

Appendices: Online supplemental data

Appendix A: OECD selected environment related technologies (3-digits technological groups)

Green Technological group code	Green Technological group name	Patent Data availability (0/1)
1.1.1.	Emissions abatement from stationary sources (e.g. SOx, NOx, PM emissions from combustion plants)	0
1.1.2.	Emissions abatement from mobile sources (e.g. NOx, CO, HC, PM emissions from motor vehicles)	0
1.1.3.	Not elsewhere classified	0
1.2.1.	Water and wastewater treatment	1
1.2.2.	Fertilizers from wastewater	0
1.2.3.	Oil spill cleanup	0
1.3.1.	Solid waste collection	1
1.3.2.	Material recovery, recycling and re-use	1
1.3.3.	Fertilizers from waste	0
1.3.4.	Incineration and energy recovery	0
1.3.6.	Waste management – Not elsewhere classified	0
1.4.0.	Soil remediation	1
1.5.0.	Environmental monitoring	0
2.1.1.	Indoor water conservation	1
2.1.2.	Irrigation water conservation	0
2.1.3.	Water conservation in thermoelectric power production	0
2.1.4.	Water distribution	0
2.2.1.	Water collection (rain, surface and ground-water)	0
2.2.2.	Water storage	0
4.1.1.	Wind energy	1
4.1.2.	Solar thermal energy	1
4.1.3.	Solar photovoltaic (PV) energy	1
4.1.4.	Solar thermal-PV hybrids	1
4.1.5.	Solar thermal-PV hybrids	1
4.1.6.	Marine energy	1
4.1.7.	Hydro energy	1
4.2.1.	Biofuels	1
4.2.2.	Fuel from waste	1
4.3.1.	Technologies for improved output efficiency (Combined heat and power, combined cycles, etc.)	1
4.3.2.	Technologies for improved input efficiency (Efficient combustion or heat usage)	1
4.4.1.	Nuclear fusion reactors	1
4.4.2.	Nuclear fission reactors	1
4.5.1.	Superconducting electric elements or equipment	1
4.5.2.	Not elsewhere classified	1
4.6.1.	Energy storage	1
4.6.2.	Hydrogen technology	1
4.6.3.	Fuel cells	1
4.6.4.	Smart grids in the energy sector	1
4.7.0.	Other energy conversion or management systems reducing GHG emissions	1
5.1.0.	CO2 capture or storage (CCS)	1
5.2.0.	Capture or disposal of greenhouse gases other than CO2	1

6.1.1.	Conventional vehicles (based on internal combustion engine)	1
6.1.2.	Hybrid vehicles	1
6.1.3.	Electric vehicles	1
6.1.4.	Fuel efficiency-improving vehicle design (common to all road vehicles)	1
6.2.0.	Rail transport	1
6.3.0.	Air transport	1
6.4.0.	Maritime or waterways transport	1
6.5.1.	Electric vehicle charging	1
6.5.2.	Application of fuel cell and hydrogen technology to transportation	1
7.1.0.	Integration of renewable energy sources in buildings	1
7.2.1.	Lighting	1
7.2.2.	Heating, ventilation or air conditioning [HVAC]	1
7.2.3.	Home appliances	1
7.2.4.	Elevators, escalators and moving walkways	1
7.2.5.	Information and communication technologies	1
7.2.6.	End-user side	1
7.3.0.	Architectural or constructional elements improving the thermal performance of buildings	1
7.4.0.	Enabling technologies in buildings	1
8.1.0.	Wastewater treatment	1
8.2.1.	Waste collection, transportation, transfer or storage	1
8.2.2.	Waste processing or separation	1
8.2.3.	Landfill technologies aiming to mitigate methane emissions	1
8.2.4.	Bio-organic fraction processing; Production of fertilisers from the organic fraction of waste or refuse	1
8.2.5.	Reuse, recycling or recovery technologies	1
8.3.0.	Enabling technologies or technologies with a potential or indirect contribution to GHG mitigation	1
9.1.1.	Reduction of greenhouse gas [GHG] emissions	0
9.1.2.	Process efficiency	0
9.2.1.	General improvement of production processes causing greenhouse gases [GHG] emissions	0
9.2.2.	Improvements relating to chlorine production	0
9.2.3.	Improvements relating to adipic acid or caprolactam production	0
9.2.4.	Improvements relating to chlorodifluoromethane [HCFC-22] production	0
9.2.5.	Improvements relating to the production of other chemicals or pharmaceuticals	0
9.3.1.	Reduction of greenhouse gas [GHG] emissions during production processes	0
9.3.2.	Bio-feedstock	0
9.3.3.	Carbon capture or storage [CCS] specific to hydrogen production	0
9.3.4.	Ethylene production	0
9.4.1.	Production of cement	0
9.4.2.	Cement grinding	0
9.4.3.	Manufacturing or processing of sand or stone	0
9.4.4.	Production or processing of lime	0
9.4.5.	Glass production	0
9.4.6.	Production of ceramic materials or ceramic elements	0
9.5.1.	Agricultural machinery or equipment	0
9.5.2.	Reduction of greenhouse gas [GHG] emissions in agriculture	0
9.5.3.	Land use policy measures	0
9.5.4.	Afforestation or reforestation	0

9.5.5.	Livestock or poultry management	0
9.5.6.	Fishing and aquaculture	0
9.5.7.	Apiculture	0
9.5.8.	Food processing	0
9.6.1.	Technologies for shaping products (e.g. rolling metal, forging, hammering, pressing or riveting)	0
9.6.2.	Technologies for metal working	0
9.6.3.	Technologies for printing, lining or stamping machines	0
9.6.4.	Technologies for working on wood, veneer or plywood	0
9.6.5.	Technologies for production of paper and paper articles	0
9.6.6.	Technologies for working on or processing of plastics	0
9.6.7.	Technologies for conveying, packing or storing of goods	0
9.6.8.	Other manufacturing technologies (e.g., for mixing, separation, applying liquids, drying, etc.)	0
9.6.9.	Manufacturing of products or systems for producing renewable energy (e.g. wind turbines)	0
9.6.10.	Manufacturing of batteries and fuel cells	0
9.6.11.	Manufacturing or assembling of vehicles	0
9.6.12.	Manufacturing of electric and electronic components of products	0
9.6.13.	Technologies for production or treatment of textiles and foot wear	0
9.6.14.	Technologies for production of tobacco products	0
9.7.0.	Climate change mitigation technologies for sector-wide applications	0
9.8.0.	Enabling technologies with a potential contribution to GHG emissions mitigation	0

Appendix B: Additional empirical results

Table B1. Descriptive statistics

Variables	N	mean	max	min	std dev
Dummy Green Entry	39318	0.03	1	0	0.18
Env. (Reg)	39318	0.01	5.37	-2.14	1.00
Env. (Nat)	39318	0.12	2.09	-1.89	0.82
Relatedness (AvgProximity)	39318	0.11	0.43	0.00	0.07
Dummy Dirty Specialization	39318	0.50	1	0	0.50
GDP per capita	39318	24429	57300	12000	6833
R&D	39318	1.38	12.19	0.21	0.88
Human Capital	39318	20.63	42.40	6.70	7.39
Share elderly population	39318	0.17	0.27	0.09	0.03
Population density	39318	373.42	6458.70	21.90	850.70
Unemployment rate	39318	8.60	28.10	1.20	4.93
EPS - Environmental Policy Stringency Index	39318	2.14	3.28	0.77	0.58
Share Green Spec.	39318	0.14	0.50	0.00	0.09

Table B2. Correlation matrix

	Dummy Green Entry		Env. (Reg)		Env. (Nat)		Relatedness		Dummy Dirty Specialization		GDP per capita		R&D		Human Capital		Share elderly population		Population density		Unemployment rate		EPS		Share Green Spec.	
Dummy Green Entry	1																									
Env. (Reg)	-0.011	**	1																							
Env. (Nat)	-0.033	***	0.456	***	1																					
Relatedness	0.194	***	-0.003		-0.005	1																				
Dummy Dirty Specialization	0.015	***	0.064	***	-0.010	*	-0.013	**	1																	
GDP per capita	0.039	***	0.062	***	0.002		-0.002		-0.067	***	1															
R&D	0.051	***	0.048	***	0.043	***	-0.003		-0.013	***	0.318	***	1													
Human Capital	0.024	***	0.149	***	0.190	***	-0.005		-0.109	***	0.349	***	0.345	***	1											
Share elderly population	0.016	***	-0.135	***	-0.306	***	0.002		0.084	***	-0.152	***	-0.199	***	-0.230	***	1									
Population density	0.017	***	-0.051	***	-0.108	***	0.004		-0.145	***	0.612	***	0.265	***	0.353	***	0.345	***	1							
Unemployment rate	-0.016	***	-0.218	***	-0.346	***	0.002		-0.027	***	-0.418	***	-0.148	***	0.006		-0.199	***	0.130	***	1					
EPS	0.003		-0.025	***	0.050	***	-0.011	**	0.052	***	0.164	***	0.092	***	0.374	***	0.265	***	-0.010	*	-0.055	***	1			
Share Green Spec.	0.053	***	-0.036	***	-0.077	***	-0.033	***	0.173	***	0.313	***	0.315	***	0.271	***	-0.148	***	0.186	***	-0.006		0.278	***	1	

* p<0.1, ** p<0.05, *** p<0.01

Table B3. Marginal effects of the presence of dirty technological specializations in regions and relatedness for different levels of the Environmental Policy Stringency Index

Interaction Variables			
Dirty	-0,010	**	EPS = min
	-0,007	**	EPS = Q1
	-0,004	**	EPS = Q2
	-0,002		EPS = Q3
	0,001		EPS = max
Relatedness	0,534	***	EPS = min
	0,509	***	EPS = Q1
	0,489	***	EPS = Q2
	0,474	***	EPS = Q3
	0,454	***	EPS = max

* p<0.1, ** p<0.05, *** p<0.01