

# ADVANCED ENERGY 2009

NEW YORK STATE'S PREMIER CONFERENCE FOR ADVANCED ENERGY

WEDNESDAY, NOVEMBER 18

8AM - 9:15AM

## ECONOMIC DEVELOPMENT AND GREEN JOBS BREAKFAST

*(The Business of Clean Tech – Panel Discussion)* David Brancaccio (PBS), Frank Murray (NYSERDA), Nay Htun (SBU)

SESSION I  
9:30AM - 10:45AM

### TRACK A

#### ENERGY POLICY I

**CHAIRPERSON**  
Tom Congdon,  
NYState Energy

**Jim Galagher, NYC EDC**  
*New York City's Assault On  
Climate Change*

**Tom Peterson,**  
**Climate Strategies**

**Carl Meyer,**  
**Central Hudson Gas &  
Electric**

PANEL DISCUSSION

### TRACK B

#### BIO-ENERGY SCIENCE & TECHNOLOGY I

**CHAIRPERSON**

**Janet Joseph, NYSERDA**  
*Overview Of NYS Bioenergy  
Initiatives*

**Dr. Patrick Hunt,**  
**U.S. Dept. of Agriculture**  
*Manure Treatment For  
Green Farming Systems*

**Dr. Roy Periana,**  
**Scripps Energy Institute**  
*Power & Energy Storage  
Without Oil*

**Dr. Gail Richardson,**  
**EnergyVision**  
*Biomethane Pioneers In  
Heavy Duty Transportation*

**Mark Toscano,**  
**Brookhaven Nat'l Lab**  
*Use BioFuels For  
Stream Production*

### TRACK C

#### SMART NETWORKS I MODELING AND SIMULATION

**CHAIRPERSON**

**Dr. Jiyuan Fan, GE**  
*Modeling & Advanced DMS  
Applications*

**Dr. Eugene Feinberg,**  
**Stony Brook University**  
*Electric Load Forecasting*

**Jayant Kalagnanam,**  
**IBM Research**  
*Analytics For A Smarter Planet*

**Devin Van Zandt,**  
**GE Energy**  
*Future Of T&D Modeling  
& Simulation*

### TRACK D

#### GEO THERMAL

**CHAIRPERSON**

**Dr. Kenneth Rehfeldt,**  
**Los Alamos**  
*Geothermal Research  
At Los Alamos*

**John Rhyner, P.W. Grosser**  
*Heat Pumps Industry Status*

**John Thulian,**  
**Greenway Environmental  
Management**

*Geothermal Heat Pump  
Technology: Capturing The  
Energy We Own*

### TRACK E

#### INNOVATION IN SCIENCE & TECHNOLOGY

**CHAIRPERSON**

**Lee Silvestre, Raytheon**

**Dr. Satyen Mukherjee,**  
**Philips Research**

**Dr. Jai Menon, IBM  
Research**

**Duncan McBranch,**  
**Los Alamos**

PANEL DISCUSSION

11:30AM

## LUNCH – WELCOME – INTRODUCTIONS – KEYNOTES

Bob Catell (Chair of Advanced Energy Center, NY Smart Grid Consortium), Dr. Samuel Stanley (Stony Brook University), Tom Congdon (Deputy Secretary for Energy, New York State), Kevin Law (LIPA), Senator LaValle, Dr. John Kelly (IBM), Dr. Arun Majumdar (D.O.E. Director ARPA E)

SESSION II  
2:30PM - 3:45PM

### ENERGY POLICY II

**CHAIRPERSON**  
**Rana Mukerji, NYISO**  
*Regional Markets &  
Planning For NY*

**Zywia Wojnar,**  
**Pace University**  
*Develop Renewable Fuels  
Roadmap & Biomass  
Feedstock Supply NY*

**Patrick Foye, Rivkin-Radler**  
*Financing Clean  
Energy-Pace Bonds*

**Dr. Guodong Sun,**  
**Stony Brook University**  
*Engaging China – Will G-2  
& CO-Benefit Work*

**Dr. William Horak,**  
**Brookhaven Nat'l Lab**  
*Energy-Water Nexus: NY City  
Pilot Study*

### BIO-ENERGY SCIENCE & TECHNOLOGY II

**CHAIRPERSON**

**Dr. Devinder Mahajan,**  
**Brookhaven Nat'l Lab**

**Dr. Christopher Marshall,**  
**Argonne Nat'l Lab**  
*Atom Efficient Chemical  
Transformations*

**Dr. Steven Sanborn,**  
**GE Global**  
*Biofuels & Fuels Flexible  
Gasification*

**Dr. Ponisseril  
Somasundaran,**  
**Columbia University**  
*Novel Synergistic  
Biosurfactant Systems  
For Greener Biofuels*

**Dr. Steven Peretti,**  
**NC State University**  
*Biochemicals Technologies  
For Biofuel Production*

### SMART NETWORKS II CYBERSECURITY

**CHAIRPERSON**  
**Michael Long, U.S.  
Dept. of Homeland  
Security**

*D.H.S. R&D In Cyber Security*

**John Cogliandro,**  
**Raytheon**  
*Energy Infrastructure Security  
Threats & Responses*

**Ernest Wohnig, Booz Allen**  
*Smart Grid Security –  
Build-In Now*

**Sam Brattini, KEMA**  
*NERC Reliability Standards For  
Critical Cyber Assets*

**Dr. Robert Johnson,**  
**Stony Brook University**  
*Pre Patched Software*

### INNOVATIVE UTILITY SOLUTIONS IN A REGULATED ENVIRONMENT

**CHAIRPERSON**  
**Dan Desanti,**  
**National Grid**

**David Wagner,**  
**Atlantic Hydrogen**  
*Carbon Capture For Natural Gas*

**Ian Welch &  
Chris Cavanaugh,**  
**National Grid**  
*Utility Role In Development Of  
Advanced Energy Technology*

**Tony Shay, Petra Solar**  
*Monetizing Unrealized Asset  
Value Through Pole Mounted PV*

**Charlie Anderson,**  
**Air Liquide**  
*Air Liquid Simplified Biogas  
To Pipeline*

### DEPARTMENT OF ENERGY SHOWCASE I SCIENCE & TECHNOLOGY R & D

**CHAIRPERSON**  
**Dr. Sam Aronson,**  
**Brookhaven Nat'l Lab**

**Dr. Patricia Dehmer,**  
**Office of Science**

**Dr. Linda Horton,**  
**BES Advanced Energy**  
*Basic Science For  
Advanced Energy*

**Dr. Anna Palmisano,**  
**BER Climate Modeling**  
*Bioenergy & Climate Research  
In DOE Office Of Science*

# ADVANCED ENERGY 2009

NEW YORK STATE'S PREMIER CONFERENCE FOR ADVANCED ENERGY

WEDNESDAY, NOVEMBER 18 (continued)

30 MINUTE BREAK

SESSION II  
4:15PM - 5:30PM

## TRACK A

### TECHNOLOGICAL OPTIONS FOR POLICYMAKERS

**CHAIRPERSON**  
Paul DeCotis, LIPA  
National Academy  
of Science

Lawrence Papay, PQR

Dr. Lester R. Lave,  
Carnegie-Mellon

Robert Fri,  
Resources for the Future

PANEL DISCUSSION

## TRACK B

### BIO-ENERGY ECONOMICS

#### CHAIRPERSON

Dr. Miriam Rafailovich,  
Stony Brook University

Rafael Espinoza,  
Emerging Fuels  
Technology

*Future Role & Characteristics  
Of Fischer-Tropsch Technology*

Stephen Eber,  
National Grid  
Robert Wilson,  
National Grid

*Bio-Energy: An Opportunity  
for Renewable Fuel Supply  
and Gas Delivery*

Dr. Douglas Goodale,  
Cobleskill

*The Techno-Economics Of  
Rotary Kilm Gasification*

Dr. C.R. Krishna,  
Brookhaven Nat'l Lab

*Biofuels Applications &  
Synthesis Research at  
Brookhaven Nat'l Lab*

## TRACK C

### SMART NETWORKS III CYBERSECURITY

#### CHAIRPERSON

Michael Long, U.S.  
Dept. of Homeland  
Security

Gene Rodriguez,  
Associate Partner,  
Energy & Utilities  
Security & Privacy,  
IBM Global  
Business Services

Mark Winther, IDC

John Cogliandro,  
Raytheon

Dr. Jim Smith,  
Los Alamos

PANEL DISCUSSION

## TRACK D

### WIND POWER ADVANCES

#### CHAIRPERSON

Nicholas Miller, GE  
*Grid Friendly Wind Plant Controls*

Trevor Atkinson,  
Northern Power

*Direct Drive Technology For  
Community/Utility Scale Windmills*

Chris Wissemann,  
Deep Water Wind

Peter Mandelstam,  
Blue Water

*Offshore Wind Power  
Opportunities & Challenges in US*

Bob Schubert, Siemens  
*Challenges & Rewards  
Of Offshore Wind*

## TRACK E

### DEPARTMENT OF ENERGY SHOWCASE II

#### CHAIRPERSON

Dr. Sam Aronson,  
Brookhaven Nat'l Lab

Dr. Joann Milliken,  
Office of Energy  
Efficiency &  
Renewable Energy  
(EERE)

Dr. Joseph Paladino,  
Office of Electricity  
(OE)

5:30PM

BUFFET – RECEPTION – EXHIBITS – POSTER SESSIONS

# ADVANCED ENERGY 2009

NEW YORK STATE'S PREMIER CONFERENCE FOR ADVANCED ENERGY

THURSDAY, NOVEMBER 19

7:45AM

## BREAKFAST & KEYNOTE SPEAKERS

Jacob Lamm (CA), Ed Reinfurt (NYSTAR), Richard Kessel (NYPA)

### SESSION III

9:00AM - 10:15AM

#### TRACK A

##### ENERGY SECTOR FINANCE I

###### CHAIRPERSON

**Tim Chin, BNP Paribas**  
*Project Financing In Today's Market*

**Steven Levine, ENCAP**  
*Solar Generation Projects In The US-Market Drivers*

**Dr. Samuel Bernstein, B.E. LLC**

*Views From Venture Capital Investors*

**Ebsen Pedersen, Pattern Energy**  
*Current Trends In Renewable Energy Finance*

**Jeremiah Yu, UBS**  
*Renewable Energy Project Finance*

#### TRACK B

##### SOLAR I UTILITY SCALE SOLAR

###### CHAIRPERSON

**Marjaneh Issapour, SUNY Farmingdale**

**Todd Milkos, Advanced Energy Industries**

*Sensitivity Of PV Design On Levelized Cost Of Energy*

**Scott Abrams, Omnicon Group**

*Achieving High Reliability Of Complex Advanced Energy Systems*

**Michael Behnke, BEW Engineering**  
*Impact Of Grid Codes On Large Scale Photovoltaic Power Plant Development*

**Eric Daniels, BP Solar**  
*Challenges & Opportunities For Solar Technology*

#### TRACK C

##### SMART INFRASTRUCTURE I

###### CHAIRPERSON

**Rich Lechner, IBM**

**Eric Jacobson, Quadlogic**  
**Mitch Stein, Quadlogic**  
*Advanced Metering with Power Line Communication*

**Vik Chandra, IBM Software Group**  
*Lighting Energy Consumption-Visibility Is Key*

**Paul Rode, Johnson Controls**  
*Smarter Cities & Transportation*

**Dr. M. Safiuddin, University of Buffalo**  
*Artificial Neural Networks For Smart Grid*

#### TRACK D

##### HYDRO POWER

###### CHAIRPERSON

**Peter Ludewig, NYPA**  
*Hydro Power At The New York Power Authority*

**Ron Smith, Verdant Power**  
*New York's Leadership In Emerging Marine Renewable Energy Industry*

**Jason Foust, Voith Hydro**  
*Enhancing Hydro Power Through Environmental Technologies*

**Dr. Thomas Butcher, Brookhaven Nat'l Lab**  
*Development Of Hydrokinetic Power For NYS*

**Gerald Lynch, Sigma Design**  
*Alternative Hydrokinetic Programs Challenges & Lessons Learned*

#### TRACK E

##### LOW CARBON SOCIETY

###### CHAIRPERSON

**Dr. Nay Htun, Stony Brook University**  
*Overview Of Pathways To A Low Carbon Society*

**Dr. Junichi Fujino, Nat'l Institute Env (Japan)**  
*Japan Roadmaps To Low Carbon Society By Backcasting*

**Dr. Yannick Glenmarec, United Nations**  
*Financing The Transition To Low Carbon Society*

**Dr. Peter Pearson, Imperial College (UK)**  
*Past & Prospective UK Energy Transitions*

**Frank Dalene, Telemark**  
*Low Carbon Products – An Indexing Mechanism*

**PANEL DISCUSSION**

### 30 MINUTE BREAK

10:45AM - 12PM

##### ENERGY SECTOR FINANCE II

###### CHAIRPERSON

**Steve Taub, GE Finance**  
*Financing Utility Scale Renewables*

**Andy Dvoracek, Element Markets**  
*Greenhouse Gas Compliance: A Moving Target*

**Larry Siegel, Tobay Capital**  
*Financing Green Energy Projects for Corporations & Municipalities*

**David Koegel, D.O.E.**  
*DOE And The American Recovery & Reinvestment Act*

**Michael Faltischek, Rushin Moscou Faltischek**  
*Early Stage Capital Investing (Seed or Angel)*

##### SOLAR II UTILITY SCALE SOLAR

###### CHAIRPERSON

**Dr. Harry Davitian, Entek Power**  
*Developers Perspective On Large Scale Solar Power*

**Christopher Dymond, Enxco**  
*Megawatt PV; Rooftop & Ground Mount Challenges*

**Dr. Supratik Guha, IBM Research**  
*Photovoltaics Research Concentrator To Thin Films & Nanostructures*

**Kevin Bate, RMT**  
*Utility Scale Solar Project Development & Construction*

**Marco Garcia, Suntech**  
*Technical Challenges Of Utility Scale Solar PV Projects*

##### SMART INFRASTRUCTURE II

###### CHAIRPERSON

**Aubrey Braz, ConED**  
**Dr. John Grosspietsch, Motorola**  
*Wireless Communications For The Smart Grid*

**Chris Davis, Schneider Electric**  
**Jerry Jackson, Autodesk**  
**Florence Hudson, IBM**  
*Optimizing The Smart Infrastructure Lifecycle*

##### ADVANCED LIGHTING RESEARCH

###### CHAIRPERSON

**Dr. Sayten Mukherjee, Philips Research**  
*Advanced Intergrated Lighting Controls For High Efficiency Green Buildings*

**Dennis Bradley, GE**  
*3rd Revolution Of The Lighting Industry*

**Dr. John Wen, Rensselaer Polytechnic Institute**  
*Engineering Light For Brighter Sustainable Future*

**Dr. Chunlei Guo, University of Rochester**  
*Brighter Light Sources From Dark Matter*

**Kevin Dowling, Philips Lighting**  
*LED Lighting Control Systems Overview*

##### ENERGY EFFICIENCY & GREENHOUSE GAS REDUCTION

###### CHAIRPERSON

**John Caroselli, National Grid**  
*Energy Efficiency & Greenhouse Gas Reduction*

**Rebecca Wingenroth, EPRI**  
*Energy Efficiency in Carbon Constrained World*

**Dr. Saul Keslowitz, Intra Tech**  
*Mobile Electric Truck Refrigeration Units*

**Diane Blankenhorn & Sandy Taft, National Grid**  
*Greenhouse Gas Emissions*

**Rich DeFay, Cooper Development Association**  
*Copper Rotor Motor – Energy Efficient Motors*

### 25 MINUTE BREAK

# ADVANCED ENERGY 2009

NEW YORK STATE'S PREMIER CONFERENCE FOR ADVANCED ENERGY

THURSDAY, NOVEMBER 19 (continued)

12:25AM

## LUNCH – INTRODUCTIONS – KEYNOTES

Bob Catell (Chair of Advanced Energy Center, NY Smart Grid Consortium),  
Dr. John Marburger (former Science Advisor to the President, Scott Pugh (Department of Homeland Security))

## 20 MINUTE BREAK

SESSION IV  
2:15PM - 3:30PM

### TRACK A

#### BATTERY FUEL CELLS & ENERGY STORAGE I

##### CHAIRPERSON

**Dr. Mark Mathias, GM**  
*The Challenges Of  
Predicting Future Of  
Automobile Electrification*

**Jason Doling, NYSERDA**  
*New York Battery & Energy  
Storage Technology Consortium*

**Dr. Hazem Tawfik,  
SUNY Farmingdale**  
*Research & Development Of  
Direct Methanol Fuel Cells*

**Paul Mutolo,  
Cornell University**  
*Forwarding Fuel Cell  
Technology Through Bottom-Up  
Design Of Materials*

**Charlie Vartanian, A123**  
*Nanophosphate TM Batteries:  
Electric Power Grids*

### TRACK B

#### SOLAR III UTILITY SCALE SOLAR

**CHAIRPERSON  
Guy Slicker, NYPA**  
*NYPA Solar Initiatives*

**Dr. Steven Hummel,  
PV Powered**  
*Challenges In Development Of  
Utility Scale Solar Power Inverters*

**Tassos Golnas,  
Sunedison**  
*Uptime Analysis For Fleet  
Of 240 Distributed Generation  
PV Systems*

**Ron Corio,  
Array Technologies**  
*Tracking PV Modules For  
Utility Scale Power Plants  
Maximizing ROI*

**Jay Gromek, Infinia**  
*Dish-Stirling – A New Era*

### TRACK C

#### SMART INFRASTRUCTURE III

**CHAIRPERSON  
Anthony DiMaso,  
Verizon**  
*Perspectives On  
Smart Infrastructures*

**Steven DeCarlo, NYPA**  
*Dynamic Thermal Rating  
For Overhead Lines*

**Dr. Reza Ghafirian,  
ConED**  
*Smart Infrastructure Over  
Underground Distribution*

**Larry Durante,  
National Grid  
Dr. Prasanta Ghosh,  
Syracuse University**  
*Smart Grid "End To End"  
Development Proof Of Content*

**Dr. Francisco de Leon,  
NYU-Poly**  
*Active Damping Of Power System  
Oscillations*

### TRACK D

#### INTELLIGENT & ADVANCED TRANSPORT

**CHAIRPERSON  
Thomas Lamb,  
NYC Transit**  
*Ideas To Innovation  
At NYC Transit*

**Namir Habboosh,  
Raytheon**  
*Maglev Feasibility Study*

**Rizwan Khaliq, IBM**  
*Smarter Cities & Transportation*

**Joseph Ambrosio, EMD**  
*Electric & Hybrid Electric Propul-  
sion For Moving People & Goods*

**Walter Kulyk, Federal  
Transit Authority**  
*The FTA's Energy Related  
Research Programs*

**Dr. Frank Zeman,  
NY Institute of  
Technology**  
*Integrating Solar PV Power –  
Transportation Sector*

### TRACK E

#### GREEN BUILDING TECHNOLOGY MATERIALS & PROCESS

**CHAIRPERSON  
Colby Swanson, BASF**  
*Improving performance Of  
Existing Commercial Buildings The  
Chemistry of Sustainable Retrofits*

**Dirk von Below,  
Flad Architects**  
*Reducing Embodied Carbon  
In Construction Materials*

**Giovanni Petrecca,  
U of Pavia, Italy**  
*Energy Efficient Technologies For  
Industries & Buildings: State Of  
The Art In Europe*

**Dr. Alexander Orlov,  
Stony Brook U**  
*Solar Energy For Environmental &  
Energy Application: Utilizing Novel  
Catalysts & Light*

**Doug Reid-Greene, BASF**  
*Importance Of Smart Develop-  
ment In An Urbanization World*

## 15 MINUTE BREAK

3:45AM - 5PM

#### BATTERY FUEL CELLS & ENERGY STORAGE II

##### CHAIRPERSON

**Grigori Soloveichik,  
GE EFRC**  
*GE Energy Storage Vision For  
Mobile & Stationary Apps*

**Dr. Clare Grey, Stony  
Brook University EFRC**  
*Energy Storage Research: Diag-  
nostics & Theoretical Approaches  
To Optimize Lithium Ion Battery*

**Winfried Wilcke,  
IBM Research**  
*Overview Of Battery 500  
Lithium/Air Project*

**David Mroczka,  
Dayton T. Brown**  
*Real World Advanced Energy  
Storage; Beyond Chemistry*

**Michael Tentnowski,  
IOXUS**  
*Ultracapacitors Make Battery  
Modules Greener*

#### SOLAR IV MATERIALS & TECHNOLOGY

**CHAIRPERSON  
Dr. John Elter,  
Albany Nanotech**  
*Materials & Process For  
Low Cost Solar Cells*

**Dr. Joseph Laia, Miasole**  
*Thin Film Solar Can Cigs Be Done?*

**Dr. Stan Steingart, CUNY**  
*Towards A Renewable NYC Solar  
Electric Thermal Hybrid Systems*

**Dr. Michael Gray, CVD**  
*APCVD For TCO Film-Paradigm  
Shift For End Users*

**Dr. Charles Fortmann,  
Stony Brook University**  
*Photonic-Engineered Solar Cells*

**Dr. Mike Dudley,  
Stony Brook University**  
*Development Of Advanced  
Materials For Current & Future  
Energy Challenges*

#### SMART NETWORKS INTEROPERABILITY

##### CHAIRPERSON

**Robert Curry, NYS-PSC**  
**Hao Yang, IBM**  
**Michael Carlson,  
Gridpoint**

**Ralph Masiello, KEMA**  
**Tim Schmidt, Verizon**  
*Interoperability: Lessons From  
Telecommunications*

##### PANEL DISCUSSION

#### GREEN DATA CENTERS

##### CHAIRPERSON

**Dr. Roger Schmidt, IBM**  
*Landscape Of Mission  
Critical Facilities*

**Dr. H. Ezzat Khalifa,  
Syracuse University**  
*Dynamic Modeling – Data Center  
Cooling Infrastructure*

**Dave Blair, BHP**  
*TriGen As A Green Data  
Center Strategy*

**Priya Sehgal,  
Stony Brook University**  
*Improving Energy & Performance  
For Server Workloads*

**Dhesikan  
Anachapermul, CA**  
*Energy In Data Centers &  
Facilities: Increase Efficiency &  
Enhance Availability*

#### INNOVATION & COMMERCIALIZATION OF ENERGY

##### CHAIRPERSON

**Dr. Karin Pavese,  
New York Academy  
of Sciences**

**Florence Hudson, IBM**  
*Building A Smarter Planet*

**William Bonvillian, MIT**  
*Transforming Energy Technology  
– National Policy Issues*

**Dr. Carlos Martinez-Vela,  
John Adams  
Innovation Institute**  
*Emergence Of Solar PV  
Industry In Massachusetts:  
Lessons From History*

**Rene Baston,  
NY Academy of Sciences**

##### PANEL DISCUSSION