



# **IP in the Field of Renewable Energies**

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### I. What are renewable energies?

Non-renewable energies are those coming from sources that will inevitably run out by the time they are used. Most of these non-renewable energies are so-called “fossil fuels”: coal, petroleum and natural gas.

On the flip side, renewable energy is energy from sources that do not diminish or that can be replenished. These are also referred to as “green” or “clean” energies, because the energy production does not generate greenhouse emissions or air pollutants. The following are the most common forms of renewable energies:

- **Wind:** uses the motion of wind to create electricity
- **Solar:** uses sunlight for energy
- **Hydropower:** uses moving water to generate power
- **Geothermal:** uses the internal heat of the earth for energy
- **Biomass:** group of technologies that uses living or recently living organism and waste to create energy
- **Tidal:** generates electricity by using the rise and fall of the tides

Nuclear energy is NOT a renewable energy source. Indeed, it is classified as an “alternative” energy source. This is due to the fact that, first of all, the number of uranium deposits on earth are finite, and, second, nuclear waste is harmful given that it is a radioactive pollutant.

Renewable energies are increasingly displacing fossil fuels in the power sector. As this industry continues to evolve, we now have increasingly innovative and cheaper ways to capture and retain wind or solar energy. Hence, the importance of renewable energies constantly increases. In fact, in 2017, 17.5% of energy consumed in the EU stemmed from renewable energies with the target being to reach 20% by 2020<sup>1</sup>.

<sup>1</sup> [Eurostat - Renewable energy statistics](#)

This fact sheet intends to give an overview (from a European perspective) of central IP questions relevant for this dynamic energy sector. Moreover, it will shine a light on aspects related to Competition Law and the issue of State Aid. And finally, key EU funding initiatives and opportunities in this field will be highlighted.

## II. Relevant IP rights

A business in the field of clean technology will usually have intellectual property needs across, at least, four IP regimes:

### Patents

In a field with such active patent proliferation, it is important to assess the patent landscape early in the research and development (R&D) process. **Patent searching** is a valuable tool at this stage: it can be used to evaluate whether there exists a so-called “white space”. This term refers to a place where there are unmet and unarticulated needs to cover, therefore creating innovation opportunities. On the other hand, **Freedom to Operate (FTO)** search will help identify potential infringement issues and help guide the design process to avoid patent infringement.

In order to do that, the World Intellectual Property Organization (WIPO) has created a specific tool for patent search in this field: the IPC Green Inventory<sup>2</sup>. This online tool was launched in 2010 and enables to search and retrieve patent documents related to green technologies in a number of fields (e.g. alternative energy consumption, energy conservation).

Once the patent landscape has been clearly mapped out and a strategy established, the R&D process can lead to the creation of patentable innovations. At this stage, preparing and filing patent applications will help claim and retain ownership over those innovations.

In order for your invention to be protected through patent rights, it must meet the following patentability requirements:

- **Novelty:** The invention must present new characteristics unknown to the body of existing knowledge in this technical field (“state of the art”)
- **Inventive step:** The invention cannot be obviously deduced by a person having ordinary skill in the relevant technical field
- **Industrial application:** The invention is/will be used for an industrial or business purpose

<sup>2</sup> [http://www.wipo.int/classifications/ipc/en/green\\_inventory/](http://www.wipo.int/classifications/ipc/en/green_inventory/)



Once a patent has been issued, it will provide its owner the ability to prevent others from making, using, or selling the patented invention by granting the patent owner the exclusive right to the invention. Through this exclusivity, patents will also provide a competitive advantage in the marketplace, which may result in a positive impact on the company's trade mark, too.

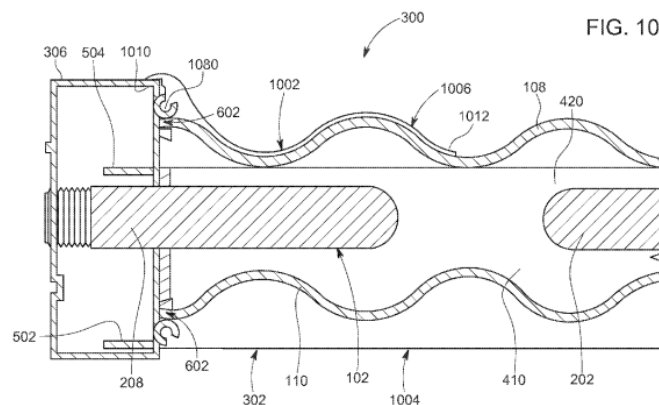
At European level, there are two alternative routes for patent registration: you can either register your patent at national level before the relevant IP Office or you can opt for an EU-wide protection, registering your patent before the European Patent Office. Take into account that, unlike for trade marks, there is no "community" patent. Therefore, your patent needs to be validated by the national IP Office of each Member State where protection is required.

Given the worldwide importance of green energies emphasised by the commitments made through signing the Paris Agreement, you should also consider the international route via the Patent Cooperation Treaty (PCT).

The PCT is an international treaty that offers the opportunity to seek simultaneous patent protection for an invention in a large number of countries by filing a single "international" patent application instead of filing several separate national applications. The granting of the patent remains subject to national rules and requirements.

Here is an example of an International Patent application published under the PCT<sup>3</sup>:

(54) Title: SOLAR FLUID HEATER AND INSTALLATION SYSTEM



(57) Abstract: This invention provides a solar fluid heating panel with fluid conduits that allow a fluid to be heated by the sun. It also provides a mounting system and weather sealing system that allow the panels to replace a traditional roof. The roof replacing panels can be installed quickly using mounting brackets attached to roof purlins. The panels can allow natural ambient light to enter the building while harnessing the sun's energy to heat fluid within the conduits.

In a nutshell, patenting can be especially important in renewable energy sector, since the road from research to commercialisation can be a long and expensive one. Without patent protection safeguarding your rights when the innovation eventually starts to pay off, there may not be adequate incentives to bring the innovation to the market in the first place.

<sup>3</sup>International Publication Number WO 2019/193550

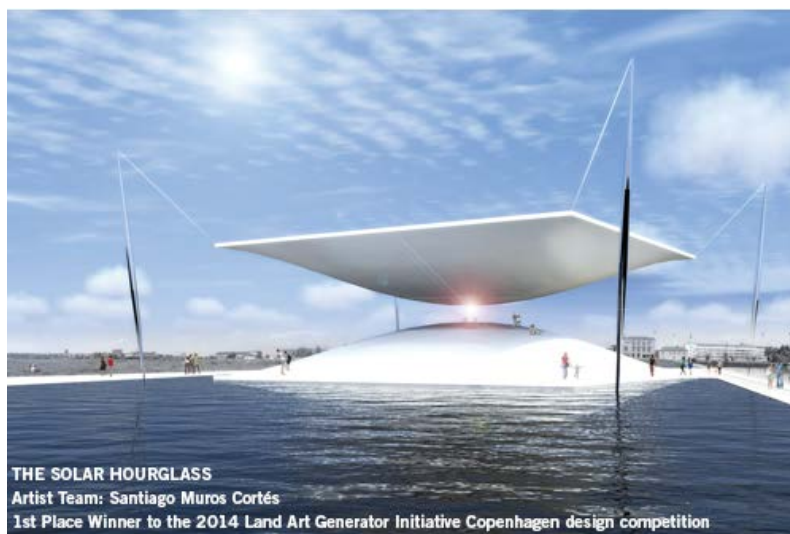
## Designs

Designs are used to protect the appearance of your entire product or parts of it. Designs are usually the result of a combination of features such as lines, contours, colours, shapes, texture and material. The renewable energy sector is developing quickly and designs will help make generators (whether it is wind, solar or other) more accessible, practical and eye-pleasing.

In addition to the national protection route, there is the European route by which you can protect your design through a community design that will cover all Member States. Here you have two choices: either register and protect your design with a registered Community design before commercialising it; or, commercialise it directly without registration by relying on what is known as the unregistered Community design. Scope and duration are different, so choose the most appropriate pathway according to your overall IP strategy and the importance of design in your IP portfolio.

At international level, you can benefit from the Hague System that seeks to simplify the way in which you acquire, manage and maintain your industrial designs in all signatory countries.

Here are some examples of how designs have been put into practice in this sector:



The **Solar Hourglass**<sup>4</sup> was designed by Santiago Muro Cortés. This structure concentrates sunlight from the upper half into the lower one where it heats water. The steam is then transferred to turbine generators and produces energy.

<sup>4</sup><http://landartgenerator.org/blagi/archives/3610>



**Windstalk**<sup>5</sup> was inspired by the movement of wind through a wheat field. Power is generated when the wind sways the stalks. Each stalk is then equipped with a battery that will allow to store the energy that is not used.

Designs contribute to both innovation and brand building. In addition, and in this specific case, they also represent devices that blend with the everyday landscape or even embellish cities.

### Trade secrets

What information qualifies for trade secret protection?

Any confidential information giving a company a competitive edge

- as long as it is not generally known or easily accessible by proper means (for example, reverse engineering)
- and provided that the owner safeguard the information using reasonable measures to maintain its secrecy.

There is no exhaustive list of what can constitute a trade secret. For instance, it can refer to processes, formulations, patterns, information compilation, designs, strategies, techniques, customer, leads lists, or pricing strategies.

There are several situations, in which trade secret protection should be considered. Firstly, and foremost, it always comes into play when you disclose sensitive information for instance on a new project, novel technologies or solutions in the context of potential research or business

<sup>5</sup> <https://atelierdna.com/portfolio/windstalk/>

collaborations. During meetings with your potential business, research or financial partners, confidential information, know-how and specific plans regarding the way in which your project should be carried out might be revealed. Make sure you make them sign a non-disclosure agreement (NDA), whether one way NDA or mutual, to protect all the sensitive information that is exchanged. This would provide you with a legal basis to defend your rights in case any of your potential partners infringes its confidentiality obligations.

Secondly, there are situations in which trade secrets might have a greater value than patents for a company, whether it is because the invention does not meet patentability requirements or because the secret information might grant a competitive advantage for more than twenty years.

There is no registration process for trade secrets, the only thing needed is to maintain secrecy. Using non-disclosure agreements and other confidentiality measures can be helpful in demonstrating the efforts taken in maintaining confidentiality of a trade secret. However, the actual crucial point is that trade secret protection is only effective for inventions that competitors will not be able to figure out based on public-facing aspects of your product and business.

Just like patents, trade secrets can help build and strengthen the value of trade marks.

## Copyright

Copyright protects original works of authorship fixed in tangible media. Copyright protection arises from the moment of its creation, therefore, registration is not needed.

Unlike the United States, in Europe, there is no Copyright Office where you can register your creation.

In the clean technology industry, copyrights are most often used to protect the licensable protocols developed for implementing a technology and process. Copyrights are also important for protecting original works of authorship such as videos, photos, or websites.

## Trade mark

In all sectors trade marks play an important role in helping differentiate the goods and services offered by a company from those of its competitors. In the clean technology space, a company's name can become its most important IP asset. Indeed, once a product or service has gained trust and respect from customers and other stakeholders, trade marks will allow them to establish the link between said asset and the company.

A trade mark is defined as any sign capable of distinguishing the goods or services of one enterprise from those of another. In Europe, trade mark protection covers:

- word marks
- figurative marks
- a combination of the above
- shape marks
- shape marks containing word elements
- position marks
- pattern marks
- single colour marks
- colour combination marks
- sound marks
- motion marks
- multimedia marks
- hologram marks

At European level you have two options: You can either register nationally before the Office/s of your interest, thus securing protection for your trade mark in these Member States exclusively; or you can apply for a European trade mark (EUTM) that, different from patents, grants protection for all EU Member States through a single application and review process.

Just as the Hague System for designs, the Madrid System is a convenient and cost-effective way of registering and managing your trade mark worldwide. Basically, through a single application and one set of fees, you can apply for protection in all signatory countries. Final granting remains subject to the approval of each national IP Office according to their national rules.

A trade mark in the field of renewable energy may be registered in different classes. This decision will affect the scope of protection that the trade mark will ensure. It is common in this field to file in several classes. Find below a non-exhaustive list of relevant classes in relation to green tech:

- Class 4: electrical energy and biofuels
- Class 7: parts of motor and engines of all kinds; industrial robots.
- Class 9: apparatus and instruments for conducting, switching, transforming, accumulating, regulating or controlling the distribution or use of electricity
- Class 37: building construction, repair, installation services

Although valuable assets, trade marks require time and effort for them to develop recognition and goodwill in the marketplace. In order to have the space in the marketplace to build that



goodwill patents, trade secrets and designs are needed to prevent competitors from copying your unique offerings and enable you to build your brand. This is only one of the many reasons underpinning the importance of having a strategic coordinated and thoughtful IP plan in place right from the outset of your business or product launch.

Please find below some sample companies that were able to design a successful IP strategy, which consequently enabled them to become one of the top 5 companies leading the way in renewable energies<sup>6</sup>:

- **Siemens Gamesa**: their core business focus on wind, with both onshore and offshore units.
- **GE Renewable Energy**: one of the largest turbine suppliers, both wind and hydro.
- **Berkshire Hathaway Energy**: a company using wind, solar, hydro and geothermal energy. They are currently generating 7800 megawatts of wind energy and 1500 megawatts of solar energy.
- **Cypress Creek Renewables**: primarily working on solar projects and using solar energy.
- **NextEra Energy Resources**: one of the largest producers of wind and solar energy.

### III. Competition Law

Competition is regulated by three important articles: article 101 of the Treaty on the Functioning of the European Union (TFEU) regarding anticompetitive behaviours; article 102 of the TFEU on merger control and article 107 on State Aid.

Why is there a need to control State Aid? If a company receives support from the government, whether it is through a direct economic contribution or through a tax relief, this company gains an advantage over its competitors. Therefore, and to avoid national government favouring their national companies, the Treaty prohibits State Aid, **unless** justified by reasons of “general economic development”.

In order to be classified as “State Aid”, a measure must meet the following criteria:

- There must be a “**State Intervention**” either directly or through State resources. This action can take different forms: tax relief, guarantees, providing services on preferential terms. Generally speaking, one speaks of a “State Intervention” when the the State can exercise control over the resources.
- The intervention must give the recipient an **advantage on a selective basis**, meaning that a certain undertaking, sector or region obtains a benefit that they would not be granted under common market conditions.

<sup>6</sup> [Interesting Engineering – Top 5 energy companies that are changing the face of renewable energy in 2019](#)

- **Competition has been or may be distorted** as a result of the concerned action.
- The intervention is likely to **affect trade between Member States**.

### State Aid in the sector of renewable energies

Despite the general prohibitions of State Aid as described above, in some circumstances government intervention is deemed necessary. Therefore, the Treaty left room for a number of policy objectives for which State Aid can be considered compatible. Specifically, regarding environmental protection and energy, the Commission issued a communication<sup>7</sup> setting up a specific set of rules applicable to green energies based on the environmental objectives set out by the European Institutions.

These guidelines intend to establish limits for the design of Member States' national support schemes for renewables and also lay down the principles that the Commission will apply when assessing whether the specific State Aid granted by a Member State is compatible with the internal market.

Therefore, they provide criteria on how Member States can support energy-intensive companies that are particularly exposed to international competition from charges levied for the support of renewables. In a nutshell, Member States are free to design their support schemes but they **must notify** State Aid that does not benefit from an exemption or has received prior approval to the European Commission, otherwise such Aid cannot be granted. State Aid granted without the Commission's approval is unlawful and subject to recovery with interest for 10 years.

There are many examples of how EU State Aid rules enable Member States to support clean energies. For example, in July 2019, the Commission approved the support of six offshore wind farms in France<sup>8</sup> after establishing that this would help France boost its share of electricity produced from renewable energy sources and the level of Aid granted is proportionate and does not entail overcompensation.

<sup>7</sup> [Guidelines on State Aid for environmental protection and energy 2014-2020 \(2014/C 200/01\)](#)

<sup>8</sup> [Press release from the European Commission – “Commission approves support for six offshore wind farms in France” July 2019](#)

## State Aid in European projects

In order to understand whether or not funds coming from the EU could be considered as State resources, we need to look into the Commission's Notice on the Notion of State Aid according to which *"resources coming from the Union, from the European Investment Bank or the European Investment Fund [...] are considered as State resources if national authorities have discretion as to the use of these resources (in particular the selection of beneficiaries)"*.

All EU structural and cohesion funds fall within the responsibility of the national managing authorities. These are public authorities appointed by Member States for the explicit purpose of designing and implementing operational programmes and ensuring that EU funds are spent efficiently and effectively. In discharging their responsibilities, managing authorities may determine the eligible beneficiary undertakings and the conditions for provision of financial support. Their legal powers to determine eligible beneficiaries and terms of funding confer to them control over the use of EU funds, therefore, qualifying as State Aid.

However, EU-funded initiatives **in which the Commission retains control over said resources, will not be considered as State Aid**. Indeed, as established in the same Notice *"By contrast, if EU resources are awarded directly by the Union [...] with no discretion on the part of the national authorities, they do not constitute State resources (for example, funding awarded in direct management under the Horizon 2020 framework program, the EU program for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) or the Trans-European Transport Network (TEN-T) funds"*<sup>9</sup>. This is further reinforced in the General Block Exemption Regulation: *"Union funding centrally managed by the institutions, agencies, joint undertakings or other bodies of the Union that is not directly or indirectly under the control of Member States does not constitute State Aid"*<sup>10</sup>.

In conclusion, regardless of who administers the funds, projects in the field of renewable energy should not encounter trouble. In any case, it is for the funding authority or State, and not for the beneficiary, to ensure that the Commission is properly notified and that the funds are in line with European requirements

<sup>9</sup> [Guidelines on State Aid for environmental protection and energy 2014-2020 \(2014/C 200/01\)](#)

<sup>10</sup> [Commission Regulation of June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty](#)

## IV. Relevant European Initiatives

On the 28<sup>th</sup> of November 2018, the Commission presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050 – *A Clean Planet for All*.

This vision affects nearly all EU policies and is in line with the Paris Agreement objective to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C.

Rather than setting specific targets, the strategy fosters joint action in seven strategic areas:

- energy efficiency
- deployment of renewables
- clean, safe and connected mobility
- competitive industry and circular economy
- infrastructure and interconnections
- bio-economy and natural carbon sinks
- carbon capture and storage to address remaining emissions

In addition, the EU has set an ambitious, binding target of 32% for renewable energy sources in the EU's energy mix by 2030. In order to achieve this objective, the recast renewable energy directive entered into force in December 2018.

As part of this strategy, the EU offers different funding possibilities in the energy sector. In the following we present a few examples:

### **Cohesion Fund**

The EU's Cohesion Fund<sup>11</sup> supports energy-related project that benefit the environment by, for example, reducing greenhouse gas emission, increasing the use of renewable energy or improving energy efficiency. Given that this fund aims to reduce economic and social disparities and to promote sustainable development, for the 2014-2020 it was limited to those countries whose Gross National Income per inhabitant was less than 90% of the EU average.

For the next period running from 2021 to 2027<sup>12</sup>, the EU has clearly established the achievement of a greener, carbon free Europe as a core objective. This shall be achieved by implementing the Paris Agreement and investing in energy transition, renewables and the fight against climate change.

<sup>11</sup> [Cohesion Fund](#)

<sup>12</sup> [New Cohesion Policy – Regional development and cohesion policy beyond 2020](#)



### **Connecting Europe Facility**

Connecting Europe Facility (CEF)<sup>13</sup> seeks to boost energy, transport and digital infrastructure between 2014 and 2020. Part of the budget has been allocated to trans-European energy infrastructure projects, such as gas pipeline, transmission grids, Liquefied Natural Gas terminals, gas storage and smart grids. In addition to grants, the CEF offers financial support to projects through financial instruments, such as guarantees and bonds.

### **Horizon 2020 and Horizon Europe**

Projects under this category are projects aiming at the creation and improvement of clean energy technologies. The Innovation and Networks Executive Agency is in charge of running those funding arms of Horizon 2020 related to transport and energy. The Executive Agency for SMEs (EASME) supports innovation for energy efficient technologies and solutions for buildings, heating, cooling and more.

Funding in this area is available for the following energy research:

- **Non-nuclear energy**<sup>14</sup>: concentrated solar power, photovoltaics, wind, ocean, hydro, geothermal, bioenergy, fuel cells and hydrogen, electricity grids, carbon capture and storage, energy storage, energy efficiency and smart cities, as well as the integration of ICT in all of these fields.
- **Nuclear energy**<sup>15</sup>: fission and fusion

### **European Regional Development Fund**

The European Regional Development Fund<sup>16</sup> (ERDF) aims to reduce economic and social disparity between EU regions. One of its priorities is the low-carbon economy. As such, part of the budget is allocated to low-carbon projects in EU regions.

### **European Investment Bank and the European Fund for Strategic Investments**

The European Investment Bank<sup>17</sup> (EIB) helps finance energy projects by providing companies with loans and other financial instruments alongside advice and expertise on administration and project development. The EIB has financed energy projects involving renewable generation, infrastructure and new technologies.

The European Fund for Strategic Investments<sup>18</sup> (EFSI) is a joint initiative between the EIB, the European Investment Fund and the European Commission. It aims to mobilise private investment in projects that are strategically important for the EU, such as energy efficiency, renewable energy, power grids and interconnectors.

<sup>13</sup> [Innovation and Networks Executive Agency – Connecting Europe Facility](#)

<sup>14</sup> [Horizon 2020 – Non-nuclear energy](#)

<sup>15</sup> [Horizon 2020 – Nuclear energy](#)

<sup>16</sup> [European Regional Development Fund](#)

<sup>17</sup> [European Investment Bank](#)

<sup>18</sup> [EFSI in the energy sector](#)

### **The Innovation Fund**

This fund<sup>19</sup> is dedicated to the demonstration of innovation low-carbon technologies. It focuses on technologies and big flagship projects that are expected to lead to emission reduction, including carbon capture and utilisation, carbon capture and storage and renewable energy generation. The first call for projects will be launched in 2020.

Please find below a few examples of EU funding opportunities related to renewable energies:

- [Next generation of thin-film photovoltaic technologies](#)
- [Demonstration of innovative technologies for floating wind farms](#)
- [Integrated local energy systems](#) (energy islands)

Here a few examples of past projects related to renewable energies and what they have help achieved in this field:

- [CPVMatch](#), project where Germanium substrate cells, a popular material for integrated circuits, was used to concentrate solar PV.
- [Sharc25](#), seeking to increase efficiency of thin-film solar cells.
- [Nano-Tandem](#), by using nanowires, this project demonstrated major advances that can be achieved by using these materials in innovative solar cells.

## **V. Conclusion**

As of today, renewable energy sources make up for 26% of the world's electricity. In view of increased environmental concerns, their growth and share is expected to keep increase at higher pace in the future. Renewable energy is expected to grow by 1,200 GW within the next years; solar, wind and hydropower projects are already spreading faster and faster, while costs related to solar energy keep dropping<sup>20</sup>.

In such a dynamic environment, protecting your creations through an appropriate IP strategy and broad IP portfolio becomes essential to maintain your competitive advantage, safeguard the sustainable prospering of your company and keep up with the pace of evolving technologies.

<sup>19</sup> [Innovation Fund](#)

<sup>20</sup> [IEA – Tracking clean energy progress](#)

## Useful documents

- [Factsheet "Confidential business information"](#)
- [Factsheet "Non-disclosure agreement: a business tool"](#)
- [Factsheet "How to search for patent information"](#)
- [Factsheet "How to search for trade mark"](#)
- [Factsheet "IP in renewable energy sector"](#)
- [Infographic "Protecting your IP in the Renewable Energy Sector"](#)

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Luxembourg: Publications Office of the European Union, 2020  
ISBN 978-92-9202-741-4 DOI 10.2826/624471 EA-04-19-748-EN-N