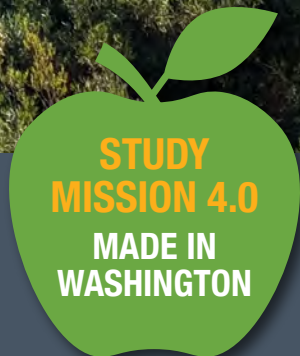




**Clean &
Prosperous**
INSTITUTE



SUMMER 2024 TRIP REPORT



**STUDY
MISSION 4.0**
**MADE IN
WASHINGTON**

MADE IN WASHINGTON TRIP REPORT

INTRODUCTION

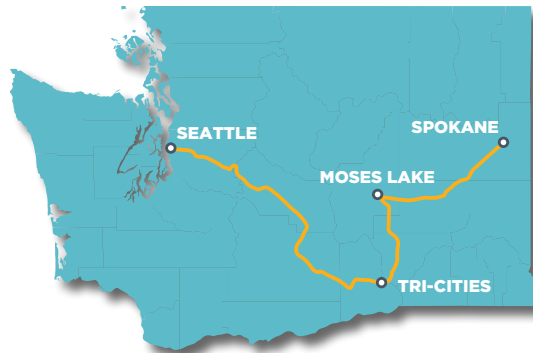


Michael Mann

“Although our travel is less in distance this year, I think it exceeds all the others in ambition,” said Michael Mann, Executive Director of the Clean & Prosperous Institute as he welcomed delegates to the 4th Annual Clean & Prosperous Institute Study Mission in Spokane, and reflected on highlights from former study missions to California and Québec.

WHY DID WE CHOOSE TO EXPLORE OUR OWN BACKYARD THIS YEAR?

Washington state is a microcosm of innovative global carbon reduction and home of Tribal nations that are essential partners in our path to decarbonization and sustainable development. To learn first-hand about the clean energy innovation happening in Washington, we heard from experts and visited sites in Spokane, Moses Lake, and the Tri-Cities.



WHY DID WE BEGIN OUR TRIP IN SPOKANE?

Spokane, [one of the greenest cities in America](#), is in the heart of the “[Inland Empire](#),” rich with clean energy history, innovation, resources, and talent. And in the heart of Spokane – its University District – is the fascinating South Landing Campus, home to the EcoDistrict, a partnership between buildings operator McKinstry and power provider Avista that manages energy across the multi-building campus.



THE DELEGATION INCLUDED A DIVERSE GROUP OF SUBJECT MATTER EXPERTS, SOME OF WHOM MAY NOT ALWAYS AGREE WITH EACH OTHER, BUT APPRECIATE NEW PERSPECTIVES:

- PETROLEUM INDUSTRY REPS AND ENVIRONMENTAL NONPROFITS
- REGULATORS AND REGULATED PARTIES
- AMERICANS AND CANADIANS
- DEMOCRATS AND REPUBLICANS
- HUSKIES AND COUGARS

Mann underscored the lasting value of the Study Missions by observing the many ideas and relationships that were catalyzed over our first three Study Missions:

- In California, we learned about their heavy-duty purchase incentive program (HVIP). We came back with a plan and the Washington State Legislature established a new \$100M plus program in less than a year. This program will launch next year, less than two years since our California briefing.
- In California, we also learned that dairy digesters were their most cost-effective GHG reduction program. We returned and secured a \$20M program for dairies here in Washington.
- In Québec, we visited a hydrogen fueling station and saw how green hydrogen was being used to create sustainable aviation fuels. Some of that knowledge was put into the state’s PNW Hydrogen HUB application which was successful in winning a \$1B DOE award.



Our first day of the Study Mission ended with a trip back in time, to Spokane’s Steam Plant – which used to burn coal and oil but now, renovated and repurposed as a restaurant and brewpub, emits only the aromas of ribeyes and garlic shrimp. (Pictured: Michael Mann, Clean & Prosperous Institute; Ian Goepferd, CenTrio; Gustavo Occhiuzzo, EVCS)

“But it’s not just about policies, it’s also about relationships among participants. We’ve had projects

born out of relationships on these study missions—and even new companies!” said Mann.

DID YOU KNOW?

Exactly 50 years ago, at Spokane’s Expo ‘74 – the International Exposition on the Environment – GM unveiled its XP512, a micro two-seater electric commuter concept car.



GENERAL MOTORS CORPORATION
General Motors Building, Detroit, Michigan 48202
556-2030 Area Code 313

NEWS

For Release

IMMEDIATELY

WORLD'S FAIR -- General Motors exhibit at the Expo '74 Spokane World's Fair highlights those scientific and engineering advances that have created "Mobility In Harmony With Our Environment."

Throughout the colorful 20,000-square-foot exhibit, 40 individual displays tell how GM is keeping its products and plants compatible with the environment.

It's also about the learnings, the "eye-openings," the "aha!" moments. Some takeaways that were shared by delegates on the last day of the trip included:

- "The scope and scale of clean power in Eastern Washington is impressive!"
- "There's so much power in partnerships – among companies, universities, government and labor."
- "The CCA and Department of Energy investments are super-charging the state's clean energy economy."

Greg Small, Executive Director of Climate Solutions, summed up his trip observations, with this "sobering" [note](#):

"There is a huge amount of opportunity for clean energy progress in Eastern Washington, everything from industrial production of new types of batteries to cutting-edge research to game-changing companies like Atlas Agro that are working to revolutionize how fertilizers are made. All of these efforts are not just dreams on a piece of paper. They are active efforts employing large numbers of people. They are happening.

But many of them may not make it across the finish line because of one reason—the lack of clean energy to power them. This theme, that there simply is not enough clean energy or transmission to move that energy to where it needs to go, came up in every single conversation that I had.

At a high level, learning that we have a challenge producing enough clean energy to meet rapidly rising demand is not new. I was well aware of the challenges of siting transmission, solar, wind, battery storage, and more. I understood that we need more clean energy to power new facilities that are manufacturing clean solutions. But talking to business leaders about the specifics of the challenges, and how their projects may not be viable if the blockages in the system are not cleared up in a timely manner, brought the issue much closer to home.

I left the tour deeply inspired by what is already emerging in Eastern Washington and where it might lead, and committed to working with many partners to unlock the blockages that are standing in the way of producing more clean energy at scale to keep the jobs flowing and the climate pollution coming down."



Hanford's Columbia Generating Station

“

All of these efforts are not just dreams on a piece of paper. They are active efforts employing large numbers of people. They are happening.

GREG SMALL
Executive
Director of
Climate Solutions

”

ALL OF US LEFT THE TOUR DEEPLY INSPIRED – BUT ALSO DEEPLY THINKING...

In this age of economy-wide electrification, and power-hungry artificial intelligence data centers, how do we generate more power? How do we deliver it where it's needed? How do we better manage it for efficiency and resilience?

And what are Washington state's greatest opportunities in the new clean energy economy?

READ ON FOR SOME TRIP HIGHLIGHTS FOCUSING ON THE SECTORS:

■ Buildings ■ Transportation ■ Power Generation & Storage ■ Power Management & Delivery ■ Carbon Sequestration

THE CLIMATE COMMITMENT ACT (CCA) IS A PROVEN CAP & INVEST MODEL

Cap & Invest is the most efficient way to cut emissions and support the economy at the same time. The Climate Commitment Act is based on a successful model that is already working for other states, regions and nations. Their experiences helped us design the CCA to be successful. Let's take a closer look at how it works.

THE CAP

A limit, or cap, on carbon emissions is set that went into effect in January, 2023. The CCA's cap covers about 100 entities, currently accounting for around 75 percent of statewide emissions, through 2050. These entities include stationary emitters, like heat-intensive industries and large fuel consumers, as well as fuel suppliers.

The cap decreases over time to meet state emission goals, which are a 45 percent reduction by 2030 and net-zero by 2050. So businesses must either find new ways to emit less and save money, or buy carbon allowances from the state (more on that in the next section).

AUCTION

Auctions are the primary compliance mechanism of the CCA. If companies can't meet the cap, they can buy additional permits from the state, exchange with others who have allowances to spare, or offset their emissions. Offsets, however, are only eligible for a small portion of allowances in the CCA and importantly, remain under the cap. Our goal is fewer emissions overall, not simply offsetting them.

The credit auctions have both a floor and ceiling price. The floor ensures predictable cash for investments. The ceiling insulates from price shocks – protecting businesses & jobs. CCA's auction will raise billions of dollars through 2030 and beyond.



INVESTMENTS

This auction revenue is invested in climate priorities, like clean air, electrified transportation, energy efficiency and wildfire prevention – all with an emphasis on local jobs. Money earned by setting the cap is invested in projects that also lower emissions. So, two forces push down emissions simultaneously.

To formalize spending priorities, the CCA sets up an Environmental Justice & Equity Advisory Panel. This panel provides investment assessments and recommendations, centering the needs of overburdened communities.

WASTE & EMISSIONS REDUCTIONS

In addition to stimulating the economy, these investments also result in lower emissions, lower operating costs and help tackle priorities like reduced congestion, cleaner air and other public health benefits.

Our streamlined, low-waste economy will make our companies more competitive nationally and globally. By engaging the broad economy, we also broaden the opportunity for innovation. Even exempt sectors can join in the emission reduction cycle.

It's not just a one-time win. The CCA builds a better system that can cut our state's emissions by at least 20 million metric tons in the next decade. That's like taking every car in our state off the road.

BUILDINGS

At Avista's Energy Innovation Lab, its Director and Chief Research & Development Engineer John Gibson, described the EcoDistrict partnership's vision of a built environment that harmonizes more effectively with the utility, through such things as real-time power monitoring and load management, distributed power storage, and thermal exchange technology. By deploying an "active partnership" strategy, buildings can greatly improve power usage efficiency, and stabilize that usage across peaks and valleys of demand. Best practices learned in this "lab" can be shared and scaled.

Among the South Landing buildings we toured were the Morris Center and the impressive Central Utility Plant, managed by [Edo](#). Another was the cross-laminated timber (CLT) Catalyst Building, among the largest zero-carbon and zero-energy buildings ever certified by the International Living Future Institute (ILFI). CLT is a renewable resource that stores carbon and can help revive the forest industry.

Gibson also briefed us on the promising work of INTENT (Inland Northwest Center for Energy and Decarbonization), a "coalition of 70+ state, Tribal, utility, and academic partners" that develops community-based, decentralized energy systems "aimed at redefining grid operations, enhancing customer resilience, and delivering equitable economic benefits." Set up as a social purpose corporation (with a mandate to not only provide returns to investors, but also provide measurable benefits to the community), INTENT is taking an entrepreneurial, community-centered approach to solving the challenge of energy production / distribution / management, a dilemma put in the spotlight by a recent forecast from the Northwest Power and Conservation Council. According to the [Seattle Times](#), the [Northwest Power Supply Adequacy](#)

Assessment "highlights a looming conflict between an increasingly digital world and utilities' capacity to meet surging power demand. The forecast cautioned that data centers could consume as much as 4,000 average megawatts of electricity by 2029 — enough to power the entire city of Seattle five times over."

Compounding the dilemma are challenges with siting major power generation projects, building long transmission lines, and coordinating across more than 60 different utilities in Washington state, as well as increasing grid vulnerability to wildfire destruction and cyberattacks.

To address these challenges, INTENT has identified several overlapping opportunities unique to the Inland Empire region: abundant power-related resources, strong culture of self-reliance, and an economic justice imbalance between the state's I-5 and I-90 corridors. With decentralized smaller-scale "energy boutiques" strategically sited, Gibson suggests that communities can be better served, with power that is generated locally, is less dependent on distant providers, and less vulnerable to interruption. These public-private funded energy boutiques would also serve as economic development drivers.

Gonzaga professor Brian Henning shared his vision of community resilience hubs that would comprise walking-distance sites throughout Spokane accessible in times of crisis, whether from power outages or natural disasters, with on-site power, overnight shelter, HVAC, and emergency services. The first such center, [funded by the CCA, is at the Carl Maxey Center](#). That got the delegation thinking about every post office and [library](#) as a community clean energy and resilience hub throughout the state, with charging stations, free wifi, heating/cooling centers, and battery backup. Since the U.S. Postal Service is transitioning its fleet of delivery vehicles to electric, they could stand ready as back-up generators.



Gonzaga professor Brian Henning shared his vision of community resilience hubs



John Gibson, the Director of Avista's Innovation Lab and Chief of Research & Development

TRANSPORTATION

Efficiency is a major opportunity for decarbonizing our transportation system, and Moses Lake is fast becoming a national hub for the battery innovation that will drive that efficiency.

[Sila](#) is producing a proprietary Titan Silicon™ nano-composite anode powder that improves the efficiency of batteries, with “20-25% energy density gains” (for increased mileage and radically reduced charging time). We saw their headquarters and first production facility on our 2021 [California Study Mission](#), so it was particularly exciting to see the massive 600,000 square-foot facility they are constructing in Moses Lake. This plant, which will be operational in 2025, is large enough to produce battery material for over a million EVs.



Sila is building a 600,000-square-foot factory in Moses Lake to manufacture silicon components for electric vehicle batteries. It plans to begin production in mid-2025. Image from [Washington Business magazine](#).

As an emerging battery tech hub, Moses Lake is home to competitors (including [Group14](#) and [OneD](#)) and suppliers (including [REC Silicon](#), right across the street).

During our visit, we heard from Sila managers and from local economic development officials about how, in March 2020, retaliatory tariffs from China caused REC to [cease production](#) of polysilicon for solar panels and upended the local labor market. This spurred Moses Lake to action, investigating,



DID YOU KNOW?

EVS ARE 4X
MORE EFFICIENT
THAN GAS-
POWERED
INTERNAL
COMBUSTION
ENGINES?

THAT'S
BECAUSE EVS
DELIVER 77%
OF POWER TO
THE WHEELS,
WHILE
COMBUSTION
ENGINES
DELIVER JUST
12-30%

then promoting the promise of battery production to revitalize the area's economy. REC restarted production of its high-purity granular polysilicon this year, and will supply the byproduct silane gas to Sila and others for production of battery anodes.

Brant Mayo, Executive Director of the Grant County Economic Development Council was blunt when saying that this Grant County renaissance is at risk if more power cannot be delivered to the battery and potato processing plants of Moses Lake. (That's right... Grant County is the largest potato processing county in the world!). And competing for electricity is nextdoor neighbor Quincy, with seven power-hungry data centers.

Because Moses Lake not only needs power, but also people, we heard from Dr. Sara Thompson Tweedy, President of Bend Community College, about GED and English language classes as a vital pipeline for first-generation residents into the workforce. Bend Community College serves a diverse community, from Latino farm workers to Ukrainian PhDs.

State Senator Andy Billig briefed the delegation on the importance of Sustainable Aviation Fuel (SAF), and why Washington state should compete to attract investment in SAF production. Though aviation currently accounts for only about 3% of global greenhouse gas emissions, by 2050, as travel by air expands and other sectors have greatly decarbonized, aviation's share of GHG emissions could rise to 30%. Billig asserts that because aviation is Washington state's #1 export, SAF should be a Washington state priority. Already, WSU is one of only two Centers of Excellence for alternative aviation fuels (along with MIT). SAF is projected to be a rapidly growing industry, so Billig says we should work to attract SAF investment to Washington, to build on the innovation of Twelve in Moses Lake, Sky Energy in Walla Walla, and bp America at Cherry Point.

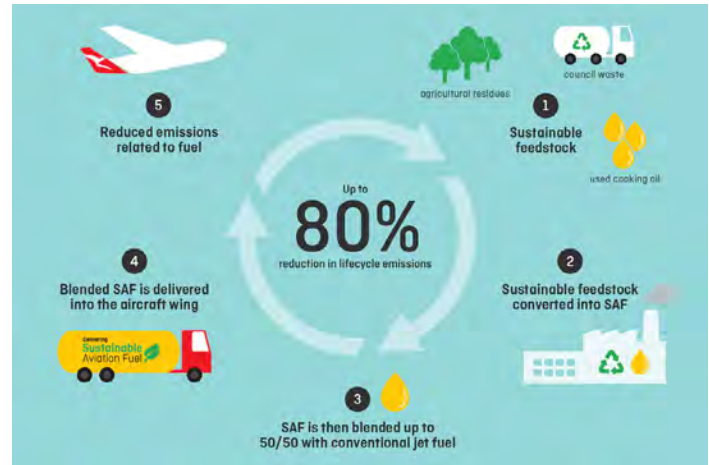
The Fleet Decarbonization Accelerator from the [Breaking Barriers Collaborative](#) is helping organizations large and small to electrify their fleets. Greg Small with Climate Solutions leads that effort, and briefed the delegation on its progress.

The Fleet Decarbonization Accelerator has facilitated three [cohorts](#) of more than 40 diverse PNW businesses from almost every public and private

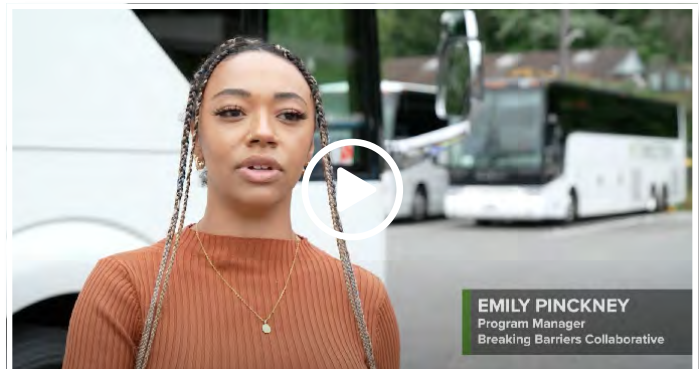


For more about Sila, listen to this episode of the [How I Built This](#) podcast with Guy Raz.

SUSTAINABLE AVIATION FUEL



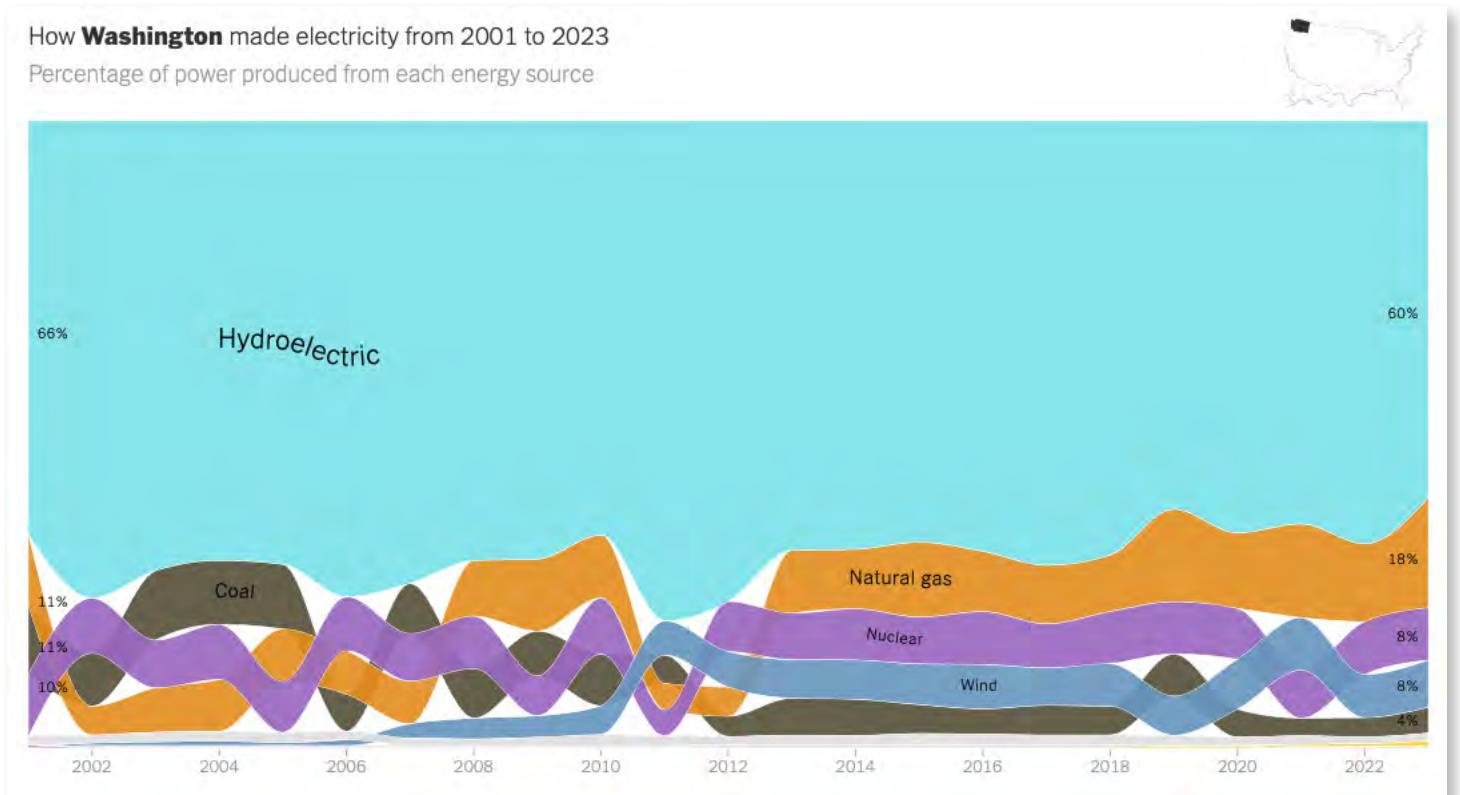
ACCELERATE YOUR VEHICLE FLEET TO ZERO EMISSIONS



sector, including companies like Boeing, McKinstry, Skanska and MTR Western, and organizations like the Seattle Aquarium, the Washington State Patrol, and the University of Washington. They have helped 100+ decision-makers develop plans to electrify their fleets — encompassing over 15,300 vehicles in Oregon and Washington.

POWER GENERATION & STORAGE

Washington state, long envied for our abundance of clean energy, needs more. Much more. Puget Sound Energy [recently said](#), “it will need to buy or build 6,700 megawatts of renewable electricity by 2030, more electricity than it ever has acquired in its 150-year history.” Bonneville Power has 120 GW of power connection requests currently awaiting approval. Other utilities in the state are maxed out as well.



Source: www.nytimes.com/interactive/2024/08/02/climate/electricity-generation-us-states.html

That’s why the [Legislature directed \\$25 million of Climate Commitment Act funds](#) towards small modular reactors (SMR) development, and funded a [work group of relevant state agencies](#) to begin exploring pathways for permitting, siting and licensing fusion energy plants.

The Columbia Generating Station is tucked away in Hanford, in the southeast corner of the state. Out of sight, out of mind? Greg Cullen, Vice President for Energy Services and Development at [Energy Northwest](#) wants nuclear power to be top of mind. In a briefing to delegates, Cullen described Energy Northwest as a not-for-profit joint operating agency with a 100% clean generating portfolio, operating

facilities that produce power from hydroelectric, solar photovoltaic, and wind turbine installations.

Acknowledging the role of solar and wind to boost generation across the state, Cullen stressed that nuclear power needs to play a larger role, given that it can produce large amounts of carbon-free power around the clock. He then invited us to tour the “the only operating nuclear plant within 1,000 miles.”



Greg Cullen,
Energy Northwest



Columbia Generating Station
40 years of safe operations

Clean, river water returning to the atmosphere as water vapor

The 40-year old Columbia Generating Station produces 1200 MW of electricity per hour – enough to power the city of Seattle.

Discussing pathways to increasing capacity on a carbon-free grid, Cullen noted that innovations in SMRs and new technology such as TRISO-X (a proprietary new coated particle fuel developed by X-energy that can withstand high temperatures without melting) can help shorten construction timelines, and overcome common objections to traditional, large-scale reactors. He also believes that the upfront capital costs could be financed by long-term power purchase agreements with large private-sector power users, such as heavy industry and data centers. That idea was underscored by the headline many of us read on our phones when we boarded the bus to leave Hanford: [Microsoft taps Three Mile Island nuclear plant to power AI](#).

Nearby, we visited the Horn Rapids solar array and training center – and learned about the “duck curve”

of typical power usage during the late afternoon / early evening:

Per [CNET](#), “The shape of the duck tracks energy demand throughout the day, with peaks at the beginning and end of the day but a deep valley in between. The reason the belly of the duck is getting deeper is that more and more renewable energy (including solar) has come online. This significantly reduces the load that utilities have to deal with during the day, when the sun is brightest and solar energy production in particular is highest. The duck curve may present challenges to utilities, but the solution is laying

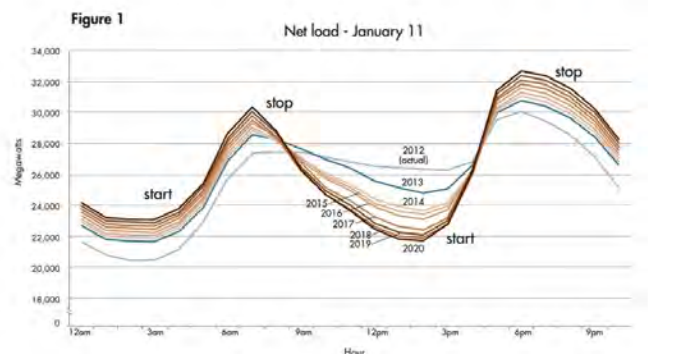
in wait: battery storage. Rather than just having that excess solar be fed back into the grid when it’s not needed, it could be stored in batteries to be deployed at a later time.”

Coinciding with the first day of our Study Mission trip, the U.S. Department of Energy [announced](#) that it is teaming up with Hecate Energy, LLC as part of a mission to transform portions of government-owned property once used for the nation’s nuclear weapons program into prime real estate for renewable energy endeavors. This Hanford site will be the Department’s largest “cleanup-to-clean-energy” project, installing a gigawatt-scale [solar farm](#) on up to 8,000 acres of unused nuclear reservation land near the southeastern edge of the Hanford site.

As our bus rolled through the sunny farms and fields of Central Washington, representatives from [BrightNight](#) briefed us on agrivoltaics – an opportunity for farmers and ranchers to double-up on putting their land to productive purpose. BrightNight is developing the Hop Hill Solar project, a 500 MW solar and 500 MW battery storage installation in Benton County. The Hop Hill project presents the opportunity to restore and integrate a historic sheep grazing practice alongside the project, creating a dual use for the landowners and maintaining an agricultural use for the land.

What is the duck curve?

The duck curve is what you get when you plot daily net energy load in California on a graph. It’s called a duck curve because it ends up resembling a duck.





BrightNight Agrivoltaics, where solar and agriculture work together.

As reported in the [The Washington Post](#), “Agrivoltaics – the practice of sharing energy and food production on the same plot of land – can include a range of agricultural practices, such as farming, beekeeping, agroforestry, aquaculture and solar grazing. Solar grazing represents the bulk of the agrivoltaic industry, with over 200 grazing sites representing 50,000 acres of land, according to Jordan Macknick,

lead energy-water-land analyst for the [National Renewable Energy Laboratory](#). The industry is projected to be valued at \$9.3 billion by 2031.”

Oregon State University professor Chad Higgins co-authored a [2020 paper](#) that calculated the United States could meet 20% of its electricity demand by converting 1% of the country’s farmland into agrivoltaics. “At a national level, agrivoltaics would produce more

renewable energy and more food while using less water, fortifying the security of all three of these critical natural resources,” the authors concluded.

CCA revenues are being invested by the state in a variety of agrivoltaic projects across Washington, from a WSU pilot project in Rock Island apple orchards (to provide controlled shading and increase fruit yield while generating electricity for orchard operations), to projects in Mt. Vernon (sheep grazing), and Quincy (at a vineyard to provide shade and act as a windbreak for commercial beehives).

Washington farmers will soon be able to “power” their crops with clean fertilizer. Atlas Agro – part of the Pacific Northwest Hydrogen Hub (PNWH2Hub) – aims to change an industry that is made from, and powered by, fossil fuels. Gina Zejdlik, Kurt Beckett, and Kostaf Choudhury of Atlas Agro showed us the site in Richland where they’ll build a first-of-its-kind fossil-free fertilizer plant, using green hydrogen from electrolysis.

ATLAS AGRO ON APPLE VALLEY NEWS NOW



ATLAS AGRO PACIFIC GREEN FERTILIZER



This \$1.5 billion commercial-scale plant will have a carbon footprint that is 99% less than traditional fertilizer plants, and because it's here in the U.S., close to the customers, supply chain emissions are reduced as well. Atlas Agro anticipates building 10 to 15 similar plants across the country, decentralizing fertilizer production. The fertilizer that Atlas Agro offers farmers is not only carbon-free, but also price-stable since production costs are untethered from volatile oil prices.

As we heard elsewhere on this trip, Atlas Agro officials said, "We need more power!" They came to Washington attracted by our abundance of clean energy, but now face the same challenge as so many others are facing: waiting in line for a backlog of utility connection requests to be fulfilled.

Across the street at the U.S. Department of Energy's Pacific Northwest National Laboratory (PNNL), we were shown world-class research, cutting-edge technology, and scientific experiments that were too secret to share here.

This lab, one of 17 that the DOE operates around the country, specializes in scientific research applied to sustainable energy and national security (two areas that often overlap). With about 1,700 staff and \$500m/yr in funding, PNNL works on big issues that have long term impact, and technology solutions that are affordable at scale.

Speaking of which, we were treated to a tour of the advanced battery technology lab, as well as a high-throughput materials lab that uses artificial intelligence and robotics



Overview

- One of 17 Department of Energy National Laboratories
- Managed by Battelle for DOE
- Main campus in Richland; marine coastal lab in Sequim; offices in Seattle, Portland, and College Park, MD



State-of-the-art facilities enable unique capabilities



Environmental Molecular Sciences Laboratory



Energy Sciences Center



Shallow Underground Laboratory



Marine Sciences Laboratory



Systems Engineering Building



Bioproducts, Sciences, and Engineering Laboratory

to rapidly iterate new materials 24/7 to shorten the development cycle between new technology and commercial deployment.

At the just-inaugurated Grid Storage Launchpad, scientists

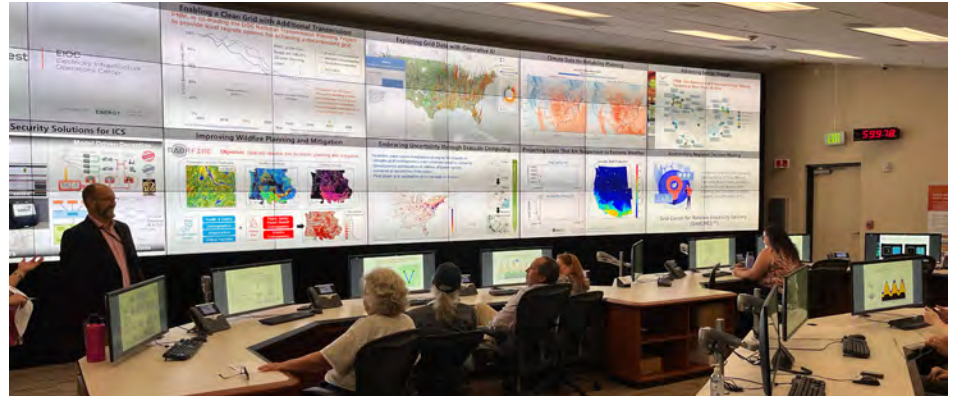
are investigating materials and technologies for long-duration energy storage. [The Economist](#) says that grid-scale batteries will be "clean energy's next trillion-dollar business."

POWER MANAGEMENT & DELIVERY

At PNNL, we toured the Energy Infrastructure Operations Center, where two functional control rooms use actual grid data for testing and training, and help answer questions such as: What does data (and scenario modeling) say are the essential transmission lines that must be built to achieve needed capacity?

PNNL recently published the report, [Western Interconnection Baseline Study](#), that looks at how new transmission and renewable energy projects in the Western United States could bring economic benefits and reduce carbon dioxide emissions. This report was featured in the PNNL newsletter. If you're not already subscribed to stay up to date with developments out of the Pacific Northwest National Laboratories, here's a link to subscribe to the [PNNL newsletter](#).

On the last day of our Study Mission, we attended the



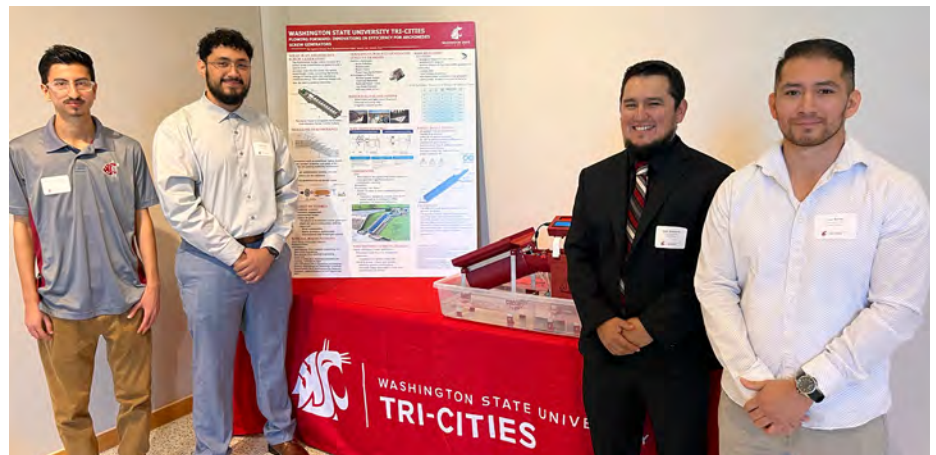
The Electricity Infrastructure Operations Center (EIOC), located at the Pacific Northwest National Laboratory's (PNNL's) Richland, Washington campus, is a resource for research, development, and testing to improve power grid management.

Washington State University Tri-Cities Clean Energy Showcase, where we were welcomed by Dr. Noel Schulz (WSU's First Lady and the Inaugural Director for the Institute for Northwest Energy Futures), and by Dr. Jillian Cadwell (WSU Tri-Cities Research Associate Faculty of Civil and Environmental Engineering and Program Lead of WSU Tri-Cities Clean Energy Ambassadors Network). They highlighted the role of WSU Tri-Cities in clean energy research and workforce development, with "career-connected learning."

A centerpiece of WSU's Tri-Cities campus is [The Institute for Northwest Energy Futures](#), a new research center that will provide data to decision-makers in business and government to assist with the transition to decarbonized energy and transportation.

A series of "Flash Talks" followed – on topics ranging from the PNW Hydrogen Hub to carbon capture and storage – as well as research poster presentations by WSU students.

Among the many fascinating poster presentations, were these:



WSU students presented their research showing how a permanent magnet generator can improve the efficiency of an Archimedes screw turbine for small-scale, localized power generation and how diversity in the renewable energy sector can empower the community.

CARBON SEQUESTRATION

And to top it off, even with all the GHG mitigation we can accomplish, we will need to rapidly improve our ability to sequester carbon, in forests, in products, and in rock formations like the abundant basalt we traveled across in Eastern Washington.

On the trip, we learned about both Direct Air Capture (filtering carbon out of the air), and point source Carbon Capture (removing carbon from emissions before they are released into the air).

Direct Air Capture (DAC) was the subject of a research poster presented by students at the WSU Tri-Cities campus. Their project studied the potential for siting a DAC plant similar to Iceland's "Mammoth" DAC plant, in Eastern Washington, permanently sequestering captured carbon deep in our state's basalt rock.

Dave Curry, Chairman of Spokane's [Carbon Quest](#), briefed the delegation on the opportunities and challenges of carbon capture, pointing out that his company is able to capture carbon emissions before they are released into the atmosphere, and sequester them in concrete.



WSU students presented their work exploring direct air carbon capture and storage in Eastern Washington.

Though most of Carbon Quest's installations are in New York City, Dave highlighted an upcoming project on the Eastern Washington University campus in Spokane: [Funded by the Climate Commitment Act](#) (CCA), EWU will partner with CarbonQuest to implement a demonstration carbon capture system at its natural gas-powered steam heating plant, which is intended to reduce greenhouse gas emissions while providing a research space for investigating new technologies associated with emission reductions.

While applauding the Cap-and-Invest CCA, Dave also advocated for modification



Michael Furze, with the Washington State Department of Commerce [announced](#) the debut of FundHubWA, a portal that offers an easy-to-use way to apply for state and federal funding opportunities. FundHubWA is supported with funding from the CCA.

of CCA rules, to allow emitters to earn credits for capturing carbon emissions from their operations. Because “we need point source sequestration as part of the transition to electrification, let’s give credit to companies that capture and permanently sequester carbon.” Currently the CCA does not give credit for carbon

capture – even for hard to abate sources. One of those hard to abate sources is Spokane’s Waste to Energy Facility. During her address to our delegation, Mayor Lisa Brown noted that the incinerator is Spokane’s largest point source of emissions, and disproportionately affects communities of color.



DR. ANGELA GRIFFIN

of Seattle’s [Byrd Barr Place](#) talked with the delegation about the value of energy outreach and assistance, reminding all that power delivery is about more than the grid, it’s also about the “last mile,” and helping people access and afford power for heating and cooling.



Though long-renowned for generating hydro-power, the Columbia River on Wednesday evening “powered” connections and conversations among the delegates during a beautiful moonlit evening dinner cruise.



Shae Fricchette, owner of [Fricchette Winery](#) on Red Mountain, took a break from crushing grapes to host the delegation for an evening of wine tasting in the vineyard.

SUMMARY

From the San Juan Islands and Mt. Rainier to the Columbia River and the Palouse, Washington state is home to some of the most remarkable natural beauty in the world. And from the rainforest and glaciers of the Olympics to the high desert of Spokane and surrounding counties, Washington is full of surprises that have to be seen to be believed.

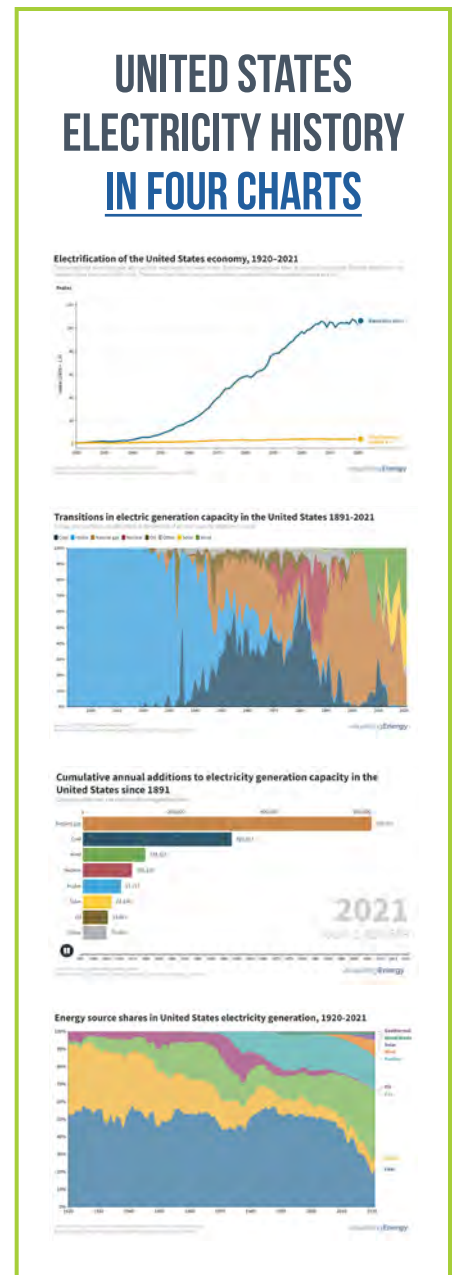
On the Clean & Prosperous Institute's Made in Washington Study Mission, the delegation of government, business, and non-profit leaders saw first-hand new developments, big opportunities, and difficult challenges that were surprising in their scope and scale.

A challenge that was highlighted at almost every stop on the tour is that of generating sufficient electricity to meet the fast-growing needs for power. It was clear to all that public policy

and private investment will need to prioritize power generation, efficiency, and distribution without delay. A recent blog post shows that it's only recently that we have slowed our buildup of electricity, and that we have a long track record of expanding generation at the rate required:

[Costa Samaras](#) says, "electricity demand growth in the 1960s was 7% per year. In the 1970s: 5%. From 1980-2005: ~2-3%. 2005-2022: 0.5%. Going forward to electrify cars, homes, businesses, factories, & data center growth, we need ~2-3%. I'm confident we can at least match the 1990s rate."

Buoyed by what we learned in Spokane at INTENT and the South Landing Campus, and in the Tri-Cities at PNNL, Energy Northwest, and WSU, we ended the study mission energized, and encouraged by the many innovative and clean power generation, efficiency, and distribution options available to meet Washington's power appetite.



WEBSITE LINKS TO REPRESENTED ORGANIZATIONS:

- [Atlas Agro](#)
- [Clean & Prosperous Institute](#)
- [Energy Northwest](#)
- [Fuse Business & Community Accelerator](#)
- [Pacific Northwest Center of Excellence for Clean Energy](#)
- [Pacific Northwest Hydrogen Hub \(PNWH2\)](#)
- [Port of Benton](#)
- [Rocky Mountain Institute](#)
- [The Center of Excellence for Clean Energy](#)
- [Tri-City Development Council](#)
- [Tri-City Development Council Energy Forward Alliance](#)
- [Washington State University Tri-Cities](#)
- [WSU Tri-Cities Clean Energy Ambassadors Network](#)
- [WSU Tri-Cities Institute for Northwest Energy Futures](#)

WHAT DO YOU THINK?

Please let us know your thoughts on how Washington should move forward.

✉ EMAIL info@cleanprosperousinstitute.org

THANK YOU TO OUR TRIP SPONSORS



Washington State
Department of
Commerce





Tuesday, September 17 – Friday, September 20, 2024
Spokane • Moses Lake • Tri-Cities • Seattle

OUR PARTICIPANTS

ATTENDEES

STEPHANIE BARNARD

Representative

Washington State Legislature

Rep. Stephanie Barnard was elected to the Washington State House of Representatives in 2022 and represents the 8th Legislative District. She focuses on economic development, supporting businesses, and job creation, serving on key committees including Finance and Environment and Energy. A former government affairs leader at the Tri-City Regional Chamber of Commerce, she is also deeply involved in community service and advocacy.

ANNE-CATHERINE BRIAND-FORTIN

Government Relations Director

Québec Government Office in Los Angeles

As the Government Relations Director for the Québec Government Office in Los Angeles, Anne-Catherine leads the Québec Government's diplomacy and public advocacy programs in the Western United States. Their aim is to advance Québec's interests and positions in the Western U.S. and contribute to a better understanding of Québec in the United States. Areas of focus include the environment, clean energy, zero-emission mobility, clean technology, innovation, and international trade policy.

PAMELA BURTON

Archivist

Puget Sound Solar / EV Support

Pamela was Puget Sound Solar's first CFO, starting in 2004, and was heavily involved with customer relations and promotional activities. Today she remains with the company as Archivist, due to the volume of customer records going back 23 years. She is also a radio producer for KBFG-LP 107.3, local community radio in Seattle and hosts programs about climate change and resilience.

BRYCE CAMPBELL

Foreign Policy and Diplomacy Service Officer

Consulate General of Canada

Bryce is a senior policy advisor on climate action at the Consulate General of Canada in Seattle. The

Consulate represents Canada's interests in the Pacific Northwest and Alaska. Bryce joined the Consulate seven years ago following a series of leadership roles at Washington, DC think tanks where he contributed to and led international development, energy, and humanitarian policy research.

MAGGIE DOUGLAS

WA Government Affairs

Puget Sound Energy

Maggie Douglas is the state government affairs manager with Puget Sound Energy. Her portfolio includes land use and permitting, transmission, and clean energy.

SEAN EAGAN

Director of Government Affairs

NW Seaport Alliance

Sean serves as Government Affairs Director for The Northwest Seaport Alliance, where he manages their state government relations activities. He also serves as the Director of Government and Community Relations for the Port of Tacoma, where he has worked since 2006. As Director, he oversees the Port's various federal, state and local government relations programs, as well as the port's community relations activities. Sean is a graduate of the George Washington University where he holds a master of arts in international affairs and the University of Washington where he holds degrees in both political science and international relations. He lives with his wife, Michelle, and daughter, Madalyn, in DuPont, WA.

JACKIE EUTSEY

Strategic Outreach Program Manager,

New Nuclear Development

Energy Northwest

Jackie is the Strategic Outreach Program Manager for Energy Northwest (EN) located in Richland, WA. She focuses on government affairs, stakeholder engagement and community relations to enhance EN's new nuclear projects.

JAKE FEY

Representative

Washington State Legislature

Rep. Fey serves as Chair of the House Transportation Committee and as a member of the House Environment and Energy Committee. In addition, Jake serves as the Vice Chair of the Council of State Governments' Transportation Committee. One of Jake's top priorities in the legislature is ensuring a cleaner, more sustainable transportation system for our state. In 2019, Jake introduced the Green Transportation bill, aimed at helping switch to electric vehicles and cleaner fuels, with incentives to buy electric vehicles and help to build the infrastructure to charge electric vehicles in the state. The new law also offers grants to help mass transit agencies electrify their fleets.

MICHAEL FURZE

Assistant Director, Energy Division

WA State Department of Commerce

Michael is an assistant director at the Department of Commerce, where he heads the State Energy Office. This office leads Washington state's transition to a clean and just energy future through policy leadership, investing in cutting-edge clean technologies, planning and responding to energy emergencies, and expanding equitable access to clean energy. This work strengthens communities, so Washington residents can thrive in a clean, affordable and equitable energy economy. Michael also serves on the Board of the National Association of State Energy Officials. He holds a master's degree in community and regional planning and a graduate certificate in town design from the University of New Mexico. When not focused on his energy work, Michael and his family patiently wait for the sun to occasionally emerge from behind the clouds and rain of the Pacific Northwest.

IAN GOEPFERD

General Manager

CenTrio

Ian is the Vice President & General Manager of CenTrio's Seattle District Energy system. CenTrio is a sustainable energy leader that provides innovative district heating, cooling, and electricity solutions across the United States. Ian has over 20 years in the energy field and is excited to be focusing on decarbonizing District Energy in Seattle.

ANGELA GRIFFIN

CEO

Byrd Barr Place

Dr. Griffin leads Byrd Barr Place, a historic community action agency founded in 1964, with a mission to build an equitable

Washington through innovative programs and advocacy. With over 30 years of experience, she is widely recognized for her commitment to racial and social justice, excelling in strategic initiatives, fundraising, and community engagement. Dr. Griffin serves on various boards, including as an elected official on the Washington State Board of Education, and holds a doctorate in education and organizational leadership from Seattle University.

JENNIFER GROVE

Managing Director, Energy Division-Energy Programs in Communities

Washington State Department of Commerce

Jennifer has over two decades of expertise in executing and spearheading clean energy initiatives. Jennifer leads a team that administers a grant portfolio worth \$600 million to promote access to renewable energy and energy efficiency technologies, reduce the energy burden for low-income households, and advance environmental justice statewide. Before Commerce, she served as the Executive Director of the regional nonprofit Spark Northwest. Jennifer is a native Washingtonian who grew up in Olympia and graduated from the University of Washington with a degree in Business Administration.

DAVID HACKNEY

Representative

Washington State Legislature

Rep. Hackney currently serves as Vice-Chair of the Capital Budget Committee and as a member of the Transportation and Public Safety Committees. He is interested in learning more about clean energy and the best environmental and climate policies for major ports. Among other career posts, David served as the Senior Counsel for Global Human Resources at The Nature Conservancy. He earned a bachelor's degree from Cornell University and a J.D. from Harvard University Law School. David represents a majority-minority district near the Port of Seattle.

AUSTIN HICKS

President

Admiral Strategies

Austin works to advance public affairs, communications, and government relations strategies to help clients identify opportunities and overcome public-facing challenges. Austin's work brings a specific focus on advancing clean energy development in the Pacific Northwest, having worked with developers and independent power producers, elected officials, state and local government, Tribal Nations, and non-profit organizations.

TAMARA JONES

Senior Legislative Planner for the Climate Pollution Reduction Program WA State Department of Ecology

Prior to her work at the Washington State Department of Ecology, Tamara brings experience from previous roles at Washington State Department of Health, Washington State Transportation Commission and Washington State Department of Labor and Industries.

ISAAC KASTAMA

Managing Partner

Water Street Public Affairs, LLC

With Water Street Public Affairs, Isaac has built effective coalitions of regulated industries and environmental interests over the past ten years. He had deep involvement in the legislative process to enact the 100% Clean Electricity Standard, Clean Fuel Standard, and the Climate Commitment Act and continues to engage in policy implementation.

JONAH KURMAN-FABER

Founder & Principal

Greenline Insights

Jonah is a climate policy and economics expert from Boston, Massachusetts who has worked in the realms of state-level economics and policy for the past decade. He serves as Founder & Principal of Greenline Insights, an economic research firm, before which he served as Policy & Research Director at Climate XChange for 7 years.

RICH MARTINEZ

SVP Director Municipal and Specialty Banking

Kitsap Bank

Rich joined Kitsap Bank in 2016 where he has specialized in closing complex Commercial and Municipal solar energy transactions around the US while building out the bank's CPACER capabilities. He has been an active board member of the Virginia Mason Health System. He currently serves on the Virginia Mason CHI Foundation, the Yakima Memorial Hospital boards and the American Lake Special District Board.

MATT MILLER

State Public Policy & Government Affairs Manager

Puget Sound Energy

Matt manages Puget Sound Energy's public policy in Olympia. Prior to PSE he worked for a large healthcare system, the state legislature, and state and federal executive branches. He lives in Olympia with his spouse and two kids.

LEAH MISSIK
Acting WA Director
Climate Solutions

Leah develops, implements, and defends policies that will accelerate our transition to a clean energy economy, with a focus on the transportation sector. Leah was the campaign manager for the passage of the Clean Fuel Standard in Washington and most recently oversaw the campaign behind the development and passage of the state's zero-emission school bus bill. She also oversees research that outlines our pathways to achieve our climate targets. She joined Climate Solutions in January 2019.

JOE NGUYEN
Senator
Washington State Legislature

Sen. Nguyen, from the 34th Legislative District, is a committed community advocate and a leader in the Washington State Senate. He serves as Chair of the Environment, Energy & Technology Committee and also sits on the Human Services and Ways & Means Committee, in addition to being the Senate Democratic Assistant Floor Leader.

During his time in the legislature, Joe has prioritized increased funding for social services, affordable housing, and criminal justice reform, as well as advocating for climate action and expanding educational opportunities for students. His work has included championing legislation to modernize and increase access to basic needs programs, expunging cannabis-related misdemeanors, increasing availability of zero emissions vehicles, and allowing Community and Technical Colleges to offer four-year computer science degrees.

Joe's dedication to his community and his commitment to addressing systemic inequalities are informed by his lived experience as the son of immigrants. Joe resides in Seattle with his wife and three children.

GUSTAVO OCCHIUZZO
CEO
EVCS

Gustavo is the CEO and Co-Founder of EVCS, one of the largest electric vehicle (EV) fast-charging network operators on the West Coast and the nation's largest carbon-neutral fast-charging station network. With 28 years of entrepreneurial experience, Occhiuzzo began his career by launching an "Uber-like" service in his hometown of Buenos Aires, Argentina. After moving to the U.S., he founded Green Commuter, a pioneering software platform managing zero-emission vehicles for vanpool and car-sharing services, providing a sustainable solution for commuters.

Recognizing the need for more publicly accessible charging stations, Occhiuzzo co-founded EVCS. Today, EVCS operates 1,200+ EV chargers across California, Oregon, and Washington, making it one of the largest fast-charging networks on the West Coast. Powered by 100% renewable energy, EVCS has secured over \$200M in government funding and partnered with 220+ site hosts, including Fortune 500 companies and underrepresented communities.

Occhiuzzo holds a bachelor's degree in Business Administration and Management from the University of Buenos Aires and Point Loma Nazarene University.

ANNA PAVLOVA
Senior Vice President, Strategy,
Market Development & Sustainability
CarbonQuest

Anna is the Senior Vice President for Strategy, Market Development and Sustainability at CarbonQuest, a carbon capture company. In her prior roles Anna was an executive at global corporations Schneider Electric and Johnson Controls, focused on global decarbonization and energy transition strategy, policy and sustainability for the companies and their clients.

KAT PLIMPTON
Board Member
Byrd Barr Place

Kat is the Outreach and Operations Director for the NW Energy Coalition, where she has worked since 2015. Prior to joining the Coalition, she worked with a variety of non-profit organizations including the YMCA, Cancer Research and Biostatistics, and Climate Solutions. She holds a bachelor's degree in political science from Northwestern University, and in 2015 she completed her master's degree in public administration and her environmental management certificate at the University of Washington. She serves on the Board of Directors for Byrd Barr Place.

SKIPPY SHAW
State Government Relations Director
The Nature Conservancy

Skippy is the state government relations director for The Nature Conservancy in Washington, where she galvanizes support in Olympia on issues ranging from clean energy siting to wildfire resilience to floodplain restoration. As part of The Nature Conservancy engagement in clean energy policy, they've published a Power of Place report, which lays out their approach to identifying pathways to a net-zero economy by 2050 while optimizing outcomes for climate, conservation, and communities.

JAIME SHIMEK
Executive Director of Communications
and External Engagement
Pacific Northwest National Laboratory

Jaime is the Executive Director of Communications and External Engagement, where she stewards and integrates strategy development and execution for external engagements and communications to connect PNNL's transformative research and leadership to the outside world and staff at PNNL. Prior to her current role, Jaime served as the Majority Clerk for the House Appropriations Energy and Water Development Subcommittee and Deputy Assistant Secretary of Senate Affairs at the Department of Energy.

GREGG SMALL
Executive Director
Climate Solutions

Gregg is the Executive Director of Climate Solutions. He brings more than 30 years of experience working on climate, environmental, and public policy issues, including over 25 as an Executive Director. At Climate Solutions, Gregg oversees a staff of more than three dozen policy experts, campaigners, innovators, and researchers across Washington and Oregon, providing strategic direction for one of the most effective regional climate and clean economy organizations in the nation. Under his leadership, Climate Solutions and their many allies have successfully passed some of the best climate policies in the United States.

ANGELA SMITH
Chief Communication Officer /
Public Affairs Manager
Energy Northwest

Angela joined Energy Northwest in January 2008. In her current position she is responsible for the oversight of the agency's internal and external communication strategy, including educational outreach and community engagement efforts; media relations; public relations, government affairs; tribal relations, board relations; and visual/creative services. Before becoming the Public Affairs Manager/CCO, Smith held multiple positions at Energy Northwest, including marketing, board relations, external communication, strategic planning and enterprise risk management.

JEREMY SMITHSON
Founder
Puget Sound Solar / EV Support

In 2001, Jeremy put 30 years of contracting experience together with solar technology to form Puget Sound Solar, and added EV charging installation and service in 2010. He relinquished

management of the company operations in 2019 and continues to do policy work as a board member of the Washington Solar Energy Industries Association. Today Puget Sound Solar is a top installer of solar, batteries and EV charging solutions in Seattle and beyond.

SOPHIA STEELE

Sr. Manager, Government Affairs, NW Region

Western States Petroleum Association

Sophia joined the WSPA team in April 2023. Sophia brings strong critical thinking, and effective communication skills to her role as the Senior Manager, Northwest Region and works with WSPA's members on local regulatory issues in the Northwest region.

Prior to joining WSPA, Sophia was the Director of Government Affairs for the Associated Builders and Contractors. She also previously worked for the U.S. House of Representatives as a legislative assistant.

Sophia earned her bachelor's degree in political science and public relations from Washington State University. She also enjoys spending time outside as an avid hiker, skier, and runner.

EDWIN WANJI

CEO

Sphere Solar Energy

Edwin is the founder and CEO of Sphere Solar Energy, an IBEW union-signatory electrical contractor providing clean energy solutions including solar, battery storage, EV charging, project development consulting services, and workforce development training.

LAURA WOODWARD

Policy Analyst

Natural Resources Canada

Laura has been working for the Canadian government for nearly 10 years as a policy analyst, focusing on a variety of topics such as transportation safety, science, technology and innovation partnerships, and intellectual property and Indigenous issues. She currently works at the department of Natural Resources Canada in Ottawa, Ontario, primarily leading on policy examining the intersection between trade in natural resources and clean technologies and the standards and technical regulations at both the international and domestic levels. Laura received a Bachelor of Science degree in Environmental Science (Queen's University in Kingston, Ontario) and a Master of Arts degree in Public and International Affairs (University of Ottawa, in Ottawa, Ontario).

GINA ZEJDLIK

Head of Policy & Government Affairs

Altas Agro

With an accomplished public sector career in policy development, political and legal strategy, Gina heads policy and government relations for Atlas Agro. Gina most recently served as Chief of Staff for the Governor of Oregon and was a trusted advisor in the Governor's office for 8 years, covering a range of policy areas including crisis management, health initiatives, private forest accords, corporate policies, ethics, and public records.

She earned her B.A. from the University of Washington and her J.D. from the University of Notre Dame Law School.

CLEAN & PROSPEROUS TEAM

DOMINIC CANTERBURY

Operations

Dominic is a Principal at Turbine Agency and has led successful marketing and technology projects for startups, nonprofits, regional, national, and international clients.

SAMANTHA GILLET

Consultant

Samantha is a Principal at The ABC Company. With decades of experience in operations management, personnel management, and comprehensive accounting systems, she is using her leadership and expertise in driving company growth and functionality to advise Clean & Prosperous as they continue to explore pathways to a clean economy.

LEE KELLER

Public Relations and Development

Lee heads public relations and media outreach efforts for Clean & Prosperous. Her firm, The Keller Group, specializes in CEO brand management, public relations and crisis communications. She has served as a United States Senate Press Secretary in Washington, D.C., directed communications at both the National Wildlife Federation and Weyerhaeuser. She worked directly for the late billionaire, Paul Allen, as his Director of Communications for both the campaign to build a new football and soccer stadium in Seattle as well as his parent company, Vulcan Inc., where she was responsible for community and governmental outreach for many of Vulcan's projects.

MICHAEL MANN

Executive Director

Michael serves as the Executive Director for Clean & Prosperous Washington. His firm, Cyan Strategies, specializes in government affairs and business development for companies reducing carbon emissions through their business activities. Michael previously served as the Director of the City of Seattle's Office of Sustainability and Environment and as the District Director for then Congressman Jay Inslee, the current Governor of Washington.

BILL MCCLAIN

Marketing Communications

Bill has led domestic and international marketing for several major brands, including Clarisonic and Sonicare. He played a key role in the successful launch of over 30 new products, including market-leaders from LifeScan (Johnson&Johnson), Braun, and Oral-B. Bill currently teaches Global Business Strategy and Marketing at the University of Washington. He earned his B.S. at West Virginia Wesleyan College and his MBA at the University of Pittsburgh.

KEVIN TEMPEST

Research

Kevin leads decarbonization and climate policy modeling work at CaPWA and its partner organization, Clean & Prosperous Institute, as the Research & Development Scientist. Research projects include the Building Back Better and Decisive Decade reports, focused cost-benefit analysis of decarbonization opportunities in Washington state, and the GHG Reduction Explorer Model to inform policy development at the state level. Kevin previously worked as a staff scientist in climate and energy topics at Stockholm Environment Institute-U.S, publishing on carbon infrastructure lock-in, fossil fuel supply-side (extraction) issues, and global urban greenhouse gas emissions modelling.

KIM TRYHORN

Event Manager

Kim leads logistics and planning for Clean & Prosperous Institute's Study Missions. As Principal at Cyan Strategies, she has worked extensively with CPI and other exciting organizations in Washington state, strategizing on ways to reduce carbon emissions through business and policy development. Prior to Cyan, she held positions in the City of Seattle Mayor's Office and for then-US Congressman Jay Inslee's Office.