

## Low-carbon Space Heating Options for the Puget Sound Region

Friday, May 12, 2017

8:30 am – 4:00 pm

Alder Hall, UW Seattle  
NE Campus Parkway  
Seattle, WA 98105

Directions: <https://www.hfs.washington.edu/conferences/gettingtocampus/#gsc.tab=0>

Use NE 40<sup>th</sup> St entrance

<b>Time</b>	<b>Location</b>	<b>Activity</b>	<b>Notes</b>
8:30 am	Alder 103	Check in	Coffee & snacks
9:00 am	Alder Auditorium	Opening	Scott Morgan, The Evergreen State College Claudia Frere, The University of Washington
9:20 am	Auditorium	Alex Banks	Heat pumps – making the business case
9:50 am	Auditorium	Lynn Mueller	Waste water heat recovery
10:20	Alder 103	Break	Coffee & snacks
10:30	Auditorium	Srirup Kumar	Anaerobic Digestion of food/processing wastes
11:00	Auditorium	Jeff Giffin & Jim Torcov	Biomass gasification; The University of British Columbia Bioenergy Research and Demonstration Facility
11:30 am	On your own	Lunch & networking	<i>On your own, multiple local options are available</i>
1:00 pm	Alder Auditorium, Breakout 1 106, & 107		Small group discussions clustered by technology
2:00 pm	Alder Auditorium, Breakout 2 106, & 107		Small group discussions clustered by collaborative/proximal affiliations (Utility territories?)
3:00 pm	Alder Auditorium	Wrap-up	Interactive summary and feedback.
4:00 pm		Adjourn	<i>Optional wait-out-the-traffic dinner?</i>

**SPEAKERS:**



**Scott Morgan, Director of Sustainability**  
The Evergreen State College

Scott coordinates and guides on-campus sustainability efforts as well as institutional collaborations with community-based groups. He has a B.S. in Chemistry from Rose-Hulman Institute of Technology, with an emphasis upon organic and bio-chemistry, and a Master of Public Administration from The Evergreen State College. Scott has worked in agriculture and private industry, founded and managed a small non-profit, worked with youth-at-risk, taught GED and pre-college classes, and has spent the past few years immersed in the public sector. This diverse set of perspectives informs his recognition that long-term sustainability will require a dynamic harmony between environmental, social, and economic health.

On campus, Scott works across all divisions of the college, from operations to academics, to support Evergreen's carbon neutrality and zero-waste goals. He is currently a co-coordinator for the Washington Higher Education Sustainability Coalition. Off campus, he is a founding coordinator of the Sustainability Professionals of Thurston County, partner at Cairn Sustainability Consulting Services, a Board Member for the Thurston Climate Action Team, and a member of the City of Olympia's Bicycle and Pedestrian Advisory Committee.



**Claudia Frere-Anderson, Director of the UW Sustainability Office**  
The University of Washington

Claudia is responsible for overseeing communications, reporting, programs, activities, office operations, managing staff, students and interns. She started her career in the financial services industry prior to working in the nonprofit/social entrepreneurship sector in the San Francisco Bay Area. In these positions, she launched community involvement plans for multinational companies and advised corporations with corporate social responsibility program implementations. Claudia graduated Cum Laude in Politics from the University of San Francisco with a certificate in Peace and Justice studies, and she received an MBA in Corporate Social Responsibility from Nottingham University Business School in the UK where she received a full scholarship from the International Centre for Corporate Social Responsibility (ICCSR). While in graduate school, Claudia launched the business school's first Net Impact Chapter and led post-graduate students with environmental engagement projects. Claudia likes to volunteer with nonprofit organizations in her community and enjoys traveling.



**Lynn Mueller, CEO & President**  
International Wastewater Systems

Lynn is an entrepreneur and inventor with a large number of patents to his credit. In the past Lynn was President of Water Furnace Canada, following that he was the President of Earth Source Energy Inc. He was responsible for a large number of advanced sustainable energy systems including the Shangri La Hotel and Mole Hill a city block of 27 restored heritage homes in downtown Vancouver. Lynn's current passion is International Wastewater Systems which is working to recover the 100s of billion kilowatt hours of waste energy that goes down the drain every year in the world. Lynn has overseen the growth of the team at IWS which now has many installations on 3 continents and projects coming in around the world. Lynn has won many industry awards throughout the years and continues to press hard in his quest to make re-use of energy the norm for buildings of the future.



**Jeff Giffin, Energy Conservation Manager**  
University of British Columbia, Energy and Water Services

Jeff and his team in the UBC Energy and Water Services department develop projects, implement energy conservation measures and monitor building energy performance for all core academic buildings. Jeff is a Certified Energy Manager (CEM) and holds a Master's degree in Clean Energy Engineering from the University of British Columbia.



**James Torcov, Thermal Energy Manager**  
University of British Columbia

James is the Thermal Energy Manager for the Energy and water services department of the University of British Columbia. He is responsible for the safe and efficient operation of the Bio Energy Research and demonstration facility (BRDF), powerhouse and the new Campus Energy Center. He is also directly responsible for the remaining steam grid and the new District Energy system piping. James was previously a member of the Canadian Armed Forces, most recently as the Chief Engineer, HMCS Algonquin. Prior to HMCS Algonquin, James was the Chief Instructor/Course Director at the Department of National Defense School for Power Engineering. James has completed multiple foreign tours of duty for the CDF and he has tremendous experience in man management, training and mentoring as well as extensive technical experience with steam, gas turbine and diesel Marine Propulsion systems, Electrical generation and ships maintenance/ trade services. A qualified Marine Chief Engineer 1st Class and 2nd Class Power Engineer in BC and Alberta.



### **UBC's Bioenergy Research and Demonstration Facility (BRDF)**

UBC's Bioenergy Research and Demonstration Facility (BRDF) is the first facility of its kind in North America. The system processes 2 - 3 truckloads of renewable biomass (ground and chipped waste wood) to produce a synthetic gas, which is combusted to generate hot water for heating our buildings.

The system reduces UBC's reliance on fossil fuels, provides a quarter of campus heating needs, and eliminates 14% of campus greenhouse gas emissions. In addition, a 2MW cogeneration engine uses Renewable Natural Gas to generate over 5% of the power for our electrical grid, while the waste heat is similarly used for heating our buildings.

While the facility has been in operation since 2012, the BRDF continues to receive attention as a [Campus as a Living Laboratory](#) project, integrating UBC's core academic mandate of research and teaching with our district infrastructure and business operations.

Learn more about the BRDF on the [Energy and Water Services website](#) or book a tour through UBC Sustainability's [Green Building Tours](#)



### **Alex Banks, National Business Development Leader**

Trane Renewable Energy & Power Solutions

Alex leads Trane's Renewable Energy and Power Solutions team, which delivers a wide range of solutions, ranging from energy supply side management to energy conservation to large scale renewable energy, district energy plants, and combined heat and power. Tapping Trane's financial and technical capabilities and forging industry partnerships, Alex provides comprehensive, turnkey solutions for customers. Alex has over 20 years of experience in the energy industry, including serving as director of Apollo Energy Solutions and as an account executive for Johnson Controls. He has Bachelor of Science in Mechanical Engineering and a Master's of Business Administration.



**Srirup Kumar, MBA**  
Impact Bioenergy

Srirup leads Impact in the areas of Education, Community Supported Biocycling Systems, Marketing & Sales. He is a 2015 graduate of Pinchot University (formerly BGI) where he received his MBA in Sustainable Business and a certification in Sustainable Energy Solutions. During his graduate studies he served as a due diligence project manager for Element 8 cleantech investors. He sits on the advisory board of a zerowaste NGO.

Srirup has a decade of technology development and implementation across public, private and non-profit sectors. He graduated from Boston University with BS degrees in Business Administration and MIS, and earned an MBA & Sustainable Energy Solutions Certificate from Pinchot University on Bainbridge Island - A University for the Common Good.