

# PROF. DR. OTTMAR EDENHOFER



— Prof. Dr. rer. pol., Dipl.-Vw.

## CURRENT POSITIONS

- Director and Chief Economist at the Potsdam Institute for Climate Impact Research (PIK), PIK's research has been rated "excellent" during the last Leibniz evaluation
- Director of the Mercator Research Institute on Global Commons and Climate Change (MCC), work of MCC received "excellent" evaluation by independent scientific committee
- Professor of Climate Economics and Public Policy at the Technische Universität (TU) Berlin

## CONTACT

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## PROFILE

Ottmar Edenhofer is Professor at the Technische Universität Berlin and widely considered to be one of the world's leading experts on the economics of climate change. He is Director and Chief Economist at the Potsdam Institute for Climate Impact Research (PIK). From 2007 to 2018 he headed PIK's Research Domain 3 Sustainable Solutions, which received an excellent evaluation by the Leibniz Society in 2014. Following the strategic decision of PIK in 2007 to become more *solution-oriented* with interdisciplinary Research Domains, Ottmar Edenhofer formed the research agenda of this department. He was pioneering in giving the institute, which traditionally focused on large-scale quantitative computational modelling of the earth and its processes, a social science research agenda providing rigorous and meaningful information on climate change mitigation to society. In 2012 he was appointed director of the newly founded Mercator Research Institute on Global Commons and Climate Change (MCC). The work of the MCC was considered "excellent" by an external scientific evaluation board commissioned by Stiftung Mercator in 2015. It ranked first in Europe and fourth worldwide by the ICCG Climate Think Tank Ranking 2016 and second in the category energy and the environment in Europe within the "Prospect: Think Tank Awards 2016". Edenhofer is member of the German National Academy of Science and Engineering acatech as well as member of the German National Academy of Sciences Leopoldina, Section Economics and Empirical Social Sciences. In July 2018, Edenhofer was awarded the Romano Guardini Prize by the Katholische Akademie in Bayern (Catholic Academy in Bavaria). In 2020, he received the prestigious Deutsche Umweltpreis (German Environmental Award) by the Deutsche Bundesstiftung Umwelt (DBU) amongst others for his outstanding achievements in the field of carbon pricing. In November 2021, Edenhofer received the Arthur Burkhardt-Prize for the interdisciplinary orientation of his research.

From 2008 to 2015 Ottmar Edenhofer served as Co-Chair of Working Group III of the Nobel Laureate Intergovernmental Panel on Climate Change (IPCC). In this capacity he led the fifth assessment cycle and edited the report "Climate Change 2014: Mitigation of Climate Change" and the "Special Report on Renewable Energy Sources and Climate Change Mitigation". The Fifth Assessment Report on Climate Change Mitigation is considered a landmark report. It laid the scientific basis for the Paris Agreement. Its analysis on the feasibility of the 2°C-target was groundbreaking and provided essential information for decision makers. On March 24, 2022, Edenhofer was appointed by the EU to the European Environment Agency's newly established European Scientific Advisory Board on Climate Change. The board will provide independent scientific advice and produce reports that record the extent to which EU policy is in line with the 2021 European Climate Change Act and the EU's commitments under the Paris Agreement.

Ottmar Edenhofer's research influences political decision making. The working visit of Federal Chancellor Merkel and Federal Chancellery Minister Braun to the Potsdam Institute for Climate Impact Research in 2019 once again proved the high relevance and excellence of the policy advice provided by Edenhofer. Edenhofer has succeeded in providing excellent policy advice. His expertise is regularly requested by top decision makers. In Germany these included in the past years, for example, Finance Minister and Vice Chancellor Scholz, Foreign Minister Maas, Minister of Science of Brandenburg Schüle, the party leaderships of the CDU, FDP and the Greens as well as representatives of the Bundesbank. The Federal Government appointed him, together with the lawyer Sabine Schlacke, Chair of the Climate Protection Science Platform, which has the mandate to monitor the implementation of the climate package and to make respective proposals. On the international stage, Edenhofer is in regular contact with the European Commission, government representatives and institutions such as

the European Central Bank and the World Bank. In 2020, he met amongst others with the Finance Ministers of the Eurogroup. In December 2020, Ottmar Edenhofer was appointed a consultant of the Vatican's "Dicastery for Promoting Integral Human Development", created by Pope Francis a few years ago. The dicastery's mission is to strengthen justice for refugees and stateless people who have had to leave their homes due to violence, economic crises or natural disasters, as well as promoting justice for the sick and poor.

Edenhofer's expertise is also in high demand in the business world: He advises f. ex. the world's largest automobile manufacturer Volkswagen, railway company Deutsche Bahn, the German labour union IG Metall as well as insurance companies and banks to develop concepts for climate protection and sustainability.

Furthermore, he is a member of the "High-Level Commission on Carbon Prices" chaired by Joseph Stiglitz, Nobel Laureate in Economics, and Lord Nicholas Stern at the invitation of Ségolène Royal and Feike Sijbesma, Co-Chairs of the Carbon Pricing Leadership Coalition (CPLC) High Level Assembly. The commission prepared a highly regarded scientific assessment on carbon pricing for the World Bank Group and International Monetary Fund Spring Meetings in 2017. In connection with the German G20 presidency in 2017, Edenhofer headed the T20 Task Force "Climate Policy and Finance" which prepared scientific policy advice for the G20 and was a member of the OECD Advisory Council "Growth, Investment and the Low-Carbon Transition". Further, he is part of the "National Expert Advisory Council on Climate Change" for Ireland which was set up in 2015 in the framework of the "Climate Action and Low-Carbon Development Bill 2015". The Council advises and makes recommendations to the Minister for the Environment, community and local government as a national mitigation plan is prepared. Ottmar Edenhofer was appointed Coordinating Lead Author of the chapter on Economic Growth, Human Development and Planetary Welfare for the report "Rethinking Society for the 21st Century" by the International Panel on Social Progress (IPSP). The Panel includes renowned economists and works under the patronage of Amartya Sen.

The FAZ ranked Edenhofer in 2019 and 2020 among the 10 most influential economists in Germany, in 2021 he was ranked on place 15. In 2018, 2020 and 2021, Ottmar Edenhofer belonged to the 1% of the most cited scientists worldwide in the category "interdisciplinary science" according to the Web of Science citation index. He has published articles in Science, PNAS, Nature, Nature Climate Change, European Economic Review, Resource and Energy Economics, Energy Economics, Macroeconomic Dynamics, World Development, Journal of Environmental Economics and Management as well as other peer-reviewed journals and authored a number of books. His publications address the design of instruments for climate and energy policy, questions of growth, technological change and development, public finance, welfare economics, distributional effects of climate policy instruments, game theoretic aspects of designing international agreements, long-term scenarios of the climate and energy system, mitigation costs and mitigation strategies, as well as the science-policy interface. His work has been heavily cited, which is illustrated by an h-index of 52 in Scopus, 49 in Web of Science and 77 in Google Scholar. Edenhofer's work has been picked up e.g. by The New York Times, the Economist, China Daily Nature, Der Spiegel, ARD, ZDF and Deutschlandfunk. He frequently contributes to major media publications such as DIE ZEIT, Süddeutsche Zeitung and Frankfurter Allgemeine Zeitung.

Edenhofer supervised 52 successfully completed PhD projects and currently supervises 23 PhD students. His former PhD students received prestigious prizes for their dissertations and some of them have been appointed to professorships in the meantime.

## EDUCATION

- 1999 — Doctor rer. pol. (summa cum laude), topic: Social Conflict and Technological Change. Evolutionary Models of Energy Use.
- 1991 — B.A. Philosophy, Munich School of Philosophy
- 1987 — Diplomvolkswirt (Master Degree in Economics), University of Munich (with honors)

## CAREER

- since 2018 — Director of the Potsdam Institute for Climate Impact Research
- since 2012 — Director of Mercator Research Institute on Global Commons and Climate Change (MCC)
- since 2008 — Professor for "Climate Economics and Public Policy " at the Technische Universität Berlin, member of faculties VI and VII
- 2008 - 2015 — Co-Chair of Working Group III of the IPCC
- 2007 - 2018 — Co-Chair and initiator of the new research strategy of research department 3 Sustainable Solutions at the Potsdam Institute for Climate Impact Research
- 2007 - 2018 — Deputy Director of the Potsdam Institute for Climate Impact Research
- 2007 — Call to the position of President of the Wuppertal Institute, associated with a professorship at Bergische Universität Wuppertal; declined
- 2007 — Advisor to the Federal Foreign Office on questions of global climate change
- since 2005 — Chief Economist of the Potsdam Institute for Climate Impact Research
- 2004 - 2007 — Lead Author, Working Group III of the Intergovernmental Panel on Climate Change (IPCC), Chapters 1 und 11. In 2007, the IPCC received the Nobel Peace Prize.
- 2000 - 2005 — Deputy Chair of research domain Social Systems at the Potsdam Institute for Climate Impact Research
- 1994 - 2000 — Assistant at the Institute for Sociology at the Technische Universität Darmstadt
- 1991 - 1993 — Founder and director of humanitarian organization (Jesuit Refugee Service) in Croatia and Bosnia
- 1987 - 1994 — Member of Jesuit order
- 1982 - 1987 — Founding of public health company

## MEMBERSHIP OF BOARDS AND COMMITTEES, SCIENTIFIC POLICY ADVICE (selection)

### Policy and Business Advice

- Member of the Advisory Board of Stiftung Klima-Wirtschaft
- Chair of the *European Scientific Advisory Board for Climate Change* of the European Environment Agency
- Member of the *External Advisory Panel* for the OECD project on “Building Climate and Economic Resilience in the Transition to Low-carbon Economy”
- Co-Chair of the Steering Committee for the “Climate Protection Science Platform” of the German Federal Government
- Member of the Sustainability Advisory Board of the state of Brandenburg
- Member of the *High-Level Commission on Carbon Prices* founded at the invitation of Ségolène Royal and Feike Sijbesma, Co-Chairs of the Carbon Pricing Leadership Coalition (CPLC) High Level Assembly, chaired by Joseph Stiglitz, Nobel Laureate in Economics, and Lord Nicholas Stern
- Member of the Advisory Committee to *Princeton’s Carbon Mitigation Initiative CMI*
- Member of the *Science Advice for Policy by European Academies (SAPEA)* working group “A systemic approach to the energy transition in Europe”
- Co-chair of the *Food System Economics Commission (EAT)*
- Member of the *High-Level Advisory Group on Sustainable and Inclusive Recovery and Growth (HLAG)*
- Member of the *Volkswagen Sustainability Council*
- Member of the *National Expert Advisory Council on Climate Change* for Ireland set up in the framework of the “Climate Action and Low-Carbon Development Bill 2015”
- Member of the OECD Advisory Council *Growth, Investment and the Low-Carbon Transition*
- Member of the Advisory Board of the *Green Growth Knowledge Platform* (project of the Global Green Growth Institute, the OECD, United Nations Environment Programme and the World Bank) until 2018

## Scientific Functions and Editorships

- Member of the University Council, Carl von Ossietzky Universität Oldenburg
- Member of the German National Academy of Science and Engineering, acatech
- Member of the German National Academy of Sciences Leopoldina, Section Economics and Empirical Social Sciences
- Member of the Scientific Advisory Board, European Institute on Economics and the Environment (EIEE)
- Member of the Scientific Advisory Council, ZEW – Leibniz Centre for European Economic Research
- Member of the Scientific Advisory Council, LSRI – Laudato Sí Research Institute
- Member of the Scientific Advisory Board, EUREF-Institute Berlin
- Member of the Forschungsforum Energiewende [Research Forum Energy Transition]
- Co-editor of REEP Review of Environmental Economics and Policy (ranked 6th in Environmental Studies and 15th in Economics according to the 2015 Journal Citation Reports by Thomson Reuters)
- Member of the Working Group for the Development of a Guideline for Political and Societal Consultancy in the Field of Environmental Sciences, Leibniz Association
- Member of the plenary assembly of the Central Committee of German Catholics
- Member of the Vatican Advisory Group, Dicastery for Promoting Integral Human Development
- Member of the Advisory Board of the DemoUpCARMA Project, ETH Zurich

## Awards and Prizes

- Award of the Arthur-Burkhardt-Prize (2021) by the Arthur Burkhardt-Stiftung für Wissenschaftsförderung (Arthur Burkhardt-Foundation for the Promotion of Science)
- Award of the Romano-Guardini-Prize (2018) by the Katholische Akademie in Bayern (Catholic Academy in Bavaria)
- Award of the Deutsche Umweltpreis (German Environmental Award) by the Deutsche Bundesstiftung Umwelt (2020)
- In 2018, 2020 and 2021 Ottmar Edenhofer belonged to the 1% of the most cited scientists worldwide in the category "interdisciplinary science" according to the Web of Science citation index

## SELECTION OF THE MOST IMPORTANT PUBLICATIONS

### Publications

- Roelfs, C., Gaitan, B., & Edenhofer, O. (2021): Make or brake — Rich states in voluntary federal emission pricing. *Journal of Environmental Economics and Management*, 102463, doi: 10.1016/j.jeem.2021.102463.
- Kornek, U., Klenert, D., Edenhofer, O., & Fleurbaey, M. (2021): The social cost of carbon and inequality: When local redistribution shapes global carbon prices. *Journal of Environmental Economics and Management*, Vol. 107, 102450, doi: 10.1016/j.jeem.2021.102450.
- Strefler, J., Luderer, G., Bauer, N., Kriegler, E., Pietzcker, R. C., Giannousakis, A., & Edenhofer, O. (2021): Alternative carbon price trajectories can avoid excessive carbon removal. *Nature Communications*, Vol. 12, 2264, doi: 10.1038/s41467-021-22211-2.
- Edenhofer, O., Franks, M., & Kalkuhl, M. (2021): Pigou in the 21st Century: a tribute on the occasion of the 100th anniversary of the publication of *The Economics of Welfare*. *International Tax and Public Finance*, doi: 10.1007/s10797-020-09653-y.
- Bauer, N., Bertram, C., Schultes, A., Klein, D., Luderer, G., Kriegler, E., Popp, A., & Edenhofer, O. (2020): Quantification of an efficiency – sovereignty trade-off in climate policy. *Nature*, Vol. 588, 261–266, doi: 10.1038/s41586-020-2982-5.
- Kornek, U. & Edenhofer, O. (2020): The strategic dimension of financing global public goods. *European Economic Review*, Vol. 127, 103423, doi: 10.1016/j.euroecorev.2020.103423.
- Kalkuhl, M., Steckel, J. C., & Edenhofer, O. (2020): All or nothing: Climate policy when assets can become stranded. *The Journal of Environmental Economics and Management*, Vol. 100, 102214, doi: 10.1016/j.jeem.2019.01.012.
- Steckel, J., Hilaire, J., Jakob, M., & Edenhofer, O. (2020): Coal and Carbonization in Sub-Saharan Africa. *Nature Climate Change*. Vol. 10, 83-88, doi: 10.1038/s41558-019-0649-8.
- Kalkuhl, M., Steckel, J. C., Montrone, L., Jakob, M., Peters, J., & Edenhofer, O. (2019): Successful coal phase-out requires new models of development. *Nature Energy*, Vol. 4, 897–900, doi: 10.1038/s41560-019-0500-5.
- Creutzig, F., Bren d'Amour, C., Weddige, U., Fuss, S., Beringer, T., Gläser, A., Kalkuhl, M., Steckel, J. C., Radebach, A., & Edenhofer, O. (2019): Assessing human and environmental pressures of global land-use change 2000-2010. Cambridge: Cambridge University Press (Volume 2, 2019 e1), doi: 10.1017/sus.2018.15.
- Edenhofer, O., Steckel, J., Jakob, M., & Bertram, C. (2018): Reports of coal's terminal decline may be exaggerated. *Environmental Research Letters*, doi: 10.1088/1748-9326/aaa3a2.
- Franks, M., Klenert, D., Schultes, A., Lessmann, K., & Edenhofer, O. (2018): Is capital back? The role of land ownership and savings behavior. *International Tax and Public Finance*, doi: 10.1007/s10797-018-9486-3.
- Fuss, S., Flachsland, C., Koch, N., Kornek, U., Knopf, B., & Edenhofer, O. (2018): A framework for assessing the performance of cap-and-trade systems: Insights from the European Union Emissions Trading System. *Review of Environmental Economics and Policy*, Vol. 12, Issue 2, 220-241, doi: 10.1093/reep/rey010.
- Klenert, D., Mattauch, L., Combet, E., Edenhofer, O., Hepburn, C., Rafaty, R., & Stern, N. (2018): Making carbon pricing work for citizens. *Nature Climate Change*, Vol. 8, 669–677, doi: 10.1038/s41558-018-0201-2.

Siegmeier, J., Mattauch, L., & Edenhofer, O. (2018): Capital beats coal: How collecting the climate rent increases aggregate investment. *Journal of Environmental Economics and Management* 88, 366-378, doi: 10.1016/j.jeem.2017.12.006.

Jakob, M., Chen, C., Fuss, S., Marxen, A., Rao, N. D., & Edenhofer, O. (2016): Carbon Pricing Revenues Could Close Infrastructure Access Gaps. *World Development*, 84, 254-265, doi: 10.1016/j.worlddev.2016.03.001.

Kalkuhl, M. & Edenhofer, O. (2016): Ramsey meets Thünen: the impact of land taxes on economic development and land conservation. *International Tax and Public Finance*, doi: 10.1007/s10797-016-9403-6.

Klenert, D., Mattauch, L., Edenhofer, O., & Lessmann, K. (2016): Infrastructure and inequality: Insights from incorporating key economic facts about household heterogeneity. *Macroeconomic Dynamics*, doi: 10.1017/S1365100516000432.

Koch, N., Grosjean, G., Fuss, S., & Edenhofer, O. (2016): Politics matters: Regulatory events as catalysts for price formation under cap-and-trade. *Journal of Environmental Economics and Management*, 78, 121-139, doi: 10.1016/j.jeem.2016.03.004.

Bertram, C., Luderer, G., Pietzcker, R. C., Schmid, E., Kriegler, E., & Edenhofer, O. (2015): Complementing carbon prices with technology policies to keep climate targets within reach. *Nature Climate Change*, 5(3), 235-239, doi: 10.1038/nclimate2514.

Edenhofer, O. (2015): King Coal and the queen of subsidies. *Science*, 349(6254), 1286-1287, doi: 10.1126/science.aad0674.

Steckel, J. C., Edenhofer, O., & Jakob, M. (2015): Drivers for the renaissance of coal. *Proceedings of the National Academy of Sciences of the United States of America*, 112(29), E3775-E3781, doi: 10.1073/pnas.1422722112.

Edenhofer, O., Mattauch, L., & Siegmeier, J. (2015): Hypergeorgism: When Rent Taxation Is Socially Optimal. *Finanzarchiv: Public Finance Analysis*, 71(4), 474-505, doi: 10.1628/001522115X14425626525128.

Edenhofer, O. & Kowarsch, M. (2015): Cartography of pathways: A new model for environmental policy assessments. *Environmental Science & Policy*, 51, 56-64, doi: 10.1016/j.envsci.2015.03.017.

Jakob, M. & Edenhofer, O. (2014): Green growth, degrowth, and the commons. *Oxford Review of Economic Policy*, 30(3), 447-468, doi: 10.1093/oxrep/gru026.

Edenhofer, O. & Minx, J. (2014): Mapmakers and navigators, facts and values. *Science*, 345(6192), 37-38, doi: 10.1126/science.1255998.

Edenhofer, O., Hirth, L., Knopf, B., Pahle, M., Schlömer, S., Schmid, E., & Ueckerdt, F. (2013): On the economics of renewable energy sources. *Energy Economics*, 40, S12-S23, doi: 10.1016/j.eneco.2013.09.015.

Edenhofer, O., Seyboth, K., Creutzig, F., & Schlömer, S. (2013): On the Sustainability of Renewable Energy Sources. *Annual Review of Environment and Resources*, 38, 169-200, doi: 10.1146/annurev-environ-051012-145344.

### **Assessment Reports**

Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., Adler, A., Baum, I., Brunner, S., Eickemeier, P., Kriemann, B., Savolainen, J., Schlömer, S., Stechow, C. v., Zwickel, T., & Minx, J. C. (eds.) (2014): *Climate Change 2014 - Mitigation of Climate Change: Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.



Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Seyboth, K., Matschoss, P., Kadner, S., Zwickel, T., Eickemeier, P., Hansen, G., Schlömer, S., Stechow, C. v. (eds.) (2012): Renewable Energy Sources and Climate Change Mitigation. Special Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press, 1075 p.

### **Books**

Edenhofer, O. & Jakob, M. (eds.) (2019): Klimapolitik. Ziele, Konflikte, Lösungen. 2nd, updated and extended edition. C.H. Beck Verlag, 144 p.

Edenhofer, O., Wallacher, J., Reder, M., & Lotze-Campen, H. (eds.) (2010): Global aber gerecht. München: Beck Verlag, 240 p.

### **Article in an Edited Book**

Edenhofer, O., Flachsland, C., Jakob, M., & Lessmann, K. (2015): The Atmosphere as a Global Commons: Challenges for International Cooperation and Governance. In: Bernhard, L., Semmler, W. (eds.): The Oxford Handbook of the Macroeconomics of Global Warming. Oxford: Oxford University Press, 260-296.

## MAIN RESEARCH INTERESTS

- Impact of technological change on the costs and strategies of climate change mitigation
- Public Finance
- Distributional effects of climate policy instruments
- Economics of Atmospheric Stabilization
- Social Cost-Benefit Analysis
- Economic Growth and Sustainability Theory
- Economics of Climate Change
- Welfare Theory and General Intertemporal Equilibrium Theory
- Model simulations in economics and social sciences
- Game theoretic aspects of designing international agreements
- Energy Economics
- Scientific policy advice and the science-policy-interface
- Inequality Research