

PNREC 2018

52nd Pacific Northwest Regional Economic Conference

May 22-24, 2018 | Tacoma, Washington

Pacific Northwest Economic Drivers: Forces Reshaping the Region's Economy Event Program

Hotel Murano 1320 Broadway Tacoma, WA 98402 (253) 238-8000



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About the Pacific Northwest Regional Economic Conference

The Pacific Northwest Regional Economic Conference (PNREC) is a non-profit organization established to promote research and education on the economy of the Northwest states and western Canada. The objectives of the Conference are to:

- Present a program of professional papers, panels, and symposia that relate to regional economics.
- Enable distinguished regional scientists and policy analysts from elsewhere to play a featured role at the conference.
- Provide a forum for those from academia, business, and government to meet and interact professionally.
- Introduce and share current regional economic research with students, business, and community leaders.

The idea of PNREC came to Charles Tiebout, the noted and highly respected Professor of Urban and Regional Economics at the University of Washington, in 1966. He had observed that economic organizations in other parts of the U.S.—the New England Council, for example, and the Southern Economic Association—were undertaking studies that turned the spotlight on their regional economies. These suggested additional reports, possible policy responses, and in any case governmental grants, both to research the problems further and to propose remedies. Professor Tiebout thought that the Pacific Northwest should also initiate an organization, forum, or publication that examined its economy, discovered problem areas, and suggested remedial action.

To this end, Tiebout asked business and government economists and academic colleagues concerned with the regional economy to organize a startup conference at the University of Washington in early May of 1967. The first PNREC was held in 1967 at the Benson Hotel in downtown Portland. The inaugural conference lasted two days and was a great success. The program covered many topics, though it concentrated on the theory and practice of building input-output models that were then under construction in most states of the region. At the end of that first conference, everyone agreed that a second one should be convened a year later.

The plan for PNREC had been to let the annual conferences alternate between Seattle and Portland. In 1968, however, Dr. John Guthrie, Chair of the Department of Agricultural Economics at Washington State University, volunteered to organize the next one at his institution. Since that time, PNREC has been staged at sites throughout the Pacific Northwest and western Canada, including Missoula, Spokane, Olympia, Boise, Bellingham, Tacoma, Richland, Bend, Vancouver, and Victoria B.C.

The 2018 PNREC will be held in Tacoma, Washington. While the conference has experienced highs and lows over the past 51 years, it has survived and will continue to bring the region's economists together each year to share research, maintain connections, and build our understanding of the economic issues facing our region.



Conference Sponsors



Conservation Council

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BECU













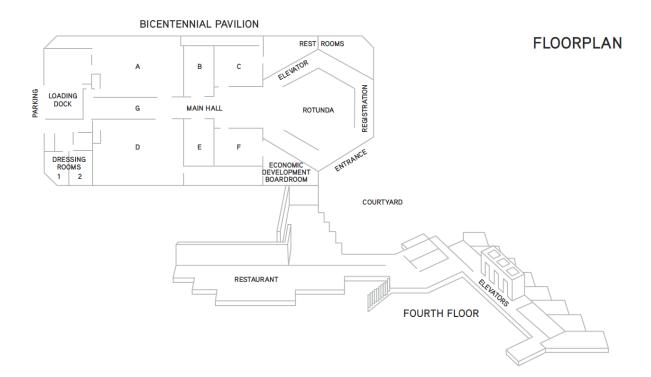
To all our partners, keynote speakers, presenters, chairs, and volunteers: Thank You!

2018 Pacific Northwest Regional Economic Conference

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All formal sessions will take place in the Bicentennial Pavilion building, adjacent to the hotel.





PNREC 2018 AGENDA AT A GLANCE

May 22–24, 2018

Hotel Murano | 1320 Broadway | Tacoma, WA 98402

	May 00, 004	0
	May 22, 201	8
5:00 PM – 8:00 PM	Registration	
6:00 PM – 8:00 PM	Meet and Greet Recep No Host Bar	otion (Appetizers and Drink Ticket),
May 23, 2018		
7:00 AM – 7:00 PM	Registration	
7:00 AM – 8:10 AM	Continental Breakfast	
8:10 AM – 8:20 AM	Welcome from Conference Chair	Anneliese Vance-Sherman, Employment Security Department
8:20 AM – 8:40 AM	Welcome to Tacoma	Honorable Victoria Woodards Mayor of Tacoma, Washington
9:00 AM – 10:00 AM	National Economic Outlook	Dr. Arun Raha, Chief Economist, Eaton Corporation
10:00 AM – 10:15 AM	Networking Break, Beverages and Snacks	
10:15 AM – 11:30 AM	Session 1 (Panels 1–4)	
11:30 AM – 11:45 AM	Networking Break	
11:45 AM – 1:15 PM	Lunch and Keynote Address – Dan Rickman, Oklahoma State University	
1:15 PM – 1:30 PM	Networking Break	
1:30 PM – 2:45 PM	Session 2 (Panels 5–8)	
2:45 PM – 3:15 PM	Networking Break, Beverages and Snacks	
3:15 PM – 4:30 PM	Session 3 (Panels 9–12)	
5:00 PM – 7:00 PM	Reception (Appetizers and Drink Ticket), No Host Bar and Poster Session	



PNREC 2018 AGENDA AT A GLANCE

May 22–24, 2018

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May 24, 2018

7:00 AM – 7:30 PM	Registration
7:30 AM – 8:30 AM	Breakfast
8:00 AM – 9:00 AM	Seattle Minimum Wage Research – Jacob Vigdor, University of Washington and Michael Reich, University of California, Berkeley
9:00 AM – 10:15 AM	Session 4 (Panels 13–16)
10:15 AM – 10:30 AM	Networking Break
10:30 AM – 11:45 PM	Session 5 (Panels 17–20)
11:45 AM – 1:15 PM	Lunch and Tiebout Lecture – Dr. AnnaLee (Anno) Saxenian, University of California, Berkeley
1:15 PM – 1:30 PM	Networking Break
1:30 PM – 2:45 PM	Session 6 (Panels 21 & 22)
2:45 PM – 3:00 PM	Networking Break, Beverages and Snacks
3:00 PM – 4:45 PM	Regional Outlook
4:45 PM – 5:00 PM	Closing Ceremonies

Logistical Information

Meeting LocationMeeting FacilitationHotel MuranoAnneliese Vance-Sherman1320 BroadwayEmployment Security DepartmentTacoma, WA 98402avancesherman@esd.wa.gov(253) 238-8000(360) 630-1232

*Nearest airport is the Seattle-Tacoma International Airport (SEA). Taxis, shuttles, rental cars, and ride sharing services are available at SEA.



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May 22–24, 2018

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	May 22, 2018	3
5:00 PM – 8:00 PM	Registration	
6:00 PM – 8:00 PM (Pavilion Rotunda)	Meet and Greet Reception (Host Bar	Appetizers and Drink Ticket), No
	May 23, 2018	3
7:00 AM – 7:00 PM	Registration	
7:30 AM – 8:10 AM	Breakfast	
(Pavilion AGD)		
8:10 AM – 8:20 AM (Pavilion AGD)	Welcome from Conference Chair	Anneliese Vance-Sherman, Employment Security Department
(Pavilion AGD) (Pavilion AGD)	Welcome to Tacoma	Honorable Victoria Woodards, Mayor Tacoma, Washington
9:00 AM – 10:00 AM (Pavilion AGD)	National Economic Outlook	Arun Raha, Chief Economist, Eaton Corporation
10:00 AM – 10:15 AM	Networking Break, Beverage	es and Snacks
10:15 AM – 11:30 AM	Concurrent Sessions (Sessi	on 1, Panels 1–4)

2018 Pacific Northwest Regional Economic Conference



Panel 1: Housing Topics I

Room: Pavilion B Chair: Tom Potiowsky, Portland State University

Peter Hulseman, Portland State University, Accessory Dwelling Unit (ADU) Portland Market Analysis

Emma Willingham, Portland State University, Deconstruction in Portland Part II

Jessie Martin and Toni Sipic, Earth Economics and Central Washington University, *Get the Lead Out: A Hedonic Housing Price Analysis of Soil Contamination and Remediation in Washington State*

Panel 2: Transportation and Infrastructure

Room: Pavilion C

Chair: Becky Knudson, Oregon Department of Transportation

Matthew Pahs, Washington State Department of Transportation, *Freight Transportation Drives Washington's Economy*

Becky Knudson, Oregon Department of Transportation, *Economic Implications of Deteriorating Highway Conditions*

Christopher Wilhelm, Oregon State University, A Model for Innovative Infrastructure Management and Financing: Regional P3 Accelerator

Panel 3: Clean Energy Future of the Pacific Northwest

Room: Pavilion E

Chair: Patrick Balducci, Pacific Northwest National Laboratory

Bob Kirchmeier, Washington State Energy Office, *Washington State Clean Energy Fund Program Overveiw*

Kendall Mongird, Pacific Northwest National Laboratory, *An Overview of the Techno-Economic Valuations of Select Battery Energy Storage Projects in the Pacific Northwest*

Nancy Hirsch, Northwest Energy Coalition, A Review of the Economic Impacts of Washington's Clean Energy Standard and the Complementary Effects of Potential Future Policy Options, Including Carbon Taxes and Expanded Renewable Portfolio Standards



Panel 4: Automation and the Workforce

Room: Pavilion F

Chair: Nick Beleiciks, Oregon Employment Department

R. Karina Gallardo, Washington State University, Mechanization of Farm Work

Joel Ainsworth, ECONorthwest, Automation and the Future of Work

Nick Beleiciks, Oregon Employment Department, A Short History of the Technological Unemployment Debates

11:30 AM – 11:45 AM Networking Break

11:45 AM – 1:15 PM	Lunch and Keynote Address – Dan Rickman, Oklahoma State
(Pavilion AGB)	University
1:15 PM – 1:30 PM	Networking Break
1:30 PM – 2:45 PM	Concurrent Sessions (Session 2, Panels 5–8)

Panel 5: What's Going on with Polling and Surveys?

Room: Pavilion B

Chair: Pat Barkey and Riley Moore, University of Montana and Saint Martins University

Becky Knudson, Oregon Department of Transportation, *Travel Surveys: How to Obtain* More Travel Data in a Time of Declining Survey Participation

Pat Barkey, University of Montana, Back to the Future: A Regional Survey Research Center Responds to the Demise of Random-Digit Dial Surveys

Virginia M. Lesser, Oregon State University, Conducting Surveys in 2018 and Beyond

Panel 6: Housing Topics II

Room: Pavilion C

Chair: Toni Sipic, Central Washington University

Sarah Pratt, Central Washington University, *Economic Impact of the Oso Landslide: Hedonic Approach*

Todd Stoothoff and Toni Sipic, Central Washington University, *Cougar Incident Impacts* on Housing Prices in Washington State

Hongbo Wang and Dan Rickman, Oklahoma State University, *Housing Prices and Population Growth Across China*



Panel 7: North America Trade Issues

Room: Pavilion E

Chair: Chris Lawless, BC Investment Management Corporation

Katarina Wasielewski and Laura Adkins-Hackett, Alberta Ministry of Economic Development and Trade, *The Employment of Bilateral Trade between Alberta and the United States*

James Hammond, BC Ministry of Jobs, Trade and Technology

Robert Hamilton, Washington Department of Commerce

Laurie Trautman, Western Washington University, Border Policy Research Institute

Panel 8: Energy Consumption and the Regional Economy

Room: Pavilion F

Chair: Terry Morlan, Northwest Power and Conservation Council

Massoud Jourabchi, Northwest Power and Conservation Council, *Recent Trends in Energy Consumption and its Relationship to the Regional Economy*

Kevin Smit, Northwest Power and Conservation Council, *Tapping our Untapped* Energy Efficiency Potential: the First Regional Effort to Systematically Identify and Address Underserved Populations in the Pacific Northwest

Massoud Jourabchi, Northwest Power and Conservation Council, *Load Impact of Deep Decarbonization Policies*

2:45 PM – 3:15 PM Networking Break, Beverages and Snacks

3:15 PM – 4:30 PM Concurrent Sessions (Session 3, Panels 9–12)

Panel 9: Recreation Topics

Room: Pavilion B Chair: Peter Maille, Eastern Oregon University

Peter Maille, Eastern Oregon University, *Estimating the Economic Value of the Elk* Herd in the Blue Mountains of Oregon: A Travel Cost Analysis

Kaleb Javier, Central Washington University, *The Economic Impacts of Forest Timber Methods in Washington State: A Hedonic Approach*

Don Holley, Boise State University, A Comparison of the Spending Patterns of Boaters, Snowmobilers, and Campers in Idaho



Panel 10: Economic Impacts of Cannabis in the Pacific Northwest

Room: Pavilion C

Chair: Massoud Jourabchi, Northwest Power and Conservation Council

Chris Rich, Oregon Employment Department, *Clearing the Haze around Eastern Oregon's Budding Marijuana Industry*

Mallory Icenhower, Cassandra Koefod, Toni Sipic, Eric Staats, and Kenneth Zummach, Central Washington University, *On the Industrial Organization of Cannabis Markets in Washington State*

Massoud Jourabchi, Northwest Power and Conservation Council, *Electricity Consumption for Cannabis Production in the Northwest*

Panel 11: Agricultural and Natural Resources Economics

Room: Pavilion E

Chair: Roger Coupal, University of Wyoming

Lee Cartier and Svan Lembke, Okanogan School of Business, *The Okanogan Valley Tree Fruit Industry: Opportunities for Value Chain Innovation*

Christopher Bastian, Chian Jones Ritten, Mariah Ehmke, Hunter Bruce and Vardges Hovhannisyan, University of Wyoming, *Almond Growers' Preferences for Pollination Services: A Random Utility Analysis*

Roger Coupal, University of Wyoming, *Economics of Oil and Gas Reclamation and Managing the Legacy of Fossil Fuel Development in the Rocky Mountain West*

Panel 12: Income, Savings and Economic Impact

Room: Pavilion F Chair: Bill Beyers

> Lizbeth Martin-Mahar, Brian Calkins and David Ding, Washington State Department of Transportation, *Fueling Our Economy – Beginning the Evaluation of Connecting Washington's Impact on our Region's Economy*

Boris Houenou, Washington State University, *Community Reinvestment Act as Positive Externalities in Merger in the U.S. Bank Industry*

Heleana Lally and Isabel Vassiliadis, Western Washington University, *Economic Impacts of Food Banks*



5:00 PM - 7:00 PM

(Pavilion Rotunda)

Reception (Appetizers and Drink Ticket, No Host Bar) and Poster Session

Poster Presenters

Al Mowbray, Metro, Land Development Monitoring System for the Portland Metropolitan Area: Results and Use in Improving Land-Use Models and Forecasts

Abby Schamp, Oregon State University, The Immigrant Advantage: The Educational Attainment and Parental Educational Goals of Immigrants Compared to the General Population

Patrick Balducci and R. O'Neil, Pacific Northwest National Laboratory, *Economic Opportunities for Energy Storage Systems in the Pacific Northwest in Light of Evolving Regulatory Barriers and Incentives*

Nicholas Larsen, Eastern Washington University, *The Impacts of Religious Upbringing on Educational Attainment and Current Religion*

Gary Smith, Pacific Northwest Regional Economic Analysis Project, A Rendezvous with Shift-Share Analysis...Devoid of Paralysis

Kendall Mongird, Pacific Northwest National Laboratory, *An Economic Evaluation of Community Solar and Energy Storage on Decatur Island, Washington*



May 24, 2018

7:00 AM – 7:30 PM	Registration	
7:30 AM – 8:30 AM	Breakfast	
(Pavilion AGD)		
8:00 AM – 9:00 AM (Pavilion AGD)	Seattle Minimum Wage	Jacob Vigdor, University of Washington and Michael Reich, University of California, Berkeley
9:00 AM – 10:15 AM	Concurrent Sessions (Session	4, Panels 13–16)

Panel 13: Washington Restaurant Industry – Establishing Economic Benchmarks to Understand the Health of the Industry

Room: Pavilion B

Chair: Mark Beattie, Washington State University

Tim Nadreau, IMPACT Center, Washington State University, Understanding State Agency Restaurant Data

Season Hoard and Christina Sanders, Washington State University, Establishing a Consumer Price Index (CPI) for Washington Restaurants

Anthony Anton, Washington Hospitality Association, *What Data Tell Us about the Health of the Washington Restaurant Industry*

Panel 14: Land Use, Housing, Transportation, and the Regional Economy Room: Pavilion C

Chair: Michael Wilkerson, ECONorthwest

Michael Wilkerson and Marley Buchman, ECONorthwest, *Estimating Housing* Underproduction in the Pacific Northwest: Measuring the Economic and Fiscal Impacts Associated with Different Regional Growth Models

Mike Kingsella, Up for Growth National Coalition, *Policy and Economic Incentives to Increase Housing Production in the Pacific Northwest*

Chris Judson, REMI, *Evaluating the Regional Economic Impacts of Transportation Investments*



Panel 15: Energy Topics I

Room: Pavilion E Chair: Patrick Balducci, Pacific Northwest National Laboratory

Mark Weimar and Trevor Hardy of the Pacific Northwest National Laboratory and Tony Jimenez of the National Renewable Energy Laboratory, *Mini-grid Design and Business Case Development for Chefornak: a Rural Alaska Community*

Foster Robertson, Pacific Lutheran University, *The Impacts of Tradable Carbon Credits* on Washington State Forestry

Kaleb Javier and Toni Sipic, Central Washington University, *Political Economy of Fracking Moratoria*

Panel 16: Income and Wages

Room: Pavilion B

Chair: Gary Smith, Pacific Northwest Regional Economic Analysis Project (PNREAP)

Gary Smith, Pacific Northwest Regional Economic Analysis Project, *County Level Per Capita Income Inequality*

Linda Gibson and Bruce Finnie, Pacific Lutheran University, *Trends in Income* Inequality and Growth in the Pacific Northwest

Christian Kaylor, Oregon Employment Department, *Learning from Oregon's 2003 Minimum Wage Increase: A Synthetic Control Approach*

10:15 AM – 10:30 AM Networking Break, Beverages and Snacks

10:30 AM – 11:45 AM Concurrent Sessions (Session 5, Panels 17–20)

Panel 17: Tax Impacts, Local Taxation, and their Effects on Business Climate Room: Pavilion F

Chair: Philip Watson, University of Idaho

Greg Alward and Garth Taylor, University of Idaho, *Estimating Sales Tax Impacts with Input-Output Models*

Tim Nadreau, Washington State University, *Municipal Incentives and Agglomeration Externalities*

Philip Watson, Florina Salaghe, Haley Hildebrandt, and Malieka Landis, University of Idaho, Benedictine University, U.S. Census Bureau and University of Nevada-Reno, Business Climate is in the Eye of the Employer



Panel 18: Controlling Congestion

Room: Pavilion C

Chair: Hart Hodges, Western Washington University

Justin Beaudoin, University of Washington – Tacoma

Jenny Liu, Portland State University

Sharon Shewmake, Western Washington University

Mazen Malik, Legislative Revenue Office

Panel 19: Energy Topics II

Room: Pavilion E

Chair: Terry Morlan, Northwest Power and Conservation Council (Retired)

Jeffrey Morris, Sound Resource Management Group, *Energy, Environment, and Economy: Trade Offs when Managing Biomass or Plastic Wastes for Sustainability and Resiliency*

Patrick Balducci, Pacific Northwest National Laboratory, Market Analysis of the Shell Energy North America's Small Modular Pumped Storage Hydro Unit

Nik Foster, Pacific Northwest National Laboratory, No Mighty Wind: The State of Distributed Wind in the Pacific Northwest

Panel 20: Modeling and Forecasting

Room: Pavilion F Chair: Becky Knudson, Oregon Department of Transportation

Richard Lycan, Portland State University, Forecasting Populations of Older Persons

Al Mowbray, Research Center Portland Metro, Land Development Monitoring System for the Portland Metropolitan Area: Results and Use in Improving Land-Use Models and Forecasts

Patrick Edward Corcoran, Oregon State University, *Living with the Threat of a Cascadia Subduction Zone Event: Implications of Economic Development in the Tsunami Hazard Zone*

11:45 AM – 1:15 PM (Pavilion AGD)	Lunch and Tiebout Lecture – Dr. AnnaLee (Anno) Saxenian, University of California, Berkeley
1:15 PM – 1:30 PM	Networking Break
1:30 PM – 2:45 PM	Concurrent Sessions (Session 6, Panels 21 & 22)

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Panel 21: Industry and Labor Markets

Room: Pavilion B

Chair: Scott Bailey, Washington Employment Security Department

Gail K. Krumenauer Oregon Employment Department, *Employment, Education, and Earnings by Race and Ethnicity*

Felicia Bechtoldt, Oregon Employment Department, *The Ability of Oregon Workers to Speak English Varies by Type of Job*

Christopher Wilhelm, Oregon State University, *The State of Minority-Owned Microenterprise in Seattle, Washington*

Panel 22: E-Commerce Growth May Double Demand for Urban Delivery Spaces by 2022 – Are Cities Ready?

Room: Pavilion C

Chair: Barb Ivanov, University of Washington (UW) Urban Freight Lab

Barb Ivanov, UW Urban Freight Lab, *How the Growth of E-Comerce, Population, and Ride-Hailing Services is Reshaping Cities*

Jose Machado, UW Urban Freight Lab, *The Urban Load/Unload Space Network:* Seattle Case Study

Chris Eaves, Seattle Department of Transportation (SDOT), *City of Seattle Innovations Serving the Urban Goods Delivery System*

2:45 PM – 3:00 PM	Networking Break, Beverages and Snacks
3:00 PM – 4:45 PM	Regional Outlook
(Pavilion AGD)	Chair: Patrick Balducci, Pacific Northwest National Laboratory
	Alberta – Felicia Mutheardy, City of Edmonton
	British Columbia – Chris Lawless, BC Investment Management Corporation
	Idaho – Eric Stuen, University of Idaho
	Montana – Pat Barkey, Bureau of Business and Economic Research, University of Montana
	Oregon – Mark McMullen, Office of Economic Analysis, State of Oregon
	Washington – Steve Lerch, Washington State Economic and Revenue Forecast Council, State of Washington
	Wyoming – Roger Coupal, University of Wyoming
4:45 PM – 5:00 PM	Closing Ceremonies
(Pavilion AGD)	

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