

# 6<sup>th</sup> Annual Sustainability Conference and Pittsburgh Green Workplace Challenge Workshop #9

Conference and Workshop Program

## The Water-Energy Nexus: Conservation, Innovative Technologies, and Practical Solutions



PITTSBURGH  
**Green Workplace  
Challenge**



A PROGRAM OF  
**SUSTAINABLE PITTSBURGH**

**PHIPPS CONSERVATORY**

Thursday March 27, 2014 – 8:00AM to 3:30PM

# Welcome Message

## Welcome: From the Organizers

Water and energy are inextricably linked and mutually dependent. This interdependence, often referred to as the [water-energy nexus](#), keeps drawing increasing attention because of the strategic importance of both resources. Policy, civic, and corporate leaders continue to look for solutions for sustainable and cost efficient water-energy delivery systems as demand for water and energy continue to grow.

Our organizations have organized this conference to shine a spotlight on the Pittsburgh region's achievements and opportunities in water and energy. The program features regional progress from Green Workplace Challenge (GWC) competitors and highlights front-line technologies gaining traction in some of the best practices on the national scene.

On behalf of Sustainable Pittsburgh's Champions for Sustainability (C4S) and GWC, the American Society of Civil Engineers (ASCE), and Environmental Water Resources Institute (EWRI), we welcome you our most ambitious Joint Annual Sustainability Conference to date.

We would like to thank our sponsors, without whom this event would be not possible.

Matthew Mehalik, PhD  
Program Manager, Sustainable Pittsburgh



Jonathan Shimko,  
Chair, EWRI Pittsburgh Chapter



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# Green Workplace Challenge

The Pittsburgh Green Workplace Challenge (GWC) showcases the region's green achievements and provides a positive public platform for organizations to be recognized. This challenge features **104 companies and agencies** in southwestern Pennsylvania that are competing for points earned by green initiatives over a 12 month period, which started in June 2013. Activities such as measuring baseline utilities usage, conducting an energy and waste audit, and implementing an audit suggestion all earn GWC points. Points are also rewarded for implementing easy **water/energy**-conserving measures. Simple measures, such as changing to paperless bills and receipts, switching to double-sided printing, and even installing potted plants all earn GWC points. Larger sustainability measures, such as installing a green roof, switching to **water/energy** efficient appliances, and establishing a recycling program also earn points.

The GWC enables participants to track and measure their improvements in energy, water, waste, and transportation. While it is too late for organizations to officially compete, they are still encouraged to sign up as an Observer to learn from this regional effort. Workshops are offered monthly on topics that support success for all organizations in the program. At the end of this year's competition, all participating organizations gain recognition and celebrate with an awards ceremony on June 25, 2014. Details about the program, including current leaderboard standings, can be found at [www.gwcpgh.org](http://www.gwcpgh.org).

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*"The Green Workplace Challenge allows us to account for the many initiatives that have been implemented within the company. The group worked to reduce energy use on a variety of campaigns, including one that saved over \$600,000 in lighting costs." – Dan Santmyer, Pittsburgh Director of Site Operations Bayer Corporation*

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# GWC Discussion Panel: “Savings at the Energy and Water Nexus”

## Marty Altschul Carnegie Mellon University



Marty Altschul has been the University Engineer at Carnegie Mellon University since 1999. He came to CMU in 1994, initially as Director of Facilities Operations. He worked 16 years at the University of Virginia as the university’s Energy Conservation Engineer, Assistant Director for Utilities and Director of Utilities. Prior to that he served as a pilot in the US Air Force. He is a

registered engineer in the Commonwealth of Virginia and a graduate of The Cooper Union with a BE in Mechanical Engineering. He also has Masters Degrees in mechanical engineering from UVA and public management from CMU.

## Zach Ambrose Allegheny County



Zachery Ambrose is the Sustainability Specialist for Allegheny County. He coordinates multiple internal sustainability initiatives, involving County utility usage and employee engagement with 18 departments and roughly 6,000 employees. Within the community, he represents the County in a number of programs focused on regional sustainability efforts. Zach has previously worked on multiple campus sustainability projects at CQUniversity

in Rockhampton, Australia, and worked as a Student Conservation Association (SCA) Green Cities Fellow with the local government. He has a BA in Global Studies, Environmental Politics from Arizona State University in 2010, and is currently pursuing a MS in Environmental Studies at Point Park University.

## Phyllis Barber Highmark Inc.



Phyllis Barber serves as sustainability director for Highmark, Inc. She is responsible for overseeing the company’s environmental responsibility throughout its business practices. Ms. Barber has led a variety of projects for Highmark, including the implementation of a 22,000-square-foot green roof at the company’s Pittsburgh headquarters; recognition as a Bike Friendly Employer and the

education of employees about internal and external resources related to eco-friendly practices.

Prior to her role as sustainability director, Ms. Barber was an internal audit team leader for Highmark where she evaluated and tested internal controls of business processes through the company. Prior to joining Highmark, Ms. Barber was an audit manager with Deloitte & Touche LLP in the Pittsburgh and Dublin, Ireland offices.

Ms. Barber holds her certified public accountant license and is a LEED green associate. She serves on the board of directors for the Coro Center of Civic Leadership in Pittsburgh. She also serves as co-chair for Champions for Sustainability (CS4), a program of Sustainable Pittsburgh that works to accelerate the practice and policy of sustainability in the business and civic circles in southwestern Pennsylvania.

Ms. Barber earned her bachelor’s degree in business administration accountancy from the University of Notre Dame and master of sustainability leadership from Chatham University.

## Jeaneen Zappa Conservation Consultants



Jeaneen joined CCI in September of 2013 as its Executive Director, where she leads this non-profit organization in its mission to promote responsible use of resources in homes and other buildings. The team of 14 staff visit more than 4,500 homes in Southwestern PA each year to conduct energy assessments and audits and to assist primarily low-income residents in reducing

electricity and heat. In addition, CCI issues more than 2000 water-conservation kits across the state annually on behalf of Pennsylvania American Water Authority. Jeaneen brings more than 20 years of professional experience spanning the for-profit and not-for-profit sectors. Prior to joining CCI, she served four years as the first Sustainability Manager for Allegheny County, where, under her direction, the County published its first benchmark carbon inventory report and action plan and adopted greener purchasing and recycling policies. Jeaneen also worked as Deputy Director and Director of Green Building Products for the Green Building Alliance. Her earlier for-profit career focused on strategic business-to-business marketing in the logistics and transportation technology sector, with management roles at both Vocollect and Descartes Systems Group. Jeaneen started her career in communications, working at St. Margaret Memorial Hospital, The Pittsburgh Press and UPMC. She graduated from Syracuse University and earned her master’s degree at the University of Pittsburgh.

# Schedule

<b>8:30 – 8:45</b>	Welcome and Introduction – Pittsburgh EWRI Chairman, Jonathan Shimko
<b>8:45 – 9:15</b>	Keynote Speaker – City of Pittsburgh Mayor William Peduto
<b>9:15 -- 9:25</b>	Pittsburgh Green Workplace Challenge (GWC) – Competition Update
<b>9:25 – 10:15</b>	GWC Discussion Panel: Savings at the Energy and Water Nexus
<b>10:15 – 10:45</b>	“Systems and Infrastructure Perspective at the Energy-Water Nexus” Ed Pinero, Senior Vice President for Sustainability Veolia North America
<b>10:45 – 11:00</b>	BREAK (Poster Session by CMU & Pitt Graduate Student Chapters)
<b>11:00 – 11:45</b>	“Water-Energy Nexus - A Regional Perspective” Steve McKnight, Co-founder and VP at Fourth Economy Consulting and Water Economy Network
<b>11:45 – 12:45</b>	LUNCH (Poster Session by CMU & Pitt Graduate Student Chapters)
<b>12:45 – 1:30</b>	“Examples of Reinventing Fire” Karen Crofton, Principal at Rocky Mountain Institute Industrial Practice
<b>1:30 – 2:00</b>	“Waste Heat Recovery and Thermal Utilization Technology” Jimmy Wang, C.E.O at Nova Thermal Energy
<b>2:00 – 2:15</b>	BREAK (Poster Session by CMU & Pitt Graduate Student Chapters)
<b>2:15 – 2:45</b>	“Energy Recovery from Hydropower” Jonathan Dollard, PE, Vice President of Engineering at Free Flow Power
<b>2:45 – 3:00</b>	Closing and Expression of Appreciation
<b>3:00 – 3:30</b>	Student Poster Sessions

# Keynote Speaker- Mayor William Peduto



During Pittsburgh's ongoing financial crisis, Bill Peduto has been the consistent voice of fiscal discipline. Decades of financial mismanagement and antiquated policies have left Pittsburgh with the highest debt ratio and lowest pension funding in the nation. Understanding that the city needed leadership — Bill Peduto was the first — and only — politician to call for the city to apply for Act 47 state protection. He helped to write a new budget, lobbied to get others on board and after a year of hard work he was able to lead the city into a new five year plan. He wasn't afraid to make the tough votes to secure Pittsburgh's future.

In addition, Bill Peduto has been directly involved in over \$2 billion in transformative redevelopment of the city's East End. Through his many years of work representing and working in City Council, Bill Peduto has had extensive experience in helping transform Pittsburgh's economy into a Med/Ed New Economy.

By establishing "community-based" development plans and encouraging the investment into niche industries, Bill Peduto has had hands-on experience in building a New Pittsburgh. From co-creator and co-chair of the City's Comprehensive Climate Action Plan to writing the legislation to protect Pittsburgh's unique green hillsides — Bill Peduto has championed the protection and enhancement of Pittsburgh's new reputation as a leader in green initiatives. As co-creator of iBurgh, the nation's first mobile app for local government, he has led the discussion on e-democracy locally and nationally and has worked with local companies to help them in creating a new industry.

Adding his own charity fund-raising activities, such as Executive Producer of a documentary about the Allegheny Observatory and the only politician who laces his skates as a member of Pittsburgh's Celebrity Hockey Team and it is pretty easy to see — Bill Peduto is not your typical Mayor.

## Karen Crofton **Principal at Rocky Mountain Institute Practice**



Karen Crofton is a principal with RMI's industrial practice, where she specializes in turnkey project execution strategies, disruptive technology commercialization, international partnerships, and improvement in industrial efficiency.

Before joining RMI, Karen spent 15 years with Air Products and Chemicals, Inc. in a variety of roles. Most recently she was the Commercial Lead for the Corporate New Business Development group focusing on analyzing adjacent business ventures and strategic partnerships via technical roadmaps, financial models, and competitive assessments. Topics included: LED manufacturing, hydrogen fuel cells, helium extraction, carbon fiber manufacturing, phenalkamine synthesis, and alternative fracturing fluids.

Prior to working with the Corporate New Business Development group, Karen spent nine years directing major turnkey projects in the semiconductor and photovoltaic industries. Karen held overall P&L accountability for projects in Asia, Europe, and the U.S. This role also required developing local sourcing strategies and developing international partnerships. Previously, Karen spent three years in mechanical and safety systems design as well as root cause analysis.

## Jonathan Dollard, PE VP of Engineering at Free Flow Power



Jonathan joined Free Flow Power in April 2012 as Vice President of Engineering. Prior to joining Free Flow Power, Mr. Dollard has had more than 20 years of experience in hydropower industry.

Mr. Dollard was formerly with Enel Green Power North America, Inc. (formerly CHI Energy, Inc.) for the last 14 years and was responsible for the operation and maintenance of over 65 hydroelectric and other renewable energy generating projects across the United States.

Mr. Dollard was also previously employed with Rivers Engineering and completed various civil, structural and water resources analyses and designs. He has a BS in Civil Engineering from the University of New Hampshire.

## Steve McKnight Co-Founder and VP at Fourth Economy Consulting and Water Economy Network



Stephen is Vice President and Co-Founder of Fourth Economy Consulting. He serves as coordinator for their client the Water Economy Network. Stephen specializes in organization and community evaluations, market assessments and capacity building for Fourth Economy clients. He works to identify key organizational and place-based assets, matching those assets with new market opportunities. Stephen brings more than 17 years of management and economic development experience in both the public and private sector. He has managed more than 175 business expansion projects resulting in \$600 million in total investment and \$205 million in loan amounts.

Stephen has served in senior management roles for non-profit trade associations, economic development organizations and private industry. He received a B.A. from the University of Pittsburgh and later attended The American University's Graduate School of Public Administration. Stephen has earned professional certifications from the University of Maryland in Land Use Planning and from the International Economic Development Council in Entrepreneurial and Small Business Development, Technology-Led Economic Development, and Business Retention and Expansion. He currently serves on the Board of Directors of the Community Design Center of Pittsburgh.

*"The water economy represents a multi-billion dollar market opportunity for our region. Many of our water challenges will be solved through new technology development resulting in new business creation and employment opportunities."*

## Ed Pinero Senior Vice President for Sustainability, Veolia North America



Mr. Pinero is Senior Vice President for Sustainability for Veolia North America (VNA), and liaison to Veolia's worldwide Corporate Social Responsibility and Public Affairs departments. Mr. Pinero oversees all efforts related to sustainability, in regard to outreach, client issues, and internal practices, including the water, energy, and waste business lines. Over his more than 34 year career, Mr. Pinero has worked in the private sector, including as a consultant to many clients on sustainability, environment, and energy.

He has also served in the public sector at the state and Federal level addressing sustainability issues; including serving as the White House Federal Environmental Executive, where he focused on developing and implementing sustainability policy and practices within the US Federal government.

Mr. Pinero is heavily involved in water management and stewardship initiatives around the world, including the UN CEO Water Mandate, the Alliance for Water Stewardship International Standards Development Committee; and ISO's Integrated Water Task Force, among others.

## Jimmy Wang CEO at Nova Thermal Energy



In 2008 Mr. Wang founded Novathermal Energy and commercialize its technology in the U.S. Mr. Wang is the co-inventor of NovaThermal Energy's US patents. Mr. Wang has directly involved the management of over \$3 billion in water infrastructure projects, including the construction of a 150 mile canal creating a fresh water source for the 12 million residents of Tianjin City of China.

In 2011, Novathermal installed its first sewage thermal utilization system in Philadelphia. In the two years of operation, the system has reached the goal of saving energy and reducing operation cost by more than 30%.

Jimmy holds a Masters of Engineering in Hydraulic Engineering and Water Management and a Masters of Computer Science. He has 10 years in hydraulic engineering and water management experience in research, project management and engineering functions.



# Student Posters

- Engineering Microbial Mats as a Treatment Option for Unconventional Gas Wastewaters**, Akyon, B., Bibby, K., University of Pittsburgh 1
- Evaluation of Groundwater Quality Monitoring Networks in Pennsylvania with Respect to Shale Gas Activities**, Arjmand, S., Abad, J., Brantley, S., Vidic, R., University of Pittsburgh 2
- Micro Algae to Biofuels Using Polystyrene Bags**, Chaturvedi, N., Carnegie Mellon University 3
- How Does Transportation Phase of Concrete Production Affect the Environment**, Chen, X., Orak, N., Carnegie Mellon University 4
- PET Plastic: Radical Reuse**, Gioffre, M., Carnegie Mellon University 5
- Effects of dissolved CO<sub>2</sub> on shallow freshwater microbial communities simulating a CO<sub>2</sub> leakage scenario**, Gulliver, D., Carnegie Mellon University 6
- Potential Surface Pathways from Spills on Drilling Sites to Nearby Streams**, Han, Y., University of Pittsburgh 7
- Analysis of Microbial Ecology in Marcellus Shale Hydraulic Fracturing Produced Water Using Metagenomics**, Lipus, D., Vikram, A., Bibby, K., University of Pittsburgh 8
- Disruption of Autolytic Cell Response and Other Cell-to-Cell Communications in Bacteria by Engineered Nanomaterials**, McGivney, E., Carnegie Mellon University 9
- Can We Detect Surface Water Quality Impacts Along Streams Due to Marcellus Shale Gas Activities**, Simon, C., Neal, A., Snyder, D., Abad, J., Brantley, S., University of Pittsburgh 10
- Improving High Energy Reverse Osmosis Membrane Processes Through Optimization of Parallel Flow Rate**, Strahs, L., Carnegie Mellon University 11
- Changing Risk of Brominated Trihalomethanes in Drinking Water from Elevated Bromide in Source Water**, Wang, Y, VanBriesen, J., Carnegie Mellon University 12

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Interested in becoming involved in future conferences? Or perhaps just wish to be more informed for future events and sustainability related outreach initiatives?

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