

# **BPE4**

## **4<sup>th</sup> Annual Biophysical Economics Conference**

**OCTOBER 26-28, 2012**

**University of Vermont  
Burlington, Vermont**

**HOSTED BY**

**UVM Gund Institute for Ecological Economics**

**CO-SPONSORED BY**

**State University of New York College of Environmental Science and Forestry  
US Society for Ecological Economics  
UVM Rubenstein School of Environment and Natural Resources  
UVM Transportation Research Center**

# 4<sup>th</sup> Annual Biophysical Economics Conference

**FRIDAY, OCTOBER 26**

Davis Center, University of Vermont

8:00 am	Registration and Light Breakfast	Fireplace Lounge
9:00 am	<b>WELCOME</b> Jon Erickson, UVM Rubenstein School of Environment & Natural Resources Taylor Ricketts, UVM Gund Institute for Ecological Economics Charles Hall, SUNY College of Environmental Science & Forestry	Livak Ballroom
9:15 am	<b>PLENARY SESSION 1</b> <b><i>Energy Return on Investment: State of the Field</i></b> Charles Hall, SUNY College of Environmental Science & Forestry Alex Poisson, McGill University Egan Waggoner, SUNY College of Environmental Science & Forestry (Moderator: Jon Erickson, UVM Rubenstein School)	Livak Ballroom
10:30 am	Morning Break	Fireplace Lounge
11:00 am	<b>PLENARY SESSION 2</b> <b><i>Money, Debt, and Energy: Biophysical Realities for Fairytale Economies</i></b> Joshua Farley, UVM Gund Institute for Ecological Economics Dennis Meadows, Balaton Group George Mobus, University of Washington (Moderator: Matthew Burke, UVM Gund Institute and MPA Program)	Livak Ballroom
12:30 pm	Buffet Lunch	Livak Ballroom
1:00 pm	<b>KEYNOTE ADDRESS 1</b> <b><i>Peak Prosperity on a Finite Planet</i></b> Christopher Martenson, author of "The Crash Course"	Livak Ballroom
2:00 pm	<b>BREAKOUT SESSIONS 1-2</b> <b><i>Energy Taxes in a Fiscally Challenged Politics</i></b> Gary Flomenhoft, UVM Gund Institute for Ecological Economics Janet Milne, Vermont Law School Charles Komanoff, Carbon Tax Center (Moderator: Bob Herendeen, UVM Gund Institute for Ecological Economics)	Jost Room
	<b><i>Great Economic Thinkers &amp; Biophysical Economics</i></b> Lisi Krall, SUNY Cortland Karl Seeley, Hartwick College Kent Klitgaard, Wells College (moderator)	Chittenden Room
3:30 pm	Afternoon Break	Fireplace Lounge

... **FRIDAY continued** ...

- 4:00 pm      BREAKOUT SESSIONS 3-4  
***Connecting our Normative Disciplines to Science:***      Jost Room  
***Helping the Orphan Disciplines find a Biophysical Home***  
John Fullerton, Capital Institute  
Geoff Garver, McGill University  
Robert Gobin, McGill University  
Nicolas Kosoy, McGill University  
Robert Nadeau, George Mason University  
Peter Brown, McGill University (moderator)
- Economic Implications of EROI***      Chittenden Room  
Charlie Hall, SUNY College of Environmental Science and Forestry  
Carey King, University of Texas  
John Hallock, Independent Energy Researcher  
(Moderator: Christopher Clement, UVM Gund Institute and Rubenstein School)
- 6:00 pm      Reception      Aiken Solarium
- 7:00pm      SCREENING & DISCUSSION      Aiken 102/103  
***How Much Degrowth is Enough?***  
Note: Complimentary dinner sponsored by Stanford Knowledge Integration Lab  
(E-mail [alpert@skil.org](mailto:alpert@skil.org) to RSVP, or sign-up at conference)
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**SATURDAY, OCTOBER 27**

Aiken Center, University of Vermont

- 8:00 am      Registration and Light Breakfast      Aiken Solarium
- 9:00 am      PLENARY SESSION 3      102 Aiken  
***Biophysical Economics and the Financial System and Industry***  
James Gray, former Associate of Asset & Equity Corp  
Jim Case  
Peter Tcherepnine, President, Loeb Partners Management, Inc.  
Chris Sanders, Sanders Research Associates Limited  
Steven Kopits, Douglas Westwood, Inc.  
(Moderator: Sam Hopkins, Hopkins & Associates)
- 10:30 am      Morning Break      Aiken Solarium
- 11:00 am      PLENARY SESSION 3      102 Aiken  
***Energy, Democracy, and the Political Economy of Change:***  
***Strategies for the Change We Know is Needed***  
Thomas Prugh, Worldwatch Institute  
Randall Hayes, Foundation Earth  
Jim Case  
(Moderator: Eric Zencey, UVM Gund Institute for Ecological Economics)

**... SATURDAY continued ...**

12:30 pm	Lunch	Aiken Solarium
1:00 pm	KEYNOTE ADDRESS 2 <b><i>Energy as Master Resource</i></b> Eric Zencey, author of "The Other Road to Serfdom and the Path to Sustainable Democracy"	102 Aiken
2:00 pm	BREAKOUT SESSIONS 5-7 <b><i>Transportation and Energy: Challenges and Lessons from a Rural State</i></b> Karen Glitman, Vermont Energy Investment Corporation Jonathan Dowds, UVM Transportation Research Center Phoebe Spencer, UVM Community Development & Applied Economics Heather Darby, UVM Extension (Moderator: Tim Pede, UVM Rubenstein School)	103 Aiken
	<b><i>Energy Use in Food Systems: The Realities of Relocalization</i></b> John Carroll, University of New Hampshire John Schramski, University of Georgia Eric Garza, University of Vermont Environmental Program (moderator)	110 Aiken
	<b><i>Communicating Biophysical Economics</i></b> Jada Thacker, Marine Military Academy Yvan Dutil, T3E -Industrial Research in Energy Technologies and Efficiency Jessica G. Lambert, Next Generation Energy Initiative (moderator)	112 Aiken
3:30 pm	CLOSING REMARKS Jon Erickson, UVM Rubenstein School of Environment and Natural Resources Brian Kelly, UVM Gund Institute and Community Development Department Charlie Hall, SUNY College of Environmental Science and Forestry	102 Aiken
5:00 pm	FILM SCREENING <i>Growthbusters: Hooked on Growth</i>	102 Aiken

Dinner on your own in Burlington

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**SUNDAY, OCTOBER 28**

10:00 am	Aiken Center Tour (sign up at conference) Investigate eco-machine, green roof and other features of a green renovation
12:00 pm	Informal get together at Gund Institute, 617 Main Street

# Panel Descriptions

**FRIDAY, OCTOBER 26**

Davis Center, University of Vermont

9:15 am      **PLENARY SESSION 1**      Livak Ballroom

***Energy Return on Investment: Recent Studies***

There have been more studies published on EROI in the past year and a half than in previous history. This panel will summarize some of these studies and attempt to connect them to other results to determine general patterns. Special attention will be paid to several very controversial new "solutions" to peak oil.

11:00 am      **PLENARY SESSION 2**      Livak Ballroom

***Money, Debt, and Energy: Biophysical Realities for Fairytale Economies***

Money is the lubricant on the gears of the economy, helping it to function and grow. Questions about the sustainability of infinite economic growth, in a biophysical sense, abound. This panel will investigate the link between energy and debt, and the extent to which systems of money creation may create macroeconomic bounds on energy consumption.

2:00 pm      **BREAKOUT SESSIONS 1-2**      Jost Room

***Energy Taxes in a Fiscally Challenged Politics***

Pricing energy/carbon is necessary for effective climate policy. Taxes are preferable to cap & auction alternatives. We investigate how big a tax is needed to achieve emissions goals, and how to design it (including timing and rebates) for fairness.

***Great Economic Thinkers & Biophysical Economics***      Chittenden Room

Past BPE conference participants have claimed that changes in technology will not overcome problems at the juncture of climate change, peak oil, financial collapse, and the deepening stagnation of the capitalist economy. Rather the institutional structure must change. This panel will explore the institutional approach to economics from a variety of perspectives that may well prove useful for the further development of biophysical economics.

4:00 pm      **BREAKOUT SESSIONS 3-4**      Jost Room

***Connecting our Normative Disciplines to Science:  
Helping the Orphan Disciplines find a Biophysical Home***

Ecological economics asks of mainstream economics: what would you be like if you were connected to the evolutionary synthesis that is emerging in many of the sciences. This panel asks the same question of ethics, law, religion, governance, and finance.

***Economic Implications of EROI***      Chittenden Room

EROI is declining for oil and gas worldwide. Since our modern industrial economies have been based historically on cheap oil, we explore the possible implications for modern economies, the connections this may have for oil prices, and more generally on the field of economics.

## SATURDAY, OCTOBER 27

Aiken Center, University of Vermont

9:00 am      **PLENARY SESSION 3**      102 Aiken  
***BPE, Investing, the Financial System, and the Financial Industry***

This panel will discuss the relationship of Biophysical economics, especially declining EROI and total net energy, to the future of investing, lending & borrowing. Specific themes will include money management challenges, consultant advice for financial institutions, interest rates, credit risk, return on investment, leveraged investing, the credit system, and repercussions for governments, businesses and individuals.

11:00 am      **PLENARY SESSION 4**      102 Aiken  
***Energy, Democracy, and the Political Economy of Change:  
Strategies for the Change We Know is Needed***

Many of us know the goal all too well: we need to achieve a sustainable economy that thrives on a sustainable flow of matter-and-energy throughput, sized to a scale the planet can handle. This means using renewable energy; building differently, transporting ourselves differently, eating differently; setting limits to our use of resources; and a host of other changes that aren't too hard to envision. What is hard to envision is the path from here to there. This panel will look at some strategies for advancing the cause of moving toward a sustainable society. Given that we know what must be done, how do we do it now?

2:00 pm      **BREAKOUT SESSIONS 5-7**  
***Transportation and Energy:***      103 Aiken  
***Challenges and Lessons from a Rural State***

Our transportation system depends heavily on fossil fuels, necessitating multi-disciplinary work to study the development of an array of alternatives. This panel incorporates students and faculty at UVM, as well as local professionals in the energy industry, currently researching alternatives to fossil fuel transportation. Topics encompass the implementation of EVs in Vermont, impacts of increased EV usage under different primary energy scenarios, the production of biodiesel from oilseed crops, and factors that prohibit bicycle commuting in Burlington.

***Food Systems and Energy***      110 Aiken

Our modern industrial, globalized food system depends heavily on energy inputs to remain viable, and requires far more energy as inputs than it delivers as edible food energy. This panel will explore different elements of agriculture and the food system more generally in search of a more energy efficient food system.

***Communicating Biophysical Economics***      112 Aiken

Although many at this conference will agree with its themes, attention should be paid to how we are structuring the communication of the content of the biophysical economics? Panelists will discuss progress in this regard, including the use of metaphor and contextualization in de-growth initiatives.

## CONFERENCE PARTICIPANTS

Jack	Alpert	Stanford Knowledge Integration Lab
Julie Anne	Ames	McGill University
Wesley	Bascom	The ExtraEnvironmentalist
Mary B.	Bauer	
Bernard	Beaudreau	Universite Laval
Eric	Bourgeois	
Roger	Boyd	Athabaca University
Garvin H.	Boyle	
Moshe	Braner	
Peter	Brown	McGill University
Matthew	Burke	UVM Gund Institute for Ecological Economics and MPA Program
Wilfred	Candler	
John E.	Carroll	University of New Hampshire
Jim	Case	
Cary	Church	
Christopher	Clement	UVM Gund Institute and Natural Resources PhD Program
Glen	Culbertson	
Heather	Darby	UVM Extension
Eric	Davis	UVM Gund Institute and Natural Resources MS Program
Donald	DeVoil	Community College of Vermont
Jonathan	Dowds	UVM Transportation Research Center
Siham	Drissi	
Geneviève	Dufour	University of Montreal
Yvan	Dutil	T3E Industrial Research in Energy Technology & Efficiency
Michael	Edwards	
Jon	Erickson	UVM Rubenstein School of Environment and Natural Resources
Joshua	Farley	UVM Gund Institute and Community Development Dept.
Harry	Fischer	
Blair	Fix	York University
Gary	Flomenhoft	UVM Gund Institute for Ecological Economics
John	Fullerton	Capital Institute
Geoff	Garver	McGill University
Eric	Garza	UVM Gund Institute for Ecological Economics
Karen	Glitman	Vermont Energy Investment Corp.
Neil	Glazer	Foundation Earth
Robert	Godin	McGill University
Jim	Gray	Asset & Equity Corp.
Stian	Hackett	Massachusetts Institute of Technology
Jeff	Hains	
Charlie	Hall	SUNY College of Environmental Science and Forestry
John	Hallock	
Randall	Hayes	Foundation Earth

Steven	Heim	Boston Common Asset Management
Bob	Herendeen	UVM Gund Institute for Ecological Economics
Sam	Hopkins	Hopkins and Associates
Jean	Howard	
David	Huck	The ExtraEnvironmentalist
Anders	Jenson	
George	Karpat	Sierra Club of Canada
Jana	Kasik	
Martin	Kasik	
Brian	Kelly	UVM Gund Institute and Community Development MS Program
David	Kerner	The Tauri Group
Alexandra	King	
Carey	King	University of Texas
Kent	Klitgaard	Wells College
Charles	Komanoff	Carbon Tax Center
Hisa	Kominami	NRCS, Vermont
Nicolas	Kosoy	McGill University
Lisi	Krall	SUNY Cortland
Jessica	Lambert	Next Generation Energy Initiative
Jim	MacInnes	Crystal Mountain Resort & Spa
Jason	Margolis	Public Radio International
Tracey	McCowen	UVM Gund Institute and Natural Resources PhD Program
Chris	Martenson	Peak Prosperity
Harvey	Mead	
Dennis	Meadows	Balaton Group
Rigoberto	Melgar	SUNY College of Environmental Science and Forestry
Roger	Miller	
Janet	Milne	Vermont Law School
George	Mobus	University of Washington Tacoma
Philip	Munderville	UVM Rubenstein School of Environment and Natural Resources
Bob	Nadeau	George Mason University
David	Packer	Springer
Alan	Page	Green Diamond Systems
Tim	Pede	UVM Transportation Research Center & Natural Resources MS
George	Plumb	Vermonters for Sustainable Population
Alexandre	Poisson	McGill University
Scott	Printz	YPS
Thomas	Prugh	Worldwatch Institute
Will	Raap	Gardener's Supply
Carlos	R. Pascualli	SUNY College of Environmental Science and Forestry
Taylor	Ricketts	UVM Gund Institute for Ecological Economics
Cara	Robechek	University of Vermont
Andrew	Russell	
John	Schnebly	



Wolfger	Schneider	Johns Hopkins University (retired)
John	Schramski	University of Georgia
Karl	Seeley	Hartwick College
Michelle	Smith	University of Vermont
Richard	Smith	
Kristin	Smith	
Phoebe	Spencer	UVM Community Development Dept.
Brian	Stewart	Wesleyan University
James	Sullivan	
Beth	Tailer	
Thomas	Tailer	
Peter	Tcherepnine	Loeb Partners Corporation
Jada	Thacker	Marine Military Academy
Derek	Vines	
Egan	Waggoner	SUNY College of Environmental Science and Forestry
Jim	Welch	
Joan	White	UVM Gund Institute and Natural Resources MEL/MS Program
Nancy Lee	Wood	Institute for Sustainability and Post-Carbon Education
Eric	Zencey	UVM Gund Institute for Ecological Economics
Deidre	Zoll	UVM Gund Institute for Ecological Economics