



PNREC 2017

51st Pacific Northwest Regional Economic Conference

May 23–25, 2017 | Bend, OR

Regions in Transition Event Program

Riverhouse Hotel
3065 N Hwy 97
Bend, OR 97701
(541) 389-3111



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.
- To enable distinguished regional scientists and policy analysts from elsewhere to play a featured role at the conference.
- To provide a forum for those from academia, business and government to meet and interact professionally.
- To 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 start-up 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, Vancouver and Victoria B.C.

The 2017 PNREC will be the first held in Bend, Oregon, and the conference has received great interest that has supported an expanded program with all concurrent sessions featuring four panels and for the first time, a poster session. 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.



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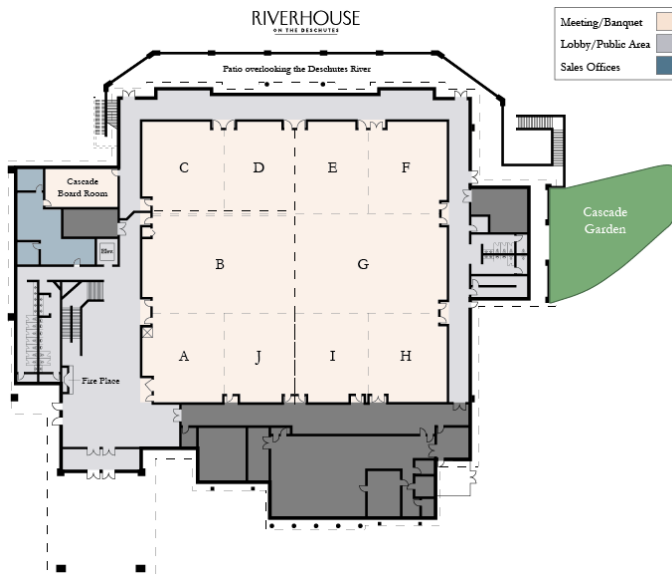
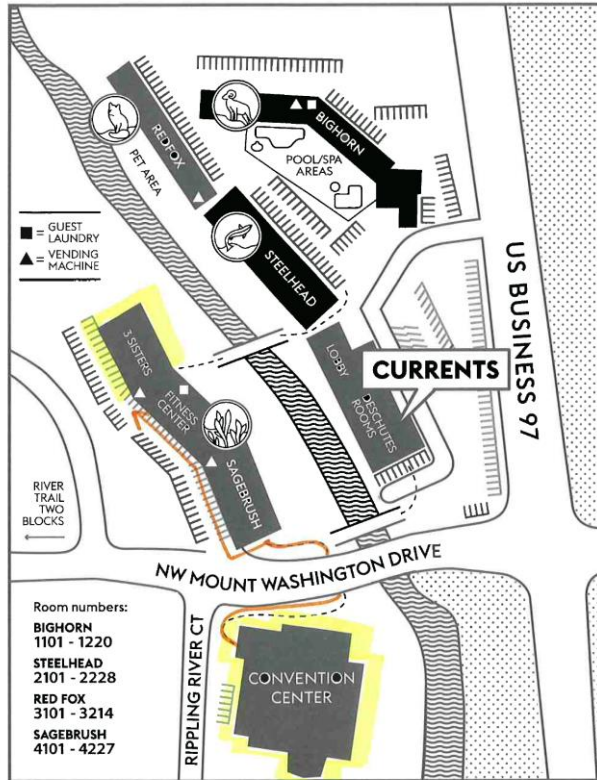
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PACIFIC NORTHWEST REGIONAL ECONOMIC CONFERENCE



RIVERHOUSE
ON THE DESCHUTES



Cascade Rooms on Main Floor of Convention Center

Exhibit Hall in Basement of Convention Center



PNREC 2017 AGENDA AT A GLANCE

May 23-25, 2017

Riverhouse Hotel | 3065 N Hwy 97 | Bend, OR 97701

May 23, 2017

5:00 PM – 8:00 PM	Registration
6:00 PM – 8:00 PM	Meet and Greet Reception (Appetizers and Drink Ticket), No Host Bar

May 24, 2017

7:00 AM – 7:00 PM	Registration	
7:30 AM – 8:30 AM	Continental Breakfast	
8:30 AM – 8:40 AM	Welcome from Conference Chair	Patrick Balducci, PNREC President
8:40 AM – 9:00 AM	Welcome to Bend	Honorable Casey Roats, Mayor of Bend, Oregon
9:00 AM – 10:00 AM	National Economic Outlook	Mark McMullen, State Economist and Director of Economic Analysis, State of Oregon
10:00 AM – 10:15 AM	Networking Break, Beverages	
10:15 AM – 11:30 AM	Session 1	
11:30 AM – 11:45 AM	Networking Break	
11:45 AM – 1:15 PM	Lunch and Keynote Address – Svenja Gudell, Chief Economist, Zillow	
1:15 PM – 1:30 PM	Networking Break	
1:30 PM – 2:45 PM	Session 2	
2:45 PM – 3:15 PM	Networking Break, Beverages and Snacks	
3:15 PM – 4:30 PM	Session 3	
5:00 PM – 7:00 PM	Reception (Appetizers and Drink Ticket), No Host Bar and Poster Session	



PACIFIC NORTHWEST REGIONAL ECONOMIC CONFERENCE

PNREC 2017 AGENDA AT A GLANCE

May 23-25, 2017

Riverhouse Hotel | 3065 N Hwy 97 | Bend, OR 97701

May 25, 2017

7:00 AM – 7:30 PM	Registration
7:30 AM – 8:30 AM	Breakfast
8:00 AM – 8:30 AM	Josh Lehner, Oregon Department of Administrative Services, <i>The Eroding Tax Base Challenge</i>
8:45 AM – 10:00 AM	Session 4
10:00 AM – 10:15 AM	Networking Break, Beverages and Snacks
10:15 AM – 11:30 AM	Session 5
11:30 AM – 11:45 AM	Networking Break
11:45 AM – 1:15 PM	Lunch and Tiebout Lecture – Dr. Sandy Dall’Erba, Director of the Regional Economics Applications Laboratory at the University of Illinois at Urbana-Champaign
1:15 PM – 1:30 PM	Networking Break
1:30 PM – 2:45 PM	Session 6
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 Location
Riverhouse Hotel
3065 N Hwy 97
Bend, OR 97701
(541) 389-3111

Meeting Facilitation
Patrick Balducci
Pacific NW National Laboratory
Patrick.balducci@pnnl.gov
(503) 679-7316

Accommodations
Riverhouse Hotel, Bend Inn
and Suites, Shilo Inn, Fairfield
Inn, Oxford Hotel and
Doubletree Hotel

*Nearest airport is the Redmond Municipal Airport (RDM) in Redmond, Oregon (25 minutes from Bend). Taxis, shuttles, and rental cars are available at RDM. Lyft is available in the area.



PNREC 2017 DETAILED AGENDA

May 23-25, 2017

Riverhouse Hotel | 3065 N Hwy 97 | Bend, OR 97701

May 23, 2017

5:00 PM – 8:00 PM	Registration
6:00 PM – 8:00 PM (Cascade EF)	Meet and Greet Reception (Appetizers and Drink Ticket), No Host Bar

May 24, 2017

7:00 AM – 7:00 PM	Registration	
7:30 AM – 8:30 AM (Exhibit Hall)	Breakfast	
8:30 AM – 8:40 AM (Exhibit Hall)	Welcome from Conference	Patrick Balducci, PNREC President Chair
8:40 AM – 9:00 AM (Exhibit Hall)	Welcome to Bend	Honorable Casey Roats, Mayor Bend, Oregon
9:00 AM – 10:00 AM (Exhibit Hall)	National Economic Outlook	Mark McMullen, State Economist and Director of Economic Analysis, State of Oregon.
10:00 AM – 10:15 AM	Networking Break, Beverages and Snacks	



10:15 AM – 11:30 AM Concurrent Sessions (Session 1)

Panel 1: Performance and Change in the Regional Economy

Room: Cascade E

Chair: Bill Beyers, University of Washington

Gary Smith, Pacific Northwest Regional Economics Analysis Project, *Diagnosing the Performance of the Bend/Deschutes County Economy: An Application of LSGL Analysis*

Chris Clarke, Washington State University, *Public Capital Skill-Complementarity and Inequality*

Bill Beyers, University of Washington, *Structural Change in Employment in the Pacific Northwest Economy Since the Great Recession*

Panel 2: Education and Health

Room: Cascade F

Chair: Chris Lawless, BC Investment Management Corporation

Boris Houenou, Washington State University, *The Health-Income Gradient: Evidence from Kenya*

Donya Quarnstrom, Eastern Washington University, *How Does Financial Aid Impact Student Academic Success at Regional Comprehensive Universities in the U.S.?: A Panel Data Approach*

Amy Watson, Montana Department of Labor and Industry, *Montana College Talent Pipeline Report: Aligning State Educational Institutions with Workforce Needs*

Panel 3: Fire and Outdoor Recreation

Room: Three Sisters AB

Chair: Donn Johnson, Quinnipiac University

Jeremy Sage, Montana Institute for Tourism and Recreation Research, *Analyzing the Recreation Driven Economic and Social Opportunities and Challenges Related to Bison Conservation in Northeast Montana*

Tesa Stegner, Idaho State University, *Evaluating the Socioeconomic Impacts of Rapid Assembly and Geospatial Data in Wildfire Emergency Response Planning: A Case Study using the NASA RECOVER Decision Support System (DSS)*

Donn Johnson, Quinnipiac University; John McKean, AEI Economic Consultants; and R. Garth Taylor, University of Idaho, *Valuing Recreation on the Rivers of Central Idaho*



Panel 4: Migration, Housing and Indigenous Economies

Room: Three Sisters C

Chair: Scott Bailey, Washington Employment Security Department

Peter Hulseman, Portland State University, *The State of the Portland Housing Market*

Justin Bucciferro, Eastern Washington University, *Modelling the Indigenous Carrying Capacity of the Pacific Northwest: A General Equilibrium Approach*

Marian Manic, Whitman College, *The Regional Effects of International Migration on Domestic Accumulation of Human Capital*

11:30 AM – 11:45 AM Networking Break

11:45 AM – 1:15 PM Lunch and Keynote Address – Svenja Gudell, Chief Economist, Zillow
(Exhibit Hall)

1:15 PM – 1:30 PM Networking Break

1:30 PM – 2:45 PM Concurrent Sessions (Session 2)

Panel 5: Regional Development

Room: Cascade E

Chair: Scott Bailey, Washington Employment Security Department

Jed Poster, WSP Advisory Services, *Sound Transit 3: An Applied Economic Analysis of a Region in Transition*

Michael Meyers, Business Oregon, *Target Industry Group Analysis for Oregon*

Jerry Johnson and Ian Goldsmith, Johnson Economics, *Building a Model to Predict Likely Development or Redevelopment Activity Over an Assumed Time Frame*

Panel 6: Regional Economic Performance: Data and Methods

Room: Cascade F

Chair: Phil Watson, University of Idaho

Greg Alward, University of Idaho, *Designing a State Level SAM to Address Agriculture and Natural Resource Issues*

Tim Nadreau, Washington State University, *Disaggregating the BEA Input-Output Accounts*

Phil Watson, University of Idaho, *High Paying Sectors or Above Average Wages: What Matters More in Regional Wage Discrepancies*



Panel 7: Economics of Wildfire Management

Room: Three Sisters AB

Chair: Jude Bayham, California State University, Chico

Matthew Thompson, Rocky Mountain Research Station, U.S. Forest Service, *Are Hazardous Fuel Reduction Treatments Likely to be Efficient Investments?*

Rachel Houtman, Oregon State University, *Modeling Long-Term Effects of Fuel Reduction on Fire Severity and Harvest Values on the Deschutes National Forest*

Jude Bayham, California State University–Chico, *Resource Allocation Under Fire*

Panel 8: Transportation Issues

Room: Three Sisters C

Chair: Eric Jessup, Washington State University

Xinlong Tan, Washington State University, *The Effects of Mega Airline Mergers on Consumer Welfare through Price and Flight Frequency*

S.M.A. Bin Al Islam, Washington State University, *A Two-Stage Model for Predicting Crash Frequency by Severity Type*

Ken Casavant, Washington State University, *U.S. Rail Freight Demand, Service Capacity, and Performance*

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

3:15 PM – 4:30 PM Concurrent Sessions (Session 3)

Panel 9: Trade Data and Transportation Networks

Room: Cascade E

Chair: Andrew Cassey, Washington State University

Anca Cristea, University of Oregon, *The Role of Aviation Networks for Urban Development*

Roger Lee, Economic Development for Central Oregon, *Regional Economic Performance Over Time: Bend-Redmond MSA*

Andrew Cassey, Washington State University, *Information Subsidies and State Export Scope*



Panel 10: Water and Common Pool Resources

Room: Cascade F

Chair: Hart Hodges, Western Washington University

Kiriti Kanjilal, Washington State University, *Common Pool Resources under Altruism and Uncertainty*

Mike Brady, Washington State University, *The Hirst Decision: Groundwater Management and Rural Economic Development*

Joe Cook, University of Washington, *Are Behavioral Nudges Moral Taxes?: Evidence from a Field Experiment on Water Conservation*

Panel 11: Regional Development II

Room: Three Sisters AB

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

Don Reimer, D.R. Systems Group, *Using Spatially-Dynamic Planning to Develop Improved Sustainable Land Management Alternatives*

Crystal D. Hill-Pennington, *Comprehensive Growth Management and Economic Vitality of Small and Rural Cities: Perception and Reality in Puget Sound, Washington State*

Riley Moore, St. Martin's University, *Assessment of 'People and Place' vs. 'Firms and Industries' for Economic Development – Case Study: Olympia*

Panel 12: Transportation Systems

Room: Three Sisters C

Chair: Eric Jessup, Washington State University

Rose Howe, Western Washington University, *Coal Trains and Home Values: The Effect of the Gateway Pacific Terminal Project on Housing Prices in Bellingham, Washington*

Erika Briscoe, Washington State University, *Economic & Environmental Impacts from the Columbia-Snake River Extended Lock Outage 2016–2017*

Austin Miller, Washington State University, *Transportation System Resiliency: A National Perspective of Potential Infrastructure Impacts from Climate Change*



5:00 PM – 7:00 PM Reception (Appetizers and Drink Ticket, No Host Bar) and
(Cascade BCD) Poster Session

Poster Presenters

Selena Rose Gerace, University of Wyoming, *Gender Differences in Negotiation Behavior and Negotiated Market Outcomes*

Kyle A. Damon, Eastern Washington University, *Reexamining Economic Theory Utilizing an Open Pit Market Experiment*

Holly Dyer, University of Wyoming, *Valuing Soil Health Benefits for Wyoming Ranchers*

Christopher John Wilhelm, Oregon State University, *IPAs for Economic Development: the Spatial Distribution of Economic Activities Supporting the Craft Beer Industry in the Pacific Northwest*

Sadie Bender, Pacific Northwest National Laboratory, *Energy Intensity Indicators*

Patrick Balducci, Pacific Northwest National Laboratory, *National Assessment for Grid-Connected Energy Storage: Phase I (WECC)*

Ian Goldsmith, Johnson Economics: *Creating Normalized Rental Surfaces for Predictive Development Models*

Eric Jessup, Washington State University, *Spatial Price Competition Between Barge and Rail Service in the Pacific Northwest*

Michael Meyers, Business Oregon, *Regional Industry Competitiveness Reports*



May 25, 2017

7:00 AM – 5:00 PM Registration

7:30 AM – 8:45 AM Breakfast

(Exhibit Hall)

8:00 AM – 8:30 AM The Eroding Tax Base Challenge Josh Lehner, Economist,
(Exhibit Hall) Oregon Department of Administrative Services

8:45 AM – 10:00 AM Concurrent Sessions (Session 4)

Panel 13: Rural Oregon Labor Market: Resilient, Rebound or Recession?

Room: Cascade E

Chair: Nick Beleiciks

Christopher Rich, Oregon Employment Department, *Twenty Below: Oregon Counties and Pre-Recession Peak*

Jessica Nelson, Oregon Employment Department, *Rural Oregon Jobs Report*

Nick Beleiciks, Oregon Employment Department, *Economic Resilience of Oregon Counties*

Panel 14: Pacific Northwest Beer and Wine Industries

Room: Cascade F

Chair: Jeff Dense, Eastern Oregon University

Eric Stuen, University of Idaho, *Winery Clustering: Close to the Vine or to Other Sources of Cost Advantage?*

Anthony Delmond, Washington State University, *The Limited Benefits of Sharing: Evidence of a Declining Collective Reputation Effect in the Washington Wine Industry*

Jeff Dense, Eastern Oregon University, *The Economic Impact of Craft Beer Festivals and Events*



Panel 15: Water and Energy

Room: Three Sisters AB

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

Sadie Bender and Nik Foster, Pacific Northwest National Laboratory, *Discussing a Clean Energy Portfolio Standard for Washington*

Jukwon Lee, Washington State University, *Modelling an Inattentive Consumer's Behavior under Nonlinear Pricing in the Residential Water Market*

Greg Torell, Texas A&M University, *Climate Change and Energy Production: The Effect of Drought on Electricity Prices*

Panel 16: Global to Local: WSU Extension's Role in Economic Development

Room: Three Sisters C

Chair: Brad Gaolach

Karl Englund, Washington State University, *Creating an Economically Viable Industry from Recycled Wind Turbine Blades*

Martha Aitken, Washington State University, *Rebuilding the Economy of One of America's Best Communities*

Brad Gaolach, Washington State University, *Understanding the Seattle Minimum Wage Increase Effect on the Hospitality Industry*

10:00 AM – 10:15 AM Networking Break, Beverages and Snacks

10:15 AM – 11:30 AM Concurrent Sessions (Session 5)

Panel 17: Forestry Issues

Room: Cascade E

Chair: Greg Latta, University of Idaho

Olli-Pekka Kuusela, Oregon State University, *Learning from Disturbances: The Value of Adaptive Forest Management*

Gail Krumenauer, Oregon Employment Department, *Oregon's Forest Sector Employment and Wages*

Greg Latta, University of Idaho, *The Importance of Spatial Detail in Biomass Supply Cost Estimation*



Panel 18: Economics of Cannabis in the Pacific Northwest

Room: Cascade F

Chair: Toni Sipic, Central Washington University

Ken Zummach, Central Washington University, *Determinants of Western US Recreational Cannabis Prices: Evidence from Leafly.com*

James McCafferty, Western Washington University, *Legal Cannabis: A Story of Data Points – The Case of Washington State*

Toni Sipic, Central Washington University, *Oregon Cannabis Legalization Impacts on Washington State Cannabis Retail Revenues*

Panel 19: Future of the Electric System in the Northwest

Room: Three Sisters AB

Chair: Massoud Jourabchi

Steven Simmons, Northwest Power and Conservation Council, *Impact of Incorporation of Solar plus Batteries in the Electric System of the Northwest*

Tom Eckman, Northwest Power and Conservation Council, *Impact of Federal Standards on Loads in the Northwest: A Political and Economic Review*

Massoud Jourabchi, Northwest Power and Conservation Council, *Energy and Economic Costs and Benefits of Public Transportation Systems in the Northwest*

Panel 20: Agricultural Micro-Businesses as Regional Economic Development

Room: Three Sisters C

Chair: Mallory Rahe

Lindsay Trant, Oregon State University Small Farms Program, *Value-Added Foods Direct from the Farm: An Evaluation of Oregon's Farm Direct Marketing Bill After Five Years*

Sue Lurie and Christy Anderson Brekken, Oregon State University, *Contributions of Agriculture Micro-Businesses to Rural Development and the New Natural Resource Economy*

Mallory Rahe, Oregon State University, *Measuring the Economic Impact of Local Foods: Applying the AMS ToolKit to Central Oregon*

11:30 AM – 11:45 AM Networking Break

11:45 AM – 1:15 PM
(Exhibit Hall) Lunch and Tiebout Lecture – Dr. Sandy Dall'Erba, Professor of Agricultural and Consumer Economics and Associate Director of the Regional Economics Applications Laboratory at the University of Illinois at Urbana-Champaign



1:15 PM – 1:30 PM Networking Break

1:30 PM – 2:45 PM Concurrent Sessions (Session 6)

Panel 21: Outdoor Recreation and Economic Development: Bend, Oregon and Related Communities

Room: Cascade E

Chair: Mark Buckley, EcoNW

Kreg Lindberg, Oregon State University – Cascades, *A Choice Experiment Approach to Assessing the Subjective Well-being Effects of Recreation Accessibility and Other Potential Changes from Urban Growth Boundary Expansion in Bend, Oregon*

Damon Runberg, Oregon Employment Department, *The Changing Economy of one Lifestyle City - Bend, Oregon*

Mark Buckley, EcoNW, *The Economic Importance of Outdoor Recreation and Quality of Life - Bend, OR and Wenatchee Valley, WA*

Panel 22: Climate Change and Grid Decarbonization

Room: Cascade F

Chair: Patrick Balducci, Pacific Northwest National Laboratory

Abhishek Somani, Pacific Northwest National Laboratory, *Discussion of Value of Solar Tariff Designs*

Greg Nothstein, Washington State Department of Commerce, *Evaluating the Impacts of a Proposed Carbon Tax, and Other Policies, in Washington State*

Patrick Balducci, Pacific Northwest National Laboratory, *Evaluating the Technical Performance and Economic Benefits Associated with the Washington State Clean Energy Fund Storage Projects*

Panel 23: Alcohol and Cannabis

Room: Three Sisters AB

Chair: Becky Knudson, Oregon Department of Transportation

Nick Creson, Eastern Oregon University, *A Drunken Economy: The Effect of Alcohol on the Economy*

John O'Neill, Eastern Oregon University, *Drug and Alcohol Related Crime in Cannabis States*

Peter Gray, Central Washington University, *Determinants of Recreational Cannabis Prices in Central Washington*



Panel 24: Internet Job Searching and Behavior Economics

Room: Three Sisters C

Chair: Nick Beleiciks, Oregon Employment Department

Adam Rovang, Western Washington University, *Internet Job Search Use and Effectiveness after the Great Recession*

Felicia Bechtoldt, Oregon Employment Department, *Drop in Help Wanted Online Index Caused by Craigslist Charging for Job Ads*

Peter Maille, Eastern Oregon University, *Power, Expected Value and Excessive Risk-Taking*

2:45 PM – 3:00 PM

Networking Break, Beverages and Snacks

3:00 PM – 4:45 PM

Regional Outlook

(Cacade EF)

Chair: Patrick Balducci, Pacific Northwest National Laboratory

Alaska – Caroline Schultz, Office of Governor Bill Walker, State of Alaska

Alberta – John Rose, City of Edmonton

British Columbia – Cameron Muir, British Columbia Real Estate Association

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

(Cascade EF)



PNREC Board of Directors

Mr. Patrick Balducci, PNREC President, Pacific Northwest National Laboratory

Mr. Chris Lawless, PNREC Vice President, BC Investment Management Corporation

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Mr. Massoud Jourabchi, Northwest Power and Conservation Council

Ms. Becky Knudson, Oregon Department of Transportation

Dr. Riley Moore, School of Business, Saint Martins University

Dr. Tom Potiowsky, Department of Economics, Portland State University

Dr. Gary W. Smith, Pacific NW Regional Economic Analysis Project, Central Washington University

Dr. Phil Watson, University of Idaho



PACIFIC NORTHWEST REGIONAL ECONOMIC CONFERENCE

*A forum to exchange knowledge and expertise
between academia, business and government*

