

**#IRENAinnovation**



# IRENA INNOVATION WEEK

The Age of Renewable Power

Deep-dive Session 3  
From Science to Innovation: The Role of Patents

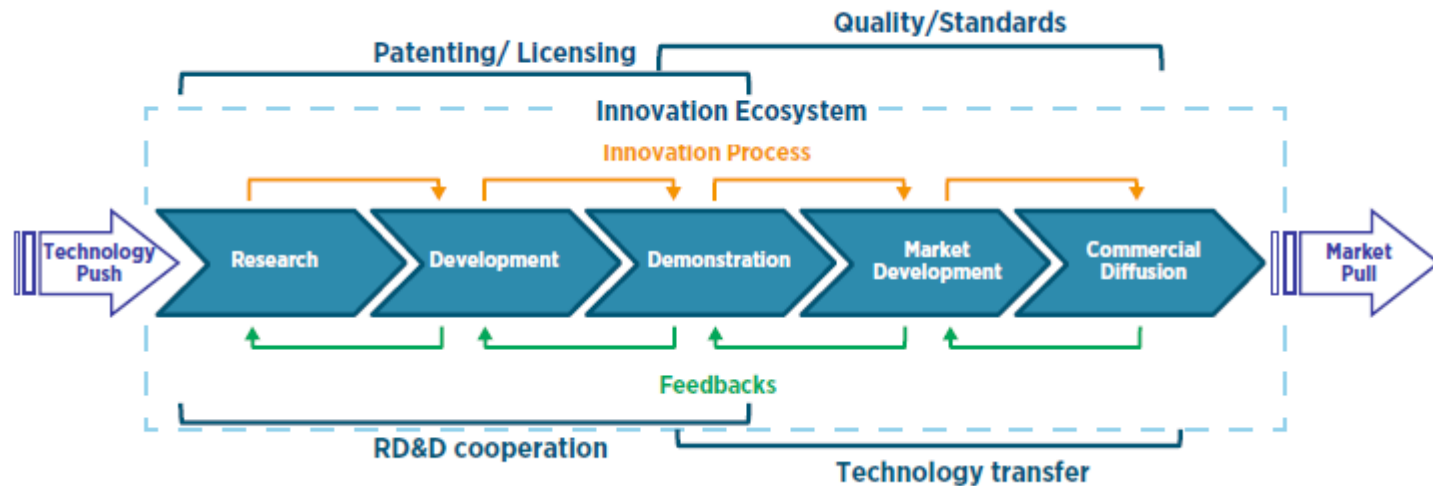
**11 – 13 MAY 2016 • BONN, GERMANY**



# The case for innovation

- The world needs to decarbonize its energy system by 2050
- Technical solutions need to be in place by 2030 to allow a transition by 2050
- RD&D needs to start now to have these solutions in place by 2030
- Market signals alone will NOT suffice
  - RE alternatives are needed for all markets
  - RE cost should fall below fossil cost
  - Externalities must be internalized in the prices and fossil fuel subsidies are reduced
- Innovation covers more than technology
  - Business model and policy framework innovation

# Policy frameworks for innovation in RET



## Innovation policy frameworks for RET:

Should cover the complete technology life cycle – from technology push up to market pull

No limited to technology transfer but enabling technology trading and deployment

Governments to support higher risk basic R&D and industry to adopt and improve innovative technology via applied R&D

Early stages require strong R&D cooperative networks and balanced IP

Later stages to use standardization and quality control to pull best-available technologies and practices; transfer knowledge and technology

Market instruments are crucial for scale-up



# IRENA activities in Innovation for RET



**Assistance  
to  
Countries**

**Assistance:**

- UNFCCC TEC
- Member countries

**RE Technology Analysis**

**Technology outlooks:**

- Ocean, advanced biofuels, mini-grids, offshore wind

**Provide Information and Guidance**

**Policy analysis on:**

- RET policy frameworks
- IPR
- Cooperative R&D
- Technology Transfer



## Patents and RET innovation

### Support and monitor RET innovation:

- Basic role - temporary and geographically limited exclusive rights
- Aim to incentivize innovation through protection of investments and inventions
- Allow technology investors to capture the value of inventions
- Patent information is public - source of technology knowledge
- Patents can be analysed to identify RD&D trends

### Limitations:

- Licensing information may not always be available
- Not all inventions are patented.
- Not all patents have the same relevance and value.
- Usefulness of certain patents in innovation is not self-evident
- That many patents are filed does not guarantee that a key technology will be successful in the market
- Assure the quality of patents is a challenge

# INSPIRE platform

## Awareness & Learning

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**Filing**  
 Usually, the patent offices carries out a search of the prior art, i.e., of all relevant technological information publicly known so far.

**Formal Exam**  
 The patent offices ensures that all administrative formalities have been completed.

**Prior Art Search**  
 Usually, the patent offices carries out a search of the prior art, i.e., of all relevant technological information publicly known so far.

**Publication**  
 In most countries, the patent application is published 18 months after the filling date.

### PATENT GRANTING PROCEDURE

**Appeal**  
 (in some cases)  
 If a prior art search report is available, the examiner checks that the application satisfies the requirements of patentability.

**Opposition**  
 (in some cases)  
 The examiner may either grant the patent application or may refuse the application.

**Grant / Refusal**  
 Within a specified period, many patent offices allow third parties to oppose the granted patent.

**Substantive examination**  
 Many offices provide the possibility of appeal after the substantive examination or after the opposition procedure.

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### Patent Granting Procedure

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### Patent Granting Procedure

Filing

Formal exam

Prior of search

Publication

Substantive exam

Grant / Refusal

Opposition  
(in some cases)

Appeal  
(in some cases)

**Filing.** An applicant chooses a filing route, i.e., national, regional or international, and files an application. The initial filing is considered the "priority filing" from which further successive national, regional or international filings can be made within the "priority period" of one year under the Paris Convention for the Protection of Industrial Property.

**Formal examination.** The patent office ensures that all administrative formalities have been complied with, e.g., that all relevant documentation is included in the application, and that all filing fees have been paid.

**Prior art search.** In many countries, but not all, the patent office carries out a search of the prior art, i.e., of all relevant technological information publicly known at the time of filing of the patent application. Using extensive databases and expert examiners in the specific technical field of the application, a "search report" is drafted, which compares the technical merits of the claimed invention with that of the known prior art.

**Publication.** In most countries, the patent application is published 18 months after the priority date, i.e., after the first filing date.

**Substantive examination.** If a prior art search report is available, the examiner checks that the application satisfies the requirements of patentability, i.e., that the invention is novel, inventive and susceptible to industrial application, compared to the prior art as listed in the search report. The examiner may either grant the patent application without amendments, may change the scope of the claims to reflect the known prior art, or may refuse the application.

**Grant/refusal.** The examiner may either grant the patent application without amendments, may change the scope of the claims to reflect the known prior art, or may refuse the application.

**Opposition.** Within a specified period, many patent offices allow third parties to oppose the granted patent on the grounds that it does not in fact satisfy patentability requirements.

**Appeal.** Many offices provide the possibility of appeal after the substantive examination or after the opposition procedure.

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Do you know which countries are most active in developing patents for renewable energy?

## Technology profiles

The following reports give insights which countries file in the most patents for a given type of renewable energy technology. Select from the filters on the left below to refine your results.

**Disclaimer:**The information in this search utilizes data from EPO PATSTAT and also uses the Climate Change Mitigation Technologies (Y02) classification by EPO. The search provides comprehensive, but by no means exhaustive information on patents filed for renewable energy worldwide.

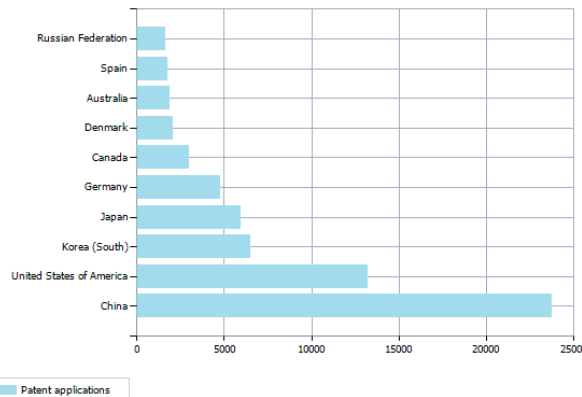
Select refiners:

- Technology group**  
Wind Energy  
Search
- Technology sub-group**  
Wind Power  
Search
- Technology components**  
Search
- Timeframe**  
Applications within the last 10 years only

## Technology report for Wind Power

### Patent applications history

The following graph shows the number of patent applications.



Uses EPO Y02 classification

## Tool for patent analysis

...and who are the most active applicants filing patents for wind energy over the last 10 years?



### Top 10 applicants

The following persons or organizations have filed in the most patents over the last years:

Applicant	Patent filings
Vestas Wind Systems A/S	1585
Mitsubishi Heavy Industries, Ltd.	1352
Siemens Aktiengesellschaft	1349
General Electric Company	1090
SIEMENS AKTIENGESELLSCHAFT	964
General Electric Company	959
Siemens AG	822
GENERAL ELECTRIC COMPANY	762
General Electric Company	691
Samsung Heavy Ind. Co., Ltd.	549



# Thank you

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