The indicators presented, (see indicators' description below), refer to inventions filed in one or more jurisdictions (family size 1 or greater) or in two or more jurisdictions (family size 2 or greater). A patent family is defined as the set of all patent applications protecting the same ‘priority' (as defined by the Paris Convention) Missing values are to be interpreted as zeros

Please refer to the other patent databases and their metadata for more information on the methodology (see links below).

The indicators presented are:

Development of environment-related technologies, % all technologies
The number of environment-related inventions is expressed as a percentage of all domestic inventions (in all technologies). Changes in ‘environmental' technological innovation can then be interpreted in relation to innovation in general.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database.
Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Relative advantage in environment-related technologies
The relative advantage in environment-related technologies is an index of the specialisation in environmental innovation of a given country relative to the world value. It is calculated as the ratio of 1) the share of environment-related inventions on all inventions (in all technologies) at home and 2) the share of environment-related inventions on all inventions (in all technologies) in the world. Hence, an index equal to one means that a country innovates as much in 'green' technologies as the world; an index above 1 indicates a relative technological advantage (RTA), or specialisation, in environment-related technologies compared to the world value.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database.
Detailed information on the methodology used to compute the patent counts is in the associated metadata
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Development of environment-related technologies, % inventions worldwide
The number of environment-related inventions is expressed as a percentage of environment-related inventions worldwide. This indicator allows the importance of inventive activity in a given country to be assessed in terms of its contribution to the global pool of inventions.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database.
Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Development of environment-related technologies, inventions per capita
The number of environment-related inventions is expressed per million residents (higher-value inventions/million persons).
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database.
Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Development of environment-related technologies, inventions per unit of government R&D
The number of environment-related inventions is expressed per million USD (PPP, current prices) of environment/energy-related R&D budget by governments (higher-value inventions/million USD PPP). This indicator can help assess the effectiveness of government R&D support.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Government budget for R&D refers to Government Budget Appropriations or Outlays for Research and Development (GBAORD), that measure the funds that government allocate to R&D to meet various socio-economic objectives. These objectives are defined using the Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets (NABS 2007) classification. Estimates of government R&D are reported from the funder perspective as budget (rather than as expenditure from the performer perspective). This indicator is based on the socio-economic objectives "environment" and "energy" which include research directed at the control of pollution, developing monitoring facilities to measure, eliminate and prevent pollution and research related to production, storage, transportation, distribution and rational use of all forms of energy.
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.
Data on government expenditure regarding environment-related R&D, expressed in millions at constant 2010 USD using PPP, are obtained from the Government budget appropriations or outlays for R&D (GBAORD) Dataset of the OECD Science, Technology and R&D Statistics Database. Additional information on the methodology for internationally harmonised collection and use of R&D statistics can be found in the Frascati Manual.

Development of environment-related technologies, percentage of environment-related technologies. By domain
The number of inventions in a specific technological group is expressed as a percentage of total environment-related inventions. This indicator assesses the relative importance of inventive activity in a given country for a specific environment-related technological domain.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Diffusion of environment-related technologies, % all technologies
Environment-related patents are expressed as a percentage of all patent applications deposited in a jurisdiction (in all technologies). This allows changes to be interpreted in relation to diffusion in general.
Indicators of technology diffusion are constructed by measuring market protection using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The indicator is calculated only for jurisdictions with good data availability (i.e. using ‘conservative' country coverage).
Counts are provided separately for national and regional patent offices (if applicable; some countries do not have a regional patent authority).
Data are obtained from the Patents: Technology diffusion dataset of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Diffusion of environment-related technologies, % inventions worldwide
What is the relative importance of different markets for innovation? This indicator gives the percentage of the global pool of ‘green' technologies that seek protection in a given geographic market. It is calculated as the number of environment-related inventions that seek patent protection in a given geographic market (jurisdiction of a patent office) expressed as a percentage of environment-related inventions that sought protection anywhere in the world during the period *T* - 3 to *T* (i.e. patent applications in country/region *X* divided by patent applications worldwide in the given year and the previous 3 years). The

reason for taking the world total over 4 years is to use the "patent stock" as denominator, rather than worldwide applications in the current year only. This is motivated by the fact that inventions can be filed for protection in different jurisdictions in different years. This is a proxy and the sum of these percentages across countries is expected to be higher than 100% (an invention can seek protection in multiple countries).
Indicators of technology diffusion are constructed by measuring market protection using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The indicator is calculated only for jurisdictions with good data availability (i.e. using 'conservative' country coverage).
Counts are provided separately for national and regional patent offices (if applicable; some countries do not have a regional patent authority).
Data are obtained from the Patents: Technology diffusion and the Patents - Technology development datasets of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Diffusion of environment-related technologies, percentage of environment-related technologies. By domain
The number of inventions in a specific technological group deposited in a jurisdiction is expressed as a percentage of total environment-related inventions. This indicator assesses the relative importance of inventive activity in a given jurisdiction for a specific environment-related technological domain.
Indicators of technology diffusion are constructed by measuring market protection using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The indicator is calculated only for jurisdictions with good data availability (i.e. using 'conservative' country coverage).
Counts are provided separately for national and regional patent offices (if applicable; some countries do not have a regional patent authority).
Data are obtained from the Patents: Technology diffusion dataset of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.

International collaboration in development of environment-related technologies, % collaboration in all technologies
The number of co-inventions in environment-related technologies is expressed as a percentage of all domestic co-inventions (in all technologies). This allows changes to be interpreted in relation to co-invention in general.
Indicators of international collaboration in technology development are constructed by measuring co-inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts include all relevant co-inventions (with patent family size = 1).
Data are obtained from Patents: International collaboration in technology development (rates) of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.

Development of renewable energy technologies, inventions per unit of public RD&D
The number of inventions related to renewable energy is expressed per million USD (PPP, 2010 prices) of renewable energy RD&D budget (higher-value inventions/million USD 2010 PPP). This indicator can help assess the effectiveness of government RD&D support.
Indicators of technology development are constructed by measuring inventive activity using patent data across a wide range of environment-related technological domains (ENV-TECH, see link below), including environmental management, water-related adaptation, and climate change mitigation technologies. The counts used here include only higher-value inventions (with patent family size = 2).
The renewable energy domain includes technologies for energy generation from renewable and non-fossil sources, including geothermal, hydro, marine energy (wave/ocean/tidal), solar (thermal, PV and thermal-PV hybrids), wind, as well as combustible renewables (solid biomass, liquid biomass, biogas).
IEA Energy RD&D from public bodies (government, public agencies and state-owned enterprises, as defined by the IEA) covers research, development and demonstration related to the production, storage, transportation, distribution and rational use of all forms of energy. It covers basic research (oriented towards the development of energy-related technologies), applied research, experimental development and

demonstration. Deployment is excluded from IEA Energy RD&D. It is expressed as percentage of total (all energy-related developments) public RD&D. Estimates of RD&D are reported from the funder perspective as budget (rather than as expenditure from the performer perspective). This indicator is only based on renewable energy related development.
Estimated budgets and actual expenditures by governments often differ because projected amounts of RD&D at the appropriations stage vary from what is actually measured by the performers. It may also be due to an imprecision in the budget appropriations impeding separate identification of appropriations that are specifically targeted to RD&D.
Data are obtained from the Patents - Technology development dataset of the OECD Environment Database. Detailed information on the methodology used to compute the patent counts is in the associated metadata.
Data on renewable energy public RD&D expenditure, expressed in millions at constant 2010 USD using PPP, is obtained from the RD&D Budget Dataset from the IEA Energy Technology RD&D Statistics Database.

- **Detailed patent search strategies for the identification of selected environment-related technologies (ENV-TECH)**