



Energy Finance 2018

March 12-14, 2018

The Institute for Energy Economics and Financial Analysis (IEEFA) and Columbia Law School welcome you to Energy Finance 2018, which brings together environmental advocates and attorneys from around the world.

Registration begins at 11:00 AM Monday, March 12 in the lobby of Jerome Greene Hall (JGH), Columbia Law School, 435 West 116th Street (corner of Amsterdam Ave.), New York, NY 10025. The conference will begin at 1:00 PM in JGH 106, with overflow in JGH 103. Please note that lunch is not provided on Monday. Luggage can be dropped off at JGH 102A on Monday and Tuesday only. On Wednesday, coat check will be available to store your luggage near JGH 106.

Event reading materials and other event logistics can be found at this link www.ieefa.org/energyfinance2018 or by scanning the QR code.



Information Regarding New York CLE Credits:

Columbia Law School has been certified by the New York State Continuing Legal Education (CLE) Board as an Accredited Provider of CLE programs. Under New York State CLE regulations, this live non-transitional CLE Program will provide 8.5 credit hours that can be applied toward the Areas of Professional Practice requirement. This CLE credit is awarded only to New York attorneys for full attendance of the Program in its entirety. Attorneys attending only part of a panel are not eligible for partial credit for it, although they are most welcome to attend it. Attendance is determined by an attorney's sign-in and sign-out, as shown in the Conference registers. On final sign-out, attorneys should also submit their completed Evaluation Form, provided at the Conference. Please note the NYS Certificates of Attendance will be sent to the email address as it appears in the register unless otherwise noted there.

Special thanks to Earthjustice for helping to prepare materials for CLE panels.

Hotel Beacon

The Conference hotel is Hotel Beacon located at 2130 Broadway, New York, NY 10023. Please allow 30 minutes to take the subway from Hotel Beacon to the conference venue.

Subway Directions from Hotel Beacon: Head south on Broadway toward W 72th St. Take the uptown 1 train (local) at Broadway and 72 Street towards "Van Cortlandt Park- 242 St." In 6 stops, get off at "116 St - Columbia University". Head northeast on Broadway toward West 116th Street. Turn right at Columbia University West 116th St. Columbia Law School's Jerome Green Hall will be on the left on the corner of Amsterdam Ave and 116 Street. Subway information and rates can be found at <http://web.mta.info/metrocard/>

IEEFA would like to thank the foundations who provided special support for this event, including the Moxie Foundation, Park Foundation, Growald Family Fund, and Rockefeller Brothers Fund, and IEEFA's general support funders.

Agenda

Monday March, 12, 2018

11:00 AM-1:00 PM Registration

1:00-1:15 PM Welcome, JGH 106
Michael Burger, Columbia Law School
Sandy Buchanan, IEEFA

1:15-2:30 PM Panel 1- Plenary: Global Outlook for Electricity Markets
JGH 106. Overflow in JGH 103.
Melissa Brown, IEEFA
Nityanand Jayaraman, Chennai Solidarity Group
Paul Bodnar, Rocky Mountain Institute
Moderator: Tim Buckley, IEEFA

Panelists will discuss trends in the global-electricity sector transformation, with particular emphasis on shifts taking place in India and China.

2:50-4:15 PM Panel 2 (CLE Eligible)- Plenary: Fossil Fuel Divestment; New York City and State
Leading the Nation
JGH 106. Overflow in JGH 103.
Dan Zarrilli, Office of New York Mayor Bill de Blasio
Adam Zurofsky, Office of New York Governor Andrew Cuomo
Denise Patel, 350.org
Moderator: Kathy Hipple, Bard College

Panelists will look at the ways in which major institutional investors are evaluating fossil fuel investments in their portfolios and the range of financial and regulatory risks associated with those holdings. Panelist Adam Zurofsky is an attorney in good standing who has been involved in regulatory policy and in a range of complex litigation and corporate governance advisory work.

4:30-6:10 PM Panel 3- Plenary: Community-Based Strategies for the Energy Transition
JGH 106. Overflow in JGH 103.
Nicole Horseherder, To' Nizhoni Ani
Tony Skrelunas, DinéHózhó
Ingrid Vila Biaggi, Cambio PR
Tomás J. Torres, Puerto Rico Institute for Competitiveness and Sustainable Economy
Moderator: Heidi Binko, Just Transition Fund

Panelists will discuss the opportunities for the transition to clean energy in the wake of the closure of the Navajo Generating Station in Arizona and Hurricane Maria in Puerto Rico, with a particular emphasis on ways to strengthen protections for ratepayers, communities and the environment.

6:10-6:15 PM Special Recognitions
With Larry Shapiro and Tom Sanzillo

6:15-7:15 PM Reception- Lobby

Tuesday March, 13, 2018

8:30-9:00 AM **Breakfast-** Lobby

9:00-10:15 AM **Concurrent Panels:**
Panel 4 (CLE Eligible)- Carbon Capture and Storage (CCS) Pros and Cons
JGH 106

John Thompson, Clean Air Task Force
Anna Sommer, Sommer Energy
Presenter/Moderator: David Schlissel, IEEFA

This panel will examine recent trends and developments in the United States and around the world concerning carbon capture and sequestration, with a focus on how these developments will impact the future of the domestic coal industry. Panelist and moderator David Schlissel is an attorney in good standing who has been involved in regulatory proceedings addressing the feasibility of proposals to capture and sequester carbon emissions from coal-fired generators.

Panel 5- Financial Vulnerabilities of the Oil and Gas Industries
JGH 103

Clark Williams-Derry, Sightline Institute
Ted Nace, CoalSwarm
Moderator: Tzaporah Berman, York University

This panel will look at the changing financial circumstances of the oil and gas industries in a long-term, low-price environment, as well as actions being taken in the legal and public arenas to influence decisions by these companies.

Roundtable- China is Coal, Coal is China
Auditorium 102A. This roundtable runs until 12:00 PM.

Ben Caldecott, Oxford Sustainable Finance Programme
Han Chen, NRDC
Philip Gass, International Institute for Sustainable Development (IISD)
Calvin Quek, Greenpeace
Yiting Wang, World Wildlife Foundation (WWF)
Shelagh Whitley, Overseas Development Institute (ODI)
Aiqun Yu, CoalSwarm
Simon Nicholas, Melissa Brown & Tim Buckley, IEEFA

This roundtable will include brief presentations on a range of internal and external environmental finance issues in China, including trajectories for both coal and renewable energy, to be followed by a group discussion on key issues.

10:45 AM-12:00 PM **Concurrent Panels:**
Panel 6- Financial Challenges Facing the U.S. Coal Mining Industry
JGH 106

Seth Feaster, IEEFA
Andy Blumenfeld, Doyle Trading Consultants
Moderator: Sarah Brennan, Robertson Foundation

Panelists will discuss the financial pressures facing the U.S. coal mining industry as a result of the closures of coal-fired power plants and the influence of natural gas and renewable energy in electricity markets.

**10:45 AM-12:00 PM Panel 7 (CLE Eligible)- LNG/Natural Gas Market Trends
JGH 103**

Bruce Robertson, IEEFA
David Schlissel, IEEFA
Presenter/Moderator: Deborah Goldberg, Earthjustice

Panelists will discuss trends in U.S. and international demand for natural gas and LNG. Panelist David Schlissel is an attorney in good standing with over 40 years' experience in state electric utility regulatory proceedings. Panelist and moderator Deborah Goldberg is an attorney in good standing currently serving as managing attorney of Earthjustice's Northeast regional office, where she supervises and conducts legal advocacy and litigation related to global warming and environmental health.

12:00-2:00 PM Lunch- 2nd floor, Lenfest Café

**Optional Lunch Session
U.S. Coal Bail-Out Discussion
Room 304**

With David Schlissel. Please bring your lunch with you.

**2:00-3:15 PM Concurrent Panels:
Panel 8 (CLE Eligible)- U.S. Energy Industry Trends
JGH 106**

Jim Hempstead, Moody's
Anna Zubets-Anderson, Moody's
Presenter/Moderator: Shannon Fisk, Earthjustice

This panel will give an overview of recent trends and developments in the U.S. utility sector, with a focus on how these developments impact utility credit ratings. Panelist and moderator Shannon Fisk is an attorney in good standing who has been engaged in regulatory proceedings addressing utility finance and use of the regulatory system to provide credit support to struggling merchant generation businesses.

**Panel 9 (CLE Eligible)- Natural Gas Pipelines
JGH 103**

David Bookbinder, Niskanen Center
Natalie Karas, Environmental Defense Fund (EDF)
Moderator: Rebekah Sale, Property Rights and Pipeline Center

Panelists will discuss the buildout of natural gas pipelines in the U.S. and legal strategies that landowners have used to enforce their property rights in the face of these proposals. Panelists David Bookbinder and Natalie Karas are attorneys in good standing who have been engaged in administrative proceedings and other legal actions around pipeline permitting and siting.

**3:30-4:45 PM Concurrent Panels (Note: Panel 12 will run until 6:00 PM.)
Panel 10- Distributed Solar as an Organizing Strategy
JGH 106**

Anya Schoolman, Solar United Neighbors
David Ortiz, El Puente
Moderator: Cathy Kunkel, IEEFA

This panel will discuss examples from around the U.S. of community organizations that are integrating distributed solar into their organizing strategies to build public support for clean energy transition.

3:30-4:45 PM **Panel 11- Creating Our Future Transport System**
JGH 103
Hannah McKinnon, Oil Change International
Dan Becker, Safe Climate Campaign
Mark Kresowik, Sierra Club
Moderator: Suzanne Mattei, IEEFA

Panelists will discuss major developments in the auto industry, including the future of fuel-efficiency standards and the potential market disruptions caused by the influx of electric vehicles.

3:30-6:00 PM **Panel 12- Global Coal Phaseout Outlook**
Auditorium 102A
Matt Gray, Carbon Tracker Initiative
Heffa Schuecking, Urgewald
Christine Shearer, CoalSwarm
Alison Kirsch, Rainforest Action Network
Moderator: Kathrin Gutmann, Europe Beyond Coal

This panel will discuss how an understanding of coal financing and economics can help accelerate a coal phase-out and slow down the pipeline of new-build coal-fired plants.

5:00-6:00 PM **Panel 13 (CLE Eligible)- Plenary: Business-Driven Demand for Renewable Energy**
JGH 106. Overflow in JGH 103.
Tom Murley, Two Lights Capital
Moderator: Melissa Brown, IEEFA

Businesses across the world are investing in renewable energy and energy efficiency at an unprecedented scale. This panel will discuss some of the ways in which those decisions are being made and financed. Panelist Tom Murley is a leading advocate for increased institutional investment in energy projects and infrastructure in Europe and across the globe. Murley is an attorney in good standing, with degrees from Northwestern University and Fordham University School of Law. Before founding HgCapital in 2004, he was General Counsel of Alternative Energy Inc., a Bangor, Maine based biomass project developer and operator, and spent 8 years in private legal practice in Boston and New York.

Wednesday March, 14, 2018

8:30-9:00 AM **Breakfast-** Lobby

9:00-10:15 AM **Concurrent Panels:**
Panel 14 (CLE Eligible)- U.S. Utilities Financial Outlook
JGH 106
Julien Dumoulin-Smith, Bank of America Merrill Lynch (BAML)
Presenter/Moderator: David Schlissel, IEEFA

This panel will provide an overview of the finances of U.S. investor-owned electric utilities, largely from an equity analyst perspective. Panelist and moderator David Schlissel is an attorney in good standing with over 40 years' experience in state electric utility regulatory proceedings.

9:00-10:15 AM **Panel 15 (CLE Eligible)- Interdependence Among Oil, Gas and Petrochemicals**
JGH 103
Cathy Kunkel, IEEFA
Eric Schaeffer, Environmental Integrity Project
Moderator: Lisa Hamilton, Center for International Environmental Law (CIEL)

This panel will examine the complex financial relationships between the oil, gas and petrochemical industries, and how decisions made by these industries affect local communities. Panelist Eric Schaeffer and moderator Lisa Hamilton are attorneys in good standing who have engaged in policy debates over environmental regulation, various state regulatory proceedings, and federal and state litigation.

10:45 AM-12:00 PM **Panel 16- Plenary: Insuring Coal No More?**
JGH 106. Overflow in JGH 103.
Cynthia McHale, Ceres
Peter Bosshard, The Sunrise Project
Andreas Spiegel, Independent Sustainability Expert
Moderator: Larry Shapiro, Rockefeller Family Fund

Several major insurance companies have decided over the past year to stop underwriting and investing in the coal sector and to instead strengthen their engagement with renewable energy. This panel will discuss the role of the insurance industry in the transition from coal to renewable energy.

12:00-2:00 PM **Lunch-** 2nd floor, Lenfest Café

2:00-3:15 PM **Panel 17- Plenary: Integrating Renewables into the Grid, Lessons from**
Developed and Developing Countries
JGH 106. Overflow in JGH 103.
Warren Lasher, ERCOT
Eric Gimon, Energy Innovation
Sara Jane Ahmed, IEEFA
Moderator: Gerard Wynn, IEEFA

This panel will discuss national and regional experiences in adapting to a rising wind and solar market share. Panelists will discuss whether variable renewables undermine system reliability, what limits there are on wind and solar market share and steps to safeguard security of supply in high-renewables markets.

Panelist and Moderator Biographies

(in Alphabetical Order)

Sara Jane Ahmed

IEEFA Energy Finance Analyst Sara Jane Ahmed is a former investment advisor specializing in originating and structuring energy opportunities in emerging markets. She has worked for the World Resources Institute and Grameen Bank. Ahmed focuses on energy sector dynamics in the Philippines, a nation at a crossroads in decision-making for how it will provide cost effective electricity to its residents.

Dan Becker

Dan Becker is the Director of the Safe Climate Campaign, which he founded in 2008. The Campaign fights global warming by pressing governments to adopt and implement strong laws cleaning up global warming emissions; pushing automakers to make clean cars and stop fighting sound environmental policies; and urging consumers to switch to clean transportation choices.

From 1989-2007, Dan was Director of the Sierra Club's Global Warming Program, where he developed and implemented advocacy and media strategies for Sierra Club grassroots volunteers, national and regional staff and federal decision makers. Dan led the charge for new automobile fuel economy (CAFE) standards and state clean car (Pavley) laws. He developed and led the Sierra Club's efforts to reach out to labor unions and served as the "green" co-chair of the resulting Blue-Green Alliance with the United Steelworkers Union. As Director of Research, he designed and directed studies on campaign finance, automotive safety and corporate responsibility, and lobbied Congress in support of numerous consumer and environmental issues.

After earning his law degree from Northeastern University Law School in 1983, Dan became Chief Lobbyist for Massachusetts Public Interest Research Group (MASSPIRG), the largest public interest organization in Massachusetts. In 1985, Dan became Legislative Counsel for Environmental Action, where he helped win passage of the federal Superfund law to clean up toxic waste, and worked to pass a strengthened Clean Air Act.

Tzeporah Berman

Tzeporah Berman (BA, MES, LLD, honoris causa) is a Canadian environmental activist and writer, and has 20 years of experience designing environmental campaigns in Canada and internationally. She is known for her role as the blockade coordinator for the largest civil disobedience in Canada's history in Clayoquot Sound in 1993. She currently works as a strategic advisor to a number of First Nations, environmental organizations and philanthropic foundations on climate and energy issues, including the oil sands and pipelines. Last year she was appointed by the Alberta Government to Co-Chair the Oil Sands Advisory Working Group tasked with making recommendations to implement climate change and cumulative impact policies. In 2016, Tzeporah was listed as one of the 35 Most Influential Women in British Columbia by *BC Business Magazine* and awarded the Brescia University College Activist Award. The previous year, she was appointed to the BC Government Climate Leadership Team tasked with making policy recommendations to meet BC-legislated climate targets.

Tzeporah is an Adjunct Professor in Environmental Studies at York University, the former Co-Director of Greenpeace International's Climate Program and Co-founder of ForestEthics. Her book *This Crazy Time: Living Our Environmental Challenge* was published in 2011. Berman was awarded an Honorary Doctorate in 2013 by the University of British Columbia.

Heidi Binko

Heidi is the Co-founder and Executive Director of the Just Transition Fund, which she created with her partner in April 2015. Previously, Heidi served as Associate Director of Special Climate Initiatives at the

Rockefeller Family Fund (RFF). Since October 2008, she worked closely with key foundations, organizations, and thought leaders working at the nexus of climate and coal in that role. Before joining RFF, she was the Executive Director of the West Wind Foundation, and also served as Co-chair of the Board of Directors of the Environmental Grantmakers Association (EGA) and Co-chair of the Climate and Energy Funders Group, a project of the Consultative Group on Biological Diversity. She holds degrees from the University of Notre Dame and the Yale School of Forestry and Environmental Studies.

Andy Blumenfeld

Andy Blumenfeld joined Doyle Trading Consultants in 2017 as Head of Market Analytics, bringing with him over thirty years of experience in coal and energy. Previously, Andy led the market analysis department with Arch Coal, Inc. There, he advised all company functions around domestic and international coal supply, demand, logistics and regulatory issues. Andy was also a Senior Research Consultant with Resource Data International (now Platts) in Boulder, Colorado, where he authored an extensive study on Central Appalachia coal supply and demand. He also wrote numerous articles for industry publications. Additionally, Andy served as Chairman of the National Mining Association's Economic Committee and was President of the American Coal Council.

Andy earned his MBA from Washington University in St. Louis, Missouri, a BS in Geology from Denison University in Granville, Ohio and completed his geological field studies at Northern Arizona University in Flagstaff, Arizona.

Paul Bodnar

Paul Bodnar is a Managing Director at the Rocky Mountain Institute, where he helps oversee the Institute's programs in emerging markets and sustainable finance.

Paul served in the Obama White House as Special Assistant to the President and Senior Director for Energy and Climate Change at the National Security Council. Paul was a key architect of the Obama Administration's international climate policies, including the historic U.S.-China presidential joint climate announcement of November 2014, the OECD agreement to strictly limit public financing for coal-fired power plants, and the doubling of clean energy research and development budgets by 20 major countries through the Mission Innovation initiative. He played a principal role in formulating U.S. strategy for the Paris Climate Conference.

Paul previously served at the State Department as Lead Negotiator for Climate Finance and Counselor to the Special Envoy for Climate Change. At the State Department, Paul led the design and implementation of several pioneering finance initiatives including the Global Innovation Lab for Climate Finance; the U.S.-Africa Clean Energy Finance Initiative; and the world's first market-based approach to allocating concessional funding for climate mitigation (the World Bank's Pilot Auction Facility).

Earlier in his career, Paul worked as a Director for Carbon Finance at the \$1.2 billion carbon fund managed by London-based Climate Change Capital. He was also Co-founder and Partner at Vertis Environmental Finance, now one of Europe's leading environmental commodity brokerage firms. Paul served as investment advisor for the Sustainable Asset Fund at Vision Ridge Partners. He is a Senior Associate (non-resident) at the Center for Strategic and International Studies (CSIS) and serves on the Board of the Carbon Tracker Initiative.

David Bookbinder

Chief Counsel David Bookbinder brings a unique combination of private sector and public interest legal and policy experience to the Niskanen Center. Mr. Bookbinder began practicing law at Paul, Weiss, Rifkind, Wharton & Garrison, where for many years he handled securities, mergers and acquisitions, product liability, white-collar criminal, intellectual property and other matters.

In the public interest sphere, Mr. Bookbinder has litigated dozens of cases under all of the major environmental statutes, including as Sierra Club's Chief Climate Counsel, initiating and managing *Massachusetts v. EPA*. In addition to overseeing Sierra Club's climate docket, he represented the environmental community (including as trial counsel) in the thicket of litigation over California's greenhouse gas vehicle standards, and brought *In re Desert Power*, which effectively imposed a moratorium on new coal-fired power plants. He led the Sierra Club's work on judicial nominations, including the filibusters of 2003-2006, and litigation over the constitutionality of recess appointments for federal judges, and was counsel in *In re Cheney*.

Dealing with Congress and federal agencies, Mr. Bookbinder helped lead efforts on both global warming legislation and greenhouse gas regulation under the Clean Air Act, and has testified in front of House and Senate committees on these issues. He has also advised states as to their greenhouse gas regulatory authority.

Mr. Bookbinder was trained at Princeton University (*summa cum laude*) and the University of Chicago Law School.

Peter Bosshard

As the Director of the Finance Program at the Sunrise Project, Peter Bosshard coordinates international campaigns to accelerate the transition of the insurance industry and other investors from fossil fuels to clean energy. The Sunrise Project works to combine the power of grassroots movements with detailed understanding of economics and technology, in order to drive the transition from fossil fuels to renewable energy as fast as possible.

Prior to joining the Sunrise Project, Peter worked for fifteen years with International Rivers, an international network of dam-affected people, grassroots organizations, environmentalists and human rights advocates committed to stopping destructive river projects and promoting better options. As Policy Director, he coordinated the international civil society response to the World Commission Dams report, the design of a new approach towards China's emerging international dam builders, and oversight of new offices established in Africa, China and South Asia. He is particularly knowledgeable about the role of international financial institutions and Chinese overseas investors in the global energy sector.

From 1987-2001, Peter served as Program Director and Coordinator for the Berne Declaration, Switzerland's foremost advocacy organization on international environmental and human rights issues. He coordinated the organization's Economic Relations Program, and played a key role in bringing about a national referendum on Switzerland's membership in the World Bank and IMF, creating the World Bank's Inspection Panel, phasing out the World Bank's support for coal-fired power plants in Singrauli/India, establishing environmental guidelines at international export credit agencies, initiating the independent World Commission on Dams, convincing Switzerland's two major power companies to withdraw from the dam building sector, and initiating the Public Eye on Davos.

Sarah Brennan

Sarah Brennan is a Program Officer at the Robertson Foundation, which supports market-based approaches to climate-change and conservation policy. She is a past Associate Director of the Earth Institute at Columbia University and serves on the board of IEEFA.

Melissa Brown

IEEFA's Energy Finance Consultant Melissa Brown has played a leading role in various Asian investment organizations focused on mainstream and sustainable investment strategies for public and private equity investors over the past 25 years. She has a 15-year track record as a securities analyst at leading investment banks including JP Morgan and Citigroup, where she covered companies across Asia, with particular focus on the power sector. As a member of the UN Principles for Responsible Investment

Advisory Council and the Stock Exchange of Hong Kong Listing Committee, she has been actively involved in numerous investor-focused policy initiatives.

Sandy Buchanan

IEEFA Executive Director Sandy Buchanan has worked on a variety of energy issues involving coal, nuclear, utilities, renewables and energy efficiency since the 1980s. She served as executive director of Ohio Citizen Action for 20 years before joining IEEFA in 2013.

Tim Buckley

Tim Buckley, IEEFA's Director of Energy Finance Research, Australasia, has 25 years of financial market experience covering the Australian, Asian and global equity markets from both a buy and sell side perspective. Tim was a top-rated Equity Research Analyst and has covered most sectors of the Australian economy. For many years, Tim was a Managing Director, Head of Equity Research at Citigroup, as well as co-Managing Director of Arkx Investment Management P/L, a global listed clean energy investment company jointly owned by management and Westpac Banking Group.

Michael Burger

Michael Burger is the Executive Director of the Sabin Center for Climate Change Law at Columbia Law School. He oversees a dynamic team of attorneys working in eight program areas to combat climate change. His research and advocacy focus on legal strategies to reduce greenhouse gas emissions and promote climate change adaptation through pollution control, resource management, land use planning and green finance.

Michael frequently collaborates with researchers across Columbia's Earth Institute, and with local and national environmental groups, government representatives, and international organizations. Prior to joining the Sabin Center in 2015, he was an associate professor at Roger Williams University School of Law, where he taught environmental law, administrative law, and law and literature, and was founder and director of the Environmental and Land Use Law Clinical Externship program. He previously taught in the Lawyering Program at New York University School of Law, and served as an attorney in the Environmental Law Division of New York City's Office of the Corporation Counsel. He has lead short courses on climate change and human rights in the Hague and Grand Cayman. He is also a co-founder and member of the Environmental Law Collaborative, and the incoming chair of the New York City Bar Association International Environmental Law Committee.

Michael is a graduate of Columbia Law School and of Brown University. He also holds a Master of Fine Arts degree from the Creative Writing program at NYU.

Ben Caldecott

Dr. Ben Caldecott is the founding Director of the Oxford Sustainable Finance Programme, a multidisciplinary research centre on sustainable finance and investment at the University of Oxford Smith School of Enterprise and the Environment. He is concurrently an Academic Visitor at the Bank of England, a Visiting Scholar at Stanford University, a Senior Advisor at Highmore LLC, and a Senior Associate Fellow at Bright Blue. Ben specialises in environment, energy, and sustainability issues and works at the intersection between finance, government, civil society, and academe.

Ben has authored and edited a substantial number of publications related to sustainability and is an experienced media commentator and public speaker. He is a regular peer reviewer and has a number of board and advisory panel appointments, including with the UK Green Finance Taskforce, City of London Green Finance Initiative, University of Oxford Socially Responsible Investment Review Committee, The Prince of Wales's Accounting for Sustainability Project, ATLAS Infrastructure Partners Ltd, Institute and Faculty of Actuaries, the Natural Capital Finance Alliance, and the Green Alliance.

He has conceived and initiated a number of initiatives related to sustainable finance, including the Global Research Alliance for Sustainable Finance and Investment (GRASFI); the Northern European Partnership for Sustainable Finance (NEPSF); the Asset-level Data Initiative (ADI); and the Commonwealth Climate and Law Initiative (CCLI). Ben is the Founder and Principal Investigator of the Green BRI Platform, a project designed to help measure, manage, and mitigate the environmental risks and impacts of investments along China's Belt and Road Initiative. Ben chairs the City of London Green Finance Initiative (GFI) Working Group on Data, Disclosure, and Risk.

Prior to joining the University of Oxford he was a Vice President at investment bank Climate Change Capital, one of the early leading asset management and advisory firms focused on the low carbon transition.

Ben holds a doctorate in economic geography from the University of Oxford.

Han Chen

Han Chen, International Climate Advocate with NRDC, helps implement NRDC's strategy to address climate change at the international level and in key countries around the world including the United States, India, China, Canada, and myriad Latin American nations. This work includes engagement in the U.N. Framework Convention on Climate Change climate negotiations and other venues for international climate action. Prior to joining NRDC, Chen was a researcher at the Brookings Institution.

She holds a bachelor's degree in international studies from American University and a master's degree in international development from Beijing's Tsinghua University. She is based in NRDC's Washington, D.C., office.

Julien Dumoulin-Smith

Julien Dumoulin-Smith is a Director in Americas Equity Research at Bank of America Merrill Lynch (BAML), covering US Power, Utilities, and Alternative Energy, based in New York. Previously, he was an Executive Director at UBS in a similar role. Dumoulin-Smith was ranked #2 in the Institutional Investor All-America Research Poll for 2017 and #1 for 2016. He has also been ranked #1 in Alternative Energy in the Institutional Investor All-America Research Poll for 2016 and 2017. He was previously named Up and Comer on the same lists and received the top designation for 2012-15 among hedge fund managers on II's Alpha list, a recut version of the II poll for Utilities. Dumoulin-Smith has a BS in applied math and an MBA both from Columbia University. He is a CAIA Charterholder.

Seth Feaster

IEEFA Data Analyst Seth Feaster has 25 years of experience creating visual presentations of complex data at *The New York Times* and more recently at the Federal Reserve Bank of New York. He specializes in working with financial and energy data.

Ashish Fernandes

Ashish Fernandes is a Senior Campaigner with Greenpeace, where he has worked for nearly a decade on the environmental and financial risks posed by India's coal sector. Prior to Greenpeace, he worked with India's leading wildlife magazine, *Sanctuary Asia*.

Shannon Fisk

As Managing Attorney for Earthjustice's Coal Program, Shannon Fisk leads Earthjustice in pushing the nation to become less dependent on its aging coal fleet, stopping uneconomic investments in dirty power plants, and making way for untapped renewable energy resources and innovation in energy efficiency.

Since joining Earthjustice in 2012, Fisk has ramped up the organization's litigation and advocacy on coal issues in the Midwest, the heart of the U.S. coal industry. He joined Earthjustice after more than 10 years of

litigating against coal-fired power plants and on other environmental issues at the Natural Resources Defense Council and the Environmental Law and Policy Center.

Fisk has been a tireless advocate for environmental and public health interests before public utility commissions, state environmental agencies, and courts in proceedings that will determine the Midwest's energy future. His litigation has secured several coal-plant retirement commitments across the region and beyond, including halting American Electric Power's proposed \$940 million retrofit of the Big Sandy coal plant in Kentucky, which the company is now planning to retire in 2015.

Fisk graduated from the University of Michigan and received his law degree *cum laude* from Harvard Law School.

Vibhuti Garg

Vibhuti Garg, Associate with The International Institute for Sustainable Development (IISD), is a power sector expert with a focus on economic and statistical analysis. She has a deep understanding of the power sector, including acts and policies, in India. Vibhuti has been involved in identification and quantification of producer subsidies in India, market design mechanisms to promote short-term markets, clean energy and private participation in various areas of the energy sector. She has worked on numerous assignments in the power and fuels market, including the implementation of the pilot study on Demand-Response with Rajasthan Discom under a public-private partnership model. She has extensive experience in the renewable energy sector, including issues related to integrating wind energy and implementing drivers and mechanisms for scaling up renewable energy-based power generation. Vibhuti has advised a number of private and public sector clients about a range of power sector market issues, including: commercial and market entry strategies, market diligence for investment in power projects, the impact of power sector performance on state finances, recommendations on least-cost options for energy supply, long- and short-term demand and price forecasting.

Prior to joining IISD, she worked as a Manager at ICF International and AF-Mercados Energy Markets India and as a Research Associate in the Energy Reforms, Regulatory Studies and Governance division of TERI (The Energy and Resources Institute).

Philip Gass

Philip Gass is a Senior Policy Advisor of Energy and Lead of the Energy program, Indonesia, at IISD. He specializes in climate change and energy policy at the sub-national and national level in North America and Indonesia, and international developments within the UNFCCC process.

His recent work has focused on development of provincial climate change strategies, GHG mitigation policy for state owned enterprises in developing countries, the green economy in Canada and internationally, energy policy (including CCS stakeholder engagement), early reduction allowances within the Western Climate Initiative (WCI) and the engagement of the private sector in international climate negotiations. Prior to joining IISD in 2008, Philip spent three years with the Official Opposition Caucus in the Manitoba Legislature as a substantive policy researcher specializing in the portfolios of Science, Technology, Energy and Mines (including climate change) and Manitoba Hydro.

Eric Gimon

Eric Gimon consults as a technical expert, research scholar, and policy advisor with Energy Innovation. He is a main contributor to America's Power Plan, a platform for innovative thinking and collaboration on policy solutions for clean, reliable and affordable electric power in the U.S. More specifically, Eric works on questions of renewable energy integration both in the context of today's challenges as well as for future pathways. Eric also acts as an adviser for non-profits and foundations interested in these questions, alongside broader climate and energy issues.

Eric holds B.S. and M.S. degrees from Stanford University in mathematics and physics, as well as a Ph.D. in physics from the University of California in Santa Barbara. He has been active for 15-years as a researcher in quantum gravity and high energy physics in some of the world's top research institutions. Eric's work at Lawrence Berkeley National Laboratory and UC Berkeley, as well as an AAAS Fellowship with two Offices in the Department of Energy inspired his transition to climate and energy policy.

Deborah Goldberg

Deborah Goldberg is a Managing Attorney of Earthjustice's Northeast regional office, where she supervises and conducts legal advocacy and litigation related to global warming and environmental health.

Her arrival at Earthjustice in July 2008 marked a return to the practice of environmental law, where she spent the first decade of her legal career. As an attorney at the law firms Berle, Kass & Case and Arnold & Porter, she concentrated in cases involving environmental impact review, historic preservation and hazardous waste issues. She was lead counsel at the U.S. Supreme Court for the county intervenors in *New York v. United States*, 505 U.S. 144 (1992) (overturning portions of the Low Level Radioactive Waste Policy Amendments Act). While in private practice, she also co-authored with Michael B. Gerrard the environmental law column of the *New York Law Journal*.

Goldberg is a graduate of Harvard Law School, after which she served as a law clerk for then-Judge Stephen G. Breyer on the U.S. Court of Appeals for the First Circuit and the late Constance Baker Motley of the U.S. District Court for the Southern District of New York. Before joining Earthjustice, she was the Democracy Program Director of the Brennan Center for Justice at NYU School of Law, where she litigated cases, published in academic journals and the popular media and provided congressional testimony on issues of electoral and campaign finance reform.

Goldberg also holds a Ph.D. in philosophy and taught ethics for three years at Columbia University before embarking on the study and practice of law.

Matt Gray

Senior Analyst Matt Gray is an energy investment expert leading Carbon Tracker's work on power and utilities. Previously, Matt was an Analyst at Jefferies, an American investment bank, where he was the head of European carbon and power research. More recently, Matt was a Consultant Analyst at the International Energy Agency and worked on emissions trading at Credit Suisse and energy efficiency at the UK's DECC.

Matt has a Bachelor of Applied Science from the University of Otago and a Master of Science from the University of Manchester, where he was awarded a Rotary Foundation ambassadorial scholarship. In 2017, Matt received a Google scholarship to attend Singularity University's Global Solutions Program at the NASA Ames Research Center in California.

Kathrin Gutmann

In her role as coordinator of NGO efforts to phase out coal with CAN Europe, Kathrin Gutmann led the development of the Europe Beyond Coal Campaign. Kathrin brings with her more than fifteen years of expertise with network coordination, policy and advocacy, having worked in different capacities with WWF International's Climate Program, Climate Analytics, the European Climate Foundation, the German Environment Ministry, the Green Party in the German Bundestag and Greenpeace International. She has served on the Board of the Climate Action Network International and the Board of the Youth Organization of Friends of the Earth Germany, or the BUNDjugend. It was the many years as a volunteer with the BUNDjugend that brought her to climate issues in 1996.

Lisa Hamilton

Lisa Anne Hamilton is the Director of the Center for International Environmental Law's Energy & Climate program. She leads CIEL's efforts to use the power of law to accelerate the transition away from fossil fuels,

strengthen human rights in climate governance and empower communities to assert and protect their own rights in the face of climate change.

Prior to joining CIEL, Lisa was a regulatory consultant whose work focused on leveraging the power of finance and securities laws to highlight climate risks and challenge investments in fossil fuel infrastructure. At IEEFA, she supported a team of energy markets and financial analysts advocating for fair and full disclosure in the energy, mining and utilities sectors. Lisa also worked alongside stakeholders to develop recommendations for just transition for communities with retiring electric generation units. She has supported a number of initiatives to encourage the financing of renewable energy projects, including a collaboration with the Pace Climate and Energy Center to advocate for the most just and environmentally effective methods to meet the requirements of the Clean Energy Standard in New York State.

For over a decade she served as a Board Member and Membership chair of Environmental Advocates of New York. She served as a volunteer Moderator for the development of the first phase of the Northern Manhattan Climate Action Plan for WEACTION for Environmental Justice.

Jim Hempstead

Jim Hempstead is a Managing Director in Moody's Global Project & Infrastructure Finance Group, where he helps manage the North American Regulated Utility and Power Team. Jim also acts as a rating chair across all segments of the Global Infrastructure and Project Finance franchise, is a member of the Infrastructure Finance Franchise Committee and a member of the Global Infrastructure Focus Editorial Board. In 2017, Jim joined Moody's Global ESG Working Group and is managing the firm's Green Bond Initiatives. Jim joined Moody's in December 2002.

Prior to joining Moody's, Jim spent time as an investment banker with Merrill Lynch & Co., working in the Global Energy & Power Group, providing financial and advisory services to electric, natural gas distribution, interstate pipeline, energy merchant, water and energy technology companies. Prior to joining Merrill Lynch, Jim worked with Salomon Smith Barney Corporate Finance, working in their Global Energy & Power Group.

Jim graduated with a B.S.B.A. from Villanova University and an M.B.A. from Fordham University. From 2011-2013, Jim served as the Director of Emergency Management for his hometown in New Jersey, and is a registered EMT for his local, volunteer first aid squad. Jim is a member of the Wall Street Utility Group and became a Trustee with the Society of Utility and Regulatory Financial Analysts (SURFA) in 2012. In 2014, Jim joined the Advisory Council for the Electric Power Research Institute (EPRI).

Kathy Hipple

Kathy Hipple is a Founding Partner of Noosphere Marketing, where she works with mission-driven organizations, financial services and tech firms to communicate—and advance—their ESG initiatives. While teaching Finance at Bard College's Sustainable MBA, Kathy infuses sustainability and regenerative capitalism into a traditional finance curriculum.

Prior to launching Noosphere, Kathy had an extensive background on Wall Street, working with international institutional clients at Merrill Lynch, and in local search, where she ran a NYC-based media company with nearly 200 employees and \$35 million in revenues, and served on the national board of the Local Search Association.

Kathy is a founding member of the Generative Council, a group of women leaders in the for-profit and not-for-profit sector. She serves on the boards of Meals on Wheels in Bennington, Vermont; Sawah Bali, in Bali, Indonesia and The Center for Nature and Leadership, in Washington, DC. She is working to launch a Sustainable Women's Investment fund, which will select investments through a gender and sustainability lens. She has a B.S. from Tulane University and an MBA, from Managing for Sustainability, Marlboro College.

Nicole Horseherder

Nicole Horseholder lives and works on Black Mesa Plateau in northeast Arizona on the Navajo Reservation, where she has collaboratively advocated for environmental and economic justice in the face of the Peabody coal operation and the Navajo Generating Station for the last 17 years.

Sharif Jamal

Sharif Jamil is the Buriganga Riverkeeper who is an internationally recognized leader and activist in the global environmental movement. For more than a decade, he has organized civic action for environmental justice in Bangladesh through his involvement in the country's largest civil society initiative, Bangladesh Poribesh Andolon (BAPA). As a member and Joint Secretary of BAPA, Sharif Jamil has worked to save the country's rivers, wetlands, forests and urban green spaces, and to protect the rights of indigenous groups whose livelihoods depend on environmental preservation in Bangladesh.

Sharif Jamil has consulted closely with the Waterkeeper Alliance starting in 2009 through attendance at regional and global meetings and conferences. In 2014, he was elected as the International Regional Representative in the Waterkeeper Council. He has networked with local community leaders along the Buriganga River, and met with civil society leaders and policymakers in Bangladesh.

In 2007 Sharif Jamil was awarded a Joke Waller Hunter Fellowship by Both ENDS as a prospective leader on environmental movement among the developing countries in the world. With what he has learned, he trains others and sets up programs in other areas to engage more people in saving the natural water resources of Bangladesh. He has been serving also as the Coordinator of Waterkeepers Bangladesh since June 2015.

Nityanand Jayaraman

Nityanand Jayaraman is a writer and social activist based in Chennai, India.

Natalie Karas

Natalie is a Senior Regulatory Attorney in the Environmental Defense Fund (EDF)'s Oil and Gas Program. She is one of EDF's strategists and legal representatives in regulatory proceedings implicating natural gas market design, both at wholesale and retail levels. Her work includes Gas-to-Clean related energy market refinements and state proceedings assessing utility leak-prone pipe replacement projects.

Alison Kirsch

The Rainforest Action Network's Climate and Energy Program and Research Coordinator Alison Kirsch came to the RAN after graduating from Brown University with academic and activist experience in climate and energy policy. She provides up-to-date research and administrative support for the Climate and Energy team's campaigns.

Mark Kresowik

Mark Kresowik is a Regional Deputy Director for the Sierra Club, with primary responsibility for the Northeast, issues related to electric markets and the Federal Energy Regulatory Commission, and engaging electric system stakeholders to support electric vehicles. During his nearly dozen years with the Sierra Club, Mark has organized successful campaigns to stop unnecessary coal-fired power plants proposed in Iowa, end financing of coal by financial institutions and governments, replace dozens of the oldest and dirtiest coal plants with energy efficiency and clean energy along the East Coast, strengthen the Regional Greenhouse Gas Initiative, limit the damage from destructive mountaintop removal coal mining, and support economic diversification in formerly coal-dependent communities throughout Appalachia. He is currently helping steer advocacy to apply lessons learned from successfully reducing pollution in the electric sector to transportation and heating.

Mark previously served as an Interim Director for Iowa Interfaith Power & Light. He is a board member of RENEW Northeast, sits on the Sustainable FERC Project's steering committee and is a member of the advisory board of the Center for Global and Regional Environmental Research at the University of Iowa, his alma mater.

Cathy Kunkel

IEEFA Energy Analyst Cathy Kunkel has co-authored numerous reports for the Institute related to utility regulation, electricity markets, coal plant finances, mergers and acquisitions. Previously, she was a Senior Research Associate in the Electricity Markets and Policy group at Lawrence Berkeley National Laboratory. She has been an expert witness in eight West Virginia Public Service Commission proceedings regarding resource planning and energy efficiency.

Kunkel has also participated in hearings before the Puerto Rico Energy Commission in its Integrated Resource Plan proceeding and 2016 rate case proceeding. Kunkel graduated from Princeton University with a B.A. in physics and from Cambridge University with a Certificate of Advanced Study from the Department of Applied Mathematics and Theoretical Physics.

Warren Lasher

As Senior Director of System Planning for the Electric Reliability Council of Texas, Inc. (ERCOT), Mr. Lasher is responsible for transmission planning, load forecasting and resource adequacy analyses for the ERCOT interconnection. Mr. Lasher has been at ERCOT for over thirteen years. Before this, he was employed by the Southern Company in Birmingham, Alabama, where he worked in the Engineering and the Planning organizations. Mr. Lasher has a Bachelor's degree in Mathematics and graduate degrees in Environmental Management and Computer Science.

Donna Lisenby

Donna Lisenby is the Waterkeepers' Clean & Safe Energy Campaign Manager from Boone, North Carolina. Donna spent 16 years as a Riverkeeper advocating for the protection, preservation and restoration of waterways in four states – NC, SC, TN and KY. She has played a key role in bringing litigation against coal mining companies and coal-fired power plants, changing the Carolinas' inter-basin transfer laws and was the first environmental advocate to report and blow the whistle on leaking coal ash ponds across the state of North Carolina. She is the recipient 14 awards for her work to engage citizens and reduce industrial, sewage and sediment pollution. She appeared in the film "Walmart, the High Cost of Low Price," where she exposed the retailers' appalling failure to protect the environment and the National Geographic mini-documentary "Clean Coal: Water Pollution at the Light Switch" produced by Alexandra Cousteau as part of the Expedition Blue Planet series. She was named an environmental hero in a video by the University of NC School of Journalism in 2009. She has a Bachelor of Science degree from Clemson University and two beautiful grandchildren who motivate her work to ensure a healthy environment for future generations.

Suzanne Mattei

Suzanne Mattei is General Counsel to the New York State Trial Lawyers Association and a former Regional Director for the New York State Department of Environmental Conservation. She has 30 years of experience in public interest law and policy. She serves as the Board Vice President for IEEFA.

Cynthia McHale

Cynthia is Director of Insurance at Ceres. She heads Ceres' strategy for mobilizing U.S. insurance companies to address the myriad hazards and opportunities of climate change. In this capacity, she oversees Ceres' research, as well as company and regulator engagement activities focused on insurers' financial risks related to climate change. In her role, Cynthia leads Ceres' effort to communicate climate change's potential to cause increasingly destructive impacts on human safety and economic security.

Cynthia has co-authored two reports on the connection between climate change and insurance company financial stability: *Assets or Liabilities? Fossil Fuel Investments of the Top 40 US Insurance Groups* and *Stormy Future for Insurers: The Growing Costs and Risks of Extreme Weather Events*. Cynthia frequently speaks at insurance industry gatherings and to the media on these topics.

Prior to Ceres, Cynthia was the Senior Global Program Manager of the insurance practice at Accenture where she conducted research and analysis on business and technology trends, and their impact on company performance. Cynthia also consulted to U.S. and international companies and non-profits working on diverse issues such as financial literacy and sustainability. She holds a master's degree from Hult International Business School and a bachelor's degree in government from Dartmouth College.

Hannah McKinnon

Hannah McKinnon is the Energy Futures & Transitions Program Director working on Oil Change International's efforts to bring about a managed decline of the fossil fuel industry. She has worked on climate change and energy issues for over a decade, with experience ranging from national and international climate policy and advocacy in Canada with Climate Action Network and Environmental Defence Canada, to climate adaptation and risk management in Central America.

She has an M.Sc. from the London School of Economics and Political Science and a B.Sc. Hons. in Biochemistry from Mount Allison University, and studied at Lester B. Pearson United World College. Hannah is currently living in Freiburg, Germany.

Tom Murley

Tom Murley is one of the most visible faces in European and global renewable energy investing and is a leading advocate for increased institutional investment in energy projects and infrastructure. He has participated in the financing and acquisition of over \$10 billion in energy projects. Tom's 25 years of leadership and experience covers the entire range of infrastructure and renewable energy investment; from raising capital for infrastructure investment funds, originating and executing equity and debt investments in renewable and conventional energy projects, managing and selling operating renewable energy portfolios, to advising European governments on renewable energy and infrastructure policies to maximize private sector investment.

Tom holds degrees from Northwestern University and Fordham University School of Law where he was a member of The Law Review. He is a qualified lawyer, admitted to the Massachusetts and New York Bars. Before founding HgCapital in 2004, he was a Managing Director of Ares/EIF Group and an Investment Partner at Allianz Capital Partners. He was General Counsel of Alternative Energy Inc., a Bangor, Maine based biomass project developer and operator, and spent 8 years in private legal practice in Boston and New York.

Ted Nace

Ted Nace is the Founder and Director of CoalSwarm. He is the Co-founder of computer book publisher Peachpit Press and the author of *Gangs of America: The Rise of Corporate Power and the Disabling of Democracy* (2003, 2005) and *Climate Hope: On the Front Lines of the Fight Against Coal* (2010). He served as Staff Director of the Dakota Resource Council and as a columnist for *Publish!* magazine. He holds a bachelor's degree from Stanford University and a master's degree from UC Berkeley.

Simon Nicholas

IEEFA's Energy Finance Analyst Simon Nicholas is a Fellow of the Institute of Chartered Accountants of England and Wales. Nicholas joined the IEEFA team in July 2016, after 16 years' experience within the finance industry at ABN Amro, Macquarie Group and Commonwealth Bank of Australia in both Sydney and London. Nicholas' work with IEEFA focuses on Australian coal exports and associated infrastructure

investments and their growing stranded asset risks, as well as tracking transformations underway in the key electricity markets of China, India and Bangladesh.

David Ortiz

David Ortiz is Director of El Puente: Enlace Latino de Acción Climática in Puerto Rico. David leads a group of members who implement educational and mobilization activities on the impacts of climate change and shifting the island to renewable energy.

Denise Patel

Denise Patel has over a decade of experience leading and developing advocacy campaigns for progressive non-profit organizations, with a focus on environmental health policy, coalition building, and organizational development. She holds a Master of Public Health from Columbia University with a focus on Climate and Health.

Calvin Quek

Calvin Quek is Head of Greenpeace East Asia's Sustainable Finance Program and leads its engagement of the financial community. Quek serves on the Board of the China Carbon Forum and was the first Executive Director of the Beijing Energy Network. Prior to joining Greenpeace, he was with Citigroup for close to a decade, where he was with the investment research team in Singapore and led Citigroup Singapore's CSR & Volunteerism committee in 2008. Calvin has an MBA from Peking University, and an M.Sc. in Wealth Management from Singapore Management University.

Quek is a regular commentator on China's energy and environmental issues, contributing to the *Financial Times* and *South China Morning Post*, and he has appeared on CNBC, Bloomberg, and CCTV, and speaks regularly at investment summits.

Bruce Robertson

IEEFA Investment Analyst Bruce Robertson worked as an Investment Analyst and Funds Manager for 16 years prior to moving with his family to farm in the Manning valley, on the mid-north coast of New South Wales (NSW). He became involved in energy issues when Transgrid, the NSW transmission provider, proposed to build a transmission line down the Manning Valley. Through his analysis of the project's economics, he exposed the over-investment in grid infrastructure in Australia, which spawned a government inquiry that found the line was unnecessary. The line was cancelled, the first time this had occurred in Australian history.

He was also involved in making the economic case against a Coal Seam Gas project in the Manning Valley that has since ceased exploration and handed back its licence. In more recent years he has worked part time marketing for a funds manager, working on his farm and as an analyst on Australian Gas/LNG issues with IEEFA.

Rebekah Sale

Rebekah has been an environmental organizer for 25 years, working at NYPIRG, GrowNYC and Broadway Green Alliance. She now runs the Property Rights and Pipeline Center.

Tom Sanzillo

Tom Sanzillo, Director of Finance for IEEFA, is the author of several studies on coal plants, rate impacts, credit analyses, and public and private financial structures for the coal industry. He has testified as an expert witness, taught energy-industry finance training sessions, and is quoted frequently by the media. Sanzillo has 17 years of experience with the City and the State of New York in various senior financial and policy management positions. He is a former First Deputy Comptroller for the State of New York, where he oversaw the finances of 1,300 units of local government, the annual management of 44,000 government

contracts, and where he had oversight of over \$200 billion in state and local municipal bond programs and a \$156 billion pension fund.

Eric Schaeffer

Eric has served as Executive Director of the Environmental Integrity Project since he co-founded the organization in 2002. Previously, Eric served as Director of EPA's Office of Civil Enforcement from 1997-2002, where he received a Presidential Rank Award, as well as the John Marshall award from the Justice Department for his leadership in negotiating an industry-wide cleanup of petroleum refineries. Eric's career at EPA began in 1990, and included an appointment as special assistant to the Deputy Administrator. Prior to his service at EPA, Eric worked as an environmental attorney for two and a half years at Morgan, Lewis & Bockius, and spent six years on Capitol Hill working for various members of Congress. Eric received his law degree from Georgetown University, and his B.A. from Vanderbilt University. He serves on the board of IEEFA.

David Schlissel

David Schlissel, Director of Resource Planning Analysis for IEEFA, has been a regulatory attorney and a consultant on electric utility rate and resource planning issues since 1974. He has testified as an expert witness before regulatory commissions in more than 35 states and before the U.S. Federal Energy Regulatory Commission and Nuclear Regulatory Commission. He also has testified as an expert witness in state and federal court proceedings concerning electric utilities. His clients have included state regulatory commissions in Arkansas, Kansas, Arizona, New Mexico and California. He has also consulted for publicly owned utilities, state governments and attorneys general, state consumer advocates, city governments, and national and local environmental organizations.

Schlissel has undergraduate and graduate engineering degrees from the Massachusetts Institute of Technology and Stanford University. He has a Juris Doctor degree from Stanford University School of Law.

Anya Schoolman

Anya Schoolman is the Executive Director of Solar United Neighbors, a national nonprofit that represents the interests of solar owners. Solar United Neighbors helps people go solar, come together and fight for their energy rights. Ms. Schoolman founded the Mt. Pleasant Solar Coop in 2007 with her son Walter. Over the past 10 years she led a city-wide effort in Washington, DC to make solar accessible and affordable to all residents. Nationally, Solar United Neighbors has completed over 120 solar co-ops and helped more than 2,500 households, nonprofits and other organizations go solar. Before solar, Schoolman spent 10 years working as a program officer and consultant for multiple foundations on natural resource issues, policy, and civic engagement and campaign design. She worked five years at the World Wildlife Fund and spent 10 years at the US Environmental Protection Agency and US Department of the Interior focused on trade, US Mexico and international environmental policy. She lived five years in Latin America and is fluent in Spanish.

Kashish Shah

Kashish Shah, a Research Associate at IEEFA, has a master's degree in economics from the University of Sydney and an engineering degree from NMIMS University in Mumbai. Kashish has worked in the Global Analytics Division of the Royal Bank of Scotland with a focus on regulatory policies. Kashish has research experiences in India's public sector in his work for a member of Indian Parliament and a University of Sydney-based research group.

Larry Shapiro

Associate Director for Program Development at the Rockefeller Family Foundation (RFF), Larry Shapiro joined the Foundation in 2000. Prior to RFF, he directed the New York Public Interest Research Group's (NYPIRG) environmental programs from 1988-1999. Among his successes in that capacity were campaigns to prevent construction of the Brooklyn Navy Yard incinerator; to force the shut-down of Fresh Kills, the

largest landfill in the world; and to urge New York Governor George Pataki to order promulgation of what at the time were the toughest power plant emission standards in the country. Larry co-founded the Environmental Integrity Project (EIP) and serves as Board President for IEEFA.

Heffa Schuecking

Heffa Schuecking is Founder and Director of the German environment and human rights organization Urgewald, whose focus is monitoring the activities of European companies and banks abroad. Heffa has designed many inspirational and successful advocacy campaigns, and was the first German to win the Goldman Environment Prize. Her organization has played a key role in initiating the coal divestment actions of the Norwegian Government Pension Fund, Allianz and AXA.

Christine Shearer

Senior Researcher Christine Shearer came to CoalSwarm with a background in interdisciplinary climate change and energy research. She previously worked as a postdoctoral scholar in Earth System Science at the University of California in Irvine, as a research fellow at the National Center for Ecological Analysis and Synthesis, and as a reporter for the Center for Investigative Reporting. Her writing has appeared in science and media publications including *Nature*, *Environmental Research Letters*, *National Geographic*, and *The New York Times*, and she is author of *Kivalina: A Climate Change Story* (2011). She received her PhD in Sociology from the University of California at Santa Barbara.

Tony Skrelunas

Tony Skrelunas organizes community-based economic strategy that is guided by local vision and cultural values. He led work on the Local Governance Act, federal delegation of business site leasing to the Navajo and local sales tax creation, and has organized Navajo Nation strategy around large-scale renewable energy projects while assisting area communities to expand their economies. He is Vice-president of DineiHozhoiL3c.com, Board Chairman of Blackwater Mesa Water Coalition and Director of Native America Programs at Grand Canyon Trust.

Anna Sommer

Anna Sommer is President of Sommer Energy, a utility-regulation consulting firm. For over a dozen years, Ms. Sommer has provided clients with consulting on a wide range of topics including electric resource planning, energy efficiency planning, and carbon capture and sequestration.

Andreas Spiegel

Andreas is an independent sustainability expert with twelve years' experience working in the insurance sector for Swiss Re, the second largest global Reinsurance company. During his time at Swiss Re, he acted as the Senior Climate Change Advisor, Head of Group Sustainability & Political Risk and ultimately as the Group Head Sustainability. During this time, Swiss Re became carbon neutral, committed to 100% renewable energy sourcing, and implemented both a carbon tax on business flights and a sustainability risk policy framework, which applies to all business activities across the Group.

Most recently, he helped develop and implement an ESG strategy for asset management, which included an exit from thermal coal investments and developed a thermal coal exit strategy for Swiss Re's insurance business. In addition, Andreas headed up applied research driven market development efforts, with a focus on the quantification of climate risks for public sector and energy clients. Further, he assessed the insurance business potential linked to renewable energy, agriculture risks in emerging markets and conducted economic research on the socio-economic value of insurance in emerging markets. Swiss Re was nominated sector leader by Robeco SAM Dow Jones Sustainability Index (DJSI) ten times in the last twelve years.

Andreas acted as board member of the Financial Stability Board Taskforce on Climate-related Financial Disclosures (TCFD), UN Principles for Sustainable Insurance, Swiss Sustainable Finance Association,

Climate Wise initiative and participated as an official member of the Swiss Governmental Climate Delegation in 2009. In the past, Andreas worked as a business consultant for Accenture for four years and in banking-related risk review and organizational development departments at UBS and Swiss Cantonal Bank of Berne for three years. Andreas holds a Master in Environmental Sciences from the Swiss Federal Institute of Technology (ETH).

John Thompson

John Thompson directs the Clean Air Task Force's Fossil Transition Project. The project's primary purpose is to prevent climate change by fostering low-carbon coal solutions, through endorsing environmentally sound commercial projects, facilitating the transfer of innovative, low-carbon coal technology between the U.S. and China, and developing federal policy to speed the transition of the U.S. coal fleet to deep carbon dioxide reductions.

John is a frequent presenter on coal technology and sequestration at conferences both in the United States and China. In the past, he has served on numerous advisory panels including the Technologies Subcommittee of the Western Governors' Association, US EPA's Advanced Coal Working Group, and the Coal Gasification Work Group of the Powering the Plains Project. John holds a B. S. in chemical engineering from the University of Illinois, Champaign-Urbana, as well as an M.B.A. from Olin School of Business at Washington University in Saint Louis.

Tomás J. Torres

Tomás Torres is Executive Director of the Institute for Competitiveness and Sustainable Economy of Puerto Rico (ICSE-PR). Torres was a member of the Puerto Rico Planning Board; has lectured in Puerto Rico and abroad, highlighting energy and planning issues; and for the past two years, has chaired the Energy Committee at the Puerto Rico Manufacturers Association. He is an active member of the Institute of Engineers and Surveyors of Puerto Rico and of the Puerto Rican Planning Society.

Torres is an experienced licensed engineer and licensed professional planner. During his career, he has worked in the Puerto Rico Electric Power Authority; in the pharmaceutical and high-tech industry; in construction and housing development and as a consultant. He graduated with honors in engineering at the University of Puerto Rico, Mayaguez Campus and has a Master's Degree in Planning from the University of Puerto Rico, Rio Piedras Campus.

Ingrid Vila Biaggi

Ingrid M. Vila Biaggi is a licensed professional engineer and co-founder of CAMBIO, a non-profit organization based in Puerto Rico that promotes sustainable, responsible actions related to solid waste management, energy, water resource optimization, climate change, environmental protection, governance and fiscal matters. Mrs. Vila Biaggi actively supports environmental justice communities, including those defending against a waste incinerator proposed for Arecibo and those suffering from coal ash disposal consequences in Peñuelas. She serves as Urban Water Ambassador for the revitalization of the Martín Peña Channel and neighboring communities in San Juan, and on the Advisory Council for the Puerto Rico Urban Resilience to Extremes Sustainability Research Network. Mrs. Vila Biaggi serves on the Board of Directors of Cumbre Social, an entity that groups labor union leaders and civil society to promote socially responsible public policy in Puerto Rico. Following Hurricane María, Mrs. Vila Biaggi has been actively engaged in policy development advising, speaking, and promoting resiliency and sustainability in recovery and reconstruction efforts.

Mrs. Vila Biaggi has a bachelor's degree in Civil and Environmental Engineering from Cornell University and a Master's Degree in Environmental Engineering, with a specialty in water resources from Stanford University. She has worked as a consultant in both the United States and Puerto Rico. Mrs. Vila Biaggi has also worked in the public sector, first serving as Advisor in Environmental Affairs, Planning and Housing, and Deputy Chief of Staff for Governor Sila María Calderón (2001-04) and as Chief of Staff for the

Commonwealth of Puerto Rico under Governor Alejandro García Padilla (2013-2014). She led the Executive Branch effort that resulted in the enactment of Law 57 of 2014, Energy Transformation and Relief Act and the Executive Branch team in the first centralized collective bargaining negotiations with all unions from the central government culminating in a collective bargaining agreement for over 40,000 union workers guaranteeing rights and benefits in the context of the fiscal crisis. She led the development and drafting of the Puerto Rico Economic Recovery Agenda for 2014-18, which for the first time presents sustainability, public participation and social infrastructure as key elements of a government plan. Mrs. Vila Biaggi also served as Executive Branch liaison with Puerto Rico's White House Task Force and participated in negotiations with the United States Department of Justice leading to Puerto Rico's first civil rights police reform.

Yiting Wang

Yiting Wang manages strategy and proposal development for WWF programs addressing China's global ecological footprint. Most recently, she has been leading collective climate finance strategy development with NGO partners and other stakeholders inside and outside of China. Over the years, she has worked with leading and grassroots environmental and justice groups on four continents, strategizing for technological and social innovation, and campaigning for equitable global governance. She has conducted extensive field research and published on rural energy issues in East Africa and India. She believes in building durable relationships across cultural and disciplinary boundaries to stimulate systemic solutions. Yiting graduated from Mount Holyoke College with the highest honor, and earned her Master of Environmental Science from the Yale University School of Forestry and Environmental Studies.

Shelagh Whitley

Shelagh Whitley is Head of the Climate and Energy Programme at the Overseas Development Institute (ODI). Shelagh leads ODI's research on fossil fuel subsidies, green fiscal policy and private climate finance. From 2006-2011, Shelagh worked for Camco, a carbon project developer, on the origination, execution and financing of carbon projects covering a range of low carbon technologies in Asia, Africa, and North and South America. Shelagh was the Chair of the Carbon Markets and Investors Association (CMIA) Voluntary Market stream, and Vice-Chair of the Technical Advisory Committee of the Gold Standard (for carbon credits).

From 2004-2006, Shelagh was a Project Manager with The Climate Group, a non-profit organization dedicated to advancing business and government leadership on climate change. Shelagh has a Masters Degree in International Environmental Policy and Finance from the Fletcher School at Tufts University in the United States, and a Combined Honours BSc in Biology and International Development Studies from Dalhousie University in Canada.

Clark Williams-Derry

Clark Williams-Derry is Director of Energy Finance for Sightline Institute, a multi-issue sustainability think-tank based in Seattle. His research focuses on US and global and energy markets, particularly issues affecting the Western United States. Williams-Derry's recent research has covered the financial and fiscal implications of "self-bonding" for coal mine reclamation; the financial viability of West Coast coal export projects; Pacific Rim coal market dynamics; greenhouse gas accounting for coal export projects; issues emerging from coal industry bankruptcies; and the interactions between federal coal leasing policy and coal exports.

Williams-Derry spent 15 years directing Sightline's research team, spearheading groundbreaking research on mapping and analyzing sprawl; testing human breastmilk for toxics; designing a regional climate cap-and-trade policy; and exploring the intersection of transportation, land use, climate change, and human health. He also launched the Cascadia Scorecard project, Sightline's regional index of progress towards a sustainable Pacific Northwest. He is an in-demand speaker, writer, consultant, and media spokesperson on sustainability topics.

Before joining Sightline, Williams-Derry investigated federal farm and wetlands policy as a senior analyst at Environmental Working Group (EWG), where he oversaw the development of EWG's nationally-acclaimed farm subsidy database. He started his career at the national researcher, legislative analyst and media relations specialist for the National Audubon Society in Washington, DC. He graduated summa cum laude from Yale University in 1989 with a joint degree in mathematics and philosophy. A resident of Seattle, Williams-Derry spends his "spare" time with his wife Amy and their two daughters.

Gerard Wynn

IEEFA Energy Finance Consultant Gerard Wynn is a U.K.-based 10-year veteran of energy and economics reporting at the Thomson Reuters News Agency. He has authored numerous research papers on the energy industry, including on solar power development in Great Britain and coal-fired generation in China and India. With IEEFA, Wynn focuses on analyzing key decisions by electric utilities in Europe and on the economics of proposed and existing coal-fired power plants. He has a PhD in environmental economics from the University of Aberdeen, a master's in agricultural economics from Imperial College at Wye, and a bachelor's from the University of Cambridge.

Aiqun Yu

Aiqun joined Coalswarm in 2014. Before she moved to the U.S., she worked as a journalist and editor at China Central Television for 18 years, focusing on environmental and social issues. Born in the Northeast of China, Aiqun received her master's degree at Communication University in China and spent two years as a visiting scholar at UC Berkeley. With her Chinese-English bilingual and professional fact-checking skills, she conducts the China research for the Global Coal Power Plant Tracker. "I am proud of what I am doing now, and hope the information we are collecting can reach more Chinese people and have more impact on China's decarbonization process."

Dan Zarrilli

As New York City's Senior Director of Climate Policy and Programs and its Chief Resilience Officer, Daniel Zarrilli is preparing America's largest city for the future. In the last five years, he has positioned New York City as the global leader in the fight against climate change.

Notable successes include launching a comprehensive \$20 billion climate adaptation program, aligning the city's GHG reductions with the 1.5C target of the Paris Agreement, committing to divest the City's pension funds from fossil fuel reserve owners, suing fossil fuel companies for the damage caused by climate change, reaching a first-of-its-kind agreement with FEMA to provide new climate-smart flood maps, and delivering on Mayor de Blasio's groundbreaking OneNYC strategy for growth, equity, sustainability, and resiliency.

Until recently, Daniel served on NOAA's advisory committee for the Sustained National Climate Assessment. He also concluded a 3-year term on FEMA's National Advisory Council and advised the State of Louisiana on its 2017 Coastal Master Plan update. He is currently serving on C40's Expert Advisory Group.

Previously, he was Senior Vice President for Asset Management at the New York City Economic Development Corporation and spent five years with Bechtel Infrastructure Corporation. Daniel is a licensed Professional Engineer in New York and holds an MS in Civil and Environmental Engineering from MIT and a BS in Civil Engineering from Lehigh University. He resides in Staten Island with his wife and three children.

Anna Zubets-Anderson

Anna Zubets-Anderson is a Vice President – Senior Analyst at Moody's Investors Service, with over fifteen years of experience in credit analysis, securities litigation and public accounting. Anna covers a portfolio of companies within basic industries, with a focus on North American coal names.

Anna joined Moody's in 2009, initially as a member of the Accounting Specialists Group in New York, responsible for the analysis of accounting and financial reporting issues and their impact on credit ratings process. She soon transitioned to her present role as the lead analyst for the U.S. coal portfolio and a number of other mining and paper products companies.

Prior to joining Moody's, Anna was a litigation consultant in a number of class-action securities fraud cases, as a Senior Manager at Marks Paneth & Shron LLP. She also instructed several professional education classes in U.S. GAAP and IFRS. Prior to joining Marks Paneth, Anna spent eight years in public accounting. She was a manager at KPMG LLP, and a member of their International Standards Group in London, responsible for firm-wide standards advisory and various external publications.

Anna is a Certified Public Accountant, and holds a Bachelor of Science in Business Administration from San Francisco State University.

Adam Zurofsky

Adam Zurofsky serves as Deputy Secretary for Energy and Financial Services in the Office of Governor Andrew M. Cuomo. In that capacity, Adam oversees all aspects of energy policy and financial regulation in the State of New York as well as the following State agencies and authorities: the Department of Public Service (DPS), the New York Power Authority (NYPA), the Long Island Power Authority (LIPA), the New York State Energy Research and Development Authority (NYSERDA), including its New York Green Bank, and the Department of Financial Services (DFS), including its Banking, Insurance and Consumer Protection divisions. Adam also helps lead implementation of Governor Cuomo's climate agenda, including the U.S. Climate Alliance of 16 states committed to upholding the Paris Climate Accords and efforts to decarbonize the \$200 billion New York Common Retirement Fund.

Prior to joining the Cuomo administration, Adam was a partner at the New York law firm of Cahill Gordon and Reindel, LLP, where he advised leading companies, financial institutions and their boards in a wide variety of regulatory, litigation and corporate governance matters. He is a co-founder of Fordham Law School's Corporate Sustainability Initiative and is a member of Fordham's Adjunct Faculty, where he teaches a course that examines the purpose of corporations and its relationship to corporate sustainability. He is a published author and a regular speaker at conferences on topics ranging from corporate social responsibility to renewable energy.

Adam holds an A.B. with honors in Political Science from Stanford University, where he was elected to Phi Beta Kappa, and a J.D. *cum laude* from Harvard Law School. Adam currently serves on the Board of Directors of Civics Unplugged, a civics education organization, and was previously a member of The Brookings Institution's Leadership Council for Governance Studies as well as the Board of Directors of the Roundabout Theatre Company. Adam lives in New York City with his wife and their three children.