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	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
2	Negative emissionsâ€"Part 2: Costs, potentials and side effects. Environmental Research Letters, 2018, 13, 063002.	5.2	823
3	Scenarios towards limiting global mean temperature increase below 1.5 Â°C. Nature Climate Change, 2018, 8, 325-332.	18.8	795
4	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
5	Persistent growth of CO2 emissions and implications for reaching climate targets. Nature Geoscience, 2014, 7, 709-715.	12.9	615
6	The underestimated potential of solar energy to mitigate climate change. Nature Energy, 2017, 2, .	39.5	563
7	The shared socio-economic pathway (SSP) greenhouse gas concentrations and their extensions to 2500. Geoscientific Model Development, 2020, 13, 3571-3605.	3.6	539
8	Negative emissionsâ€"Part 1: Research landscape and synthesis. Environmental Research Letters, 2018, 13, 063001.	5.2	498
9	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
10	System LCOE: What are the costs of variable renewables?. Energy, 2013, 63, 61-75.	8.8	423
11	Fossil-fueled development (SSP5): An energy and resource intensive scenario for the 21st century. Global Environmental Change, 2017, 42, 297-315.	7.8	418
12	Residual fossil CO2 emissions in 1.5â€"2â€‰Â°C pathways. Nature Climate Change, 2018, 8, 626-633.	18.8	380
13	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
14	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
15	Future air pollution in the Shared Socio-economic Pathways. Global Environmental Change, 2017, 42, 346-358.	7.8	277
16	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
17	Potential and risks of hydrogen-based e-fuels in climate change mitigation. Nature Climate Change, 2021, 11, 384-393.	18.8	264
18	Taking stock of national climate policies to evaluate implementation of the Paris Agreement. Nature Communications, 2020, 11, 2096.	12.8	241

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19	Impact of declining renewable energy costs on electrification in low-emission scenarios. Nature Energy, 2022, 7, 32-42.	39.5	196
20	Environmental co-benefits and adverse side-effects of alternative power sector decarbonization strategies. Nature Communications, 2019, 10, 5229.	12.8	188
21	Analyzing major challenges of wind and solar variability in power systems. Renewable Energy, 2015, 81, 1-10.	8.9	187
22	Getting from here to there â€“ energy technology transformation pathways in the EMF27 scenarios. Climatic Change, 2014, 123, 369-382.	3.6	181
23	The role of renewable energy in climate stabilization: results from the EMF27 scenarios. Climatic Change, 2014, 123, 427-441.	3.6	179
24	A sustainable development pathway for climate action within the UN 2030 Agenda. Nature Climate Change, 2021, 11, 656-664.	18.8	179
25	Economic mitigation challenges: how further delay closes the door for achieving climate targets. Environmental Research Letters, 2013, 8, 034033.	5.2	172
26	Global fossil energy markets and climate change mitigation â€“ an analysis with REMIND. Climatic Change, 2016, 136, 69-82.	3.6	168
27	The economics of decarbonizing the energy systemâ€"results and insights from the RECIPE model intercomparison. Climatic Change, 2012, 114, 9-37.	3.6	165
28	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
29	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
30	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
31	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
32	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
33	2 Â°C and SDGs: united they stand, divided they fall?. Environmental Research Letters, 2016, 11, 034022.	5.2	143
34	The role of Asia in mitigating climate change: Results from the Asia modeling exercise. Energy Economics, 2012, 34, S251-S260.	12.1	126
35	Analysing interactions among Sustainable Development Goals with Integrated Assessment Models. Global Transitions, 2019, 1, 210-225.	4.1	126
36	The Chisholm firestorm: observed microstructure, precipitation and lightning activity of a pyro-cumulonimbus. Atmospheric Chemistry and Physics, 2007, 7, 645-659.	4.9	125

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37	Reconciling top-down and bottom-up modelling on future bioenergy deployment. Nature Climate Change, 2012, 2, 320-327.	18.8	120
38	Complementing carbon prices with technology policies to keep climate targets within reach. Nature Climate Change, 2015, 5, 235-239.	18.8	120
39	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
40	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
41	Is atmospheric carbon dioxide removal a game changer for climate change mitigation?. Climatic Change, 2013, 118, 45-57.	3.6	107
42	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
43	Diagnostic indicators for integrated assessment models of climate policy. Technological Forecasting and Social Change, 2015, 90, 45-61.	11.6	104
44	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
45	Cost and attainability of meeting stringent climate targets without overshoot. Nature Climate Change, 2021, 11, 1063-1069.	18.8	102
46	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
47	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
48	From carbonization to decarbonization?â€”Past trends and future scenarios for China's CO2 emissions. Energy Policy, 2011, 39, 3443-3455.	8.8	98
49	Assessment of wind and solar power in global low-carbon energy scenarios: An introduction. Energy Economics, 2017, 64, 542-551.	12.1	98
50	Coal-exit health and environmental damage reductions outweigh economic impacts. Nature Climate Change, 2020, 10, 308-312.	18.8	94
51	COVID-19-induced low power demand and market forces starkly reduce CO2 emissions. Nature Climate Change, 2021, 11, 193-196.	18.8	93
52	Energy systems in scenarios at net-zero CO2 emissions. Nature Communications, 2021, 12, 6096.	12.8	91
53	Development without energy? Assessing future scenarios of energy consumption in developing countries. Ecological Economics, 2013, 90, 53-67.	5.7	88
54	How much energy will buildings consume in 2100? A global perspective within a scenario framework. Energy, 2018, 148, 514-527.	8.8	84

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55	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
56	Common but differentiated leadership: strategies and challenges for carbon neutrality by 2050 across industrialized economies. Environmental Research Letters, 2020, 15, 114016.	5.2	82
57	The value of bioenergy in low stabilization scenarios: an assessment using REMIND-MAgPIE. Climatic Change, 2014, 123, 705-718.	3.6	81
58	Long-term climate policy implications of phasing out fossil fuel subsidies. Energy Policy, 2014, 67, 882-894.	8.8	75
59	Understanding the contribution of non-carbon dioxide gases in deep mitigation scenarios. Global Environmental Change, 2015, 33, 142-153.	7.8	75
60	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
61	Negative emissions and international climate goalsâ€"learning from and about mitigation scenarios. Climatic Change, 2019, 157, 189-219.	3.6	74
62	The value of technology and of its evolution towards a low carbon economy. Climatic Change, 2012, 114, 39-57.	3.6	73
63	A multi-model assessment of the co-benefits of climate mitigation for global air quality. Environmental Research Letters, 2016, 11, 124013.	5.2	72
64	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
65	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
66	Quantification of an efficiencyâ€"sovereignty trade-offâ€„in climate policy. Nature, 2020, 588, 261-266.	27.8	61
67	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
68	THE DISTRIBUTION OF THE MAJOR ECONOMIES' EFFORT IN THE DURBAN PLATFORM SCENARIOS. Climate Change Economics, 2013, 04, 1340009.	5.0	59
69	Deriving life cycle assessment coefficients for application in integrated assessment modelling. Environmental Modelling and Software, 2018, 99, 111-125.	4.5	59
70	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
71	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
72	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

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73	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
74	Alternative carbon price trajectories can avoid excessive carbon removal. Nature Communications, 2021, 12, 2264.	12.8	55
75	Implications of weak near-term climate policies on long-term mitigation pathways. Climatic Change, 2016, 136, 127-140.	3.6	54
76	Short term policies to keep the door open for Paris climate goals. Environmental Research Letters, 2018, 13, 074022.	5.2	48
77	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
78	Description of the REMIND Model (Version 1.6). SSRN Electronic Journal, 0, , .	0.4	46
79	Halving energy demand from buildings: The impact of low consumption practices. Technological Forecasting and Social Change, 2019, 146, 253-266.	11.6	46
80	Narrative-driven alternative roads to achieve mid-century CO2 net neutrality in Europe. Energy, 2022, 239, 121908.	8.8	44
81	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
82	Mitigation Potential and Costs. , 2011, , 791-864.		41
83	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
84	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
85	Energy system developments and investments in the decisive decade for the Paris Agreement goals. Environmental Research Letters, 2021, 16, 074020.	5.2	41
86	The role of methane in future climate strategies: mitigation potentials and climate impacts. Climatic Change, 2020, 163, 1409-1425.	3.6	39
87	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
88	Early retirement of power plants in climate mitigation scenarios. Environmental Research Letters, 2020, 15, 094064.	5.2	38
89	Integrated assessment model diagnostics: key indicators and model evolution. Environmental Research Letters, 2021, 16, 054046.	5.2	36
90	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

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91	On the regional distribution of mitigation costs in a global cap-and-trade regime. Climatic Change, 2012, 114, 59-78.	3.6	33
92	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
93	Managing the Low-Carbon Transition - From Model Results to Policies. Energy Journal, 2010, 31, 223-245.	1.7	29
94	The role of technological availability for the distributive impacts of climate change mitigation policy. Energy Policy, 2011, 39, 6030-6039.	8.8	25
95	Will economic growth and fossil fuel scarcity help or hinder climate stabilization?. Climatic Change, 2016, 136, 7-22.	3.6	25
96	Reducing stranded assets through early action in the Indian power sector. Environmental Research Letters, 2020, 15, 094091.	5.2	25
97	Air quality co-benefits of ratcheting up the NDCs. Climatic Change, 2020, 163, 1481-1500.	3.6	25
98	Economic impacts of alternative greenhouse gas emission metrics: a model-based assessment. Climatic Change, 2014, 125, 319-331.	3.6	23
99	Early transformation of the Chinese power sector to avoid additional coal lock-in. Environmental Research Letters, 2020, 15, 024007.	5.2	23
100	Bio-energy and CO2 emission reductions: an integrated land-use and energy sector perspective. Climatic Change, 2020, 163, 1675-1693.	3.6	23
101	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
102	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
103	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
104	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
105	How uncertainty in technology costs and carbon dioxide removal availability affect climate mitigation pathways. Energy, 2021, 216, 119253.	8.8	17
106	Water demand for electricity in deep decarbonisation scenarios: a multi-model assessment. Climatic Change, 2018, 147, 91-106.	3.6	16
107	The economically optimal warming limit of the planet. Earth System Dynamics, 2019, 10, 741-763.	7.1	16
108	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

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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	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
111	Exploring the feasibility of low stabilization targets. Wiley Interdisciplinary Reviews: Climate Change, 2011, 2, 617-626.	8.1	14
112	Description of the REMIND Model (Version 1.5). SSRN Electronic Journal, 0, , .	0.4	14
113	ON THE REGIONAL DISTRIBUTION OF CLIMATE MITIGATION COSTS: THE IMPACT OF DELAYED COOPERATIVE ACTION. Climate Change Economics, 2014, 05, 1440002.	5.0	14
114	Optimal international technology cooperation for the low-carbon transformation. Climate Policy, 2018, 18, 1165-1176.	5.1	13
115	Economic damages from on-going climate change imply deeper near-term emission cuts. Environmental Research Letters, 2021, 16, 104053.	5.2	13
116	Life-cycle impacts from different decarbonization pathways for the European car fleet. Environmental Research Letters, 2022, 17, 044009.	5.2	13
117	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
118	A Global Carbon Market and the Allocation of Emission Rights. , 2012, , 269-285.		12
119	Can air pollutant controls change global warming?. Environmental Science and Policy, 2014, 41, 33-43.	4.9	11
120	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
121	Climate policy accelerates structural changes in energy employment. Energy Policy, 2021, 159, 112642.	8.8	11
122	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
123	How climate metrics affect global mitigation strategies and costs: a multi-model study. Climatic Change, 2016, 136, 203-216.	3.6	9
124	Coupling a Detailed Transport Model to the Integrated Assessment Model REMIND. Environmental Modeling and Assessment, 2021, 26, 891-909.	2.2	9
125	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
126	Managing Power Demand from Air Conditioning Benefits Solar PV in India Scenarios for 2040. Energies, 2020, 13, 2223.	3.1	8

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127	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
128	CO2 equivalences for short-lived climate forcers. Climatic Change, 2014, 122, 651-664.	3.6	7
129	Emissions and their drivers: sensitivity to economic growth and fossil fuel availability across world regions. Climatic Change, 2016, 136, 23-37.	3.6	7
130	Linking climate change mitigation research to sustainable development. , 2014, , .		6
131	Long-Term Transport Energy Demand and Climate Policy: Alternative Visions on Transport Decarbonization in Energy Economy Models. SSRN Electronic Journal, 2013, , .	0.4	4
132	The Energy Modeling Forum (EMF)-30 study on short-lived climate forcers: introduction and overview. Climatic Change, 2020, 163, 1399-1408.	3.6	4
133	Analyzing Major Challenges of Wind and Solar Variability in Power Systems. SSRN Electronic Journal, 0, , .	0.4	2
134	The Role of Time Preferences in Explaining the Long-Term Pattern of International Trade. Global Economy Journal, 2015, 15, 83-106.	0.7	2
135	Regional Low-Emission Pathways from Global Models. SSRN Electronic Journal, 0, , .	0.4	1
136	Climate Change Mitigation: Options, Costs and Risks. , 2012, , 139-150.		1
137	Climate policies will stimulate technology development. Nature, 2008, 453, 155-155.	27.8	0
138	Economic Impacts of Alternative Greenhouse Gas Emission Metrics: A Model-Based Assessment. SSRN Electronic Journal, 2013, , .	0.4	0
139	Worldwide Promotion and Diffusion of Climate-Friendly Technologies. , 2012, , 297-309.		0
140	Implications of Weak Near-Term Climate Policies on Long-Term Mitigation Pathways. SSRN Electronic Journal, 0, , .	0.4	0
141	InterdisziplinÃrer Synthesebericht zum Kohleausstieg: <i>ENavi</i> informiert die Kohlekommission. Gaia, 2019, 28, 61-62.	0.7	0