Antonio Valero

List of Publications by Year in Descending Order

116 papers	3,013 citations	29 h-index	51 g-index
122 ext. papers	3,400 ext. citations	6.9 avg, IF	5.55 L-index

#	Paper	IF	Citations
116	Exergy assessment of topsoil fertility. *Ecological Modelling*, **2022**, 464, 109802	3	0
115	Assessing Urban Metabolism through MSW Carbon Footprint and Conceptualizing Municipal-Industrial Symbiosis The Case of Zaragoza City, Spain. *Sustainability*, **2021**, 13, 12724	3.6	1
114	The Exergy Cost Theory Revisited. *Energies*, **2021**, 14, 1594	3.1	6
113	Looking into the Future **2021**, 207-242		
112	Exergy-Based Assessment of Polymers Production and Recycling: An Application to the Automotive Sector. *Energies*, **2021**, 14, 363	3.1	1
111	The Mineral Voracity of Human Beings **2021**, 13-32		
110	The (Thermodynamic) Value of Scarcity **2021**, 67-118		
109	On the Availability of Resources on Earth **2021**, 33-66		
108	Material Limits of the Energy Transition **2021**, 147-187		
107	Epilogue: For a New Humanism that Cares About the Future of the Planet **2021**, 243-253		0
106	Resumen y an sis cr ico del informe especial de la Agencia Internacional de la Energ : El Rol de los minerales cr ticos en la transici hacia energ s limpias. *Revista De Metalurgia*, **2021**, 57, e197	0.4	
105	What Is This Book About? **2021**, 1-12		
104	Thermodynamic Assessment of the Loss of Mineral Wealth **2021**, 119-146		
103	The Hidden Cost of Technologies **2021**, 189-205		
102	Relative Free Energy Function and Structural Theory of Thermoeconomics. *Energies*, **2020**, 13, 2024	3.1	1
101	Assessment of strategic raw materials in the automobile sector. *Resources, Conservation and Recycling*, **2020**, 161, 104968	11.9	13
100	Exergy Analysis of a Bio-System: Soil-Plant Interaction. *Entropy*, **2020**, 23,	2.8	2

99	The energy needed to concentrate minerals from common rocks: The case of copper ore. *Energy*, **2019**, 181, 494-503	7.9	7
98	Producing metals from common rocks: The case of gold. *Resources, Conservation and Recycling*, **2019**, 148, 23-35	11.9	7
97	Avoided energy cost of producing minerals: The case of iron ore. *Energy Reports*, **2019**, 5, 364-374	4.6	12
96	Thermodynamic Rarity and Recyclability of Raw Materials in the Energy Transition: The Need for an In-Spiral Economy. *Entropy*, **2019**, 21, 873	2.8	10
95	How can strategic metals drive the economy? Tungsten and tin production in Spain during periods of war. *The Extractive Industries and Society*, **2019**, 6, 8-14	3.2	11
94	Downcycling in automobile recycling process: A thermodynamic assessment. *Resources, Conservation and Recycling*, **2018**, 136, 24-32	11.9	28
93	Unfortunately, the amount of gold on earth is not infinite, a response to Wellmer and Scholz (2017). *Resources, Conservation and Recycling*, **2018**, 133, 155-156	11.9	2
92	Vehicles and Critical Raw Materials: A Sustainability Assessment Using Thermodynamic Rarity. *Journal of Industrial Ecology*, **2018**, 22, 1005-1015	7.2	25
91	Thermodynamic Approach to Evaluate the Criticality of Raw Materials and Its Application through a Material Flow Analysis in Europe. *Journal of Industrial Ecology*, **2018**, 22, 839-852	7.2	21
90	The cost of mineral depletion in Latin America: An exergoecology view. *Resources Policy*, **2018**, 59, 117-124	7.1	10
89	Assessing the exergy degradation of the natural capital: From Szargut's updated reference environment to the new thermoecological-cost methodology. *Energy*, **2018**, 163, 1140-1149	7.9	11
88	Toward Material Efficient Vehicles: Ecodesign Recommendations Based on Metal Sustainability Assessments. *SAE International Journal of Materials and Manufacturing*, **2018**, 11, 213-228	1	7
87	Is the future development of wind energy compromised by the availability of raw materials?. *Journal of Physics: Conference Series*, **2018**, 1102, 012028	0.3	7
86	Exergoecology Assessment of Mineral Exports from Latin America: Beyond a Tonnage Perspective. *Sustainability*, **2018**, 10, 723	3.6	8
85	Sankey and Grassmann Diagrams for Mineral Trade in the EU-28. *Green Energy and Technology*, **2018**, 103-113	0.6	1
84	Material bottlenecks in the future development of green technologies. *Renewable and Sustainable Energy Reviews*, **2018**, 93, 178-200	16.2	108
83	Global material requirements for the energy transition. An exergy flow analysis of decarbonisation pathways. *Energy*, **2018**, 159, 1175-1184	7.9	47
82	Thermodynamic Methods to Evaluate Resources. *Green Energy and Technology*, **2017**, 131-165	0.6	2

81	Theory of Exergy Cost and Thermo-ecological Cost. *Green Energy and Technology*, **2017**, 167-202	0.6	3
80	Assessing maximum production peak and resource availability of non-fuel mineral resources: Analyzing the influence of extractable global resources. *Resources, Conservation and Recycling*, **2017**, 125, 208-217	11.9	56
79	Exergy analysis of a Combined Cooling, Heating and Power system integrated with wind turbine and compressed air energy storage system. *Energy Conversion and Management*, **2017**, 131, 69-78	10.6	164
78	The Thermodynamic Rarity Concept for the Evaluation of Mineral Resources. *Green Energy and Technology*, **2017**, 203-232	0.6	1
77	Material flow analysis for Europe: An exergoecological approach. *Ecological Indicators*, **2016**, 60, 603-610	5.8	26
76	Thermodynamic analysis and optimization of a waste heat recovery system for proton exchange membrane fuel cell using transcritical carbon dioxide cycle and cold energy of liquefied natural gas. *Journal of Natural Gas Science and Engineering*, **2016**, 34, 428-438	4.6	64
75	Decreasing Ore Grades in Global Metallic Mining: A Theoretical Issue or a Global Reality?. *Resources*, **2016**, 5, 36	3.7	123
74	An exergoecological analysis of the mineral economy in Spain. *Energy*, **2015**, 88, 2-8	7.9	11
73	Thermodynamic Rarity and the Loss of Mineral Wealth. *Energies*, **2015**, 8, 821-836	3.1	14
72	Colombian mineral resources: An analysis from a Thermodynamic Second Law perspective. *Resources Policy*, **2015**, 45, 23-28	7.2	13
71	Exergy cost allocation of by-products in the mining and metallurgical industry. *Resources, Conservation and Recycling*, **2015**, 102, 128-142	11.9	19
70	Using thermodynamics to improve the resource efficiency indicator GDP/DMC. *Resources, Conservation and Recycling*, **2015**, 94, 110-117	11.9	26
69	Thermoeconomic Analysis of Biodiesel Production from Used Cooking Oils. *Sustainability*, **2015**, 7, 6321-6335	3.3	13
68	Thermo-ecological and exergy replacement costs of nickel processing. *Energy*, **2014**, 72, 103-114	7.9	8
67	How to account for mineral depletion. The exergy and economic mineral balance of Spain as a case study. *Ecological Indicators*, **2014**, 46, 548-559	5.8	17
66	Exergy accounting applied to metallurgical systems: The case of nickel processing. *Energy*, **2013**, 62, 37-45	7.9	22
65	Exergoecology as a tool for ecological modelling. The case of the US food production chain. *Ecological Modelling*, **2013**, 255, 21-28	3	10
64	Multicriteria analysis for the assessment of energy innovations in the transport sector. *Energy*, **2013**, 57, 160-168	7.9	28

63	The fossil trace of CO2 emissions in multi-fuel energy systems. *Energy*, **2013**, 58, 236-246	7.9	9
62	Thermoeconomic tools for the analysis of eco-industrial parks. *Energy*, **2013**, 62, 62-72	7.9	37
61	From Grave to Cradle. *Journal of Industrial Ecology*, **2013**, 17, 43-52	7.2	27
60	Exergy Replacement Cost of Mineral Resources. *Journal of Environmental Accounting and Management*, **2013**, 1, 147-158	2	21
59	The thermodynamic properties of the upper continental crust: Exergy, Gibbs free energy and enthalpy. *Energy*, **2012**, 41, 121-127	7.9	16
58	Assessment of biodiesel energy sustainability using the exergy return on investment concept. *Energy*, **2012**, 45, 474-480	7.9	29
57	Thermoeconomics and Industrial Symbiosis. Effect of by-product integration in cost assessment. *Energy*, **2012**, 45, 43-51	7.9	33
56	Exergy of comminution and the Thanatia Earth's model. *Energy*, **2012**, 44, 1085-1093	7.9	20
55	Allocation of waste cost in thermoeconomic analysis. *Energy*, **2012**, 45, 634-643	7.9	47
54	What are the clean reserves of fossil fuels?. *Resources, Conservation and Recycling*, **2012**, 68, 126-131	11.9	20
53	The hidden value of water flows: the chemical exergy of rivers **2012**, 15,		2
52	Assessment of Environmental Water Cost Through Physical Hydronomics. *Water Resources Management*, **2011**, 25, 2931-2949	3.7	2
51	Thermoeconomic diagnosis for improving the operation of energy intensive systems: Comparison of methods. *Applied Energy*, **2011**, 88, 699-711	10.7	19
50	A prediction of the exergy loss of the world's mineral reserves in the 21st century. *Energy*, **2011**, 36, 1848-1854	7.9	31
49	The crepuscular planet. A model for the exhausted atmosphere and hydrosphere. *Energy*, **2011**, 36, 3745-3753	7.9	34
48	The crepuscular planet. A model for the exhausted continental crust. *Energy*, **2011**, 36, 694-707	7.9	42
47	Application of Thermoeconomics to Industrial Ecology. *Entropy*, **2010**, 12, 591-612	2.8	40
46	Exergoecology: A thermodynamic approach for accounting the Earth's mineral capital. The case of bauxite□luminium and limestone□me chains. *Energy*, **2010**, 35, 229-238	7.9	24

45	Exergy analysis as a tool for the integration of very complex energy systems: The case of carbonation/calcination CO2 systems in existing coal power plants. *International Journal of Greenhouse Gas Control*, **2010**, 4, 647-654	4.2	41
44	Physical geonomics: Combining the exergy and Hubbert peak analysis for predicting mineral resources depletion. *Resources, Conservation and Recycling*, **2010**, 54, 1074-1083	11.9	57
43	Energy efficiency assessment and improvement in energy intensive systems through thermoeconomic diagnosis of the operation. *Applied Energy*, **2010**, 87, 1989-1995	10.7	24
42	Environmental costs of a river watershed within the European water framework directive: Results from physical hydronomics. *Energy*, **2010**, 35, 1008-1016	7.9	11
41	Inventory of the exergy resources on earth including its mineral capital. *Energy*, **2010**, 35, 989-995	7.9	33
40	Hybrid Fuel Impact Reconciliation Method: An integral tool for thermoeconomic diagnosis. *Energy*, **2010**, 35, 2079-2087	7.9	4
39	Physical Hydronomics: Application of the exergy analysis to the assessment of environmental costs of water bodies. The case of the inland basins of Catalonia. *Energy*, **2009**, 34, 2101-2107	7.9	15
38	Electricity consumption and CO2 capture potential in Spain. *Energy*, **2009**, 34, 1341-1350	7.9	22
37	Exergy and the Hubbert Peak: Assessment of the Scarcity of Minerals on Earth **2008**,		2
36	Evolution of the decrease in mineral exergy throughout the 20th century. The case of copper in the US. *Energy*, **2008**, 33, 107-115	7.9	22
35	Oxy-co-gasification of coal and biomass in an integrated gasification combined cycle (IGCC) power plant. *Energy*, **2006**, 31, 1643-1655	7.9	100
34	Fundamentals of Exergy Cost Accounting and Thermoeconomics. Part I: Theory. *Journal of Energy Resources Technology, Transactions of the ASME*, **2006**, 128, 1-8	2.6	56
33	Exergy Costs and Inefficiency Diagnosis of a Dual-Purpose Power and Desalination Plant. *Journal of Energy Resources Technology, Transactions of the ASME*, **2006**, 128, 186-193	2.6	13
32	Fundamentals of Exergy Cost Accounting and Thermoeconomics Part II: Applications. *Journal of Energy Resources Technology, Transactions of the ASME*, **2006**, 128, 9-15	2.6	18
31	Anamnesis for Improving Thermoeconomic Diagnosis: The Case of a 3□50 MW Coal-Fired Power Plant **2006**, 107		
30	Exergy as an Indicator for Resources Scarcity: The Exergy Loss of Australian Mineral Capital □A Case Study **2006**, 301		
29	Exergy accounting: Capabilities and drawbacks. *Energy*, **2006**, 31, 164-180	7.9	65
28	Thermoeconomic analysis of a fuel cell hybrid power system from the fuel cell experimental data. *Energy*, **2006**, 31, 1358-1370	7.9	10

27	Thermoeconomic Diagnosis of a Pulverized Coal-Fired Steam Generator **2005**, 491		
26	Thermoeconomic Diagnosis: Zooming Strategy Applied to Highly Complex Energy Systems. Part 2: On the Choice of the Productive Structure*. *Journal of Energy Resources Technology, Transactions of the ASME*, **2005**, 127, 50-58	2.6	8
25	Thermoeconomic Diagnosis: Zooming Strategy Applied to Highly Complex Energy Systems. Part 1: Detection and Localization of Anomalies*. *Journal of Energy Resources Technology, Transactions of the ASME*, **2005**, 127, 42-49	2.6	16
24	Exergy Evaluation of the Mineral Capital on Earth: Influence of the Reference Environment **2005**, 235		1
23	Life Cycle Assessment of Water Production Technologies - Part 2: Reverse Osmosis Desalination versus the Ebro River Water Transfer (9 pp). *International Journal of Life Cycle Assessment*, **2005**, 10, 346-354	4.6	64
22	Local Exergy Cost Theory **2004**, 223		5
21	On the thermoeconomic approach to the diagnosis of energy system malfunctions: Part 1: the TADEUS problem. *Energy*, **2004**, 29, 1875-1887	7.9	51
20	On the thermoeconomic approach to the diagnosis of energy system malfunctionsPart 2. Malfunction definitions and assessment. *Energy*, **2004**, 29, 1889-1907	7.9	58
19	Life-cycle assessment of desalination technologies integrated with energy production systems. *Desalination*, **2004**, 167, 445-458	10.3	116
18	The effects of the control system on the thermoeconomic diagnosis of a power plant. *Energy*, **2004**, 29, 331-359	7.9	26
17	The economic unsustainability of the Spanish national hydrological plan. *International Journal of Water Resources Development*, **2003**, 19, 437-458	3	17
16	Software for the analysis of water and energy systems. *Desalination*, **2003**, 156, 367-378	10.3	16
15	Integration of Reverse Osmosis Desalination With Cold-Heat-Power Production in the Tertiary Sector **2003**,		2
14	Structural theory and thermoeconomic diagnosis. *Energy Conversion and Management*, **2002**, 43, 1503-1518	1.6	85
13	Structural theory and thermoeconomic diagnosis. *Energy Conversion and Management*, **2002**, 43, 1519-1535	1.6	57
12	Thermoeconomic Diagnosis: Zooming Strategy Applied to Highly Complex Energy Systems Part 2: On the Choice of the Productive Structure **2002**, 215		3
11	Thermoeconomic Diagnosis: Zooming Strategy Applied to Highly Complex Energy Systems: Part 1 Detection and Localization of Anomalies **2002**,		5
10	Combustion and heat transfer monitoring in large utility boilers. *International Journal of Thermal Sciences*, **2001**, 40, 489-496	4.1	20

9	Thermoeconomic optimization of a dual-purpose power and desalination plant. *Desalination*, **2001**, 136, 147-158	10.3	62
8	Hybrid desalting systems for avoiding water shortage in Spain. *Desalination*, **2001**, 138, 329-334	10.3	13
7	Structural theory as standard for thermoeconomics. *Energy Conversion and Management*, **1999**, 40, 1627-1649	10.6	112
6	Towards a unified measure of renewable resources availability: the exergy method applied to the water of a river. *Energy Conversion and Management*, **1998**, 39, 1911-1917	10.6	27
5	An introduction of thermoeconomics **1997**, 203-233		4
4	The dissipation temperature: A tool for the analysis of malfunctions in thermomechanical systems. *Energy Conversion and Management*, **1997**, 38, 1557-1566	10.6	6
3	Ash fouling in coal-fired utility boilers. Monitoring and optimization of on-load cleaning. *Progress in Energy and Combustion Science*, **1996**, 22, 189-200	33.6	51
2	On-line monitoring of power-plant performance, using exergetic cost techniques. *Applied Thermal Engineering*, **1996**, 16, 933-948	5.8	23
1	CGAM problem: Definition and conventional solution. *Energy*, **1994**, 19, 279-286	7.9	252