In Italy, around 8% of power consumption is supplied by solar energy - the highest share in Europe.

Source: Enel Green Power

Solar
Power

The sun has been powering the Earth for millennia, but only relatively recently have we started using the sun for solar power.

This is surprising, given that the sun supplies enough power in one hour to provide the total energy needs of the world for a whole year. In fact, some estimates show we would only need to cover a land area the size of Spain to power the entire planet with solar. No other energy technology can compete with this potential. **Solar's low-cost, versatility and reliability, means that it is poised to become the dominant energy source by 2050.**

In Europe, over 70% of the market is roof-top solar. Our estimates show that around 5 million houses in Europe have solar on their roofs. Solar is easy to install, easy to maintain and an easy way to save money. It works through photovoltaic cells converting sunlight into direct electricity. The inverter then converts the direct electricity into alternating current (AC) electricity which is used to power your lights and appliances.

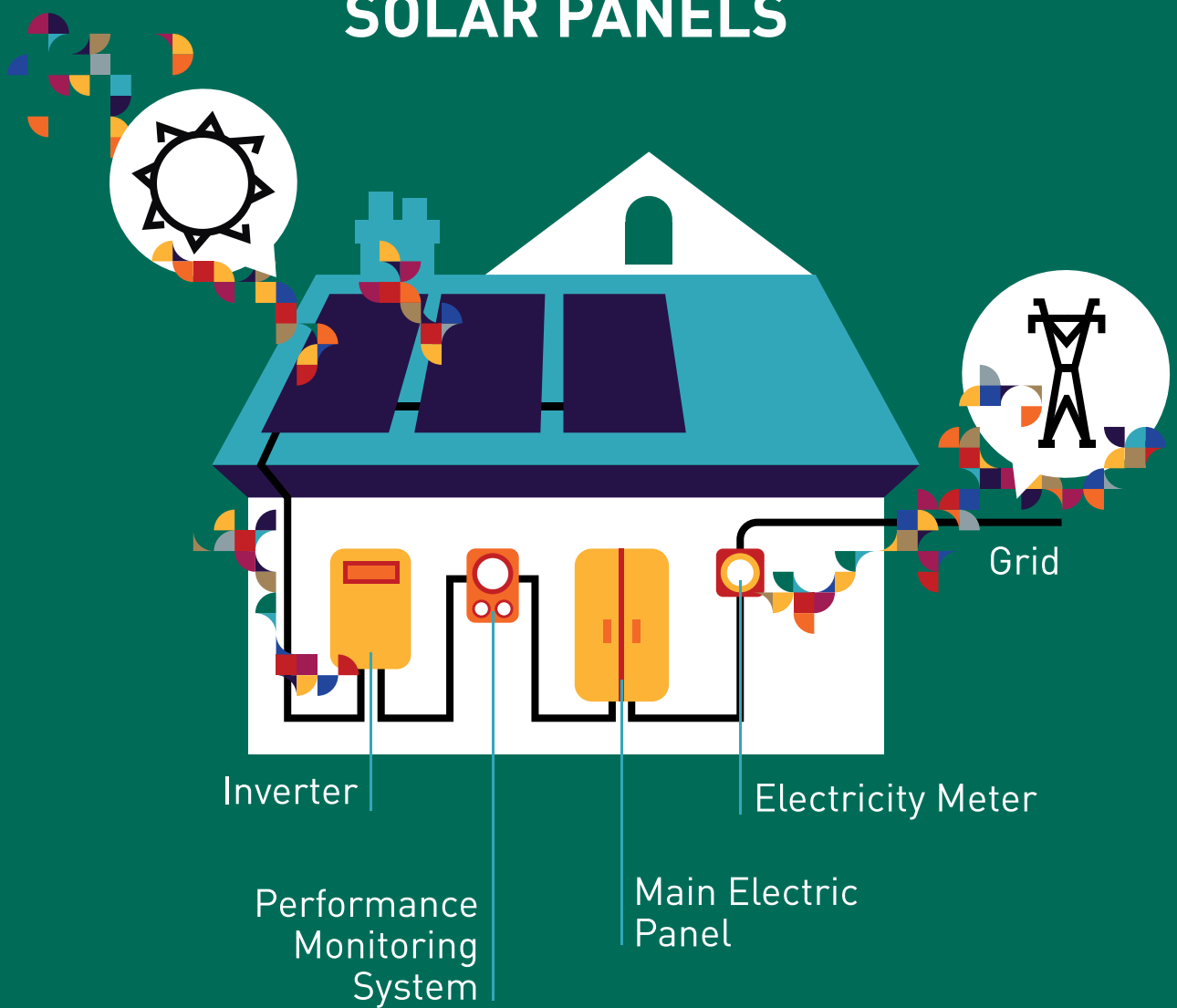
Perhaps the most common objection from solar sceptics is "the sun doesn't shine at night". We have solved this: we now have storage systems that temporarily store generated solar power and deliver clean electricity around the clock. Tesla's Powerwall and SonnenBatterie are great examples of pioneering storage systems that empower consumers to take control over their energy supply.

The European Commission recognizes this unstoppable revolution and have recently brought forward a right to self-consume and self-generate energy. This is a significant new right for all European citizens that will have a huge impact on the energy sector. The forthcoming digitalization of the energy system will also bring forward a whole host of new solar opportunities for consumers and businesses alike – and make the process of going solar even more convenient.

DID YOU KNOW?

Solar power and renewable energies helped Europe cut its greenhouse gas emissions and fossil fuel consumption by 10% in 2015. This demonstrates that clean energy technologies, like solar, are vital to reducing CO_2 emissions. Scaling up and accelerating the deployment is imperative to be able to limit global warming to 2°C.

SOLAR PANELS



1. The global on-grid solar power market grew by **49%** to 76.1GW in 2016, from 51.2GW in 2015.

2. The cost of solar PV systems has dropped by **75%** since 2009 and by 2020, prices are expected to drop by **25-40%**.

6. Solar and wind are now at the same cost as new thermal power generation in more than **30 countries.**

7. The EU's top 3 solar electricity producers are Italy, Greece and Germany where solar covers more than **7%** of their needs.

Solar PV generation reduces global CO_2 emissions by 200-300 million tons annually, equivalent to the total greenhouse gas emissions in France.

3. Solar is the world's largest renewable energy employer, accounting for an estimated **2.8 million jobs** worldwide in 2015, up about **11%** since 2014.

4. In 2018, storage systems serving solar PV installations in Germany are expected to double to **100,000.**

5. Since 2000, when the modern solar success story began with the implementation of Germany's feed-in-tariff program, installed global solar power capacity has multiplied by a factor of more than **150**.

8. In 2016, Europe passed the incredible milestone of **100GW**, making Europe the most solarized region in the world.

9. An estimated **89 million** people in developing countries have at least one solar lighting product in their home.

10. Solar power is the energy choice of Europeans: with **94%** in favor of the use of solar power in their country.

Sources: IEA, Eurobarometer, IRENA, WEF, BNEF/Lighting Global, SolarPower Europe, IHS, BSW

Top 5 priorities to make solar flourish in Europe:

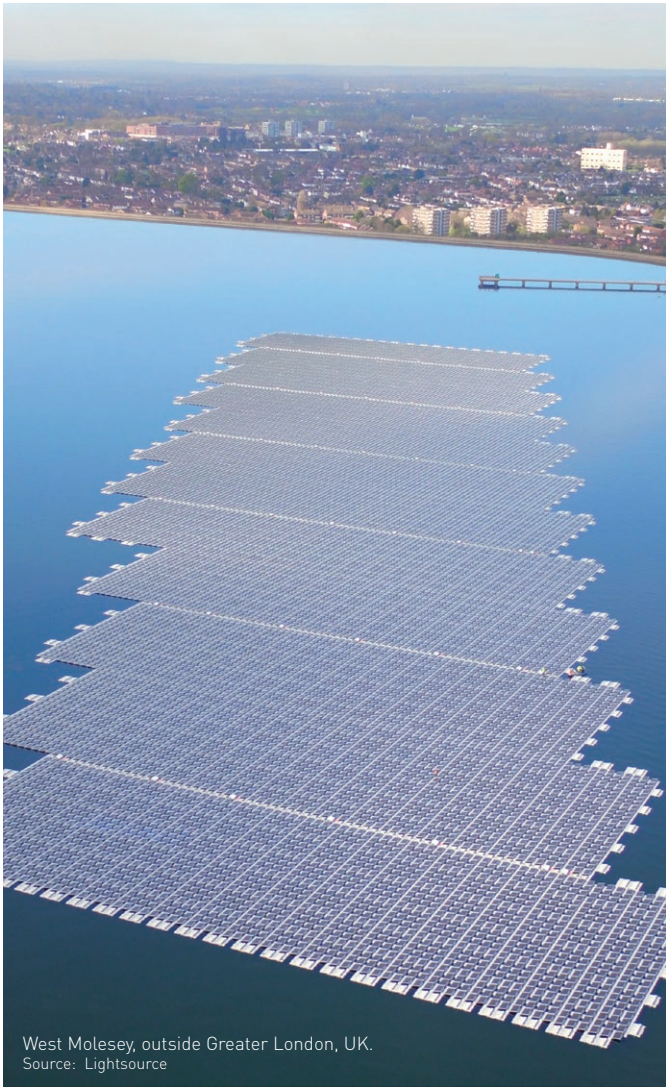
1. Market rules which allow for a market-based energy transition and which enable a flexible power system to harness renewable energies when they are abundantly available at lowest cost.

2. A reliable governance system to steer investments in renewable energy and in flexible assets and to organize the retreat of inflexible polluting plants.

3. Remove the current trade measures on solar panels and cells; the duties make solar more expensive than necessary in Europe.

4. Build an industrial competitiveness strategy for solar in Europe, which should have at its heart the objective of the EU taking the global leadership on the existing and next generation of solar technologies and services.

5. Raise the European Union's 2030 Renewable Energy target to at least 35% (now at 27%).



West Molesey, outside Greater London, UK.
Source: Lightsource

Dr. Christian Westermeier

President of SolarPower Europe

Why is solar power a sustainable energy solution for Europe?

Europe must rapidly reduce its CO_2 emissions and transition to a low-carbon economy. With the cost of solar falling 75% since 2009 and further price reductions projected, solar is a cost-efficient solution to decarbonize our power sector and fight climate change. Already today, solar is providing millions of Europeans across the continent with clean and affordable energy.

Solar is also the energy choice of Europeans with 94% in favor of the use of solar power in their country. With such popular support, solar is a solution for policy-makers who are looking for the right technology at the right price. To put it simply, this is Solution Solar!

How can solar mitigate climate change?

At the 2015 Paris Climate Conference (CoP21), solar and renewable energies were widely recognized as a key solution to help mitigate climate change and keep global temperatures from rising more than 2° Celsius. This is why we saw a wave of new solar initiatives launched at CoP21 such as the International Solar Alliance and the Global Solar Council which SolarPower Europe chairs.

According to the International Renewable Energy Agency (IRENA), solar power generation reduces global CO_2 emissions by 200-300 million tons annually, equivalent to the total greenhouse gas emissions in France. What we have ready at our disposal is a technology that can address the twin needs of expanding global energy consumption and decarbonization. We now need to take advantage of this opportunity and substantially increase the deployment of solar and renewable energies. This will set us on a cleaner path and help us combat dangerous climate change.

What are the most exciting developments happening in solar?

Storage, mobility and digitalization play an ever-larger role in solar energy's evolution. Storage combined with solar means that consumers can produce their own

energy, which will fundamentally reshape the relationship between retailers and their customers. Solar and storage of course also means more efficiency and better use of our technology, as the storage system will temporarily store generated solar power.

The solar industry is a key facilitator of a socially-just energy transition and could support 300,000 direct and indirect jobs by 2030.

Solar will also play an integral role in low carbon transport. Soon, we will see electrical vehicles (EVs) with integrated solar panels on their roofs sourcing electricity from solar charging systems. What all this amounts to is the digitalization of the solar and energy sector. We are just beginning to see what will be a new fully fledged digitalised energy system. In the next years, we will see a flood of new digital services for consumers based on solar electricity, including new ways of selling, controlling and gaining revenue from 'smart solar'.

What are the barriers to solar growth in Europe?

We need a stable and predictable economic and political framework that sends the right signals to investors. We live in an age where feed-in-tariffs (FITs) are disappearing and being replaced with tendering schemes in Europe. Given this development, the price of solar systems becomes even more important and that is why we believe the current trade measures on solar panels need to be removed, as they add to the cost unnecessarily. This would allow solar to be even more competitive than it already is with other energy technologies in Europe.

How many jobs can solar really bring to Europe?

SolarPower Europe is working with the European Commission to build an industrial competitiveness strategy for solar, which aims to deliver the growth of our sector in terms of installations, jobs and wealth creation. One of our aims in the industrial strategy is to reach 350 GW of installed solar in Europe by 2030, up from around 100 GW today. Therefore, the solar industry is a key facilitator of a socially-just energy transition and could support 300,000 direct and indirect jobs by 2030, more than doubling the 120,000 jobs provided by solar in Europe today. We will work with the European Commission to promote this industrial strategy, which will place solar on the path to becoming the leading contributor to Europe's energy system for decades to come.

SolarPower Europe

SOLAR IN EUROPE CELEBRATES 100 GW LANDMARK

In 2016, Europe reached an incredible solar power milestone, installing 100 gigawatts (GW) of grid-connected photovoltaic (PV) power. Just a few years ago, solar was considered a niche alternative technology, but it is now a major element of our energy system. In fact, solar power is one of the most competitive forms of energy generation in Europe today. This achievement is primarily due to two factors: 1) an incredible 80% reduction in costs and 2) regulatory frameworks that are supportive of solar as countries have acted to meet the European Union's Renewable Energy Directive.

THE LARGEST SOLAR FAÇADE IN THE WORLD

Denmark

Copenhagen is home to the world's largest solar façade. The new Copenhagen International School features 12,000 solar panels that can generate 300 megawatt hours of electricity per year, covering more than half of the school's annual energy needs. Building integrated solar is poised to play a key role in the development of smart buildings in Europe – watch this space!

RUNNING ON 100% RENEWABLES
Portugal

In May 2016, Portugal made headlines when the southern European country had run for four days only on renewable energy. Indeed, for 107-hours straight, Portugal's electricity consumption was fuelled entirely by solar and other renewables – proving that the clean energy future is fully viable.

WHAT'S IN STORE
Germany

In 2016, it was revealed that 41% of all new solar installations in Germany were equipped with storage batteries, more than anywhere else in the world. This level compares with less than 14% in 2014. Storage in combination with solar is set to take off, in fact, the German battery storage market is expected to grow with up to 30,000 new storage systems in 2017.

(Left) Rising from less than 3 GW of solar PV capacity in 2005, Europe surpassed 100 GW in the second quarter of 2016 making Europe the first region to pass this milestone.
Source: Hanau Energies

(Middle) As of early February 2017, the Copenhagen International School's new building in the Nordhavn district features the largest solar facade in the world. The 12,000 solar glass panels can generate 300 megawatt hours of electricity per year, more than half of the school's annual energy needs.
Source: Adam Mørk

(Right) The Sun Ship (Das Sonnenschiff) is a small community that is run entirely by solar energy. It was built in 2004 in Freiburg im Breisgau's renowned Vauban quarter. Sonnenschiff was designed by architect Rolf Disch, who also built the Heliotrope, and generates four times more energy than it uses.
Source: Stadt Freiburg