

List of Contributors

Kwesi Annan-Takyi is a graduate of the Berlin Professional School, and with additional background as Green Energy Finance Expert from the Renewables Academy, in Berlin. The author has over 15 years' field experience in the energy efficiency sector in Ghana's green energy activities, having been part of various national scale pioneering projects that have reduced Ghana's energy efficiency among industry and domestic consumers over these years. As a sustainable energy projects developer and solutions provider for industry, commercial buildings and other large-scale consumers, he employs an entrepreneurial approach to decarbonization and the low carbon economy. He yearns to share the experiences and insights gained as he continues to learn how the stars would align for a green energy financing utopia in his part of the world.

Jim Armbruster is member of the building technology group of ITE – Institute for the Transformation of the Energy system. He is working on a project covering potential use of large-scale heat pumps in heating networks. He holds a professional bachelors degree in heating technology and a Bachelor of Engineering in Green Building Systems (FH Westkueste, Heide, Germany).

Jörg Böttcher, a graduate in economics and a qualified bank management assistant, has been working with IB.SH (Promotional Bank in Schleswig-Holstein) since 2021. Before that time, he worked for 25 years with Hamburg Commercial Bank (formerly HSH Nordbank AG) and has been specializing in renewable energies projects. Jörg has produced a series of publications on project finance and renewable energies since 2004. He completed his doctorate at Justus-Liebig University in Giessen in 2011 with a thesis entitled "Possibilities for Financing CSP Projects."

Roman Buss holds a doctorate in political science. From 2022 to April 2024, he worked as a senior manager and consultant at the World Energy Council – Germany, where he supervised the German-Colombian industrial dialog on green hydrogen and a study on sustainable ammonia, among other things. As RENAC project manager in the field of energy policy, he implemented numerous international training projects for GIZ and on behalf of federal ministries between 2010 and 2022. In the IASS-led project "CO-BENEFITS", which was funded by the International Climate Initiative (Internationale Klimaschutzinitiative) of the BMU, he organized the work packages on capacity building. Between 2015 and 2024, he supported the "International Communication of the Energy Transition" on behalf of the Federal Foreign Office (Auswärtiges Amt).

Darius Bonk is a member of the building technology group of ITE – Institute for the Transformation of the Energy system. He is working on a project covering potential use of large-scale heat pumps in heating networks. Previously, he studied green building systems (B.Eng.) and automation technology (M.Eng.) at FH Westkueste in Heide, Germany.

Heinz-J. Bontrup, Prof. Dr. rer. pol., graduate economist, graduate business economist, studied business administration in Bielefeld and economics in Bremen. He holds a doctorate from the University of Bremen. He has practical experience in the aerospace industry and as a board member at Stahlwerke Bochum AG. From 1996-2019 he was Professor of Economics at the Westphalian University of Applied Sciences, and since 2018 he is Visiting Professor at the University of Siegen, Faculty III, Economics. He has numerous book publications, including with Prof. Dr. Ralf-M. Marquardt (*Energiewende, Verteilungskonflikte, Kosten Folgen*), and *Die Zukunft der großen Energieversorger*. An expert in the German Bundestag and various state parliaments and board member of the Westphalian Energy Institute ("Westfälisches Energieinstitut"), on March 21, 2018, he was awarded the Federal Cross of Merit on Ribbon by the Federal President for his diverse economic education work against the neoliberal mainstream.

Torsten Czesla studied mechanical engineering (Dipl.-Ing.) and completed his PhD (Dr.-Ing.) at Ruhr-University Bochum. After a longtime career in the energy industry he accepted the position of Professor and Head of Studies Energy Engineering and Resource Optimazation at the newly founded University of Applied Sciences Hamm-Lippstadt (HSHL) in 2009. His research topic is integration of renewables into the energy supply system. As part of a research group concerning energy transition and transformation design he has also contributed the strategic research direction of the university. Currently, he is founding member of the university's new institute for sector coupling (Institut für Sektorenkopplung in der Energiewende – IFSK).

Andreas Gabler is a lawyer and partner at the law firm Hoffmann Liebs Partnerschaft von Rechtsanwälten mbB in Düsseldorf. He advises domestic and foreign clients in all areas of German and European energy law. Dr. Gabler has extensive experience in energy contract law as well as in the planning and contractual structuring of energy projects (power plant construction, contracting). A major focus of his work is in the field of renewable energies, advising on wind, photovoltaic and biomass power plants. He advises on all project contracts (construction, operational management, grid connection) as well as on the regulatory framework conditions (remuneration claims, direct marketing, handling of load balancing).

Thies Goldner is a corporate lawyer based in the Hamburg office of Osborne Clarke. He has a focus on the Energy & Utilities Sector and advises banks, institutional and private-equity investors as well as developers and construction firms primarily in the areas of renewable energy generation, particularly on- and offshore wind and photovoltaics. Since 2007 he has worked for two other international law firms before he joined Osborne Clarke in 2016. He has a doctor's degree from the Georg-August University in Göttingen. During his professional practice, he has published several publications mostly concerning banking and real estate aspects of renewable energy projects.

Tibor Fischer is Director Renewable Energies at the German Energy Agency (dena). His work focuses on analysing framework conditions for renewable energies and new business models in the electricity and heating market. He has 18 years of experience in the renewable sector. Mr Fischer is the author of numerous studies and analyses on current legal and economic issues and trends in the energy sector in Germany and abroad. He is also a member of the UNECE Group of Experts on Renewable Energies (GERE) since 2019. His current work focuses on issues relating to the financing of renewable energies and new financial instruments and business models as well as new approaches to decarbonising individual sectors via integrated supply concepts. Tibor Fischer studied political science at the University of Leipzig (Germany) and the Universidad de Granada (Spain).

Tomas Haug is a Senior Managing Director at NERA Economic Consulting based in Berlin, where he leads NERA's energy and infrastructure practice. He provides advisory services to private companies, investors, and regulatory authorities on a wide range of economic and financial matters, including financial and tariff modelling, access pricing, competition policy matters, tariff structure, efficiency studies, and wider questions of regulatory reform. He is a Chartered Financial Analyst and holds academic degrees from the University of Quebec in Montreal and the University of Magdeburg.

Sebastian Helgenberger graduated in Environmental Sciences at Leuphana University in Germany and ETH Zurich. He also holds a PhD in socio-economics, acquired from BOKU University Vienna for his work on organizational resilience and the relevance of global warming on investment decisions in small and medium enterprises. In 2014 he joined the Research Institute for Sustainability as research team leader to support authorities and industries in identifying and realizing country-specific opportunities of renewable energy and energy efficiency solutions for planet and people.

Thoralf Herbold is an attorney and Partner in the Cologne and Hamburg office of GÖRG Partnerschaft von Rechtsanwälten mbB. He specializes in the area of energy law, in particular renewable energies. Thoralf advises national and international investors, project developers and power plant constructors in the project development and M&A-transactions in the energy sector (onshore and offshore wind farms, solar plants, energy storages).

He is also an expert in the field of energy regulatory law, energy trading and the development of decentralized energy concepts. Thoralf is further specialized in the area of public commercial law (permits, grid connection). Prior to joining GÖRG, Thoralf had an engagement with Hengeler Mueller in Düsseldorf from 2007 through 2009. He joined GÖRG in 2009 and was announced Partner in 2016.

Nicolai Herrmann is a managing partner for enervis energy advisors GmbH in Berlin. He has vast experience in energy economics, market analysis and modelling, investment appraisal for energy assets, PPAs, energy market design and scenario studies. He holds a degree as an industrial engineer and a PhD in economics from Flensburg University (GER). He attended academic programs at Griffith University in Brisbane, Australia and was a visiting scholar to the University of Maryland, USA.

Philipp Hiemann is a doctoral student in economics and assistant to the Board of Directors at RWI – Leibniz Institute for Economic Research in Essen. He studied Business Administration and Economics at Bielefeld University and holds a master's degree in economics from St Catharine's College, University of Cambridge. Before joining RWI, he worked for several years as an economist at NERA Economic Consulting in Berlin. At NERA, he worked on topics in economic regulation with a particular focus on energy networks, supporting clients in regulatory and arbitration proceedings as well as transactions of energy assets. At RWI, where he works in the Environment and Resources department, he specialises in energy and transport economics as well as energy and infrastructure regulation.

Jerrit Hilgedieck studied Energy and Environmental Engineering as well as Renewable Energy at the Hamburg University of Technology (TUHH). He has been working on his PhD in renewable energy system technology since 2016 with a focus on the integration of renewable energies in the electricity system at the Hamburg University of Technology.

Attakan Janpidok, a seasoned professional in the energy sector, brings two decades of knowledge and expertise across oil & gas upstream, deep geothermal drilling operations, and green energy finance. In his previous roles, Attakan has worked on multiple geothermal projects in Indonesia and served as the regional focal point for geothermal project development. His understanding of Indonesia's renewable energy policy and the relationships with private sectors have been key to his achievement. Currently pursuing a master's degree in Business Management with a focus on Green Energy and Climate Finance, Attakan continues to deepen his knowledge and reflects a profound commitment to sustainable energy.

Martin Kaltschmitt obtained his PhD as well as his Habilitation in the field of renewable energies at Stuttgart University/Germany. After a research stay at King's College in London and at the University of California at Berkeley he became the managing director of the Leipzig Institute for Energy non-profit research company. In 2006 he was promoted to a full professor at Hamburg University of Technology where he is heading the Institute of Environmental Technology and Energy Economics. Between 2008 and 2010 he was in parallel the scientific managing director of the German Biomass Research Centre (DBFZ).

Jennifer Kowallik works at the Agency for the Environment, Climate, Energy and Agriculture as a consultant for Green Economy and Sustainable Finance. Previously, she worked at the Energy Agency of Investitionsbank Schleswig-Holstein as a project manager for the Energy and Climate Initiative (EKI). She holds a doctorate from the Institute for Banking, Finance and Start-up Management at the Leuphana

University of Lüneburg. Prior to this, she held various professional positions in the finance and energy industry.

Jens Kühne works at AGFW (“Energy Efficiency Association for Heating, Cooling and CHP”). He is responsible for the department’s staff and all topics in the field of heat generation (conventional or renewable), sector coupling (heat pumps or synthetic fuels) and heat accumulation in all variations. He holds a doctorate from the Technical University of Darmstadt (TU Darmstadt). Prior to this, he worked as Scientific Researcher with TU Darmstadt (Institute for Energy and Power Plant Technology).

Jelto Lange studied General Engineering Science (B.Sc.) and Energy Engineering (M.Sc.) at Hamburg University of Technology (TUHH). In December 2017, he started his work as a research assistant and PhD student (Dr.-Ing.) at the institute of environmental technology and energy economics at TUHH. His research is focused on the improved integration of fluctuating renewable energies into electricity systems by means of sector coupling.

Kathrin Langewald gained practical experience and deepened her knowledge, particularly in the field of international relations and development policy during her academic career from 2016 to 2024. Formative stages of her education were an internship at the German Institute of Development and Sustainability (IDOS) in Bonn and an exchange semester exchange semester at SciencesPo in Paris. There she dealt intensively with relations between the EU and Africa in the context of sustainable development development goals and renewable energies. As part of her master’s degree in International Public Affairs at the Central European University (CEU) in Vienna (2020-2024), she wrote her master’s thesis entitled “The Strategic Role of Green Hydrogen in German Foreign Policy: A Case Analysis of German-South African Energy Relations” with the strategic importance of green hydrogen in German foreign policy. Through her work as a junior consultant at the International PtX Hub of the German Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in Berlin (2023) and as a master’s student in the Global-H2-Upscaling project at the Institute for Future Energy and Material Flow Systems GmbH (IZES) in Saarbrücken (2024), she was able to substantiate her research question both empirically and theoretically. This experience enabled her to analyze the role of states in the development of global energy markets and challenges in the field of sustainable development in the field of green hydrogen.

Andreas Luczak is Professor at Kiel University of Applied Sciences focussing on Energy Transition and Energy Storage. Having a PhD in Physics he worked 16 years at Siemens in several positions in the Industrial and Power Generation area. Being responsible for the solar inverter business between 2008 and 2012 he experienced the challenging time of the solar boom in Germany/Europe and supported the first solar projects in the United States in the Megawatt range. After leading a corporate wide energy storage strategy project he left Siemens to become in 2013 the Managing Director of Vanadis Power, a German subsidiary of a Chinese Vanadium Flow Battery company deploying some of Europe’s largest Flow Batteries. In 2016 he accepted the appointment as Professor for Renewable Energy.

Jan Lüken studied Economics and Political Science at the University of Heidelberg. As a researcher at the Chair of Public Finance at the Catholic University of Eichstätt-Ingolstadt, he worked on the relationship between tax systems and on the relationship between tax systems and innovation. He then worked for five years in the representation of interests and as office manager of the board at the Bavarian Cooperative Association (“Genossenschaftsverband Bayern”). In 2019, Jan Lüken was appointed to the professorship for Business Economics at the Rosenheim University of Applied Sciences. He has been head of the “Circular Economy” Master’s degree program there since 2021. His research interests include the areas of circular economy, innovation economics and economic policy.

Farid Mohamadi has been working in renewables since 2009 as business leader in markets such as Europe, North Africa and Latin America. Now he advises project promoters to raise capital: equity (through M&A transactions or with mezzanine/bridge loans from dedicated energy funds) and senior long-term debt. He has a degree in industrial engineering from the business and technology school ESTA in Belfort, France, a Masters in Business Administration and Engineering from the university of technology and economy HTW in Berlin, Germany and a Masters in Business Management – Green Energy and Climate Finance from the University of Economy and Law HWR in Berlin. He is a certified Financial Modelling and Valuation Analyst (FMVA) from the Toronto-based Corporate Finance Institute (CFI) and Green Energy Finance Specialist (GEFS) from Green Banking and RENAC in Berlin, among other certifications he holds in the area of climate and sustainability finance. Furthermore, he is author of *Introduction to Project Finance in Renewable Energy Infrastructure* published by Springer Nature and works on further publications of relevance in his field. He lectures at the National University of Colombia. He is interested in topics related to climate finance, blended finance for developing countries, ethical banking, public private partnerships, digital innovation and strategic transformation.

Alexandra Oboda holds an MBA in Sustainability Management from Leuphana University Lüneburg and has been working as a sustainability manager for different banks for six years. She currently works for Investitions- und Förderbank Niedersachsen, where she coordinates all ESG measures from strategy to reporting.

Oliver Opel is Professor for energetic optimization of buildings. He is scientific director of the ITE – Institute for the Transformation of the Energy system at FH Westküste and scientific coordinator of the HY.SH competence centre of Schleswig-Holstein. He holds a doctorate in environmental science from the Institute for Environmental Chemistry at Leuphana University of Lüneburg.

Jane O'Sullivan is an Honorary Senior Research Fellow at the University of Queensland, based in Brisbane, Australia. With an overarching interest in human ecology and planetary health, she worked on tropical semi-subsistence farming systems before focusing on the threats to security posed by population growth and the taboos and misrepresentations that prevent effective responses. She is a co-convenor of The Overpopulation Project and a board member of Sustainable Population Australia.

Adrien Pagano studied EU politics and international relations in France, Germany and Belgium. He started working at the Bundestag in 2019 as a scientific assistant to Sylvia Kotting-Uhl, Chairperson of the Environment Committee, where he was in charge of nuclear safety in Germany and international nuclear monitoring. Since 2022, he is the head of Stefan Wenzels office in the Bundestag. Also relying on two years in the French administration, he particularly enjoys fostering the Franco-German discussion and cooperation in the energy sector.

Jasmine Ramsebner studied business administration at Vienna University of Economics and Business. In her doctoral thesis at the Vienna University of Technology, she dealt with the topic “The role of sector coupling in the energy transition”. She initially worked at the Austrian Federal Association for Electric Mobility (BEÖ) and has been with the KEBA Group since 2021, where she is Portfolio Director and leads a team that develops charging solutions, digital solutions and service products for e-mobility.

Michael Schulthoff studied Mechanical Engineering with a focus on Chemical Engineering and Energy Science (M. Sc.) at Ruhr-University Bochum (RUB). After an exchange at Virginia Polytechnic Institute and State University in 2018 he worked at Massachusetts Institute of Technology (MIT) in 2019 for his master's thesis. He pursued working at the MIT Energy Initiative as a Researcher in 2020 until he started as a research assistant and PhD student (Dr.-Ing.) at the Institute of Environmental Technology and Energy Economics at TUHH.

Alexander Stuckenholtz studied Electrical Engineering with a focus on Software Engineering (Dipl.-Ing.) at the Ruhr-University Bochum (RUB). In his doctoral thesis at the Fernuniversität Hagen, he dealt with the unplanned evolution of component-based software systems. During his research activities, he spent several months at San Diego State University. After his research, Dr. Stuckenholtz worked for several years in industry, e.g. as a software architect and IT manager, mainly for large energy companies. In 2012, Dr. Stuckenholtz was announced as a Professor of Practical Information at Hamm-Lippstadt University of Applied Sciences. He is head of the Intelligent Systems Design course there. He is also the author of the book *Basiswissen Energieinformatik*.

Jens Thorn studied economics at the Ruhr University Bochum (Dipl.-Ök.). He continued his university education with his doctoral studies, where he also worked as a research assistant. As a research assistant, he carried out several research projects with companies. Subsequently, he worked for a technology-oriented industrial company for measurement and control technology. There he accompanied an IPO at the New York Stock Exchange. At Hamm-Lippstadt University of Applied Sciences, Jens is active in the research field of energy transition and transformation design with several research projects. Currently, he is founding member of the university's new institute for sector coupling (Institut für Sektorenkopplung in der Energiewende – IfSK).

Christoph Torwegge is corporate and M&A partner and focuses his advice on matters of M&A transactions and selected areas of national and international commercial law in the Energy & Utilities and Infrastructure Sectors.

His clients are benefitting from his long-term experience gained in numerous international M&A transaction work and as General Counsel of an international group. Being focused on Energy & Utilities and Infrastructure Christoph advises regularly investors, banks, project developers and operators in planning, construction, financing and on transactions of renewable energy and infrastructure projects. Besides his experience in drafting and negotiating supply, maintenance and service agreements as well as engineering, procurement and construction agreements he has achieved numerous successful closings of transactions driven by his special expertise on transaction work in projects.

Christoph studied in Bielefeld, Bristol, and Leipzig. He worked for an international law firm and as head of legal before becoming a partner in Osborne Clarke in 2012. He is a member in various associations and author of numerous publications.

Jochen Weillepp holds a doctorate in physics and an MBA from INSEAD. He is a professor of energy economics at Biberach University of Applied Sciences in southern Germany. He teaches in particular finance and investment theory as well as strategic management and entrepreneurship with a focus on energy projects and start-ups in the energy sector.

Previously, Jochen was Managing Director of Voith Hydro Ocean Current Technologies and Division Head for New Technologies at Voith Hydro. He started his career as a management consultant and project manager at the Boston Consulting Group.

In the course of his career, Jochen has held several advisory board mandates in the marine energy sector. He was also Vice President and Co-President of Ocean Energy Europe for many years.

Clemens Weiß has a background in sustainability geography, social sciences and worked for several years in the renewable energy sector. In order to have more influence on politics, he joined the office of the Chairperson of the Bundestag Committee on the Environment, Nature Conservation and Nuclear Safety, in particular dealing with the issue of radioactive waste management and the search for a final repository. Since 2022, he has been working with Stefan Wenzel in the Federal Ministry for Economic Affairs and Climate Action.

Stefan Wenzel is a member of the party Bündnis 90/Die Grünen since 1986 and is currently working as a Parliamentary State Secretary in the Federal Ministry for Economic Affairs and Climate Action. He studied Agronomy and has experience as a distributor in the ecological winery sector. From 1998 to 2021, he was a member of the Landtag of Lower Saxony and from 2013 to 2017 the Minister for Environment, Energy and Climate Protection of Lower Saxony. In this position, he also headed the nuclear inspectorate of Lower Saxony.

Marlies Wiegand is the team leader of the group “building technology” at the ITE – Institute for the Transformation of the Energy system since 2019. Before, she worked at Leuphana University of Lüneburg as a scientific associate. She studied Environmental Sciences (B.Sc.) and Sustainability Science (M.Sc.) at Leuphana University of Lüneburg, Germany and at the Hamburg University of Technology.

Lorenz Wieshammer is a Director at NERA Economic Consulting based in Berlin. He advises utilities, regulatory authorities, investors, and lawyers in the fields of regulatory, financial, and energy economics. He specializes in energy network regulation and energy transition topics. He is a Chartered Financial Analyst (CFA). He holds an M.Sc. in Economics from the London School of Economics and a B.Sc. in Economics from the University of Mannheim.

