Adam Brandt

List of Publications by Year
in descending order

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125 papers	5,263 citations	81900 39 h-index	98798 67 g-index
131 all docs	131 docs citations	131 times ranked	3997 citing authors

#	Article	IF	Citations
1	Assessment of methane emissions from the U.S. oil and gas supply chain. Science, 2018, 361, 186-188.	12.6	519
2	Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 6722-6727.	7.1	250
3	Global carbon intensity of crude oil production. Science, 2018, 361, 851-853.	12.6	196
4	Methane Leaks from Natural Gas Systems Follow Extreme Distributions. Environmental Science & Technology, 2016, 50, 12512-12520.	10.0	195
5	The energetic implications of curtailing versus storing solar- and wind-generated electricity. Energy and Environmental Science, 2013, 6, 2804.	30.8	143
6	Clustering methods to find representative periods for the optimization of energy systems: An initial framework and comparison. Applied Energy, 2019, 239, 1283-1293.	10.1	135
7	Measurements of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants: Measurement Results. Environmental Science & Technology, 2015, 49, 3219-3227.	10.0	133
8	Constructing a Spatially Resolved Methane Emission Inventory for the Barnett Shale Region. Environmental Science & Technology, 2015, 49, 8147-8157.	10.0	133
9	Methane Emissions from Natural Gas Compressor Stations in the Transmission and Storage Sector: Measurements and Comparisons with the EPA Greenhouse Gas Reporting Program Protocol. Environmental Science & Technology, 2015, 49, 3252-3261.	10.0	129
10	Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites. Environmental Science & Technology, 2016, 50, 4877-4886.	10.0	105
11	Solar PV output prediction from video streams using convolutional neural networks. Energy and Environmental Science, 2018, 11, 1811-1818.	30.8	104
12	Life cycle assessment of emerging technologies: Evaluation techniques at different stages of market and technical maturity. Journal of Industrial Ecology, 2020, 24, 11-25.	5.5	103
13	Short-term solar power forecast with deep learning: Exploring optimal input and output configuration. Solar Energy, 2019, 188, 730-741.	6.1	97
14	Variation in Methane Emission Rates from Well Pads in Four Oil and Gas Basins with Contrasting Production Volumes and Compositions. Environmental Science & Technology, 2017, 51, 8832-8840.	10.0	94
15	Improved Mechanistic Understanding of Natural Gas Methane Emissions from Spatially Resolved Aircraft Measurements. Environmental Science & Technology, 2017, 51, 7286-7294.	10.0	83
16	Are Optical Gas Imaging Technologies Effective For Methane Leak Detection?. Environmental Science & Technology, 2017, 51, 718-724.	10.0	81
17	Carbon intensity of global crude oil refining and mitigation potential. Nature Climate Change, 2020, 10, 526-532.	18.8	77
18	Closing the methane gap in US oil and natural gas production emissions inventories. Nature Communications, 2021, 12, 4715.	12.8	77

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19	Oil Depletion and the Energy Efficiency of Oil Production: The Case of California. Sustainability, 2011, 3, 1833-1854.	3.2	76
20	Review of mathematical models of future oil supply: Historical overview and synthesizing critique. Energy, 2010, 35, 3958-3974.	8.8	74
21	Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale, North Dakota. Environmental Science & Technology, 2017, 51, 5317-5325.	10.0	74
22	Variability and Uncertainty in Life Cycle Assessment Models for Greenhouse Gas Emissions from Canadian Oil Sands Production. Environmental Science & Technology, 2012, 46, 1253-1261.	10.0	70
23	Open-Source LCA Tool for Estimating Greenhouse Gas Emissions from Crude Oil Production Using Field Characteristics. Environmental Science & Technology, 2013, 47, 5998-6006.	10.0	70
24	The energy efficiency of oil sands extraction: Energy return ratios from 1970 to 2010. Energy, 2013, 55, 693-702.	8.8	68
25	A General Mathematical Framework for Calculating Systems-Scale Efficiency of Energy Extraction and Conversion: Energy Return on Investment (EROI) and Other Energy Return Ratios. Energies, 2011, 4, 1211-1245.	3.1	66
26	Impact of alkalinity sources on the life-cycle energy efficiency of mineral carbonation technologies. Energy and Environmental Science, 2012, 5, 8631.	30.8	64
27	A better currency for investing in a sustainable future. Nature Climate Change, 2014, 4, 524-527.	18.8	63
28	Machine vision for natural gas methane emissions detection using an infrared camera. Applied Energy, 2020, 257, 113998.	10.1	62
29	CO₂enhanced oil recovery: a catalyst for gigatonne-scale carbon capture and storage deployment?. Energy and Environmental Science, 2017, 10, 2594-2608.	30.8	62
30	â€œGood versus Good Enough?â€•Empirical Tests of Methane Leak Detection Sensitivity of a Commercial Infrared Camera. Environmental Science & Technology, 2018, 52, 2368-2374.	10.0	58
31	Well-to-refinery emissions and net-energy analysis of Chinaâ€™s crude-oil supply. Nature Energy, 2018, 3, 220-226.	39.5	56
32	Concurrent variation in oil and gas methane emissions and oil price during the COVID-19 pandemic. Atmospheric Chemistry and Physics, 2021, 21, 6605-6626.	4.9	55
33	Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels. Environmental Science & Technology, 2015, 49, 8219-8227.	10.0	51
34	Comparison of methane emission estimates from multiple measurement techniques at natural gas production pads. Elementa, 2017, 5, .	3.2	49
35	Calculating systems-scale energy efficiency and net energy returns: A bottom-up matrix-based approach. Energy, 2013, 62, 235-247.	8.8	48
36	Detection Limits of Optical Gas Imaging for Natural Gas Leak Detection in Realistic Controlled Conditions. Environmental Science & Technology, 2020, 54, 11506-11514.	10.0	48

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37	Quantifying Regional Methane Emissions in the New Mexico Permian Basin with a Comprehensive Aerial Survey. Environmental Science & Technology, 2022, 56, 4317-4323.	10.0	48
38	Designing better methane mitigation policies: the challenge of distributed small sources in the natural gas sector. Environmental Research Letters, 2017, 12, 044023.	5.2	45
39	Climate impacts of oil extraction increase significantly with oilfield age. Nature Climate Change, 2017, 7, 551-556.	18.8	41
40	Repeated leak detection and repair surveys reduce methane emissions over scale of years. Environmental Research Letters, 2020, 15, 034029.	5.2	41
41	Comparing Natural Gas Leakage Detection Technologies Using an Open-Source â€œVirtual Gas Fieldâ€• Simulator. Environmental Science & Technology, 2016, 50, 4546-4553.	10.0	40
42	Time-series aggregation for the optimization of energy systems: Goals, challenges, approaches, and opportunities. Renewable and Sustainable Energy Reviews, 2022, 157, 111984.	16.4	40
43	Optimization of carbon-capture-enabled coal-gas-solar power generation. Energy, 2015, 79, 149-162.	8.8	39
44	Energy Intensity and Greenhouse Gas Emissions from Tight Oil Production in the Bakken Formation. Energy & Fuels, 2016, 30, 9613-9621.	5.1	39
45	Climate-wise choices in a world of oil abundance. Environmental Research Letters, 2018, 13, 044027.	5.2	38
46	Resampling and data augmentation for short-term PV output prediction based on an imbalanced sky images dataset using convolutional neural networks. Solar Energy, 2021, 224, 341-354.	6.1	37
47	Natural Gas Emissions from Underground Pipelines and Implications for Leak Detection. Environmental Science and Technology Letters, 2019, 6, 401-406.	8.7	34
48	Potential solar energy use in the global petroleum sector. Energy, 2017, 118, 884-892.	8.8	33
49	Constraining the accuracy of flux estimates using OTMÂ33A. Atmospheric Measurement Techniques, 2020, 13, 341-353.	3.1	33
50	Peak Oil Demand: The Role of Fuel Efficiency and Alternative Fuels in a Global Oil Production Decline. Environmental Science & Technology, 2013, 47, 8031-8041.	10.0	32
51	Energy Return on Investment (EROI) for Forty Global Oilfields Using a Detailed Engineering-Based Model of Oil Production. PLoS ONE, 2015, 10, e0144141.	2.5	30
52	Three considerations for modeling natural gas system methane emissions in life cycle assessment. Journal of Cleaner Production, 2019, 222, 760-767.	9.3	30
53	Net energy analysis of Bakken crude oil production using a well-level engineering-based model. Energy, 2015, 93, 2191-2198.	8.8	29
54	How Does Energy Resource Depletion Affect Prosperity? Mathematics of a Minimum Energy Return on Investment (EROI). BioPhysical Economics and Resource Quality, 2017, 2, 1.	2.4	29

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55	Comparing facility-level methane emission rate estimates at natural gas gathering and boosting stations. Elementa, 2017, 5, .	3.2	29
56	Optimal design and operations of a flexible oxyfuel natural gas plant. Energy, 2017, 141, 506-518.	8.8	28
57	Aerial Interyear Comparison and Quantification of Methane Emissions Persistence in the Bakken Formation of North Dakota, USA. Environmental Science & Technology, 2018, 52, 8947-8953.	10.0	28
58	Updating the U.S. Life Cycle GHG Petroleum Baseline to 2014 with Projections to 2040 Using Open-Source Engineering-Based Models. Environmental Science & Technology, 2017, 51, 977-987.	10.0	27
59	Greenhouse-gas emissions of Canadian liquefied natural gas for use in China: Comparison and synthesis of three independent life cycle assessments. Journal of Cleaner Production, 2020, 258, 120701.	9.3	27
60	Single-blind test of airplane-based hyperspectral methane detection via controlled releases. Elementa, 2021, 9, .	3.2	25
61	Methane Emissions from Gathering Compressor Stations in the U.S.. Environmental Science & Technology, 2020, 54, 7552-7561.	10.0	24
62	Optimizing heat integration in a flexible coalâ€“natural gas power station with CO2 capture. International Journal of Greenhouse Gas Control, 2014, 31, 138-152.	4.6	23
63	Extreme events in time series aggregation: A case study for optimal residential energy supply systems. Applied Energy, 2020, 275, 115223.	10.1	23
64	Evaluation of next generation emission measurement technologies under repeatable test protocols. Elementa, 2020, 8, .	3.2	23
65	Energetic productivity dynamics of global super-giant oilfields. Energy and Environmental Science, 2017, 10, 1493-1504.	30.8	22
66	Design and operations optimization of membrane-based flexible carbon capture. International Journal of Greenhouse Gas Control, 2019, 84, 154-163.	4.6	21
67	Optimization-based technoeconomic analysis of molten-media methane pyrolysis for reducing industrial sector CO₂ emissions. Sustainable Energy and Fuels, 2020, 4, 4598-4613.	4.9	21
68	Estimating decades-long trends in petroleum field energy return on investment (EROI) with an engineering-based model. PLoS ONE, 2017, 12, e0171083.	2.5	21
69	Short-term solar PV forecasting using computer vision: The search for optimal CNN architectures for incorporating sky images and PV generation history. Journal of Renewable and Sustainable Energy, 2019, 11, .	2.0	19
70	Assessment of advanced solvent-based post-combustion CO2 capture processes using a bi-objective optimization technique. Applied Energy, 2016, 179, 1209-1219.	10.1	18
71	A new carbon capture proxy model for optimizing the design and time-varying operation of a coal-natural gas power station. International Journal of Greenhouse Gas Control, 2016, 48, 234-252.	4.6	18
72	PV power output prediction from sky images using convolutional neural network: The comparison of sky-condition-specific sub-models and an end-to-end model. Journal of Renewable and Sustainable Energy, 2020, 12, .	2.0	18

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73	VideoGasNet: Deep learning for natural gas methane leak classification using an infrared camera. Energy, 2022, 238, 121516.	8.8	18
74	Uncertainty of Oil Field GHG Emissions Resulting from Information Gaps: A Monte Carlo Approach. Environmental Science & Technology, 2014, 48, 10511-10518.	10.0	16
75	Uncertainty in Regional-Average Petroleum GHG Intensities: Countering Information Gaps with Targeted Data Gathering. Environmental Science & Technology, 2015, 49, 679-686.	10.0	16
76	Optimal design of an electricity-intensive industrial facility subject to electricity price uncertainty: Stochastic optimization and scenario reduction. Chemical Engineering Research and Design, 2020, 163, 204-216.	5.6	16
77	A Methane Emission Estimation Tool (MEET) for predictions of emissions from upstream oil and gas well sites with fine scale temporal and spatial resolution: Model structure and applications. Science of the Total Environment, 2022, 829, 154277.	8.0	16
78	When Comparing Alternative Fuelâ€Vehicle Systems, Life Cycle Assessment Studies Should Consider Trends in Oil Production. Journal of Industrial Ecology, 2017, 21, 244-248.	5.5	15
79	Greenhouse Gas Emissions of Western Canadian Natural Gas: Proposed Emissions Tracking for Life Cycle Modeling. Environmental Science & Technology, 2021, 55, 9711-9720.	10.0	15
80	Carbon implications of marginal oils from market-derived demand shocks. Nature, 2021, 599, 80-84.	27.8	15
81	An Artificial Neural Network in Short-Term Electrical Load Forecasting of a University Campus: A Case Study. Journal of Energy Resources Technology, Transactions of the ASME, 2013, 135, .	2.3	14
82	GHGfrack: An Open-Source Model for Estimating Greenhouse Gas Emissions from Combustion of Fuel during Drilling and Hydraulic Fracturing. Environmental Science & Technology, 2016, 50, 7913-7920.	10.0	14
83	Mitigating Communication Delays in Remotely Connected Hardware-in-the-Loop Experiments. IEEE Transactions on Industrial Electronics, 2018, 65, 9739-9748.	7.9	14
84	Reproducibility of LCA Models of Crude Oil Production. Environmental Science & Technology, 2014, 48, 12978-12985.	10.0	13
85	Energy Intensity and Greenhouse Gas Emissions from Oil Production in the Eagle Ford Shale. Energy & Fuels, 2017, 31, 1440-1449.	5.1	13
86	Multiday Measurements of Pneumatic Controller Emissions Reveal the Frequency of Abnormal Emissions Behavior at Natural Gas Gathering Stations. Environmental Science and Technology Letters, 2019, 6, 348-352.	8.7	13
87	Designing reliable future energy systems by iteratively including extreme periods in time-series aggregation. Applied Energy, 2021, 304, 117696.	10.1	13
88	Accuracy of satellite-derived estimates of flaring volume for offshore oil and gas operations in nine countries. Environmental Research Communications, 2020, 2, 051006.	2.3	13
89	Displacing fishmeal with protein derived from stranded methane. Nature Sustainability, 2022, 5, 47-56.	23.7	12
90	Embodied Energy and GHG Emissions from Material Use in Conventional and Unconventional Oil and Gas Operations. Environmental Science & Technology, 2015, 49, 13059-13066.	10.0	11

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91	Orphaned oil and gas well stimulusâ€"Maximizing economic and environmental benefits. Elementa, 2021, 9, .	3.2	11
92	Microgrid generation units optimum dispatch for fuel consumption minimization. Journal of Ambient Intelligence and Humanized Computing, 2013, 4, 685-701.	4.9	10
93	Convolutional Neural Network for Short-term Solar Panel Output Prediction. , 2018, , .		10
94	Improving robustness of LCA results through stakeholder engagement: A case study of emerging oil sands technologies. Journal of Cleaner Production, 2021, 281, 125277.	9.3	9
95	Sensor Placement Optimization Software Applied to Site-Scale Methane-Emissions Monitoring. Journal of Environmental Engineering, ASCE, 2020, 146, .	1.4	8
96	A methane emissions reduction equivalence framework for alternative leak detection and repair programs. Elementa, 2019, 7, .	3.2	8
97	TimeSeriesClustering: An extensible framework in Julia. Journal of Open Source Software, 2019, 4, 1573.	4.6	7
98	Overcoming barriers to direct current power: Lessons learned from four commercial building case studies. Energy Efficiency, 2021, 14, 1.	2.8	7
99	Modeling air emissions from complex facilities at detailed temporal and spatial resolution: The Methane Emission Estimation Tool (MEET). Science of the Total Environment, 2022, 824, 153653.	8.0	7
100	Robust control of microgrid frequency with attached storage system. , 2013, , .		6
101	Optimizing rural village microgrids to provide affordable and reliable renewable electricity in developing countries. , 2017, , .		6
102	Methane Exhaust Measurements at Gathering Compressor Stations in the United States. Environmental Science & Technology, 2021, 55, 1190-1196.	10.0	6
103	Estimating global oilfield-specific flaring with uncertainty using a detailed geographic database of oil and gas fields. Environmental Research Letters, 2021, 16, 124039.	5.2	6
104	Wind data introduce error in time-series reduction for capacity expansion modelling. Energy, 2022, 256, 124467.	8.8	6
105	Carbon Dioxide Emissions from Oil Shale Derived Liquid Fuels. ACS Symposium Series, 2010, , 219-248.	0.5	5
106	Data Analysis and Visualization for Electric Microgrids: A Case Study on the FortZED RDSI Microgrid. , 2013, , .		5
107	Blow wind blow: Capital deployment in variable energy systems. Energy, 2021, 224, 120198.	8.8	5
108	Optimum generation units dispatch for fuel consumption minimization. , 2011, , .		4

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109	Statistical proxy modeling for life cycle assessment and energetic analysis. Energy, 2020, 194, 116882.	8.8	3
110	Progress for On-Grid Renewable Energy Systems: Identification of Sustainability Factors for Small-Scale Hydropower in Rwanda. Energies, 2021, 14, 826.	3.1	3
111	CapacityExpansion: A capacity expansion modeling framework in Julia. Journal of Open Source Software, 2020, 5, 2034.	4.6	3
112	A community-scale microgrid demonstration: FortZED/RDSI. , 2012, , .		2
113	Optimal selection of generators in a microgrid for fuel usage minimization. , 2013, , .		2
114	DC Approximate Models for Modeling Minigrid Systems. , 2018, , .		2
115	Response to Comment on â€œVariability and Uncertainty in Life Cycle Assessment Models for Greenhouse Gas Emissions from Canadian Oil Sands Productionâ€• Environmental Science & Technology, 2012, 46, 4254-4254.	10.0	1
116	Constrained optimum generator dispatch for fuel consumption minimization. , 2013, , .		1
117	Roadmapping Minigrid Innovations for Cost Reduction. , 2019, , .		1
118	Can Modifications Make Electric Pressure Cookers â€˜Minigrid Friendly?â€™. , 2020, , .		1
119	Functionalityâ€based life cycle assessment framework: An information and communication technologies (ICT) product case study. Journal of Industrial Ecology, 2022, 26, 782-800.	5.5	1
120	Supplemental energy needed for wind integration. , 2013, , .		0
121	Improved exergetic life cycle assessment through matrix reduction technique. International Journal of Life Cycle Assessment, 2016, 21, 1379-1390.	4.7	0
122	Designing Optimal Network for Rural Electrification using Multiplier-accelerated A* Algorithm. , 2019, , .		0
123	Optimizing Networked Rural Electrification Design using Adaptive Multiplier-Accelerated A* Algorithm. , 2020, , .		0
124	Modeling the Winding Hot-Spot Temperature and Aging of Enclosed Vault Transformers using a Physics-Based Heat Transfer Model. , 2020, , .		0
125	Big Data Analytics for Power Distribution Systems using AMI and Open Source Tools. , 2020, , .		0