Vasilis M Fthenakis

List of Publications by Year
in descending order

102 papers	7,379 citations	61984 43 h-index	54911 84 g-index
107 all docs	107 docs citations	107 times ranked	6828 citing authors

#	Article	IF	Citations
1	Emissions from Photovoltaic Life Cycles. Environmental Science & Technology, 2008, 42, 2168-2174.	10.0	463
2	Land use and electricity generation: A life-cycle analysis. Renewable and Sustainable Energy Reviews, 2009, 13, 1465-1474.	16.4	385
3	Sustainability of photovoltaics: The case for thin-film solar cells. Renewable and Sustainable Energy Reviews, 2009, 13, 2746-2750.	16.4	348
4	Environmental impacts from the installation and operation of large-scale solar power plants. Renewable and Sustainable Energy Reviews, 2011, 15, 3261-3270.	16.4	301
5	Life-cycle uses of water in U.S. electricity generation. Renewable and Sustainable Energy Reviews, 2010, 14, 2039-2048.	16.4	297
6	Hazard and operability (HAZOP) analysis. A literature review. Journal of Hazardous Materials, 2010, 173, 19-32.	12.4	295
7	GIS-based wind farm site selection using spatial multi-criteria analysis (SMCA): Evaluating the case for New York State. Renewable and Sustainable Energy Reviews, 2011, 15, 3332-3340.	16.4	287
8	End-of-life management and recycling of PV modules. Energy Policy, 2000, 28, 1051-1058.	8.8	268
9	The technical, geographical, and economic feasibility for solar energy to supply the energy needs of the US. Energy Policy, 2009, 37, 387-399.	8.8	259
10	Life cycle analysis in the construction sector: Guiding the optimization of conventional Italian buildings. Energy and Buildings, 2013, 64, 73-89.	6.7	258
11	Photovoltaics energy payback times, greenhouse gas emissions and external costs: 2004â€“early 2005 status. Progress in Photovoltaics: Research and Applications, 2006, 14, 275-280.	8.1	243
12	Life cycle impact analysis of cadmium in CdTe PV production. Renewable and Sustainable Energy Reviews, 2004, 8, 303-334.	16.4	218
13	Life Cycle Greenhouse Gas Emissions of Crystalline Silicon Photovoltaic Electricity Generation. Journal of Industrial Ecology, 2012, 16, S122.	5.5	204
14	The energy return on energy investment (EROI) of photovoltaics: Methodology and comparisons with fossil fuel life cycles. Energy Policy, 2012, 45, 576-582.	8.8	184
15	Greenhouse-gas emissions from solar electric- and nuclear power: A life-cycle study. Energy Policy, 2007, 35, 2549-2557.	8.8	180
16	A Solar Grand Plan. Scientific American, 2008, 298, 64-73.	1.0	145
17	Life Cycle Greenhouse Gas Emissions of Thinâ€film Photovoltaic Electricity Generation. Journal of Industrial Ecology, 2012, 16, S110.	5.5	125
18	Crystalline silicon photovoltaic recycling planning: macro and micro perspectives. Journal of Cleaner Production, 2014, 66, 443-449.	9.3	124

#	Article	IF	Citations
19	The Energy and Environmental Performance of Ground-Mounted Photovoltaic Systemsâ€"A Timely Update. Energies, 2016, 9, 622.	3.1	117
20	Life-cycle analysis of flow-assisted nickel zinc-, manganese dioxide-, and valve-regulated lead-acid batteries designed for demand-charge reduction. Renewable and Sustainable Energy Reviews, 2015, 43, 478-494.	16.4	108
21	Life cycle inventory analysis of the production of metals used in photovoltaics. Renewable and Sustainable Energy Reviews, 2009, 13, 493-517.	16.4	104
22	Assessing the Economic Benefits of Compressed Air Energy Storage for Mitigating Wind Curtailment. IEEE Transactions on Sustainable Energy, 2015, 6, 1021-1028.	8.8	102
23	Comparative evaluation of lead emissions and toxicity potential in the life cycle of lead halide perovskite photovoltaics. Energy, 2019, 166, 1089-1096.	8.8	83
24	Energy policy and financing options to achieve solar energy grid penetration targets: Accounting for external costs. Renewable and Sustainable Energy Reviews, 2014, 32, 854-868.	16.4	82
25	Major challenges and opportunities in silicon solar module recycling. Progress in Photovoltaics: Research and Applications, 2020, 28, 1077-1088.	8.1	82
26	Life cycle assessment of cadmium telluride photovoltaic (CdTe PV) systems. Solar Energy, 2014, 103, 78-88.	6.1	79
27	The energy payback time of advanced crystalline silicon PV modules in 2020: a prospective study. Progress in Photovoltaics: Research and Applications, 2014, 22, 1180-1194.	8.1	77
28	Life Cycle Energy and Climate Change Implications of Nanotechnologies. Journal of Industrial Ecology, 2013, 17, 528-541.	5.5	75
29	Glass needs for a growing photovoltaics industry. Solar Energy Materials and Solar Cells, 2015, 132, 455-459.	6.2	74
30	Empirical assessment of shortâ€term variability from utilityâ€scale solar PV plants. Progress in Photovoltaics: Research and Applications, 2014, 22, 548-559.	8.1	69
31	Kinetics study on separation of cadmium from tellurium in acidic solution media using ion-exchange resins. Journal of Hazardous Materials, 2005, 125, 80-88.	12.4	66
32	Life cycle assessment of highâ€concentration photovoltaic systems. Progress in Photovoltaics: Research and Applications, 2013, 21, 379-388.	8.1	65
33	Economic Feasibility of Recycling Photovoltaic Modules. Journal of Industrial Ecology, 2010, 14, 947-964.	5.5	60
34	Design and Optimization of Photovoltaics Recycling Infrastructure. Environmental Science & Technology, 2010, 44, 8678-8683.	10.0	59
35	Energy Return on Energy Invested (ERoEI) for photovoltaic solar systems in regions of moderate insolation: A comprehensive response. Energy Policy, 2017, 102, 377-384.	8.8	59
36	The optimum mix of electricity from wind- and solar-sources in conventional power systems: Evaluating the case for New York State. Energy Policy, 2011, 39, 6972-6980.	8.8	58

#	Article	IF	Citations
37	Sustainability metrics for extending thin-film photovoltaics to terawatt levels. MRS Bulletin, 2012, 37, 425-430.	3.5	58
38	CdTe photovoltaics: Life cycle environmental profile and comparisons. Thin Solid Films, 2007, 515, 5961-5963.	1.8	55
39	Toxic materials released from photovoltaic modules during fires: Health risks. Solar Cells, 1990, 29, 63-71.	0.6	54
40	FaÃ§adeâ€"integrated photovoltaics: a life cycle and performance assessment case study. Progress in Photovoltaics: Research and Applications, 2012, 20, 975-990.	8.1	51
41	An energy storage algorithm for ramp rate control of utility scale PV (photovoltaics) plants. Energy, 2015, 91, 894-902.	8.8	50
42	Failure Modes, Effects and Criticality Analysis for Wind Turbines Considering Climatic Regions and Comparing Geared and Direct Drive Wind Turbines. Energies, 2018, 11, 2317.	3.1	49
43	Critical metals in strategic photovoltaic technologies: abundance versus recyclability. Progress in Photovoltaics: Research and Applications, 2013, 21, 1253-1259.	8.1	45
44	Sustainability evaluation of CdTe PV: An update. Renewable and Sustainable Energy Reviews, 2020, 123, 109776.	16.4	45
45	Updated sustainability status of crystalline siliconâ€based photovoltaic systems: Lifeâ€cycle energy and environmental impact reduction trends. Progress in Photovoltaics: Research and Applications, 2021, 29, 1068-1077.	8.1	44
46	Cadmium flows and emissions from CdTe PV: future expectations. Energy Policy, 2010, 38, 5223-5228.	8.8	43
47	Nanoparticle emissions from residential wood combustion: A critical literature review, characterization, and recommendations. Renewable and Sustainable Energy Reviews, 2019, 103, 515-528.	16.4	42
48	Coupling PV and CAES power plants to transform intermittent PV electricity into a dispatchable electricity source. Progress in Photovoltaics: Research and Applications, 2008, 16, 649-668.	8.1	40
49	On the spatial decorrelation of stochastic solar resource variability at long timescales. Solar Energy, 2015, 117, 46-58.	6.1	36
50	Pathways for minimal and zero liquid discharge with enhanced reverse osmosis technologies: Module-scale modeling and techno-economic assessment. Desalination, 2021, 509, 115069.	8.2	36
51	New prospects for PV powered water desalination plants: case studies in Saudi Arabia. Progress in Photovoltaics: Research and Applications, 2016, 24, 543-550.	8.1	35
52	What Are the Energy and Environmental Impacts of Adding Battery Storage to Photovoltaics? A Generalized Life Cycle Assessment. Energy Technology, 2020, 8, 1901146.	3.8	35
53	Energy Return on Investment (EROI) of Solar PV: An Attempt at Reconciliation [Point of View]. Proceedings of the IEEE, 2015, 103, 995-999.	21.3	30
54	Net energy analysis and life cycle energy assessment of electricity supply in Chile: Present status and future scenarios. Energy, 2018, 162, 659-668.	8.8	30

#	ARTICLE	IF	CITATIONS
55	Life-cycle environmental impacts of single-junction and tandem perovskite PVs: a critical review and future perspectives. Progress in Energy, 2020, 2, 032002.	10.9	30
56	Optimal stochastic scheduling of hydropower-based compensation for combined wind and photovoltaic power outputs. Applied Energy, 2020, 276, 115501.	10.1	29
57	A life cycle framework for the investigation of environmentally benign nanoparticles and products. Physica Status Solidi - Rapid Research Letters, 2011, 5, 312-317.	2.4	28
58	Life-Cycle Carbon Emissions and Energy Return on Investment for 80% Domestic Renewable Electricity with Battery Storage in California (U.S.A.). Energies, 2020, 13, 3934.	3.1	28
59	Rebuttal: â€œComments on â€˜Energy intensities, EROIs (energy returned on invested), and energy payback times of electricity generating power plantsâ€™ â€“ Making clear of quite some confusionâ€. Energy, 2015, 82, 1088-1091.	8.8	27
60	Life cycle energy demand and carbon emissions of scalable singleâ€junction and tandem perovskite PV. Progress in Photovoltaics: Research and Applications, 2021, 29, 1078-1092.	8.1	27
61	Dynamic modeling of cadmium substance flow with zinc and steel demand in Japan. Resources, Conservation and Recycling, 2012, 61, 83-90.	10.8	25
62	Energy efficiency and renewable energy utilization in desalination systems. Progress in Energy, 2020, 2, 022003.	10.9	25
63	Life-Cycle Nitrogen Trifluoride Emissions from Photovoltaics. Environmental Science & Technology, 2010, 44, 8750-8757.	10.0	24
64	Mitigation of hydrofluoric acid releases: simulation of the performance of water spraying systems. Journal of Loss Prevention in the Process Industries, 1993, 6, 209-218.	3.3	22
65	Minimizing the cost of hydrogen production through dynamic polymer electrolyte membrane electrolyzer operation. Cell Reports Physical Science, 2022, 3, 100935.	5.6	22
66	Considering the Total Cost of Electricity From Sunlight and the Alternatives [Point of View]. Proceedings of the IEEE, 2015, 103, 283-286.	21.3	19
67	Substance flow analysis of cadmium in Korea. Resources, Conservation and Recycling, 2013, 71, 31-39.	10.8	18
68	Active-salinity-control reverse osmosis desalination as a flexible load resource. Desalination, 2019, 468, 114062.	8.2	18
69	THE FEASIBILITY OF CONTROLLING UNCONFINED RELEASES OF TOXIC GASES BY LIQUID SPRAYING. Chemical Engineering Communications, 1989, 83, 173-189.	2.6	17
70	Direct Te Mining: Resource Availability and Impact on Cumulative Energy Demand of CdTe PV Life Cycles. IEEE Journal of Photovoltaics, 2013, 3, 433-438.	2.5	14
71	Multilayer protection analysis for photovoltaic manufacturing facilities. Process Safety Progress, 2001, 20, 87-94.	1.0	13
72	Integrating Solar Energy, Desalination, and Electrolysis. Solar Rrl, 2022, 6, .	5.8	13

#	Article	IF	Citations
73	HGSPRAY: A complete model of spraying unconfined gaseous releases. Journal of Loss Prevention in the Process Industries, 1993, 6, 327-331.	3.3	12
74	Prevention and control of accidental releases of hazardous materials in PV facilities. Progress in Photovoltaics: Research and Applications, 1998, 6, 91-98.	8.1	12
75	Water-spray systems for mitigating accidental indoor releases of water-soluble gases. Journal of Loss Prevention in the Process Industries, 2001, 14, 205-211.	3.3	11
76	Security risk analysis for chemical process facilities. Process Safety Progress, 2003, 22, 153-162.	1.0	11
77	Prospects for photovoltaics in sunny and arid regions: A solar grand plan for Chile -Part I-investigation of PV and wind penetration. , 2014, , .		11
78	The Value of Compressedâ€Air Energy Storage for Enhancing Variableâ€Renewableâ€Energy Integration: Theâ€‰Case of Ireland. Energy Technology, 2017, 5, 2026-2038.	3.8	10
79	Assessing the Factors Impacting on the Reliability of Wind Turbines via Survival Analysisâ€"A Case Study. Energies, 2018, 11, 3034.	3.1	10
80	HGSYSTEM 1Program: HGSYSTEM version 3.0, 1995 with enhancements, 1997. Source: HGSYSTEM Custodian, Shell Research Ltd, Shell Research Centre Thornton, PO Box 1, Chester, CH1 3SH, UK, e-mail: HGSYSTEM@OPC.shell.com. System: a 486 or faster microprocessor runs in DOS3.3 or later. Calculations require about 3 MB in hard drive and 4 MB of RAM. Cost: free downloading from http://www.users.virtual-chester.com/hgsystem. Documentation: a user's manual and a technical reference manual can be downloaded for free from. Journal of Loss Prevention in the Process Industr	3.3	9
81	Conducting HAZOPs in continuous chemical processes: Part I. Criteria, tools and guidelines for selecting nodes. Chemical Engineering Research and Design, 2011, 89, 214-223.	5.6	9
82	Utility scale PV plant variability and energy storage for ramp rate control. , 2013, , .		8
83	The energy performance of potential scenarios with large-scale PV deployment in Chile â€" a dynamic analysis. , 2018, , .		8
84	MMSOILS, Version 2.2. Risk Analysis, 1993, 13, 575-579.	2.7	7
85	Conducting HAZOPs in continuous chemical processes: Part II. A new model for estimating HAZOP time and a standardized approach for examining nodes. Chemical Engineering Research and Design, 2011, 89, 224-233.	5.6	7
86	Compressed Air Energy Storage Models for Energy Arbitrage and Ancillary Services: Comparison Using Mixed Integer Programming Optimization with Market Data from the Irish Power System. Energy Technology, 2018, 6, 1290-1301.	3.8	7
87	Impacts of long-timescale variability in solar resources at high PV penetrations: Quantification. , 2012, , .		6
88	Predicting Frequency, Time-To-Repair and Costs of Wind Turbine Failures. Energies, 2020, 13, 1149.	3.1	6
89	Realistic operation of two residential cordwood-fired outdoor hydronic heater appliancesâ€"Part 1: Particulate and gaseous emissions. Journal of the Air and Waste Management Association, 2022, 72, 738-761.	1.9	6
90	Comment on Seibert, M.K.; Rees, W.E. Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition. Energies 2021, 14, 4508. Energies, 2022, 15, 971.	3.1	5

#	Article	IF	Citations
91	Long-distance interconnection as solar resource intermittency solution: Optimizing the use of energy storage and the geographic dispersion + interconnection of solar generating facilities. , 2013, , .		4
92	Critical Review of Perovskite Photovoltaic Life Cycle Environmental Impact Studies. , 2019, , .		4
93	A solar energy desalination analysis tool, sedat, with data and models for selecting technologies and regions. Scientific Data, 2022, 9, .	5.3	4
94	Life-Cycle Analysis of Tandem PV Perovskite-Modules and Systems. , 2021, , .		3
95	Life-Cycle Carbon Emissions and Energy Implications of High Penetration of Photovoltaics and Electric Vehicles in California. Energies, 2021, 14, 5165.	3.1	3
96	Electrical and electromagnetic hazards in the manufacture of thin film solar cells. Solar Cells, 1986, 19, 45-58.	0.6	2
97	Guidelines for hazard evaluation procedures (1985). Environment International, 1988, 14, 65-66.	10.0	2
98	Grid Flexibility and the Cost of Integrating Variable Renewable Energy: Toward a Renewable Energy Integration Adder for San Diego Gas and Electric Service Territory and the California Electric Grid. , 2018, , .		2
99	Floating Photovoltaic Systems. , 2021, , .		1
100	Source Term and Consequence Modeling. Risk Analysis, 1987, 7, 405-407.	2.7	0
101	Controls of accidental releases of hazardous gases. Journal of Loss Prevention in the Process Industries, 1990, 3, 186.	3.3	0
102	Solar Power in the USAâ€"Status and Outlook. , 2018, , 53-80.		0