

WASHINGTON STATE  
Academy of Sciences  
Science in the Service of Washington State

**FY25**

# ANNUAL REPORT

*This reports reflects work done  
between July 2024 - June 2025.*

# *A message from the WSAS President & Executive Director*

**W**e are pleased to present the Washington State Academy of Sciences Annual Report, highlighting our collective achievements for fiscal year 2025 (FY25, from July 2024 to June 2025) as we continue to uphold our mission of Science in Service to Washington State.

FY25 was defined by new people and priorities at all levels: federal, state, and within WSAS. Amidst these changes, we stayed committed to the enduring strategic priorities set by our board in 2022: Member Engagement, State Impact, and Organizational Sustainability.

Some of our key achievements in FY25 include:

- **Forming an executive branch advisory group** with senior leaders from the Governor's office and state agencies to help us understand state priorities and needs for scientific and technical expertise.
- **Launching our largest study to date.** The state legislature asked WSAS to help them assess options for structuring utility rates as more solar power and energy storage is added to the grid. In FY25, we partnered with the Ruckelshaus Center to interview a diverse set of stakeholders to inform a multidisciplinary study in FY26.
- **Exploring opportunities for AI in Washington.** Like the internet or personal computing, AI is a technology poised to change every sector of our economy. To begin exploring what this might look like for Washington, WSAS hosted a symposium to look at opportunities for AI across multiple sectors.

As we look ahead to next year, we are excited to build on our AI symposium through a “deep dive” on AI in the agriculture sector. We will also redouble our efforts to crowdsource ideas and expertise from our membership to provide trusted, nonpartisan information to inform policy and action in Washington. ■



**Allison Campbell**  
President



**Melanie Roberts**  
Executive Director

# ABOUT US

The Washington State Academy of Sciences (WSAS) is a nonpartisan, nonprofit organization established by the Washington State Legislature in 2005 to advise state agencies, the Legislature, the Governor's office and others on issues involving science and technology. Through its members—distinguished scientists and engineers across disciplines and sectors—WSAS mobilizes the research community in Washington and beyond to provide timely, credible expertise on issues that affect Washington State.

## BOARD OF DIRECTORS



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**ALLISON CAMPBELL**

Associate Laboratory Director, retired  
Pacific Northwest National  
Laboratory



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**SECRETARY †**

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Executive Director, ex officio

### THANK YOU FOR YOUR SERVICE

Term ended in 2025

**JOHN ROLL**

Vice Dean for Research, Elson S. Floyd College of  
Medicine  
Washington State University

**HOWARD FRUMKIN**

Professor Emeritus  
University of Washington

\* New board member in 2025

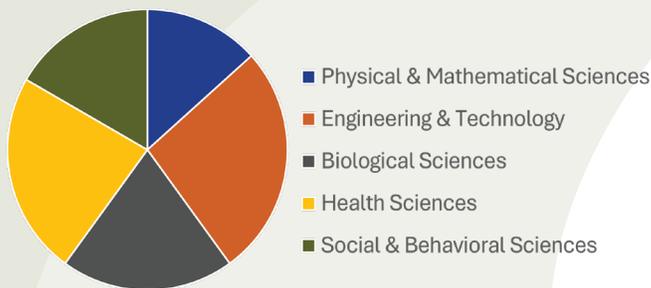
† New officer in 2025

# WSAS MEMBERS LEADERS IN SCIENCE & ENGINEERING

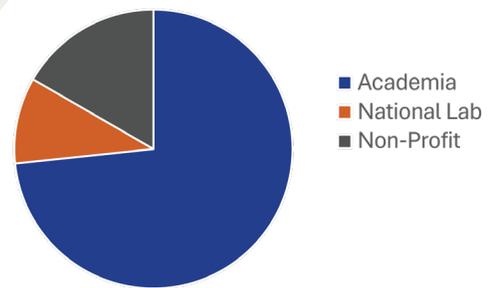
One of the greatest strengths of WSAS is the collective wisdom of our members and their networks. WSAS members serve in their personal capacity, volunteering their time and expertise to ensure Washington State policies, decisions and programs are informed by the best available science. Each year, new members are inducted into the Academy in recognition of their outstanding scientific and technical accomplishments and willingness to work on behalf of the Academy to bring the best available scientific and technical advice to bear on issues within the state of Washington.

The Academy welcomes new members either through election by current members or by invitation to Washington state residents who have been elected to the National Academies of Sciences, Engineering and Medicine. [New members elected in FY25](#) were inducted at the Annual Members' Dinner at the Museum of Flight in Seattle on September 25, 2024. Together they bring diverse expertise and fresh perspectives, strengthening our capacity to serve Washington.

New Member FY25 Expertise



New Member FY25 Sector





# SCIENTIFIC PEER REVIEW

## A KEY WSAS SERVICE

WSAS regularly convenes panels of experts to independently review the scientific and technical merit of proposals, reports, nominations or other relevant products on behalf of state agencies or commissions. In FY25, WSAS provided independent scientific review for studies funded by the Joint Legislative Task Force on Water Supply, demonstrating the Academy's ability to bring rigorous, objective expertise to politically complex challenges facing the state.

### Review of Skagit River Basin Studies

Water availability in the Skagit River Basin presents a complicated policy challenge, requiring consideration of tribal treaty rights, agricultural interests, salmon recovery and ecosystem health, and rural development. In 2019, the Joint Legislative Task Force on Water Supply (JLTF) asked WSAS to review a 1999 study that had been used to regulate water withdrawals from the Skagit but had never received formal scientific peer review. This led to the recommendation for JLTF to commission three additional hydrologic studies to fill gaps in understanding about groundwater, tributaries, and estuaries in the Skagit River Basin.

In FY25, WSAS board member, Mike Goodchild, recruited multidisciplinary panels of national experts to independently review these three follow-up studies. WSAS submitted reviews to the Department of Ecology commenting on the methodological rigor and generalizability of research findings. These reviews can help users of the reports to evaluate whether conclusions were supported by evidence and identify how each study can help to fill knowledge gaps identified in this complex hydrological system.

This multi-year engagement showcases a service that WSAS is uniquely positioned to provide for the state: assembling panels of nationally recognized scientific experts to conduct thorough scientific review using proven methodologies. WSAS will continue to offer peer review as a key service for state agencies.

# CONNECTING SCIENTIFIC EXPERTISE TO STATE PRIORITIES

WSAS continues to explore new services and approaches to best connect science with state policy, including the possibility of state-level science policy fellowships. With the arrival of a new executive director at WSAS along with new leadership at both the state and federal levels, WSAS is building a more intentional engagement strategy and calendar to understand state needs and strengthen relationships with state leaders.

## EXPLORING STATE SCIENCE & TECHNOLOGY POLICY FELLOWSHIPS

With support from the National Conference of State Legislatures, WSAS explored the design of a nonpartisan science policy fellowship program that would meet the needs of policymakers in Washington State. Based on feedback from the legislature and state agencies and input from our advisory committee, WSAS started to design a fellowship program that would recruit and train cohorts of early-to-mid career STEM PhDs, embedding them in state agencies to support decision makers as they address state policy issues involving science and technology. Although leaders in state agencies expressed interest in hosting fellows, state budget constraints led us to pause this approach for the moment.

In thinking creatively with state advisors about how the state can benefit from WSAS' network of top scientists and engineers, we learned that there is a dearth of opportunities for state agency staff for continued scientific and technical learning and professional development. To address this, WSAS will explore opportunities to offer educational programming for state agency scientists and staff.

### FELLOWSHIP ADVISORY COMMITTEE MEMBERS

*March - December 2024*

**Lee Huntsman\*, Chair**

Emeritus, University of Washington

**Betty Bekemeier\***

University of Washington

**Senator Matt Boehnke**

WA State Senate

**Sarah Brady**

California Energy Commission;  
former CA S&T Fellow

**Joel Creswell**

WA Department of Ecology; Former  
AAAS Fellow

**Robert Duff**

WA Governor's Policy Office

**Dan Jaffe\***

University of Washington

**Ruby Leung\***

Pacific Northwest National  
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**Babak Parviz\***

Madrona

**Bish Paul**

Bill & Melinda Gates Foundation;  
Former CA S&T Fellow

**Melanie Roberts**

WA Science Policy Expert; Former  
AAAS Fellow

**Representative Vandana Slatter**

WA House of Representatives

**David Swanson\***

UC Riverside, emeritus

**Gael Tarleton**

Former State Legislator, retired

**Peter Ward\***

University of Washington

*\*WSAS members*

# UNDERSTANDING STATE INTERESTS & NEEDS

## Legislative Engagement

Senator Vandana Slatter, chair of the bipartisan SciTech Caucus, asked WSAS to organize an educational event for legislators in Olympia to highlight the value of science for policy and provide concrete examples from multiple issue areas. At the event, WSAS asked legislators what topics they believe would benefit from additional scientific and technical expertise. They identified five priority areas: artificial intelligence, precision agriculture, energy supply and demand, quantum computing, and wildfire prevention and management.

In 2026, WSAS will be delving into opportunities for Washington at the intersection of artificial intelligence and agriculture and leading projects to inform energy planning.

## New Executive Branch Advisory Group

To stay abreast of state agency priorities and increase collaboration with state agencies, WSAS established an Executive Branch Advisory Group bringing together leaders from the Governor's office and six initial agencies—Agriculture, Commerce, Ecology, Fish & Wildlife, Health, and WaTech. Agency leaders welcomed WSAS's outreach, noting that we offer a valuable forum for them to understand issues that cut across their portfolios. They also identified urgent cross-cutting needs: accessible data platforms for water and climate decisions, frameworks for inter-agency collaboration, and solutions for lost access to federal expertise and models.

Input from both the state and WSAS members will inform future projects and priorities for the Academy.



# WSAS PROJECTS

## CHARTING THE PATH BEYOND NET METERING

At the Legislature’s direction, The Washington State Department of Commerce contracted with WSAS to launch our largest study to date on the Value of Solar Energy and Storage (VOSS). This two-year project, led by former WSAS Executive Director Donna Gerardi, is developing methodologies to guide policy and electricity rate structures that accommodate growing customer-produced solar energy and energy storage while balancing multiple goals and interests.

Washington’s Net Energy Metering (NEM) program, established by law in 1998, has supported private investments in renewable energy systems, like solar panels, by allowing customers to earn credits for excess electricity sent to the grid. Under the current law, utilities must offer full retail-rate NEM to eligible customers until either June 30, 2029, or until NEM systems reach 4% of the utility’s 1996 peak load—whichever comes first. With multiple utilities already reaching the 4% threshold and more expected to follow, Washington needs new approaches to ensure continued clean energy deployment while maintaining grid stability and fair cost distribution.

In FY25, WSAS collaborated with the William D. Ruckelshaus Center to engage a wide range of interested parties—from utilities and regulators to environmental justice advocates and tribal representatives—to better understand their

perspectives, key considerations for evaluating distributed solar rate structures, and ideas for reaching agreement on net-metering policies.

WSAS published an interim report at the end of FY25 to lay the groundwork for a study to identify and value the range of benefits—economic, societal, and environmental—that distributed solar, storage, and solar+storage can offer. In FY26, WSAS is developing methods for estimating value to inform a variety of policy mechanisms, including but not limited to rate designs. The final report, due Fall 2026, will equip state leaders, regulators, and utilities with an adaptable framework for navigating distributed energy policy in a rapidly evolving landscape.

[Read the authorizing legislation](#)

### [Read the Interim Report](#)

Economic Valuation of Distributed Solar Power Generation & Storage in Washington State

### VOSS OVERSIGHT COMMITTEE MEMBERS

*All committee members serve as individuals with recognized expertise, and not as representatives of their employer, affiliated organizations, or interest groups.*

**Anjan Bose, Chair\***

Washington State University

**Mohit Chhabra**

Natural Resources Defense Council

**Daniel Kirschen\***

University of Washington

**Elena Krieger**

Just Solutions

**Alan Love**

Washington State University

**Autumn Proudlove**

NC Clean Energy Technology Center

**Noel Schulz\***

Washington State University

**Dan Schwartz\***

University of Washington

**Susan Tierney**

Analysis Group

**Jud Virden** (through July 2025)\*

Pacific Northwest National Laboratory

**Jonathan Yoder\***

Washington State University

\*WSAS members

# EXAMINING WASHINGTON'S CANNABIS RESEARCH WORKFORCE

As the legal cannabis market expands across the country and in Washington state, there is a growing need to engage diverse expertise and perspectives to further enhance research on the effects of cannabis use on individuals, communities and society. At the request of the Washington State Department of Commerce, WSAS synthesized the current landscape of cannabis research in Washington State, describing relevant researchers, research topics, and research workforce demographics in the state.

The report, published in FY25, documented a growing but still limited research landscape across universities and state agencies. It also identified practical pathways to strengthen and diversify Washington's cannabis research ecosystem: collecting data to understand the current research community, supporting educational pipelines from undergraduate through faculty levels, incentivizing research collaborations—especially with minority-serving institutions like Northwest Indian College—and convening researchers, policymakers, and industry leaders to shape Washington's cannabis research agenda.



*This project was supported by the Washington State Department of Commerce*

## [Read the Report](#)

**Cannabis Research in Washington State**

## ADVISORY COMMITTEE MEMBERS

*\*WSAS members*

**John Roll\***, Chair  
Washington State University

**Celestina Barbosa-Leiker\***  
Cal State Fullerton

**Beatriz Carlini**  
University of Washington

**Rita Fuchs\***  
Washington State University

**Michael McDonell\***  
Washington State University

**Nephi Stella\***  
University of Washington

# EXPLORING OPPORTUNITIES IN ARTIFICIAL INTELLIGENCE



## **AI for Washington State:** Using Artificial Intelligence to explore, discover, and understand

September 25, 2024 | The Museum of Flight, Seattle

Artificial Intelligence (AI) is already transforming almost every sector. AI's capacity to analyze vast data sets, identify patterns and generate predictive models holds immense promise for delivering actionable insights that can drive meaningful change. However, realizing AI's potential requires navigating legitimate concerns about privacy, transparency, and equity. Scientists working alongside policymakers, industry, and communities are essential to ensuring AI technologies benefit all.

Recognizing AI's transformative potential for our state, WSAS convened roughly 150 researchers, industry professionals, and policymakers at our 17th Annual Symposium—AI for Washington State: Using Artificial Intelligence to explore, discover, and understand—to discuss the many challenges and opportunities related to research applying AI to critical state industries including climate, agriculture and health.

### PLANNING COMMITTEE MEMBERS

**Michael Goodchild** (Chair), Emeritus Professor, University of California, Santa Barbara\*

**Deborah Gracio**, Associate Laboratory Director, National Security Directorate, Pacific Northwest National Laboratory\*

**Eric Horvitz**, Chief Scientific Officer, Microsoft\*

**Ed Lazowska**, Professor, Paul G. Allen School of Computer Science & Engineering, University of Washington\*

**Mari Ostendorf**, Vice Provost for Research, University of Washington\*

\*WSAS Members

**FEATURED IN** [GEEKWIRE](#) & [KNKX PUBLIC RADIO](#)

### [Read the Symposia Proceedings](#)

Artificial Intelligence in the Conduct of Research in Washington State

**A few takeaways noted by the symposium chair, Michael Goodchild:**

- Individual investigators, or even individual disciplines, can no longer make major advances. “Only with convergence, with interactions, with cross-fertilizations from collaboration between disciplines, can we really advance science anymore. The traditional stovepipes of academia and research are not going to work in this new world, and we have to recognize the overall importance of working across disciplines.”
- The ubiquitous presence of uncertainty and basic heterogeneity of the world make it impossible to approach the world as perfectly known. “The map is not the territory. The data that we have is only a representation of the truth, not the truth. Unless we somehow understand what is missing... we will always be impeded in our research.”

## THANKS TO OUR SYMPOSIUM SPONSORS



### LOOKING FORWARD

Building on this foundation, WSAS will zoom in on AI in Agriculture in 2026. Washington’s \$12.9 billion agricultural sector faces a critical moment and is in need of innovative solutions. Mounting pressures from extreme weather and long-term climate variations, labor shortages, and rising costs of doing business have led to over 3,700 farms shutting down in just five years. Through a new Growing with AI initiative, WSAS will convene our multidisciplinary community of WSAS members and other leaders from agriculture, policy, technology, and research to explore how AI might enable new tools and insights to ensure a resilient, viable, and secure future for food production in Washington.

Learn more: [washacad.org/growing-with-ai/](https://washacad.org/growing-with-ai/)



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# WASHINGTON JUNIOR ACADEMY OF SCIENCE

WSAS proudly supports and celebrates the next generation of scientific leaders through the Washington Junior Academy of Science (WAJAS) Program. This program recognizes exceptional high school students from across the state for outstanding original scientific research and offers opportunities to connect with the research community in Washington and beyond. In FY25, WSAS sent 11 aspiring scientists to the American Junior Academy of Sciences (AJAS) at the annual meeting of the American Association for the Advancement of Science (AAAS) in Boston.

View the original research done by these delegates [here](#).

## 2025 DELEGATES

**Anson Chen, Tesla STEM High School**

Forecasting Domoic Acid Levels from Harmful Algal Blooms along the Pacific Northwest Coast

**David (Shangqiu) Li, Camas High School**

MagGrid: Non-Levitative Electromagnet Propulsion

**Mir Park, Pullman High School**

Design of Active Magnetic field Stabilization for Quantum Gas Experiments

**Isabella Pinto, Hanford High School**

How Magnetically Suspended Tires Utilizing High-Temperature Superconductivity and Electromagnetism Creates the Most Eco-Friendly Vehicle

**Rebecca Kim, Charles Wright Academy**

Breast Cancer in Adolescent and Young Women: Investigating Breast Microbiota, Estrogen, and Bacteria Impact on Biomarker Discovery

**Aryaman Rtunjay, Tesla STEM High School**

ALS-SynAegis: A Molecular Dynamics Study on TDP-43 Aggregation to Prevent Amyotrophic Lateral Sclerosis Onset

**Nicole Samaan, Hanford High School**

The Future of Efficient, Reliable, and Autonomous Renewable Energy

**Aditya Sengupta, Overlake School**

LeAF: Leveraging Convolutional Neural Networks for Plant Anomaly Detection and Classification for Farmers with Large Language Models for Natural Language Interaction

**Om Shah, Lakeside School**

Bilinet: Serum Bilirubin Prediction for Neonates using Segmentation-Guided Neural Networks

**Aanika Tangirala, Lakeside School**

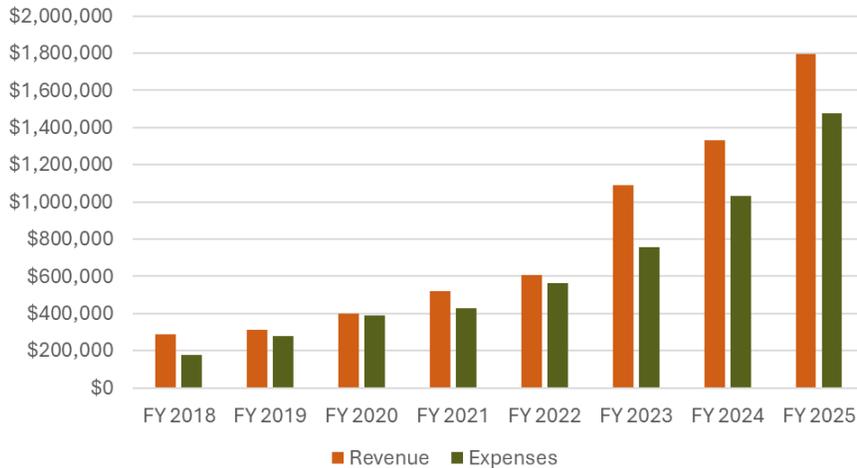
Towards Improved Recognition and Diagnosis of Autism Among Females – A Novel Approach Using Machine Learning

**Ajeet Venkatesh, Tesla STEM High School**

Spatiotemporal modeling of the Triple Negative breast cancer tumor microenvironment for in-silico testing of multi-immunosuppressive inhibitors for enhanced immunotherapy

# FINANCES FY 2025

## WSAS PERFORMANCE



## REVENUE BREAKDOWN

State Core Funds	\$1,077,243
State Grants/Contracts	\$574,187
Non-State Grants/Contracts	\$20,000
Member Dues	\$40,800
Donations	\$66,944
Other	\$17,682
<b>Total</b>	<b>\$1,796,856</b>

## THANK YOU TO OUR DONORS

The following donors generous FY 2025 contributions (July 2024 – June 2025) helped to advance WSAS’s mission to put science in service to the state of Washington.

### \$25,000+

Hoveida Family Foundation

### \$10,000+

Schweitzer Engineering Laboratories

### \$5,000+

Michael Goodchild

### \$1000+

Donald Baer  
Nathan Baker  
Peter Bethell  
Anjan Bose  
Allison Campbell  
Dianne Chong  
Gary Foss  
Earll Murman

### \$250-\$999

Suresh Baskaran  
Donna Gerardi  
Patricia Ann Hunt  
Samson Jenekhe  
Steve Kramer  
Margaret Krueger  
Henrique Malvar  
Terry McElwain  
Bruce Montgomery  
Kristi Morgansen  
Roger Myers  
Mari Ostendorf  
Susan Parkhurst  
Ljiljana Paša-Tolić  
Melanie Roberts  
James Winton

### Up to \$249

Anonymous  
Brian Atwater  
Ann Bostrom  
Mark Bussell  
Ryan Burns  
Shelly Hall  
Lee Huntsman  
Jamie Lovegreen  
Marc Mangel  
Buddy Ratner  
David A. Swanson  
Ronald Thom  
Usha Varanasi  
Hongkui Zeng

## THANK YOU TO OUR VOLUNTEERS

Thanks to those who volunteered or provided space to support our mission.

Ballard Homestead  
Madrona Venture Group Inc.  
UW Department of Aeronautics & Astronautics  
Kinetic West Consulting  
CleanTech Alliance

Denver Museum of Science  
New Days AI  
Joe Lawless  
Sarah Ni  
Roger Woodworth



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