Gunnar Luderer

List of Publications by Year
in descending order

141 papers	18,406 citations	17440 63 h-index	13379 130 g-index
153 all docs	153 docs citations	153 times ranked	13886 citing authors

#	Article	IF	Citations
1	Narrative-driven alternative roads to achieve mid-century CO2 net neutrality in Europe. Energy, 2022, 239, 121908.	8.8	44
2	Impact of declining renewable energy costs on electrification in low-emission scenarios. Nature Energy, 2022, 7, 32-42.	39.5	196
3	Life-cycle impacts from different decarbonization pathways for the European car fleet. Environmental Research Letters, 2022, 17, 044009.	5.2	13
4	PRospective EnvironMental Impact asSEment (premise): A streamlined approach to producing databases for prospective life cycle assessment using integrated assessment models. Renewable and Sustainable Energy Reviews, 2022, 160, 112311.	16.4	101
5	How uncertainty in technology costs and carbon dioxide removal availability affect climate mitigation pathways. Energy, 2021, 216, 119253.	8.8	17
6	COVID-19-induced low power demand and market forces starkly reduce CO2 emissions. Nature Climate Change, 2021, 11, 193-196.	18.8	93
7	Coupling a Detailed Transport Model to the Integrated Assessment Model REMIND. Environmental Modeling and Assessment, 2021, 26, 891-909.	2.2	9
8	Alternative carbon price trajectories can avoid excessive carbon removal. Nature Communications, 2021, 12, 2264.	12.8	55
9	Deep decarbonisation of buildings energy services through demand and supply transformations in a 1.5Â°C scenario. Environmental Research Letters, 2021, 16, 054071.	5.2	19
10	Integrated assessment model diagnostics: key indicators and model evolution. Environmental Research Letters, 2021, 16, 054046.	5.2	36
11	Potential and risks of hydrogen-based e-fuels in climate change mitigation. Nature Climate Change, 2021, 11, 384-393.	18.8	264
12	Energy system developments and investments in the decisive decade for the Paris Agreement goals. Environmental Research Letters, 2021, 16, 074020.	5.2	41
13	A further decline in battery storage costs can pave the way for a solar PV-dominated Indian power system. Renewable and Sustainable Energy Transition, 2021, 1, 100006.	2.9	9
14	The potential of direct steam cracker electrification and carbon capture & utilization via oxidative coupling of methane as decarbonization strategies for ethylene production. Applied Energy, 2021, 296, 117049.	10.1	22
15	A sustainable development pathway for climate action within the UN 2030 Agenda. Nature Climate Change, 2021, 11, 656-664.	18.8	179
16	Economic damages from on-going climate change imply deeper near-term emission cuts. Environmental Research Letters, 2021, 16, 104053.	5.2	13
17	Alternative electrification pathways for light-duty vehicles in the European transport sector. Transportation Research, Part D: Transport and Environment, 2021, 99, 103005.	6.8	21
18	Energy systems in scenarios at net-zero CO2 emissions. Nature Communications, 2021, 12, 6096.	12.8	91

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19	Climate policy accelerates structural changes in energy employment. Energy Policy, 2021, 159, 112642.	8.8	11
20	REMIND2.1: transformation and innovation dynamics of the energy-economic system within climate and sustainability limits. Geoscientific Model Development, 2021, 14, 6571-6603.	3.6	34
21	Cost and attainability of meeting stringent climate targets without overshoot. Nature Climate Change, 2021, 11, 1063-1069.	18.8	102
22	Taking some heat off the NDCs? The limited potential of additional short-lived climate forcersâ€™ mitigation. Climatic Change, 2020, 163, 1443-1461.	3.6	16
23	The role of methane in future climate strategies: mitigation potentials and climate impacts. Climatic Change, 2020, 163, 1409-1425.	3.6	39
24	Early transformation of the Chinese power sector to avoid additional coal lock-in. Environmental Research Letters, 2020, 15, 024007.	5.2	23
25	Bio-energy and CO2 emission reductions: an integrated land-use and energy sector perspective. Climatic Change, 2020, 163, 1675-1693.	3.6	23
26	Managing Power Demand from Air Conditioning Benefits Solar PV in India Scenarios for 2040. Energies, 2020, 13, 2223.	3.1	8
27	Impact of methane and black carbon mitigation on forcing and temperature: a multi-model scenario analysis. Climatic Change, 2020, 163, 1427-1442.	3.6	15
28	The Energy Modeling Forum (EMF)-30 study on short-lived climate forcers: introduction and overview. Climatic Change, 2020, 163, 1399-1408.	3.6	4
29	Quantification of an efficiencyâ€“sovereignty trade-offâ€„in climate policy. Nature, 2020, 588, 261-266.	27.8	61
30	Taking stock of national climate policies to evaluate implementation of the Paris Agreement. Nature Communications, 2020, 11, 2096.	12.8	241
31	Reducing stranded assets through early action in the Indian power sector. Environmental Research Letters, 2020, 15, 094091.	5.2	25
32	Early retirement of power plants in climate mitigation scenarios. Environmental Research Letters, 2020, 15, 094064.	5.2	38
33	Coal-exit health and environmental damage reductions outweigh economic impacts. Nature Climate Change, 2020, 10, 308-312.	18.8	94
34	Air quality co-benefits of ratcheting up the NDCs. Climatic Change, 2020, 163, 1481-1500.	3.6	25
35	Common but differentiated leadership: strategies and challenges for carbon neutrality by 2050 across industrialized economies. Environmental Research Letters, 2020, 15, 114016.	5.2	82
36	The CO₂ reduction potential for the European industry via direct electrification of heat supply (power-to-heat). Environmental Research Letters, 2020, 15, 124004.	5.2	114

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37	The shared socio-economic pathway (SSP) greenhouse gas concentrations and their extensions to 2500. Geoscientific Model Development, 2020, 13, 3571-3605.	3.6	539
38	Negative emissions and international climate goalsâ€”learning from and about mitigation scenarios. Climatic Change, 2019, 157, 189-219.	3.6	74
39	Halving energy demand from buildings: The impact of low consumption practices. Technological Forecasting and Social Change, 2019, 146, 253-266.	11.6	46
40	Global emissions pathways under different socioeconomic scenarios for use in CMIP6: a dataset of harmonized emissions trajectories through the end of the century. Geoscientific Model Development, 2019, 12, 1443-1475.	3.6	496
41	Environmental co-benefits and adverse side-effects of alternative power sector decarbonization strategies. Nature Communications, 2019, 10, 5229.	12.8	188
42	The economically optimal warming limit of the planet. Earth System Dynamics, 2019, 10, 741-763.	7.1	16
43	Analysing interactions among Sustainable Development Goals with Integrated Assessment Models. Global Transitions, 2019, 1, 210-225.	4.1	126
44	Looking under the hood: A comparison of techno-economic assumptions across national and global integrated assessment models. Energy, 2019, 172, 1254-1267.	8.8	107
45	Energy system changes in 1.5â€¯Â°C, well below 2â€¯Â°C and 2â€¯Â°C scenarios. Energy Strategy Reviews, 2019, 23, 69-80.	7.3	57
46	InterdisziplinÃ¤rer Synthesebericht zum Kohleausstieg: <i>ENavi</i> informiert die Kohlekommission. Gaia, 2019, 28, 61-62.	0.7	0
47	Scenarios towards limiting global mean temperature increase below 1.5 Â°C. Nature Climate Change, 2018, 8, 325-332.	18.8	795
48	Enhancing global climate policy ambition towards a 1.5â€‰Â°C stabilization: a short-term multi-model assessment. Environmental Research Letters, 2018, 13, 044039.	5.2	60
49	How much energy will buildings consume in 2100? A global perspective within a scenario framework. Energy, 2018, 148, 514-527.	8.8	84
50	Optimal international technology cooperation for the low-carbon transformation. Climate Policy, 2018, 18, 1165-1176.	5.1	13
51	Pathways limiting warming to 1.5Â°C: a tale of turning around in no time?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20160457.	3.4	84
52	Deriving life cycle assessment coefficients for application in integrated assessment modelling. Environmental Modelling and Software, 2018, 99, 111-125.	4.5	59
53	Water demand for electricity in deep decarbonisation scenarios: a multi-model assessment. Climatic Change, 2018, 147, 91-106.	3.6	16
54	Short term policies to keep the door open for Paris climate goals. Environmental Research Letters, 2018, 13, 074022.	5.2	48

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55	Negative emissionsâ€"Part 1: Research landscape and synthesis. Environmental Research Letters, 2018, 13, 063001.	5.2	498
56	Negative emissionsâ€"Part 2: Costs, potentials and side effects. Environmental Research Letters, 2018, 13, 063002.	5.2	823
57	Residual fossil CO2 emissions in 1.5â€"2â€‰Â°C pathways. Nature Climate Change, 2018, 8, 626-633.	18.8	380
58	Targeted policies can compensate most of the increased sustainability risks in 1.5â€‰Â°C mitigation scenarios. Environmental Research Letters, 2018, 13, 064038.	5.2	48
59	Assessment of wind and solar power in global low-carbon energy scenarios: An introduction. Energy Economics, 2017, 64, 542-551.	12.1	98
60	Low-emission pathways in 11 major economies: comparison of cost-optimal pathways and Paris climate proposals. Climatic Change, 2017, 142, 491-504.	3.6	41
61	System integration of wind and solar power in integrated assessment models: A cross-model evaluation of new approaches. Energy Economics, 2017, 64, 583-599.	12.1	117
62	The underestimated potential of solar energy to mitigate climate change. Nature Energy, 2017, 2, .	39.5	563
63	Understanding future emissions from low-carbon power systems by integration of life-cycle assessment and integrated energy modelling. Nature Energy, 2017, 2, 939-945.	39.5	321
64	Future air pollution in the Shared Socio-economic Pathways. Global Environmental Change, 2017, 42, 346-358.	7.8	277
65	Fossil-fueled development (SSP5): An energy and resource intensive scenario for the 21st century. Global Environmental Change, 2017, 42, 297-315.	7.8	418
66	Solution algorithms for regional interactions in large-scale integrated assessment models of climate change. Annals of Operations Research, 2017, 255, 29-45.	4.1	10
67	Decarbonizing global power supply under region-specific consideration of challenges and options of integrating variable renewables in the REMIND model. Energy Economics, 2017, 64, 665-684.	12.1	56
68	The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. Global Environmental Change, 2017, 42, 153-168.	7.8	2,966
69	Implications of weak near-term climate policies on long-term mitigation pathways. Climatic Change, 2016, 136, 127-140.	3.6	54
70	Global fossil energy markets and climate change mitigation â€" an analysis with REMIND. Climatic Change, 2016, 136, 69-82.	3.6	168
71	2 Â°C and SDGs: united they stand, divided they fall?. Environmental Research Letters, 2016, 11, 034022.	5.2	143
72	How climate metrics affect global mitigation strategies and costs: a multi-model study. Climatic Change, 2016, 136, 203-216.	3.6	9

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73	Will economic growth and fossil fuel scarcity help or hinder climate stabilization?. Climatic Change, 2016, 136, 7-22.	3.6	25
74	A multi-model assessment of the co-benefits of climate mitigation for global air quality. Environmental Research Letters, 2016, 11, 124013.	5.2	72
75	The impact of climate change mitigation on water demand for energy and food: An integrated analysis based on the Shared Socioeconomic Pathways. Environmental Science and Policy, 2016, 64, 48-58.	4.9	58
76	Introduction to the RoSE special issue on the impact of economic growth and fossil fuel availability on climate protection. Climatic Change, 2016, 136, 1-6.	3.6	19
77	Emissions and their drivers: sensitivity to economic growth and fossil fuel availability across world regions. Climatic Change, 2016, 136, 23-37.	3.6	7
78	Energy system transformations for limiting end-of-century warming to below 1.5 Â°C. Nature Climate Change, 2015, 5, 519-527.	18.8	708
79	Analyzing major challenges of wind and solar variability in power systems. Renewable Energy, 2015, 81, 1-10.	8.9	187
80	The Role of Time Preferences in Explaining the Long-Term Pattern of International Trade. Global Economy Journal, 2015, 15, 83-106.	0.7	2
81	Post-2020 climate agreements in the major economies assessed in the light of global models. Nature Climate Change, 2015, 5, 119-126.	18.8	158
82	Complementing carbon prices with technology policies to keep climate targets within reach. Nature Climate Change, 2015, 5, 235-239.	18.8	120
83	Understanding the contribution of non-carbon dioxide gases in deep mitigation scenarios. Global Environmental Change, 2015, 33, 142-153.	7.8	75
84	Representing power sector variability and the integration of variable renewables in long-term energy-economy models using residual load duration curves. Energy, 2015, 90, 1799-1814.	8.8	74
85	A short note on integrated assessment modeling approaches: Rejoinder to the review of â€œMaking or breaking climate targets â€” The AMPERE study on staged accession scenarios for climate policyâ€. Technological Forecasting and Social Change, 2015, 99, 273-276.	11.6	11
86	Locked into Copenhagen pledges â€" Implications of short-term emission targets for the cost and feasibility of long-term climate goals. Technological Forecasting and Social Change, 2015, 90, 8-23.	11.6	270
87	Carbon leakage in a fragmented climate regime: The dynamic response of global energy markets. Technological Forecasting and Social Change, 2015, 90, 192-203.	11.6	32
88	The impact of near-term climate policy choices on technology and emission transition pathways. Technological Forecasting and Social Change, 2015, 90, 73-88.	11.6	64
89	Carbon lock-in through capital stock inertia associated with weak near-term climate policies. Technological Forecasting and Social Change, 2015, 90, 62-72.	11.6	146
90	Diagnostic indicators for integrated assessment models of climate policy. Technological Forecasting and Social Change, 2015, 90, 45-61.	11.6	104

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91	ON THE REGIONAL DISTRIBUTION OF CLIMATE MITIGATION COSTS: THE IMPACT OF DELAYED COOPERATIVE ACTION. Climate Change Economics, 2014, 05, 1440002.	5.0	14
92	Long-term transport energy demand and climate policy: Alternative visions on transport decarbonization in energy-economy models. Energy, 2014, 64, 95-108.	8.8	149
93	CO2 equivalences for short-lived climate forcers. Climatic Change, 2014, 122, 651-664.	3.6	7
94	Long-term climate policy implications of phasing out fossil fuel subsidies. Energy Policy, 2014, 67, 882-894.	8.8	75
95	Using the sun to decarbonize the power sector: The economic potential of photovoltaics and concentrating solar power. Applied Energy, 2014, 135, 704-720.	10.1	144
96	Economic impacts of alternative greenhouse gas emission metrics: a model-based assessment. Climatic Change, 2014, 125, 319-331.	3.6	23
97	Persistent growth of CO2 emissions and implications for reaching climate targets. Nature Geoscience, 2014, 7, 709-715.	12.9	615
98	The role of renewable energy in climate stabilization: results from the EMF27 scenarios. Climatic Change, 2014, 123, 427-441.	3.6	179
99	The value of bioenergy in low stabilization scenarios: an assessment using REMIND-MAgPIE. Climatic Change, 2014, 123, 705-718.	3.6	81
100	Getting from here to there â€“ energy technology transformation pathways in the EMF27 scenarios. Climatic Change, 2014, 123, 369-382.	3.6	181
101	The role of technology for achieving climate policy objectives: overview of the EMF 27 study on global technology and climate policy strategies. Climatic Change, 2014, 123, 353-367.	3.6	348
102	Role of technologies in energy-related CO2 mitigation in China within a climate-protection world: A scenarios analysis using REMIND. Applied Energy, 2014, 115, 445-455.	10.1	43
103	Can air pollutant controls change global warming?. Environmental Science and Policy, 2014, 41, 33-43.	4.9	11
104	Linking climate change mitigation research to sustainable development. , 2014, , .		6
105	Development without energy? Assessing future scenarios of energy consumption in developing countries. Ecological Economics, 2013, 90, 53-67.	5.7	88
106	System LCOE: What are the costs of variable renewables?. Energy, 2013, 63, 61-75.	8.8	423
107	Is atmospheric carbon dioxide removal a game changer for climate change mitigation?. Climatic Change, 2013, 118, 45-57.	3.6	107
108	Economic mitigation challenges: how further delay closes the door for achieving climate targets. Environmental Research Letters, 2013, 8, 034033.	5.2	172

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109	Physico-economic evaluation of climate metrics: A conceptual framework. Environmental Science and Policy, 2013, 29, 37-45.	4.9	15
110	WHAT DOES THE 2Â°C TARGET IMPLY FOR A GLOBAL CLIMATE AGREEMENT IN 2020? THE LIMITS STUDY ON DURBAN PLATFORM SCENARIOS. Climate Change Economics, 2013, 04, 1340008.	5.0	103
111	THE DISTRIBUTION OF THE MAJOR ECONOMIES' EFFORT IN THE DURBAN PLATFORM SCENARIOS. Climate Change Economics, 2013, 04, 1340009.	5.0	59
112	Reaping the benefits of renewables in a nonoptimal world. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 11666-11667.	7.1	12
113	Long-Term Transport Energy Demand and Climate Policy: Alternative Visions on Transport Decarbonization in Energy Economy Models. SSRN Electronic Journal, 2013, , .	0.4	4
114	Economic Impacts of Alternative Greenhouse Gas Emission Metrics: A Model-Based Assessment. SSRN Electronic Journal, 2013, , .	0.4	0
115	Reconciling top-down and bottom-up modelling on future bioenergy deployment. Nature Climate Change, 2012, 2, 320-327.	18.8	120
116	Economics of nuclear power and climate change mitigation policies. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 16805-16810.	7.1	57
117	The economics of decarbonizing the energy systemâ€"results and insights from the RECIPE model intercomparison. Climatic Change, 2012, 114, 9-37.	3.6	165
118	Time to act now? Assessing the costs of delaying climate measures and benefits of early action. Climatic Change, 2012, 114, 79-99.	3.6	69
119	The value of technology and of its evolution towards a low carbon economy. Climatic Change, 2012, 114, 39-57.	3.6	73
120	On the regional distribution of mitigation costs in a global cap-and-trade regime. Climatic Change, 2012, 114, 59-78.	3.6	33
121	The role of Asia in mitigating climate change: Results from the Asia modeling exercise. Energy Economics, 2012, 34, S251-S260.	12.1	126
122	Asia's role in mitigating climate change: A technology and sector specific analysis with ReMIND-R. Energy Economics, 2012, 34, S378-S390.	12.1	41
123	A Global Carbon Market and the Allocation of Emission Rights. , 2012, , 269-285.		12
124	Climate Change Mitigation: Options, Costs and Risks. , 2012, , 139-150.		1
125	Worldwide Promotion and Diffusion of Climate-Friendly Technologies. , 2012, , 297-309.		0
126	Mitigation Potential and Costs. , 2011, , 791-864.		41

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127	The role of technological availability for the distributive impacts of climate change mitigation policy. Energy Policy, 2011, 39, 6030-6039.	8.8	25
128	Exploring the feasibility of low stabilization targets. Wiley Interdisciplinary Reviews: Climate Change, 2011, 2, 617-626.	8.1	14
129	From carbonization to decarbonization?â€"Past trends and future scenarios for China's CO2 emissions. Energy Policy, 2011, 39, 3443-3455.	8.8	98
130	Managing the Low-Carbon Transition - From Model Results to Policies. Energy Journal, 2010, 31, 223-245.	1.7	29
131	A new look at the role of fire-released moisture on the dynamics of atmospheric pyro-convection. International Journal of Wildland Fire, 2009, 18, 554.	2.4	38
132	Climate policies will stimulate technology development. Nature, 2008, 453, 155-155.	27.8	0
133	The Chisholm firestorm: observed microstructure, precipitation and lightning activity of a pyro-cumulonimbus. Atmospheric Chemistry and Physics, 2007, 7, 645-659.	4.9	125
134	Modeling of biomass smoke injection into the lower stratosphere by a large forest fire (Part I): reference simulation. Atmospheric Chemistry and Physics, 2006, 6, 5247-5260.	4.9	156
135	Modeling of biomass smoke injection into the lower stratosphere by a large forest fire (PartÂII): sensitivity studies. Atmospheric Chemistry and Physics, 2006, 6, 5261-5277.	4.9	101
136	Using Sun Glint to Check the Relative Calibration of Reflected Spectral Radiances. Journal of Atmospheric and Oceanic Technology, 2005, 22, 1480-1493.	1.3	7
137	Description of the REMIND Model (Version 1.5). SSRN Electronic Journal, 0, , .	0.4	14
138	Analyzing Major Challenges of Wind and Solar Variability in Power Systems. SSRN Electronic Journal, 0, , .	0.4	2
139	Description of the REMIND Model (Version 1.6). SSRN Electronic Journal, 0, , .	0.4	46
140	Regional Low-Emission Pathways from Global Models. SSRN Electronic Journal, 0, , .	0.4	1
141	Implications of Weak Near-Term Climate Policies on Long-Term Mitigation Pathways. SSRN Electronic Journal, 0, , .	0.4	0