

# THE POWER OF ORGANIC WASTE: RENEWABLE NATURAL GAS (RNG) FOR OREGON

A WORKSHOP BY ENERGY VISION & NW NATURAL

SEPTEMBER 6, 2017, 8:30 A.M. - 3:00 P.M.

NW Natural, 220 NW 2nd Ave, Portland, Oregon



## AGENDA

**8:30AM - 8:40AM**

### WORKSHOP INTRODUCTION: MOVING TOWARD A LOW-CARBON FUTURE IN OREGON

Joanna D. Underwood, Founder &  
Board Chair, Energy Vision

**8:40AM - 9:00AM**

### WELCOME ADDRESSES

David Anderson, President & CEO,  
NW Natural

Mike Jordan, Director, Portland Bureau  
of Environmental Services

**9:00AM - 10:20AM**

### PANEL 1 - TURNING ORGANIC WASTE INTO BIOGAS: WASTEWATER, FOOD WASTE & AG/ LANDFILL CASE STUDIES

**The Biomass Resource Potential in  
Oregon** - Dan Avery, Senior Policy  
Analyst, Oregon DOE

**From Raw Biogas to Pipeline Quality  
RNG** - Tim Logan, Senior Scientist,  
Landau Associates, Inc.

**From Fuel to Flame** - Paul Suto, P.E.,  
Supervising Engineer, Portland Bureau  
of Environmental Services

**From Food Waste to Low-Carbon  
Fuel** - Sean Moen, General Manager,  
ReFuel Energy Partners

**10:20AM - 10:35AM**

### COFFEE AND NETWORKING

**10:35AM - 12:05PM**

### PANEL 2: MAKING ULTRA-LOW- CARBON RNG AVAILABLE FOR END USE APPLICATIONS

**Integrating RNG into Pipeline  
Infrastructure** - Bill Edmonds, Director  
of Sustainability, NW Natural

**Delivering RNG to Customer Markets**  
Tyler Henn, General Manager,  
Clean Energy Renewables

**Near-Zero Emission Natural Gas  
Engines** - Kevin Cook, Pacific Regional  
Manager, Cummins Westport

**Natural Gas for Transportation**  
Tim D'Alessandro, Rogue Valley  
Transportation District

**12:05PM - 1:30PM**

### LUNCH AND NETWORKING – “POWER TO GAS” PRESENTATION, JACK BROUWER, PH.D, UNIVERSITY OF CALIFORNIA, IRVINE ENGINEERING

**1:30PM - 2:45PM**

### PANEL 3: THE ROLE OF ECONOMICS, POLICY AND REGULATION IN RNG'S FUTURE (SHORT PRESENTATIONS + Q&A)

Jana Gastellum, Program Director  
- Climate, Oregon Environmental  
Council

Marcus Gillette, Director of Public &  
Gov't Affairs, RNG Coalition

Peter Weisberg, Senior Investment  
Manager, The Climate Trust

Mary MacPherson, VP,  
Water Management Sector,  
Equilibrium Capital

**2:45PM - 3:00PM**

### FINAL QUESTIONS AND CLOSING REMARKS

## PARTNER



## SPEAKER BIOGRAPHIES

**JOANNA D. UNDERWOOD** is the Founder and Chair of Energy Vision, a national environmental research group whose mission is to identify and promote strategies necessary for a sustainable energy and transportation future. Ms. Underwood has been a leading figure in the environmental movement for more than four decades, where her research and advocacy have been instrumental in shaping city, state and federal policy around land-use, agriculture, toxic chemicals and energy/transportation. She is a graduate of Bryn Mawr College and The Sorbonne.

**DAVID H. ANDERSON** is the president and CEO of NW Natural, a role he has held since last August. In his previous 13 years with the company he was Chief Operating Officer and before that its Chief Financial Officer. David came to Portland after a long career working in the financial world of utilities in Texas, where he also graduated in Accounting from Texas Tech University.

Here in Portland, David has been very active in the community, serving on the Portland State University Foundation, Oregon Business Council, Portland Business Alliance, Greater Portland, Inc., Oregon Department of Education Business Advisory Team and Lines for Life. He also serves on the board of directors of the American Gas Association and is the co-chair of the AGA's Carbon Policy Task Force.

**MICHAEL J. JORDAN** became Director of the Portland Bureau of Environmental Services in June 2015. Before joining Environmental Services, Mr. Jordan served as Oregon state government's chief operating officer. As COO, he was responsible for leadership and oversight of the day-to-day operations of the state and the Department of Administrative Services. From 2003 to 2011, Mr. Jordan served as Metro's chief operating officer where he was responsible for a workforce of 1,600 and the integrated management of public services and economic development assets that benefit the Portland tri-county region through Metro's regional governance. His previous public roles include service as a Clackamas County commissioner, a seat to which he was appointed and subsequently elected. Jordan honed his public administration expertise as the city administrator for Canby, where for more than 10 years he was responsible for managing all aspects of city operations.

Before entering public service, Mr. Jordan worked for 11 years at Pacific Power and Light managing retail water distribution systems and construction project management for electricity transmission delivery systems across three states. Mr. Jordan attended the graduate program for public administration at Lewis and Clark College, holds a BS from Portland State University, and attended the University of Oregon on a baseball scholarship.

**DAN AVERY** is a Senior Renewable Energy Policy Analyst at the Oregon Department of Energy who works with public and private interests to help advance renewable energy opportunities and their supporting policy. Dan has worked on energy and natural resource issues in the Pacific Northwest for over 25 years and has worked in federal, state and private industry. He has worked in regulatory, conservation and public planning arenas. Dan holds a MBA in Sustainable Business and Renewable Energy from Marylhurst University and a BS in Marine Biology from Texas A&M. He believes that renewable, clean and affordable energy opportunities are critical components of a sustainable world.

**TIM LOGAN** manages solid waste services projects in Landau Associates' Portland office. He has 16 years of experience as a project manager and technical contributor assisting landfill owners and operators address a wide range of issues pertaining to air quality, landfill gas (LFG) operations and maintenance (O&M), and landfill operations. Tim has worked at over 60 active and closed landfills through the US and at sites in Israel, Panama and Brazil. Tim is a graduate of the Pennsylvania State University with a degree in Environmental Resource Management and serves as the VP for the Beaver (Oregon) Chapter of SWANA.

**PAUL SUTO** is a Supervising Engineer with the Bureau of Environmental Services. He manages the Wastewater Engineering design section, which is responsible for capital project delivery for BES' two wastewater treatment plants, and 99 pump stations. Paul is overseeing Portland's biogas to Renewable Natural Gas (RNG) project, providing guidance and leading efforts with partnerships and other opportunities. Paul has been with BES for almost 9 years. Prior to working at BES, he worked for a utility (East Bay Municipal Utility District) working on resource recovery and energy projects. He also has experience as a consulting engineer for planning and design of water and wastewater facilities. He has a B.S. and M.S. in Civil Engineering from UC Berkeley.

**SEAN MOEN** has over a decade of experience in the energy, transportation, & fleet fueling industry. Sean joined ReFuel Energy Partners in 2015 after many years with a local petroleum distributor in Sacramento, CA. As the General Manager for ReFuel Energy, Sean is responsible for all facets of the natural gas business - from site maintenance to station growth and long-term strategic planning. In addition, Sean is accountable for quality controlling and communicating with our RNG (renewable natural gas) production partners; one of which operates North America's first direct food waste to transportation fuel anaerobic digestion production facility. Sean is actively engaged in several projects to bring RNG to market and has recently opened ReFuel's 2nd natural gas fuel station in San Jose, California.

## **SPEAKER BIOGRAPHIES** – *continued*

**BILL EDMONDS** is the Director of Environmental Management & Sustainability at NW Natural. In his current position he oversees a team that takes up current environmental compliance challenges and manages customer programs that touch the environment. He's recently taken on the challenge of helping the company develop new, innovative efforts to reduce overall greenhouse gases emissions.

Prior to working at NW Natural, Bill has been in the electric sector, worked as an environmental consultant and served as a staff member at the California Public Utilities Commission. Bill currently serves as a member of the Board for the Community Cycling Center. He is a past board member of the Oregon Environmental Council, Earth Advantage and The Climate Trust. Bill has a degree in Political Science from Williams College and a Masters in Public Policy from UC Berkeley.

**TYLER HENN** serves as Vice President and General Manager of Clean Energy's subsidiary, Clean Energy Renewables. In this role Tyler is responsible for the operations, marketing and distribution of Clean Energy's Redeem™ brand of renewable natural gas. Prior to this role Tyler served as the Vice President of Finance and Commodities for Clean Energy Renewables where he provided financial oversight and worked on financing transactions to support the growth of Redeem. Tyler began his career working for Deloitte and Touche, LLP. He received his B.A. in Accounting from the University of La Verne.

**KEVIN COOK** is the Pacific Regional Manager for Cummins Westport. Kevin joined Cummins in 2010 as an engineer in their Columbus, IN headquarters. He moved to Los Angeles in 2012 to join Cummins Westport as a Technical Support Manager and Account Manager for California transit agencies. In 2016, Kevin moved into his role as the Pacific Regional Manager, covering California, Oregon, and Washington, and is currently based in Seattle. Kevin holds a BS in Aerospace Engineering from the University of Michigan and a MBA and MS in Marketing from the Indiana University Kelley School of Business.

**TIM D'ALESSANDRO** is the Operations & Fleet Maintenance Manager at Rogue Valley Transportation District in Medford, Oregon. His duties include direct oversight of transit operations, fleet maintenance and facility maintenance. He is also charged with assisting in the oversight of the para-transit operation (Valley Lift) and the non emergent medical transportation program (Translink).

Rogue Valley Transportation District began using CNG in their transit buses in 1994. As an early adopter of CNG Technology, RVTD's transition was not without its struggles. There were no schools and this technology was very young.

As a result, most of what was learned was by trial and error. RVTD now has a highly skilled Team of technicians that can maintain both CNG vehicles and CNG fueling facilities. 75% of RVTD's transit fleet runs on CNG.

Tim has worked for the RVTD for 34 years. Over that period of time he has held the positions of Coach Operator, Dispatcher, Transportation Supervisor, Transportation Mgr, Fleet Maintenance Mgr and current position of Operations and Fleet Maintenance Manager.

Tim has worked with the Rogue Valley Clean Cities Coalition for several years and has been a Board member for 4 years. He is a newly elected City Councilman for the City of Medford and sat on the Medford Planning Commission for 2 years.

**JACK BROUWER** is Professor of Mechanical and Aerospace Engineering at the University of California, Irvine and Associate Director of the National Fuel Cell Research Center. At the Center he conducts research, education, simulation and outreach programs focused on high-efficiency, environmentally preferred energy conversion and power generation technology advancement, with fuel cell and gas turbine systems as the principal targets.

Current research projects address ultra-high efficiency and ultra-low emissions high temperature fuel cell systems, integrated hybrid fuel cell gas turbine systems, renewable power intermittency and integration, battery electric and plug-in hybrid electric vehicle evaluation and infrastructure development, advanced fuel cell and gas turbine dynamic operations, hydrogen and electricity infrastructure development, and power electronics and energy conversion devices for the smart grid. He holds a PhD. in mechanical engineering from the Massachusetts Institute of Technology, as well as bachelor's and master's degrees in mechanical engineering from UCI.

**JANA GASTELLUM** is Climate Program Director at the Oregon Environmental Council (OEC) where she leads state and regional work to build a low-carbon and equitable economy. Her recent work has focused on implementing programs to advance clean fuels, energy efficiency and limiting and pricing climate pollution. Jana previously served on the United Nations Foundation/Energy Future Coalition climate team where she focused on clean energy development and the nexus between energy security, climate change and poverty alleviation. She also helped launch the 25x25 renewable energy alliance and built capacity within the agricultural and forestry communities around the role these sectors can play in a low-carbon economy. She received a B.S. and M.S. in Earth Systems from Stanford University.

**SPEAKER BIOGRAPHIES** – *continued*

**MARCUS GILLETTE** is Director of Public & Gov't Affairs at the Coalition for Renewable Natural Gas. In this role he has advocated for biogas and RNG through educating decision-makers in Washington DC and the Atlantic region on the benefits and deployment opportunities for RNG in North America, while helping the industry develop partnerships with relevant stakeholders and organizations. Mr. Gillette holds a B.A. in Economics & Business from Westmont College and an MBA from American University's Kogod School of Business. He is a native Oregonian, born and raised in the Willamette Valley, and recently relocated with his family back to Oregon.

**PETER WEISBERG** is Senior Portfolio Manager at The Climate Trust. Peter began working in carbon markets in 2006, first at EcoSecurities and then joining The Climate Trust in 2007 and founding Climate Trust Capital in 2016. He has invested more than \$10 million into projects that generate environmental credits. During his time at The Trust, Peter's work has focused on biogas, grassland conservation, nutrient management and forestry projects. Peter holds a B.A. from Claremont McKenna College.

**MARY MACPHERSON** is Vice President of the Water Management Sector at Equilibrium Capital, working on due diligence and underwriting for the Wastewater Opportunity Fund (WOF). Mary brings over 10 years of experience in investment banking, financial advisory, public policy and consulting services to federal, state, and local governments. Mary's expertise includes complex financing structures including multi-year, multi-billion dollar capital plans.

Prior to joining Equilibrium in 2015, Mary worked as a consultant assisting the treasury group at the Bonneville Power Administration, and completed a fellowship program at Stanford. She spent eight years as a public finance investment banker with Seattle-Northwest Securities, structuring and executing over 100 bond transactions with a total par value exceeding \$3 billion. Mary holds a master's degree from Stanford Graduate School of Business and a bachelor's degree from Vassar College. Mary chairs the Research Board for the City Club of Portland, a nonprofit and non-partisan civic affairs organization.

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