp. at 251–52.

court conceded that the possibility of unearthing cultural or funerary items at the site was "extremely high," it ruled against the Tribe on its NAGPRA claim.[104] In so doing, the court held that, because the project was intended to take place on state-owned land,

> [s]uch a broad reading [of "under federal control"] is not consistent with the statute, which exhibits no intent to apply the Act to situations where federal involvement is limited as it is here to the issuance of a permit. To adopt such a broad reading of the Act would invoke its provisions whenever the government issued permits or provided federal funding pursuant to statutory obligations.[105]

Thus, in the State of Vermont, which has no reservations and where the amount of federally owned land is quite small, the court declined to apply NAGPRA, depriving the Abenakis of any legal avenue to seek recovery of the remains.[106]

3. *Western Mohegan Tribe and Nation of New York v. New York*[107]

In 1986, the State of New York decided to turn Schodack Island, a series of connected peninsulas located on the eastern shore of the Hudson River, into a state park for recreational activities. From 1986 to 1989, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), the state agency with jurisdiction over the island, developed a master plan for the park that balanced recreational needs with concerns for environmental and cultural resources. The project was not active from 1989 to 1996, at which point the State renewed its interest in the park.[108] In 1999, OPRHP began construction of a bridge and a roadway for public access to the Park.

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104. *Id.* at 252.

105. *Id.*

106. Nichols et al., *supra* note 8, at 34.

107. 100 F. Supp. 2d 122 (N.D.N.Y. 2000), *rev'd in part by* W. Mohegan Tribe & Nation of N.Y. v. New York, 246 F.3d 230 (2d Cir. 2001). The appeals court did not reach the issue of NAGPRA's applicability, as the Tribe had abandoned its NAGPRA claim on appeal. 246 F.3d at 232 n.1.

108. 100 F. Supp. 2d at 124.

In 2000, the Western Mohegan Tribe and Nation commenced a lawsuit against various defendants, including the State of New York, contending that Schodack Island held religious and cultural significance to the Tribe and that it should not be converted into a park. In particular, the Tribe objected because of its belief that one area of the island, south of the planned park site, was the location of a former Mahican village.[109] The Tribe alleged various claims, including violations of NAGPRA, and sought both to enjoin construction of the bridge connecting the mainland to the island and to order the OPRHP to conduct a new archeological survey.[110]

In assessing the Tribe's NAGPRA claim, the district court reiterated NAGPRA's geographical limitations, concluding, "the Island does not fall within the scope of NAGPRA's jurisdiction since it is neither federal nor tribal land within the statute's meaning."[111] The court did acknowledge the possibility of a broader construction of the Act, noting that, "[f]ederal lands are defined in relevant part as 'land other than tribal lands which are controlled or owned by the United States.'"[112] Though the court recognized that "the Corps did issue a permit to Defendants to permit construction," it nevertheless found that the "permit does not transform the Island into federal property or place it under the United States' 'control.'" In conclusion, the court held that "[p]laintiffs' broad reading of the statute is inconsistent with NAGPRA's plain meaning and its legislative history where the language 'federal lands' denotes a level of dominion commonly associated with ownership, not funding pursuant to statutory obligations or regulatory permits."[113] Accordingly, the court denied the Tribe's claim.[114]

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109. The Tribe's status as a non-federally recognized Indian tribe played some role in the Court's reasoning. *Id.* at 128.

110. *Id.* at 125.

111. *Id.*

112. *Id.* (citing 25 U.S.C. § 3001(5) (2000)).

113. *Id.* at 125–26. The court denied the Tribe's claim under the National Historic Preservation Act on similar grounds, holding that the issuance of a permit by the Corps "is insufficient to transform the Park into a federal project." *Id.* at 127.

114. The court also found that there had been no discovery of human remains or funerary objects at that time, so the NAGPRA claim, even if it were to apply, was premature. *Id.* at 126.

4. *Yankton Sioux*:[115] Measured Success

Since the enactment of NAGPRA over twelve years ago, only one published decision applying the Act to the future excavation of Indian remains and/or funerary objects has resulted in success for the tribe bringing suit.[116] But, as this case illustrates, even when a tribe is afforded all possible relief under the Act, NAGPRA's human rights aims remain unsatisfied.

Marked graves in the cemetery of White Swan Church date back as far as 1869. But the oral history of the Yankton Sioux describes the land near the church, including but not limited to the demarked cemetery, as being used as a burial ground for tribal members at least since the late 1800s.[117] Some tribal members claim that the Tribe's oral tradition traces Sioux burials around the Church's landscape to prehistoric times.[118]

Though aware of the existence of the Indian cemetery, the United States filed a petition in 1949 to begin construction of Fort Randall Dam and Lake Francis Case on the site of the cemetery of White Swan Church. As part of the condemnation proceedings, the bodies were to be removed and reburied by the Corps pursuant to a Relocation Plan. However, the Corps failed to effect the removal and reburial of all the bodies in the cemetery.[119] In 1966, after Fort Randall Dam created the lake, a Corps memorandum indicated that a deer hunter reported that graves containing bones had been uncovered at the cemetery and the alternate flooding and drying of the cemetery site had made the outline of the graves easily discernable. As a result, thirty to forty of the graves had been unearthed, and bones were scattered on the ground around them.

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115. Yankton Sioux Tribe v. U.S. Army Corps of Eng'rs, 83 F. Supp. 2d 1047 (D.S.D. 2000).

116. At the time this Article was published, the Yankton Sioux had initiated a separate lawsuit to enjoin construction activities that it contended violated NAGPRA. Though the case has not been fully resolved, the District Court granted a preliminary injunction in favor of the Tribe based on its NAGPRA claim. *See* Yankton Sioux Tribe v. United States Army Corps of Eng'rs, 194 F. Supp. 2d 977, 986 (D.S.D. 2002).

117. *Yankton Sioux Tribe*, 83 F. Supp. 2d at 1048–49.

118. *Id.* at 1049.

119. *Id.*

The Corps removed the bones and reburied them in a new cemetery, but the partially revealed remaining bodies were not removed.[120]

Again in October of 1990, a Corps park ranger investigated the site based on reports from local fishermen that they had observed bones and casket parts along the shoreline. The ranger confirmed the fishermen's report, but the remains were merely covered with white fabric and were not removed. In December 1991, Corps personnel again visited the cemetery where they verified burials that had been missed by the contractor responsible for removal. Some new bones had been exposed since the investigation in 1990. The Yankton Sioux Tribe was apparently notified regarding the remains at that time but no action was taken.[121]

In 1999, another Corps park ranger observed remains and notified the Tribe. Shortly thereafter, the Tribal Council of the Yankton Sioux voted to file suit to stop the excavation of the bodies. Relying on NAGPRA, the Tribe sought time to remove the remains in accordance with its own traditions and customs. Further, the Tribe requested an injunction to prevent the Corps from raising the water level until the Tribe had enough time to complete religious ceremonies, consult with anthropologists, and determine the appropriate method for disposing of the remains. The Corps opposed all of the Tribe's requests for relief.[122]

The district court first considered whether the Corps had appropriately consulted with the Yankton Sioux regarding the intentional discovery and subsequently planned excavation of human remains on federal lands. Although tribal consent was not required for excavation, the Corps had a duty under NAGPRA to: (1) certify receipt of notification of the discovery; (2) take immediate steps, if necessary, to further protect the cultural items, including, as appropriate, stabilization or covering; (3) notify Indian tribes that might be entitled to ownership or control of the items under the Act; (4) initiate consultation with the appropriate tribe(s) regarding the inadvertent discovery; (5) follow the required procedures for excavation which includes refraining from raising and lowering the water levels of the lake over the cemetery for at least thirty days

120. *Id.* at 1050–51.

121. *Id.*

122. *Id.* at 1051–53.

from the date of certification; and (6) ensure that proper disposition of the cultural items was carried out.[123]

The court found the Corps had fulfilled its duties in every respect. Although the Corps did not supply the Tribe with written notice of the discovery, the court nevertheless found that the Tribe had not been prejudiced and refused to grant additional time to protect and collect the remains. The court also determined that the thirty day cessation of activity dates from the time of certification of the discovery of the remains, not thirty days from the time the Tribe actually received notice. Accordingly, the tribe was afforded less time than the thirty days allotted by NAGPRA to devise a plan for disposition of the remains.[124] Because of the difficulty in exhuming some of the bodies, due to frozen ground and uncertain water levels, at the time the court's opinion was published, the Tribe and the government were participating in ongoing negotiations regarding removal of the remains.[125]

C. Analyzing the Excavation Cases

In the first three cases discussed—*Castro Romero v. Becken*, *Abenaki Nation of Mississquoi v. Hughes*, and *Western Mohegan Tribe of New York v. New York*—the tribes were not even consulted regarding the fate of the embedded human remains. As a result, in *Castro Romero*, the Lipan Apache remains and funerary items exhumed during the building of a golf course were turned over to the City for reburial in a state cemetery.[126] And in *Abenaki Nation*,

123. *Id.* at 1055.

124. *Id.* at 1057–58.

125. Kay Humphrey, *Efforts To Preserve Exposed Burial Sites Fuel Court Action*, Indian Country Today, Nov. 1, 2000, at 1. Following the court's decision, the U.S. Army Corps of Engineers (the Corps) filed a motion to dismiss the Tribe's claims for lack of subject matter jurisdiction or for summary judgment. The Corps argued that all of the relief available under NAGPRA had been granted to the Tribe because NAGPRA does not give the court the authority to address long-term protection of remains that may be exposed in the future. In its March 2002 opinion, the court denied the Corps's motions, holding that the Tribe had standing to pursue its claims under NAGPRA because there existed a "live case and controversy" in this action. The court held, further, that the Corps had not clearly satisfied its duty to protect the remains upon the lapse of the thirty day cessation of activity period. Yankton Sioux Tribe v. U.S. Army Corps of Eng'rs, 194 F. Supp. 2d 977, 985–86 (D.S.D. 2002).

126. Castro Romero v. Becken, 256 F.3d 349, 353 (5th Cir. 2001).

although the court admitted the likelihood of uncovering remains was "extremely high," the Tribe was not allowed to participate in decisions concerning their disposition. Instead, any remains, if found, would become property of the State of Vermont, with their fate completely out of the Tribe's hands.[127]

From one standpoint, the respective courts applied NAGPRA correctly in each case. After all, NAGPRA applies only to excavations on federal and tribal lands, and the courts found that there was insufficient federal control to bring the lands within the purview of the Act. Thus, the state and municipal governments were free to dispose of the remains according to their own devices, and without consideration for the tribes' wishes. In light of current American legal principles, the results in these cases do not represent a departure from well-settled legal doctrine.

On the other hand, in each case, the courts had the opportunity to make choices as to the application of NAGPRA and the disposition of the remains, but opted, instead, to construe the Act as narrowly as possible, affording the tribes the least possible protection available under NAGPRA. Curiously, each court examined the tribes' claims without regard for the historical context in which the violations arose. Federal Indian law is informed by and, in fact, can only be understood in the context of the turbulent relationship between Indian tribes and the U.S. government. This relationship is defined by a history of oppression, genocide, and reparations. This historical link has given rise to the judicially-constructed trust responsibility owed by the federal government to Indian nations, which has defined Indian-government relations for the past 200 years.[128] The trust doctrine, in essence, creates a fiduciary duty owed by the government to Indian tribes.[129]

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127. Abenaki Nation of Mississquoi v. Hughes, 805 F. Supp. 234 (D. Vt. 1992).

128. The concept of a federal trust responsibility to Indians evolved judicially. It first appeared in *Cherokee Nation v. Georgia*, 30 U.S. (5 Pet.) 1 (1831). For a complete history of the trust doctrine, see, for example, Mary Christina Wood, *Indian Land and the Promise of Native Sovereignty: The Trust Doctrine Revisited*, 1994 Utah L. Rev. 1471.

129. *See* United States v. Mitchell, 445 U.S. 535 (1980) (applying the trust doctrine to question of the government's liability for its management of Indian natural resources); Seminole Nation v. United States, 316 U.S. 286 (1942) (invoking the trust doctrine in a case involving the application of fiduciary principles to the government in the administration of Indian affairs); Menominee

The *Abenaki Nation* court was the only one to even mention the trust doctrine, and, from the opinion, it would appear that its inclusion was almost inadvertent. In a brief footnote, the court summarily dismissed the Tribe's trust cause of action, holding that the Abenaki Nation's "violation of fiduciary duty claim is extremely nebulous and rehashes arguments that have been previously addressed."[130] The court did so without undertaking even a cursory examination of the historical relationship between the federal government and Indian tribes or of previous applications of the trust doctrine. Nor did the court even contemplate the possibility that the trust doctrine would necessarily be implicated where a federal agency was responsible for facilitating, supervising, and authorizing the project that resulted in the excavation of Indian human remains.

Also conspicuously absent from the three opinions is any discussion of the Indian canons of statutory construction. An extension of the trust doctrine, the Indian canons of construction require that enactments pertaining to Indian affairs are to be liberally construed for the benefit of Indian peoples and tribes.[131] Pursuant to this doctrine, ambiguous terms in federal laws are construed in favor of Indians, which results in broader statutory construction.[132] Construing NAGPRA consistent with the Indian canons has the potential to accommodate many claims by tribes to human remains.[133] Not surprisingly, however, none of the three

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Tribe v. United States, 101 Ct. Cl. 22 (1944) (applying the trust doctrine to the manner in which the United States has managed Indian property).

130. *Abenaki Nation*, 805 F. Supp. at 252 n.26.

131. Trope & Echo-Hawk, *supra* note 10, at 140.

132. The primary canons of construction in Indian law were first developed in cases involving treaties. For a recent application, see *Menominee Tribe v. United States*, 391 U.S. 404 (1968), which held that a 1954 statute terminating the federal trust relationship with the Menominee Tribe did not nullify the treaty rights of tribal members to hunt and fish on the reservation free from state regulation.

133. Because of unequal bargaining power between Indian nations and the federal government, canons of construction have evolved which favor the Indian tribes and by which treaties must be interpreted. The three canons by which all treaties are interpreted are (1) ambiguous expressions must be resolved in favor of the Indian parties concerned; (2) Indian treaties must be interpreted as the Indians themselves would have understood them; and (3) Indian treaties must be liberally construed in favor of Indians. *See, e.g.*, Carpenter, *supra* note 63; Larry Echo-Hawk & Tessa Meyer Santiago, *Idaho Indian Treaty Rights: Historical Roots and Modern Applications*, Advocate (Idaho State Bar), Oct. 2001, at 15.

courts construing NAGPRA and interpreting the phrase "under federal control" even mentioned the Indian canons. In fact, when considering the Act in light of its implementing regulations, the courts found no ambiguity existed at all, and quickly dismissed the tribes' NAGPRA claims.[134]

Even without reference to the trust doctrine or application of the Indian canons, however, due to the unique ownership status of the lands at issue, as well as the role of the federal government in approving the respective projects, each court could have found the lands to be "under federal control."[135] In fact, determining that the lands met this definition would not have been inconsistent with the statute's implementing regulations defining "control" as "lands not owned by the United States but in which the United States has a legal interest sufficient to permit it to apply these regulations without abrogating the otherwise existing legal rights of a person." Nor would such a finding constitute a major departure from the U.S. Department of the Interior's standard for application. Although the Department of the Interior's definition focuses on lands in which the federal government either possesses title or holds a monetary stake, the Department of the Interior nevertheless made clear that each decision regarding "federal control" is to be made on a "case-by-case basis."[136] But, instead of taking a broader view of ownership, each court confined itself to the strictest construction of the Act, as is so

134. A resurgence of judicial activism has brought the viability of the Indian canons into question. In fact, recent Supreme Court decisions indicate that the country's highest court may have abandoned the Indian canons altogether. *See* Chickasaw Nation v. United States, 534 U.S. 84 (2001). As esteemed Indian law scholar David Getches argues, in the past the Supreme Court "regularly employed canons of construction to give the benefit of doubt to Indians, and it deferred to the political branches whenever congressional policy was not clear. Now, these legal traditions are being almost totally disregarded." David H. Getches, *Beyond Indian Law: The Rehnquist Court's Pursuit of States' Rights, Color-Blind Justice and Mainstream Values*, 86 Minn. L. Rev. 267, 268 (2001).

135. To the extent this Article raises issues that implicate the Fifth Amendment's Takings Clause, those arguments are not fully considered here. However, a recent Supreme Court opinion on the subject indicates that application of NAGPRA, even on private land, likely would not violate the Takings Clause. *See* Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 533 U.S. 948 (2002).

136. *See* Suagee, *supra* note 44, at 205 (citing Native American Graves Protection and Repatriation Act Regulations, 60 Fed. Reg. 62,134-01, 62,139 (Dec. 4, 1995)).

aptly captured in the court's opinion in *Mohegan Tribe*, where the court held that "'federal lands' denotes a level of dominion commonly associated with ownership, not funding pursuant to statutory obligations or regulatory permits."[137]

While NAGPRA's shortcomings are evident in the first three cases, *Yankton Sioux Tribe v. United States Army Corps of Engineers* raises other concerns. After all, insofar as *Yankton Sioux* was a case about NAGPRA, it represents a victory for the Tribe. Full execution and utilization of the Act's enforcement mechanisms allowed the Tribe all possible relief at the district court level. The Yankton Sioux received notification of the discovery as well as an opportunity to remove the remains of their ancestors who had floated to the water's surface during the government's flooding of Lake Francis Case. They were allowed to rebury their dead with dignity pursuant to their own religious ceremonies and traditions and accompanied by essential funerary objects.[138] Yet, from a human rights perspective, even the victory in *Yankton Sioux* rings hollow.

If *Yankton Sioux* is understood as the watermark for all possible relief allowed under NAGPRA, the question persists: why are courts, when given an opportunity to protect human rights, so reluctant to apply NAGPRA to future excavations? If nothing else, *Yankton Sioux* proves that, even where a tribe is granted relief under the Act, the most significant obstacle a project will face is a thirty day cessation of activity for tribes and federal agencies to devise a plan for recovery of remains. In light of the fact that the projects at issue in both *Abenaki Nation* and *Mohegan Tribe* had been pending for over ten years, the imposition of a thirty day wait appears negligible. And NAGPRA imposes no consent requirement, even in cases involving federal lands. Thus, while the burden on the land owners would have been minimal, the relief for the Tribe, even though clearly less than ideal, would have been significant.

Yet courts consistently reason around NAGPRA's application in the excavation context, despite the overwhelmingly negative

137. W. Mohegan Tribe & Nation of N.Y. v. New York, 100 F. Supp. 2d 122, 125 (N.D.N.Y. 2000). The court denied the Tribe's claim under the National Historic Preservation Act on similar grounds, holding that the issuance of a permit by the Corps "is insufficient to transform the Park into a federal project." *Id.* at 127.

138. *But see* Humphrey, *supra* note 125 (discussing the U.S. Army Corps of Engineers's efforts to avoid its responsibilities pursuant to NAGPRA).

cultural consequences for the tribes. It seems that when Indian cultural survival or political sovereignty is at issue, courts neglect to recount the many instances in American law that reflect the willingness of our judicial system to restructure and overhaul traditional property regimes to avoid undesirable social consequences.[139] For example, when Americans finally rejected racial segregation as a form of social life, Congress enacted public accommodations statutes that limited property owners' power to exclude.[140] Similarly, efforts to bar unreasonable restraints on alienation of property resulted in the emergence of common law property doctrines, such as the rule against perpetuities.[141] And zoning laws demonstrate that, in some situations, the full enjoyment of property rights is only possible by agreeing to certain property limitations.[142]

Property regimes, like all other social spheres of life, are regulated and defined in accordance with society's values.[143] The courts' treatment of NAGPRA in these cases reflects the elevated status of individual property rights that exists in the classical property model. The courts parsed out entitlements and granted to the individual property owners possession of, and title to, all embedded property.[144] But, as these cases demonstrate, particularly when the property rights and human rights of indigenous communities are at stake, entitlement cannot and should not always be defined by reference to ownership alone.[145]

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139. *See* Jane B. Baron, Review Essay, *The Expressive Transparency of Property*, 102 Colum. L. Rev. 208 (2002).

140. *Id.* at 209.

141. *Id.* at 208–09, 215–16.

142. *See* Tsosie, *supra* note 35, at 1301.

143. *See* Joseph William Singer, The Edges of the Field: Lessons on the Obligations of Ownership 10 (Beacon Press, 2000) (2000) [hereinafter Singer, Edges of the Field]; Joseph William Singer, *Property and Social Relations*, *in* Property and Values: Alternatives to Public and Private Ownership 20 (Charles Geisler & Gail Daneker eds., 2000) [hereinafter Singer, *Property and Social Relations*].

144. Patty Gerstenblith, *The Public Interest in the Restitution of Cultural Objects*, 16 Conn. J. Int'l L. 197, 229 (2001).

145. *See* Baron, *supra* note 139, at 217.

IV. HUMAN RIGHTS AND PROPERTY RIGHTS: LEARNING FROM *AWAS TINGNI*

While often perceived as too remote or inaccessible to protect tribes' interests in cultural survival effectively, international law, in fact, provides a workable framework for the protection of indigenous peoples' rights.[146] For example, under most major international instruments that address human rights, property ownership is often identified as a basic human right.[147] Article 21 of the American Convention on Human Rights guarantees the right to use and enjoy one's property free from deprivation of property without compensation, and the Universal Declaration on Human Rights enumerates rights to property ownership. Other international human rights documents are in accord.[148]

Property rights are intimately tied to human rights. Thus, the deprivation of property rights has come to be seen, in itself, as a serious human rights abuse.[149] The ability to hold property and wield power is essential to the exercise of other basic human rights.[150] Property rights empower groups to function as "economic actors," which is essential to self-determination and sovereignty.[151] This

146. Rebecca Tsosie, Preserving Tribal Cultural Heritage Through Cultural Property Laws 239 (2002) (draft conference paper presented at the Federal Bar Conference on Indian Law, on file with author).

147. American Convention on Human Rights, *opened for signature*, Nov. 22, 1969, art. 21, O.A.S.T.S. No. 36, at 7, 1144 U.N.T.S. 143, 150 (entered into force July 18, 1978); *Universal Declaration on Human Rights*, G.A. Res. 217A, U.N. GAOR, 3d Sess., art. 2, U.N. Doc. A/810 (1948).

148. *See e.g.*, American Declaration of the Rights and Duties of Man, O.A.S. Res. XXX, 9th Int'l Conference of American States, art. 23, O.A.S. Official Record, OEA/Ser.L/V./II.23, doc.21 rev.6 (1948), *reprinted in* Basic Documents on Human Rights 488, 492 (Ian Brownlie ed., 3d ed. 1992) (asserting the right of every person "to own such private property as meets the essential needs of decent living and helps to maintain the dignity of the individual and the home"); Lara L. Manzione, *Human Rights in the Kingdom of Nepal: Do They Only Exist On Paper?*, 27 Brook. J. Int'l L. 193, 196 (2001).

149. Kurshan, *supra* note 6, at 355; *see* Jay M. Vogelson, *Women's Human Rights*, 30 Int'l Law. 209, 210 (1996) ("Generally, the right of an individual to own some property and not be deprived of it arbitrarily is recognized as a human right.").

150. Kurshan, *supra* note 6, at 357; *see* Barzel, *supra* note 6, at 4 ("The distinction sometimes made between property rights and human rights is spurious. Human rights are simply part of a person's property rights.").

151. Kurshan, *supra* note 6, at 357.

phenomenon operates even more significantly with regards to indigenous peoples, whose culture, religion, and political autonomy are particularly linked to the preservation of communal property and a traditional tribal land base. International instruments, too, reflect the unique status of indigenous peoples in relation to the land. The International Labor Organization's Convention on Indigenous and Tribal Peoples of 1989, for example, affirms the specific right of ownership and possession of indigenous peoples to the lands they have traditionally occupied.[152] In this regard, the contemporary international human rights movement has recognized indigenous peoples as special subjects of concern.[153]

Although the battle to maintain a traditional land base differs in some respects from efforts to preserve cultural property, in both cases indigenous peoples have struggled with Western legal systems, which devalue, if not completely ignore, communal ownership. Both areas of collective tribal ownership serve as a source of Indian cultural integrity, self-determination, and sovereignty. But indigenous peoples have had difficulty with communal property claims because Western law often fails to acknowledge the common ownership of property.[154] Additionally, communal ownership and collective tribal power have long been viewed as a threat to mainstream society.[155] In fact, many of the destructive assimilationist policies imposed on Indians in the United States were the result of the government's desire to destroy collective Indian ownership and group identity.[156]

Rights to cultural property and a traditional land base are similar in another important respect as well. In regards to indigenous peoples, property rights are often sought—such as in the NAGPRA excavation cases—in circumstances in which indigenous peoples do not hold title to the property they seek to obtain. Because ownership in Western law is virtually always determined according

152. *See* Anaya, *supra* note 30, at 7.

153. S. James Anaya & Robert A. Williams, Jr., *The Protection of Indigenous Peoples' Rights Over Land and Natural Resources Under the Inter-American Human Rights System*, 14 Harv. Hum. Rts. J. 33 (2001).

154. Hutt, *supra* note 28, at 39.

155. *See* Anaya & Williams, *supra* note 153, at 44 ("[T]raditional [indigenous] land tenure generally is understood as establishing the collective property of the indigenous community and derivative rights among community members.").

156. *See* Tsosie, *supra* note 35, at 1294–96.

to title, this has been a great source of mass divestiture of property from Indian peoples since the point of European contact.[157]

Accordingly, indigenous peoples' efforts to protect their traditional lands provide a constructive and informative paradigm in the struggle to preserve cultural property. Despite facing great challenges in this regard under American law, a communal right to indigenous peoples' traditional lands is now finding recognition in international law. In the Fall of 2001, the Inter-American Court on Human Rights decided the groundbreaking *Case of the Mayagna (Sumo) Awas Tingni Community v. Nicaragua*. The case revolved around efforts by the Awas Tingni and other indigenous communities of Nicaragua's Atlantic Coast to demarcate their traditional lands and to prevent logging in their territories by a Korean company under a government-granted concession.[158] The Awas Tingni filed a petition with the Inter-American Commission on Human Rights (Commission), charging Nicaragua with failure to take steps necessary to secure the land rights of the Mayagna (Sumo) indigenous community of Awas Tingni and of other Mayagna and Miskito indigenous communities in Nicaragua's Atlantic Coast region.[159]

Evidence presented before the court included the oral testimony of members of the Awas Tingni community. Jaime Castillo Felipe, member of the Mayagna ethnic group, and lifetime resident of Awas Tingni, testified regarding the Tribe's ownership of the disputed territories. In explaining why he believed that the Tribe owned the land, he stated that they "have lived in the territory for over 300 years and this can be proven because they have historical places and because their work takes place in that territory."[160] Felipe explained that the community, as with most traditional indigenous societies, held land and resources in common and are occupied and utilized by the entire community.[161] Other tribal members testified similarly regarding the significance of the land to the religion and

157. *See id.*

158. Anaya & Williams, *supra* note 153, at 37–38.

159. *Id.*

160. The Mayagna (Sumo) Indigenous Community of Awas Tingni v. Nicaragua, 79 Inter-Am. Ct. H.R. (ser. C) (Aug. 31, 2001), ¶ 83(a), *available at* http://www.corteidh.or.cr/seriecing/serie_c_79_ing.doc.

161. *Id.* ("Nobody owns the land individually; the land's resources are collective.").

cultural survival of the Awas Tingni people and their conceptions of collective ownership of the land and all the resources it encompasses:

> The territory of the Mayagna is vital for their cultural, religious, and family development, and for their very subsistence, as they carry out hunting activities (they hunt wild boar) and they fish (moving along the Wawa River), and they also cultivate the land. It is a right of all members of the Community to farm the land, hunt, fish, and gather medicinal plants; however, sale and privatization of those resources is forbidden.[162]

Despite the Tribe's intimate relationship with the land—which evidence demonstrated is sacred and beautifully symbiotic—it was up to the court to determine who owned the lands on which the Tribe resided. The Awas Tingni claimed they had occupied and, thus, quasi-owned the lands for hundreds of years, but could only present oral history as evidence of their presence on those lands prior to 1990.[163] In its factual findings, the Inter-American Commission had determined that the community had "no formal title nor any other instrument recognizing its right " to the lands it claimed.[164]

Nevertheless, in an unprecedented decision, the court ruled that the State violated, among others, the right to property as contained in Article 21 of the American Convention on Human Rights to the detriment of the members of the Mayagna (Sumo) community of Awas Tingni, and required the State to adopt measures to create an effective mechanism for official recognition, demarcation and titling of the indigenous community's properties.[165] In particular, the Court acknowledged the Awas Tingni's communal form of property in the land and recognized the importance of the protection of this right to ensure the Community's cultural survival:

> Indigenous groups, by the fact of their very existence, have the right to live freely in their own territory; the close ties of indigenous people with the land must be recognized and understood as the fundamental basis of their cultures, their spiritual life, their integrity, and their economic survival.

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162. *See, e.g.*, Starr v. Starr, 1999 WL 1610554 (Scot. O.H. Apr. 8, 1998).

163. The Mayagna (Sumo) Indigenous Community of Awas Tingni v. Nicaragua, 79 Inter-Am. Ct. H.R. (ser. C) (Aug. 31, 2001), ¶ 83(c), *available at* http://www.corteidh.or.cr/seriecing/serie_c_79_ing.doc.

164. *Id.* ¶ 104(*l*).

165. *Id.* ¶ 153.

> For indigenous communities, relations to the land are not merely a matter of possession and production but a material and spiritual element which they must fully enjoy, even to preserve their cultural legacy and transmit it to future generations.[166]

Virtually every aspect of *Awas Tingni* is remarkable. While it may be dismissed as an aberration insofar as it deviated from Western property ideals in granting the community the right to their continued existence on their traditional lands as tribal peoples, it serves as a model of possibilities. Drawing from oral history and demonstrating a belief in the right of indigenous peoples to exist, *Awas Tingni* proves that well-settled legal principles can give way to indigenous peoples' fight for survival, even when human rights and Western property regimes conflict.

V. ENTITLEMENT, PROPERTY, AND OWNERSHIP

A. Considering New Models

The "traditional" or "classical" model of property upon which Anglo-American property law is based rests on the notion "that property rights identify a private owner who has title to a set of valued resources with a presumption of full power over those resources."[167] The classical view assumes consolidated rights and a single, identifiable owner of those rights who is identifiable by formal title rather than by information relations or moral claims. It also assumes rigid, permanent rights of absolute control conceptualized in terms of boundaries that protect the owner from non-owners by granting the owner the absolute power to exclude non-owners, and the full power to transfer those rights completely or partially on such terms as the owner may choose.[168] As such, the current property system is designed only to protect those with property, not those without it.[169]

Judicial application of the classical model of property is responsible for a myriad of legal decisions that either devalue or

166. *Id.* ¶ 104(n).

167. Singer, *Property and Social Relations*, *supra* note 143, at 4.

168. *Id.* at 5.

169. *Id.*

altogether disregard the rights of indigenous peoples.[170] In this respect, many judicial opinions concerning Indians that have diminished tribal rights, particularly in regards to Indian efforts to prevent the destruction of sacred sites or thwart intrusive land development, might be explained as the application of the historically austere Anglo-American right of private property, which includes a belief in the owner's right to control property uses as the owner wishes.[171] Courts adhering strictly to this model grant legal preference to private property owners above all other interests, often equating "title" with "entitlement." This has been the case even when the federal government holds title, and ostensibly, has a greater obligation to consider the interests of society's members.[172]

The application of a traditional property model by courts is illustrated by NAGPRA. For example, the Department of the Interior's definition of "federal control," as it is applied in the context of NAGPRA, operates within a very narrow framework, one obviously rooted in the Anglo-American system. Under the guidelines promulgated by the Department of the Interior, "control" is equated with title, ownership, or evidence of some other form of pecuniary stake.[173]

The classical property model is not without criticism. Contemporary scholarship posits that the classical property model is distorted and misleading because it is descriptively inaccurate and normatively flawed.[174] In particular, because state regulation and state recognition actually give rise to property rights, it is wrong, some scholars argue, to envision property and regulation as

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170. *See, e.g.*, Lyng v. N.W. Indian Cemetery Prot. Ass'n, 485 U.S. 439 (1988) (holding that the Free Exercise Clause did not prohibit the government from certain kinds of land development despite tribal interests); Howard J. Vogel, *The Clash of Stories At Chimney Rock: A Narrative Approach to Cultural Conflict over Native American Sacred Sites on Public Land*, 41 Santa Clara L. Rev. 757, 789 (2001) ("*Lyng* is the most recent case in a very old story about the coercive transformation of Native American understandings of land to conform to the Anglo-American understanding of land familiar to students of property law.").

171. *See* Tsosie, *supra* note 35, at 1304–05.

172. *See Lyng*, 485 U.S. at 453 (concluding "[w]hatever rights the Indians may have to the use of the area, however, those rights do not divest the Government of its right to use what is, after all, its land"); Vogel, *supra* note 170, at 789.

173. 43 C.F.R. § 10.12 (2002); *see* Suagee, *supra* note 44, at 205.

174. Singer, *Property and Social Relations*, *supra* note 143, at 5.

opposites, rather than interrelated components of society's recognition of ownership.[175] In practice, an owner's use of property is limited (or should be) when such use may adversely affect others or society at large.[176] Property has always been, then, not "a domain of freedom into which regulation intrudes. Rather, property is constituted by and suffused with regulation."[177]

In response to perceived social injustice fueled by the classical model of property, modern scholars and critics of the classical system have devised new theories of property and entitlement, which exemplify a renewed interest in the obligations of owners.[178] From this perspective, "[e]ach stick in the bundle of rights that describes property ownership is defined, directly or indirectly, in terms of the relationship between the owner and others."[179] Because only the recognition of property rights by society gives property meaning and definition, this scholarship seeks to reconceptualize property as a system of social relations.[180]

Although variations on this property model are evidenced throughout modern legal scholarship, property rights theorist Joseph Singer first articulated and advocated for the social relations theory of property. Singer's theory asserts that property is not merely an individual right, but is, in fact, "an intensely social institution."[181] As such, under the social relations model, strict individualism is tempered by significant communal responsibility.[182] The model requires balance between the rights and obligations of property owners. According to Singer, property rights must not be viewed alone in a vacuum, but must achieve a delicate balance: "On one side are claims of property; on the other side are claims of humanity. On

175. Baron, *supra* note 139, at 217–18.

176. *See* Scafidi, *supra* note 32.

177. Baron, *supra* note 139, at 211.

178. *See, e.g.*, Tsosie, *supra* note 35, at 1308–09 (arguing for the application of an "intercultural understanding of property" which would accommodate indigenous worldviews and values).

179. Scafidi, *supra* note 32, at 797.

180. *See* Tsosie, *supra* note 35, at 1301.

181. *See* Singer, Edges of the Field, *supra* note 143, at 20.

182. *Id.* at 3.

one side are claims to rights; on the other side are acknowledgments of responsibilities."[183]

It is through the imposition of obligations, Singer argues, that balance is created in the social system. If property systems grant ownership rights to individuals but do not impose corresponding obligations and limitations, relationships among rights holders are skewed and unbalanced. Because the exercise of rights by one affects others, Singer's theory maintains that legal rights:

> must be shaped to create an environment that will allow individuals both to obtain access to property and to enjoy their legal rights without unreasonable interference by others. This means that the rights of each must be curtailed to ensure an environment that allows all others to exercise their rights fully. Rights must be limited to protect rights.[184]

Singer contends that property is necessary to exercise liberty and freedom. Thus, property systems should be designed to protect both those who have property and those who do not.[185]

Rather than envisioning the imposition of obligations on property owners as inhibiting freedom, Singer's model functions on the premise that greater restrictions and limitations on property owners actually promote liberty. Singer posits that possession of property is essential for individuals and groups to become economic actors and fully participate in society because the recognition of property, even if through regulation, promotes liberty and equality for all peoples.[186]

Thus, Singer concludes, the "paradox" of property is the tenuous relationship between ownership and obligation. As people living together in communities, the fate of every person is tied to the fate of others.[187] It is this relationship among people within the

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183. *Id.* at 10.

184. Singer, *Property and Social Relations*, *supra* note 143, at 20.

185. Singer, Edges of the Field, *supra* note 143, at 27 (quoting Jeremy Waldron as stating that "[p]eople need private property for the development and exercise of their liberty; that is why it is wrong to take all of a person's private property away from him, and that is why it is wrong that some individuals should have no private property at all").

186. *Id.* at 17.

187. *Id.* at 20.

context of laws that gives property value.[188] Singer's model "reconceptualizes property as a social system composed of entitlements that shape the contours of social relationships. It involves, not relations between people and things, but among people."[189]

B. NAGPRA Excavation Redux—Possibilities in Light of New Models

Models that balance property owners' rights with their obligations facilitate a shift towards less rigid property conceptions necessary to protect the human rights of indigenous peoples. If property is, in essence, a social system, then it creates a "web of communal rights and responsibilities."[190] In such a system, title does not always give rise to entitlement.[191] At a minimum, obligations accompany ownership, and responsibilities arise out of the exercise of rights.

Mistakenly, a common response to NAGPRA is the assumption that application of more fluid property conceptions will result in Tribe's having "veto-power" over any project, even those occurring on private land, if Indian remains are discovered. As this paper has demonstrated, particularly in light of the court's holding in *Yankton Sioux*, that is certainly not the case. Construction on the dam and the lake at issue in *Yankton Sioux Tribe v. United States Army Corps of Engineers* began in 1950. In addition to flood control and generation of hydroelectric power, the project provides navigation support and irrigation, while subsidizing the municipal water supply.[192] Moreover, the Indian cemetery had been under water for over forty years by the time the Tribe filed the lawsuit. Thus, abandoning the project would be illogical, if not impossible. Nor is that result mandated by application of the social relations theory of property. On the contrary, Singer's theory is meant only to encourage a reconsideration of entitlement when allocating the rights and

188. *Id.* at 82.

189. Singer, *Property and Social Relations*, supra note 143, at 8.

190. Scafidi, *supra* note 32, at 797.

191. Baron, *supra* note 139, at 217.

192. *See* U.S. Army Corps of Engineers, Fort Randall Dam/Lake Francis Case, *at* http://www.nwo.usace.army.mil/html/Lake_Proj/fortrandall/welcome.html (last visited Oct. 10, 2002).

responsibilities of ownership. Thus, in *Yankton Sioux*, application of Singer's theory would merely have required a contemplation of the rights and responsibilities of the real property holders vis-à-vis the Tribe's claim to the human remains and other embedded property. One possible result, then, would have been the creation of an excavation plan that allowed the Yankton Sioux sufficient time to exhume the bodies and funerary objects in a manner consistent with their own customs and tribal beliefs.[193]

Accordingly, the social relations theory of property, which is meant only to provide an alternative framework through which rights, ownership, and entitlements are viewed, is not intended to redistribute property or trample on the rights of title holders. To the contrary, as Singer explains: "This model suggests that property which is used in a way that affects the interests of non-owners or the community at large can be regulated in a way that responds to public policy concerns without impinging illegitimately on the owner's property rights."[194]

In this regard, even if courts were to contemplate the social relations theory when considering NAGPRA's applicability, it would be possible to do so while preserving the title holder's property rights. After all, in the excavation context, NAGPRA, at best, allows for notification, consultation, and the right of Tribes to remove their ancestors properly and prepare them for reburial. It does not serve as a trump card for tribes to exercise control over lands to which they do not possess title.

Even with these limitations in mind, however, because the social relations theory of property envisions property rights beyond those which are dictated by a strict adherence to legal title analysis, its contemplation by the courts in deciding the excavation cases would have allowed them greater latitude to apply NAGPRA. Undoubtedly, had the courts contemplated non-traditional models of property, they would have had greater flexibility in considering factors other than legal title in allocating rights to the embedded human remains and funerary objects. As this Article has demonstrated, a finding that the land was, in fact, "under federal control" was plausible in each case. But the courts' failure to consider

193. Sadly, even though NAGPRA was applied, that result was not reached. *See* Humphrey, *supra* note 125, at 1.

194. Singer, *Property and Social Relations*, *supra* note 143, at 7.

the responsibilities—rather than merely the rights—of the property owners facilitated a finding that NAGPRA did not apply.

Of the excavation cases, *Castro Romero v. Becken* demonstrates the most extreme departure from the social relations theory of property. There, the court looked only at the rights of the title holders, and a finding that the land was "municipal rather than federal or tribal" allowed the court to ignore the responsibilities that necessarily followed from the real property owner's rights. Had the court viewed the plaintiff's claims through the lens of the social relations model, perhaps it would have more thoughtfully contemplated the title holder's responsibility to the Lipan Apache as a people, the living descendants of those who had died, and the rights of the deceased themselves.[195] Ironically, the court allowed the City—based solely on its title to the land—to exhume the bodies and rebury the remains in its own cemetery. In so doing, the court confirmed the City's rights, but not responsibilities, to the human remains.

Awas Tingni is instructive here as well. Although the court did not expressly apply the social relations theory, it rejected a strictly title-based analysis in determining the respective rights of the *Awas Tingni* Community vis-à-vis the State. The Court expressly held that the Community's own conceptions of ownership must be taken into account in determining whether a violation of the right to property existed, and, in so doing, concluded that the Community's lack of real title to the property did not preclude the Community's continued right of occupancy.[196] The Court's willingness to look beyond the issue of title and consider other factors—such as the ambiguous ownership status of the lands occupied by but not "owned" in the traditional sense by the Awas Tingni Community—allowed it the flexibility to accommodate the property rights and human rights of the Community. Had the Court taken the same strict title-based approach as the courts in the excavation cases, it likely would have found no ambiguity existed at all, and the Awas Tingni's lack of proof of ownership over their ancestral lands would have precluded the

195. Although the Fifth Circuit's opinion does not fully discuss the issue, it is clear that the federal district court denied Castro Romero's attempt to bring this suit on behalf of the Lipan Apache people. Accordingly, this suit was brought by Castro individually. Castro Romero v. Becken, 256 F.3d 349, 354 (5th Cir. 2001).

196. The Mayagna (Sumo) Indigenous Community of Awas Tingni v. Nicaragua, 79 Inter-Am. Ct. H.R. (ser. C) (Aug. 31, 2001), ¶ 151, *available at* http://www.corteidh.or.cr/seriecing/serie_c_79_ing.doc.

Tribe's claims to the land and their continued existence.

Likewise, the courts in the excavation cases could have taken the Department of the Interior's mandate that each situation be treated on a case-by-case basis and recognized the ambiguous ownership status of the lands and property at issue. Instead, the courts failed to thoughtfully question the level of control exerted by the federal government, and U.S. Army Corps of Engineers in particular, over the projects. In so doing, they failed to undertake the more thorough and, indeed, more complicated analysis that would have been required to conclude that NAGPRA was applicable.

I do not mean to suggest, however, that consideration of new property models will ensure NAGPRA's applicability in every circumstance. To the contrary, the U.S. Army Corps of Engineers had various levels of participation in the three projects at issue in the excavation cases and unique facts existed as to each of the tribes' claims. While the facts of each case likely could have supported a finding that the lands were "under federal control" and, therefore, subject to NAGPRA, that analysis is one that must be undertaken by the trial court. Nevertheless, the courts' decisions indicate an unwillingness to view the claims of the tribes, and the status of the lands at issue, beyond the confines of the classical property model. Consideration of new models, then, while not guaranteeing different outcomes, would have at least opened up new possibilities for creating a greater balance between the obligations of property owners and the rights of indigenous peoples.

C. Broader Applications: Beyond the Excavation Cases

Disputes over property between non-Indians and Indians rage on in the modern United States. Indigenous property claims—often based on conceptions of communal ownership, preexisting occupation, or political sovereignty—are foreign to non-Whites, and, thus, are often diminished or disregarded when contested by individual owners. Conflicts arise almost daily as indigenous peoples attempt to reclaim ancestral homelands or preserve sacred sites. These struggles are particularly compelling in a time in which Americans are increasingly driven to acquire more and greater material goods, an ethos signified by popular culture's quasi-deification of individual property rights.

For example, Congress recently enacted the Sand Creek Massacre National Historical Site Establishment Act of 2000, which

will establish a permanent memorial at the site of the 1864 massacre of the Cheyenne and Arapaho Indians near Eads, Colorado, by members of the local government's militia. The legislation contemplates the demarcation of an area of approximately 12,480 acres along Sand Creek in Kiowa County, Colorado, to serve as the boundary of the historic site. As part of the Sand Creek Massacre National Historical Site Establishment Act, the National Park Service is authorized to negotiate with "willing settlers" for property within the boundary.[197]

Completion of the memorial requires acquisition of 1400 acres containing numerous cultural and historic sites that are currently held by a private land owner. The owner, although claiming he would like to see the land be used for the memorial, has placed his land up for public sale because he was not able to strike a deal with the National Park Service, which offered $332,000 for the property. The rancher has requested $1.5 million for the property, five times the offered price and more than five times the average per-acre land value in Kiowa County.[198] Thus, completion of the memorial was stymied as the tribes and the National Park Service negotiated for acquisition of the sacred lands.[199]

In another land dispute, the Eight Northern Pueblo Council (the Council) is fighting to block expansion of a new, unplanned road that was built along the boundaries of the Petroglyph National Monument, a site considered sacred to dozens of tribes in the Southwest.[200] The 3000-year-old petroglyphs are the work of the Anasazi people, ancestors of the nineteen Indian Pueblos in New Mexico, and represent visions and messages to the spirit world left by indigenous ancestors. The area has long been used for prayers, offerings, and gathering medicinal plants. The road, which is being funded by a private land developer, was built without the knowledge

197. Bryan Stockes, *Sand Creek Historic Landmark a Reality*, Indian Country Today, Nov. 8, 2000, at 1.

198. David Melmer, *Owner Stalls Sand Creek Historic Site*, Indian Country Today, Mar. 19, 2002, at B1.

199. Before publication of this Article, a private donor bought the land needed for completion of the Sand Creek Massacre Memorial and turned it over to the Tribe. David Melmer, *Sand Creek Returned to Rightful Owners*, Indian Country Today, May 6, 2002, at B1.

200. Valerie Taliman, *Mayor "Sneaks" In Petroglyph Road*, Indian Country Today, Sept. 16, 2002, at 1.

or input of local tribes and a variety of other interested groups, including the National Park Service, which manages the site. The road was quietly authorized by the Mayor of Albuquerque, New Mexico and was, literally, built overnight. Though initially claiming the road was to be used temporarily to ease traffic delays, the Mayor now concedes the current plan is to expand the road to a full artery with bike lanes that will run right near the sacred site. Many fear additional traffic will lead to further defacement and desecration of the ancient petroglyphs.

The Council is considering legal action to protect the area. The private development company that owns the land has no legal duty to protect or preserve the adjacent sacred site. As a result, those opposing further development will likely find no relief in the courts.

The battle for completion of the Sand Creek Massacre Memorial and the struggle to protect the sacred petroglyphs of the Anasazi signify the types of contemporary property conflicts that persist between Indians and non-Indians. The disputes are complicated, and satisfactory resolutions are not easily achieved. It is clear, however, that Indians must attempt to build public awareness of the "profound historical meanings, and wider cultural and artistic significance of Native American cultural landscapes."[201] Several Indian scholars have suggested that storytelling may be the best way to convey basic Indian values and help close the gap between Anglo-American law and the Indian worldview.[202] However that goal is reached, it is clear that indigenous peoples' perspectives regarding conceptions of entitlement, property, and ownership must be addressed if there are to be any remedies daring enough to encompass the complex history and claims of indigenous peoples.

VI. CONCLUSION

> All the laws and armies in the world cannot protect the earth as fully as the joy people take in discovering and honoring what is sacred. All of the laws and armies in the

201. Suagee, *supra* note 44, at 224 ("There is a resonance in our stories that I believe will come back to us in a good way. Our stories may be some of the best means we have to animate federal agency land management decisionmaking processes so that federal decisions reflect some of our values.").

202. Barsh, *supra* note 69, at 153–54.

> world cannot protect the earth fully if humans are empty and believe that nothing is sacred.[203]

The human rights of indigenous peoples will never be fully recognized or restored as long as individual property rights are exalted and analyzed in a vacuum where they exist only as "entitlements," without the imposition of duties in the social system. As this article demonstrates, without incorporation of indigenous perspectives in the construction of property paradigms, non-traditional property conceptions will never inform the legal regimes responsible for recognition and protection of the property rights of Indian peoples.

It may be impossible for indigenous peoples to ever fully convey to non-Indians the historical power and cultural meaning inherent in Indian cultural property. Communal, land-based peoples conceive of and interpret ownership in ways that are foreign to, and diminished by, Anglo-American property regimes. Nevertheless, NAGPRA provides a framework for a dialogue between Indians and non-Indians in the protection of cultural property.[204] Although limitations on NAGPRA, both in its construction and application, are readily apparent, NAGPRA has at least begun to address complex issues of self-determination and the survival of political sovereignty through the preservation of cultural identity. In many ways, NAGPRA marks the inception of a genuine, ongoing dialogue between Indian tribes and governmental entities.[205]

Moreover, NAGPRA has served as an invaluable tool in educating non-Indians in the brutal history of Indian peoples, the significance of cultural property to Indian cultural survival, and the importance of reconsidering entitlement as it relates to indigenous peoples' continued existence. As Elizabeth Tatar, Vice President of the Bishop Museum in Honolulu, Hawaii, explained regarding the enactment of NAGPRA:

> We were fearful of Native Hawaiians and Native Americans, and of spirituality. We did not truly understand that the human remains and objects in our collections were living to those that claimed them and that Native

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203. Erica-Irene A. Daes, *The Indispensable Function of the Sacred*, 13 St. Thomas L. Rev. 29, 31 (2000).

204. Hutt & McKeown, *supra* note 21, at 379.

205. Nichols et al., *supra* note 8, at 257.

> Hawaiians and Native Americans know how to take care of these remains and objects better than we could. Above all it was difficult for us to let go. We saw the loss of knowledge and history, but not the loss of spiritual balance and wellbeing Hawaiians saw. . . . We are indeed ready to face the present head-on by acknowledging the past in order to clear the way for a bright, productive future.[206]

NAGPRA has laid the groundwork for recognition of, respect for, and preservation of indigenous peoples' cultural property and their continued existence. But law, like people, must be open to new possibilities and innovative thinking to ensure the human rights and cultural survival of all of society's groups.

206. Elizabeth Tatar, *Introduction* to Implementing the Native American Graves Protection and Repatriation Act, at ix, ix (Roxanna Adams ed., 2001).