

# 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	VideoGasNet: Deep learning for natural gas methane leak classification using an infrared camera. Energy, 2022, 238, 121516.	8.8	18
2	Displacing fishmeal with protein derived from stranded methane. Nature Sustainability, 2022, 5, 47-56.	23.7	12
3	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
4	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
5	Functionality-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
6	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
7	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
8	Wind data introduce error in time-series reduction for capacity expansion modelling. Energy, 2022, 256, 124467.	8.8	6
9	Single-blind test of airplane-based hyperspectral methane detection via controlled releases. Elementa, 2021, 9, .	3.2	25
10	Orphaned oil and gas well stimulus "Maximizing economic and environmental benefits. Elementa, 2021, 9, .	3.2	11
11	Progress for On-Grid Renewable Energy Systems: Identification of Sustainability Factors for Small-Scale Hydropower in Rwanda. Energies, 2021, 14, 826.	3.1	3
12	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
13	Blow wind blow: Capital deployment in variable energy systems. Energy, 2021, 224, 120198.	8.8	5
14	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
15	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
16	Closing the methane gap in US oil and natural gas production emissions inventories. Nature Communications, 2021, 12, 4715.	12.8	77
17	Designing reliable future energy systems by iteratively including extreme periods in time-series aggregation. Applied Energy, 2021, 304, 117696.	10.1	13
18	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

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19	Methane Exhaust Measurements at Gathering Compressor Stations in the United States. Environmental Science & Technology, 2021, 55, 1190-1196.	10.0	6
20	Overcoming barriers to direct current power: Lessons learned from four commercial building case studies. Energy Efficiency, 2021, 14, 1.	2.8	7
21	Carbon implications of marginal oils from market-derived demand shocks. Nature, 2021, 599, 80-84.	27.8	15
22	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
23	Machine vision for natural gas methane emissions detection using an infrared camera. Applied Energy, 2020, 257, 113998.	10.1	62
24	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
25	Statistical proxy modeling for life cycle assessment and energetic analysis. Energy, 2020, 194, 116882.	8.8	3
26	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
27	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
28	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
29	Carbon intensity of global crude oil refining and mitigation potential. Nature Climate Change, 2020, 10, 526-532.	18.8	77
30	Methane Emissions from Gathering Compressor Stations in the U.S.. Environmental Science & Technology, 2020, 54, 7552-7561.	10.0	24
31	Constraining the accuracy of flux estimates using OTM <sup>33A</sup> . Atmospheric Measurement Techniques, 2020, 13, 341-353.	3.1	33
32	Extreme events in time series aggregation: A case study for optimal residential energy supply systems. Applied Energy, 2020, 275, 115223.	10.1	23
33	Optimization-based techno-economic analysis of molten-media methane pyrolysis for reducing industrial sector CO <sub>2</sub> emissions. Sustainable Energy and Fuels, 2020, 4, 4598-4613.	4.9	21
34	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
35	Repeated leak detection and repair surveys reduce methane emissions over scale of years. Environmental Research Letters, 2020, 15, 034029.	5.2	41
36	Sensor Placement Optimization Software Applied to Site-Scale Methane-Emissions Monitoring. Journal of Environmental Engineering, ASCE, 2020, 146, .	1.4	8

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37	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
38	Evaluation of next generation emission measurement technologies under repeatable test protocols. Elementa, 2020, 8, .	3.2	23
39	CapacityExpansion: A capacity expansion modeling framework in Julia. Journal of Open Source Software, 2020, 5, 2034.	4.6	3
40	Optimizing Networked Rural Electrification Design using Adaptive Multiplier-Accelerated A* Algorithm. , 2020, , .		0
41	Modeling the Winding Hot-Spot Temperature and Aging of Enclosed Vault Transformers using a Physics-Based Heat Transfer Model. , 2020, , .		0
42	Can Modifications Make Electric Pressure Cookers â€˜Minigrid Friendly?â€™. , 2020, , .		1
43	Big Data Analytics for Power Distribution Systems using AML and Open Source Tools. , 2020, , .		0
44	Natural Gas Emissions from Underground Pipelines and Implications for Leak Detection. Environmental Science and Technology Letters, 2019, 6, 401-406.	8.7	34
45	Short-term solar power forecast with deep learning: Exploring optimal input and output configuration. Solar Energy, 2019, 188, 730-741.	6.1	97
46	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
47	Three considerations for modeling natural gas system methane emissions in life cycle assessment. Journal of Cleaner Production, 2019, 222, 760-767.	9.3	30
48	Design and operations optimization of membrane-based flexible carbon capture. International Journal of Greenhouse Gas Control, 2019, 84, 154-163.	4.6	21
49	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
50	Designing Optimal Network for Rural Electrification using Multiplier-accelerated A* Algorithm. , 2019, , .		0
51	Roadmapping Minigrid Innovations for Cost Reduction. , 2019, , .		1
52	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
53	A methane emissions reduction equivalence framework for alternative leak detection and repair programs. Elementa, 2019, 7, .	3.2	8
54	TimeSeriesClustering: An extensible framework in Julia. Journal of Open Source Software, 2019, 4, 1573.	4.6	7

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55	Well-to-refinery emissions and net-energy analysis of China's crude-oil supply. <i>Nature Energy</i> , 2018, 3, 220-226.	39.5	56
56	Solar PV output prediction from video streams using convolutional neural networks. <i>Energy and Environmental Science</i> , 2018, 11, 1811-1818.	30.8	104
57	"Good versus Good Enough?" Empirical Tests of Methane Leak Detection Sensitivity of a Commercial Infrared Camera. <i>Environmental Science &amp; Technology</i> , 2018, 52, 2368-2374.	10.0	58
58	Mitigating Communication Delays in Remotely Connected Hardware-in-the-Loop Experiments. <i>IEEE Transactions on Industrial Electronics</i> , 2018, 65, 9739-9748.	7.9	14
59	DC Approximate Models for Modeling Minigrid Systems. , 2018, , .		2
60	Convolutional Neural Network for Short-term Solar Panel Output Prediction. , 2018, , .		10
61	Global carbon intensity of crude oil production. <i>Science</i> , 2018, 361, 851-853.	12.6	196
62	Aerial Interyear Comparison and Quantification of Methane Emissions Persistence in the Bakken Formation of North Dakota, USA. <i>Environmental Science &amp; Technology</i> , 2018, 52, 8947-8953.	10.0	28
63	Climate-wise choices in a world of oil abundance. <i>Environmental Research Letters</i> , 2018, 13, 044027.	5.2	38
64	Assessment of methane emissions from the U.S. oil and gas supply chain. <i>Science</i> , 2018, 361, 186-188.	12.6	519
65	Energy Intensity and Greenhouse Gas Emissions from Oil Production in the Eagle Ford Shale. <i>Energy &amp; Fuels</i> , 2017, 31, 1440-1449.	5.1	13
66	Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale, North Dakota. <i>Environmental Science &amp; Technology</i> , 2017, 51, 5317-5325.	10.0	74
67	How Does Energy Resource Depletion Affect Prosperity? Mathematics of a Minimum Energy Return on Investment (EROI). <i>BioPhysical Economics and Resource Quality</i> , 2017, 2, 1.	2.4	29
68	Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 6722-6727.	7.1	250
69	Improved Mechanistic Understanding of Natural Gas Methane Emissions from Spatially Resolved Aircraft Measurements. <i>Environmental Science &amp; Technology</i> , 2017, 51, 7286-7294.	10.0	83
70	Energetic productivity dynamics of global super-giant oilfields. <i>Energy and Environmental Science</i> , 2017, 10, 1493-1504.	30.8	22
71	Are Optical Gas Imaging Technologies Effective For Methane Leak Detection?. <i>Environmental Science &amp; Technology</i> , 2017, 51, 718-724.	10.0	81
72	Optimal design and operations of a flexible oxyfuel natural gas plant. <i>Energy</i> , 2017, 141, 506-518.	8.8	28

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73	Designing better methane mitigation policies: the challenge of distributed small sources in the natural gas sector. <i>Environmental Research Letters</i> , 2017, 12, 044023.	5.2	45
74	Climate impacts of oil extraction increase significantly with oilfield age. <i>Nature Climate Change</i> , 2017, 7, 551-556.	18.8	41
75	Variation in Methane Emission Rates from Well Pads in Four Oil and Gas Basins with Contrasting Production Volumes and Compositions. <i>Environmental Science &amp; Technology</i> , 2017, 51, 8832-8840.	10.0	94
76	Potential solar energy use in the global petroleum sector. <i>Energy</i> , 2017, 118, 884-892.	8.8	33
77	When Comparing Alternative Fuel-Vehicle Systems, Life Cycle Assessment Studies Should Consider Trends in Oil Production. <i>Journal of Industrial Ecology</i> , 2017, 21, 244-248.	5.5	15
78	Updating the U.S. Life Cycle GHG Petroleum Baseline to 2014 with Projections to 2040 Using Open-Source Engineering-Based Models. <i>Environmental Science &amp; Technology</i> , 2017, 51, 977-987.	10.0	27
79	Optimizing rural village microgrids to provide affordable and reliable renewable electricity in developing countries. , 2017, , .		6
80	Comparing facility-level methane emission rate estimates at natural gas gathering and boosting stations. <i>Elementa</i> , 2017, 5, .	3.2	29
81	CO <sub>2</sub> -enhanced oil recovery: a catalyst for gigatonne-scale carbon capture and storage deployment?. <i>Energy and Environmental Science</i> , 2017, 10, 2594-2608.	30.8	62
82	Estimating decades-long trends in petroleum field energy return on investment (EROI) with an engineering-based model. <i>PLoS ONE</i> , 2017, 12, e0171083.	2.5	21
83	Comparison of methane emission estimates from multiple measurement techniques at natural gas production pads. <i>Elementa</i> , 2017, 5, .	3.2	49
84	Energy Intensity and Greenhouse Gas Emissions from Tight Oil Production in the Bakken Formation. <i>Energy &amp; Fuels</i> , 2016, 30, 9613-9621.	5.1	39
85	Comparing Natural Gas Leakage Detection Technologies Using an Open-Source "Virtual Gas Field" Simulator. <i>Environmental Science &amp; Technology</i> , 2016, 50, 4546-4553.	10.0	40
86	Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites. <i>Environmental Science &amp; Technology</i> , 2016, 50, 4877-4886.	10.0	105
87	Improved exergetic life cycle assessment through matrix reduction technique. <i>International Journal of Life Cycle Assessment</i> , 2016, 21, 1379-1390.	4.7	0
88	Assessment of advanced solvent-based post-combustion CO <sub>2</sub> capture processes using a bi-objective optimization technique. <i>Applied Energy</i> , 2016, 179, 1209-1219.	10.1	18
89	<i>GHGfrack</i> : An Open-Source Model for Estimating Greenhouse Gas Emissions from Combustion of Fuel during Drilling and Hydraulic Fracturing. <i>Environmental Science &amp; Technology</i> , 2016, 50, 7913-7920.	10.0	14
90	Methane Leaks from Natural Gas Systems Follow Extreme Distributions. <i>Environmental Science &amp; Technology</i> , 2016, 50, 12512-12520.	10.0	195

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91	A new carbon capture proxy model for optimizing the design and time-varying operation of a coal-natural gas power station. <i>International Journal of Greenhouse Gas Control</i> , 2016, 48, 234-252.	4.6	18
92	Energy Return on Investment (EROI) for Forty Global Oilfields Using a Detailed Engineering-Based Model of Oil Production. <i>PLoS ONE</i> , 2015, 10, e0144141.	2.5	30
93	Embodied Energy and GHG Emissions from Material Use in Conventional and Unconventional Oil and Gas Operations. <i>Environmental Science &amp; Technology</i> , 2015, 49, 13059-13066.	10.0	11
94	Net energy analysis of Bakken crude oil production using a well-level engineering-based model. <i>Energy</i> , 2015, 93, 2191-2198.	8.8	29
95	Optimization of carbon-capture-enabled coal-gas-solar power generation. <i>Energy</i> , 2015, 79, 149-162.	8.8	39
96	Methane Emissions from Natural Gas Compressor Stations in the Transmission and Storage Sector: Measurements and Comparisons with the EPA Greenhouse Gas Reporting Program Protocol. <i>Environmental Science &amp; Technology</i> , 2015, 49, 3252-3261.	10.0	129
97	Measurements of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants: Measurement Results. <i>Environmental Science &amp; Technology</i> , 2015, 49, 3219-3227.	10.0	133
98	Uncertainty in Regional-Average Petroleum GHG Intensities: Countering Information Gaps with Targeted Data Gathering. <i>Environmental Science &amp; Technology</i> , 2015, 49, 679-686.	10.0	16
99	Constructing a Spatially Resolved Methane Emission Inventory for the Barnett Shale Region. <i>Environmental Science &amp; Technology</i> , 2015, 49, 8147-8157.	10.0	133
100	Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels. <i>Environmental Science &amp; Technology</i> , 2015, 49, 8219-8227.	10.0	51
101	Reproducibility of LCA Models of Crude Oil Production. <i>Environmental Science &amp; Technology</i> , 2014, 48, 12978-12985.	10.0	13
102	Optimizing heat integration in a flexible coal-natural gas power station with CO2 capture. <i>International Journal of Greenhouse Gas Control</i> , 2014, 31, 138-152.	4.6	23
103	Uncertainty of Oil Field GHG Emissions Resulting from Information Gaps: A Monte Carlo Approach. <i>Environmental Science &amp; Technology</i> , 2014, 48, 10511-10518.	10.0	16
104	A better currency for investing in a sustainable future. <i>Nature Climate Change</i> , 2014, 4, 524-527.	18.8	63
105	Microgrid generation units optimum dispatch for fuel consumption minimization. <i>Journal of Ambient Intelligence and Humanized Computing</i> , 2013, 4, 685-701.	4.9	10
106	Calculating systems-scale energy efficiency and net energy returns: A bottom-up matrix-based approach. <i>Energy</i> , 2013, 62, 235-247.	8.8	48
107	Data Analysis and Visualization for Electric Microgrids: A Case Study on the FortZED RDSI Microgrid. , 2013, , .		5
108	The energetic implications of curtailing versus storing solar- and wind-generated electricity. <i>Energy and Environmental Science</i> , 2013, 6, 2804.	30.8	143

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109	The energy efficiency of oil sands extraction: Energy return ratios from 1970 to 2010. <i>Energy</i> , 2013, 55, 693-702.	8.8	68
110	Peak Oil Demand: The Role of Fuel Efficiency and Alternative Fuels in a Global Oil Production Decline. <i>Environmental Science &amp; Technology</i> , 2013, 47, 8031-8041.	10.0	32
111	Open-Source LCA Tool for Estimating Greenhouse Gas Emissions from Crude Oil Production Using Field Characteristics. <i>Environmental Science &amp; Technology</i> , 2013, 47, 5998-6006.	10.0	70
112	Optimal selection of generators in a microgrid for fuel usage minimization. , 2013, , .		2
113	Constrained optimum generator dispatch for fuel consumption minimization. , 2013, , .		1
114	Robust control of microgrid frequency with attached storage system. , 2013, , .		6
115	An Artificial Neural Network in Short-Term Electrical Load Forecasting of a University Campus: A Case Study. <i>Journal of Energy Resources Technology, Transactions of the ASME</i> , 2013, 135, .	2.3	14
116	Supplemental energy needed for wind integration. , 2013, , .		0
117	A community-scale microgrid demonstration: FortZED/RDSI. , 2012, , .		2
118	Variability and Uncertainty in Life Cycle Assessment Models for Greenhouse Gas Emissions from Canadian Oil Sands Production. <i>Environmental Science &amp; Technology</i> , 2012, 46, 1253-1261.	10.0	70
119	Impact of alkalinity sources on the life-cycle energy efficiency of mineral carbonation technologies. <i>Energy and Environmental Science</i> , 2012, 5, 8631.	30.8	64
120	Response to Comment on "Variability and Uncertainty in Life Cycle Assessment Models for Greenhouse Gas Emissions from Canadian Oil Sands Production". <i>Environmental Science &amp; Technology</i> , 2012, 46, 4254-4254.	10.0	1
121	Oil Depletion and the Energy Efficiency of Oil Production: The Case of California. <i>Sustainability</i> , 2011, 3, 1833-1854.	3.2	76
122	Optimum generation units dispatch for fuel consumption minimization. , 2011, , .		4
123	A General Mathematical Framework for Calculating Systems-Scale Efficiency of Energy Extraction and Conversion: Energy Return on Investment (EROI) and Other Energy Return Ratios. <i>Energies</i> , 2011, 4, 1211-1245.	3.1	66
124	Review of mathematical models of future oil supply: Historical overview and synthesizing critique. <i>Energy</i> , 2010, 35, 3958-3974.	8.8	74
125	Carbon Dioxide Emissions from Oil Shale Derived Liquid Fuels. <i>ACS Symposium Series</i> , 2010, , 219-248.	0.5	5