SOLAR ENERGY IN EUROPE

DANIELA MAGA
BIANCA SJOERDSTRA
SOLÈNE CHAGNAUD

PLAN

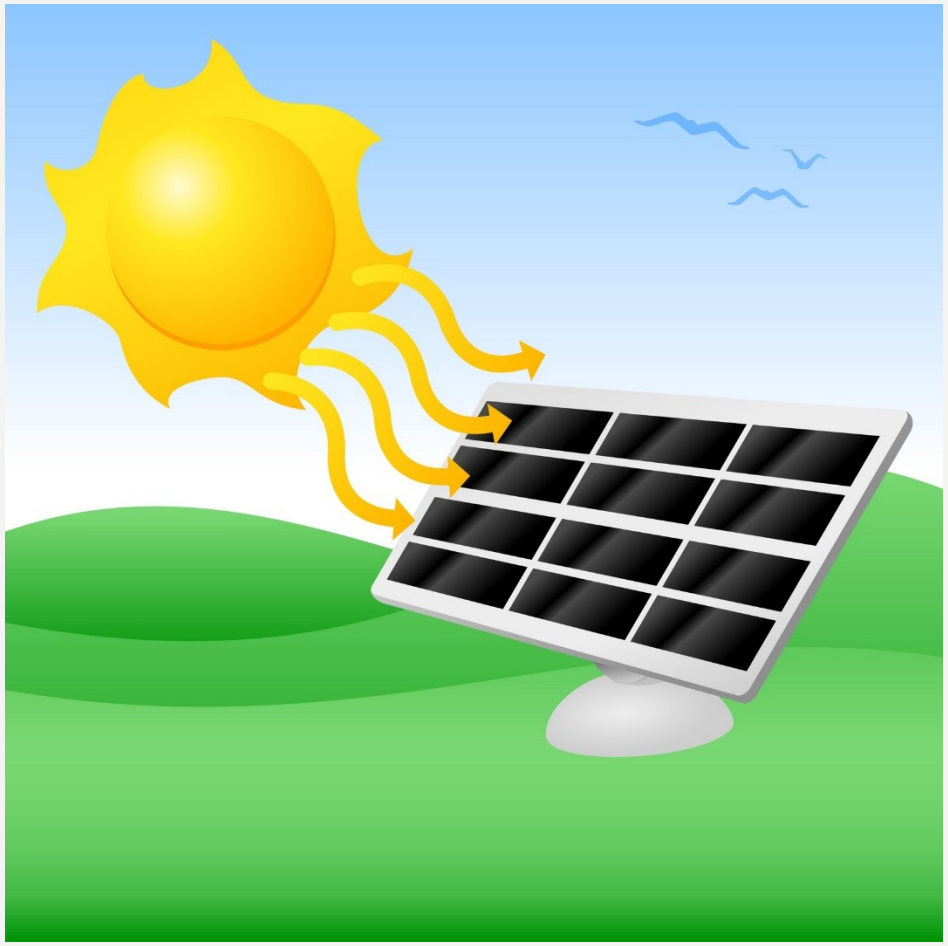
- I) What Is Solar energy ?

How Solar Works?
Solar Panels
Why Use solar energy ?

- II) Use of solar energy in Europe

In the past
At the moment
Objectives for the future

- III) EU solar panels import from China



I. WHAT IS SOLAR ENERGY ?

Types of solar energy :

- Thermic energy (to create heat)
- Photovoltaic energy (to create electricity)

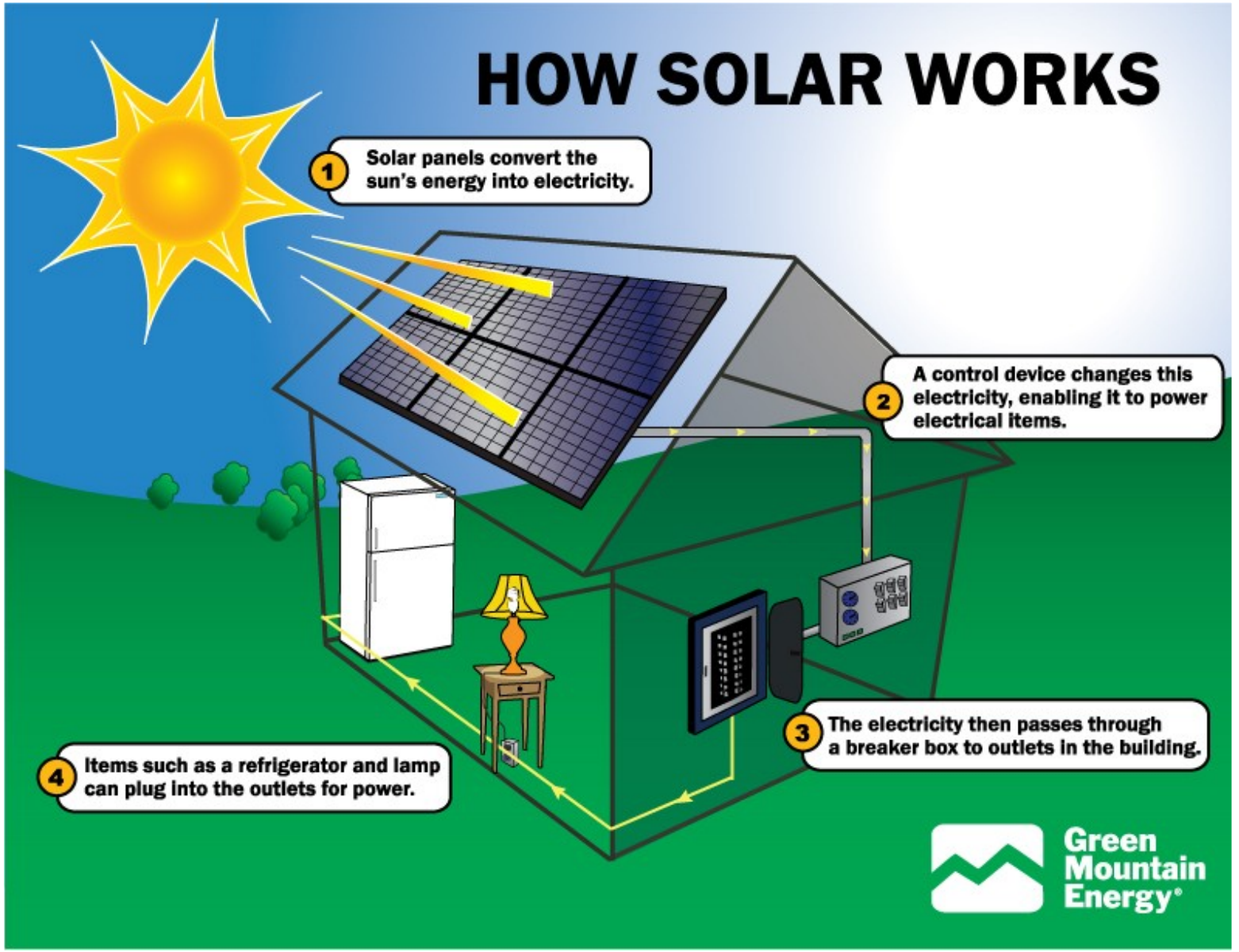
➢ All made possible thanks to solar panels

How do we use solar energy ?

- At home in order to provide heat and electricity

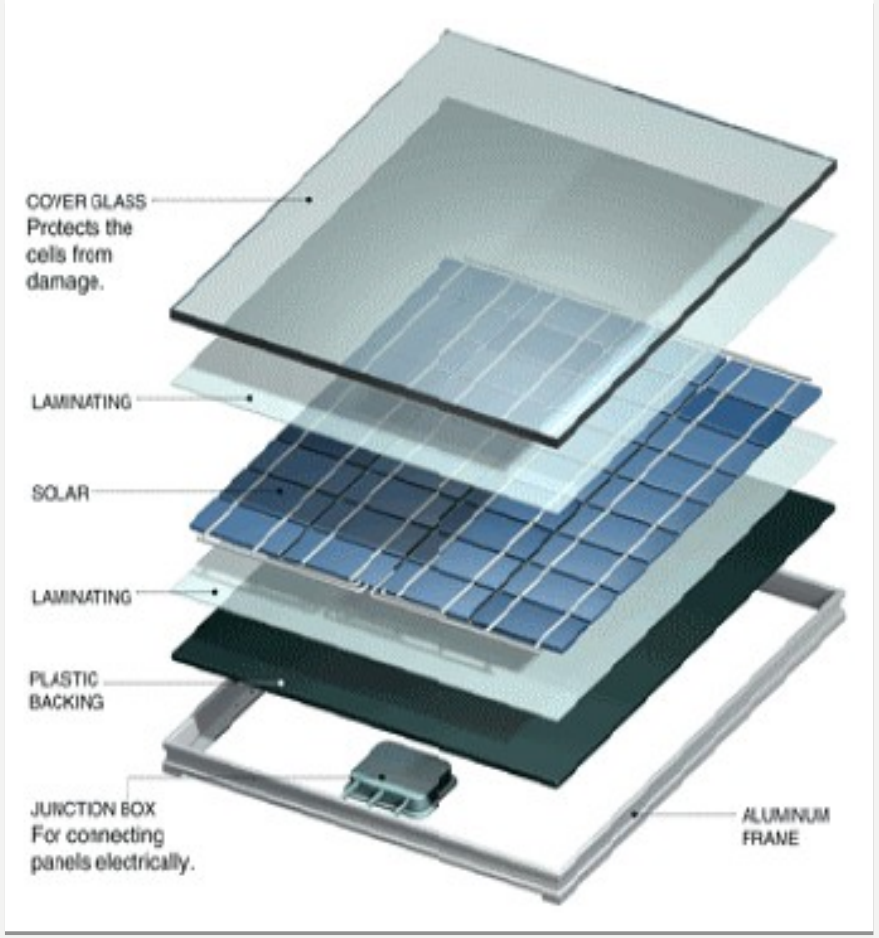
If there is a surplus, energies companies will buy it

- In solar farms (photovoltaic parks)


HOW SOLAR WORKS
1 Solar panels convert the sun's energy into electricity.
2 A control device changes this electricity, enabling it to power electrical items.
3 The electricity then passes through a breaker box to outlets in the building.
4 Items such as a refrigerator and lamp can plug into the outlets for power.
Green Mountain Energy®

SOLAR PANELS

Cost: between 60€ and 200€
Materials used : Glass, Plastic, Aluminum, **Silicon** (photovoltaic cells)
Length of life : between 12 and 25 years.



Solar panels are not seen as completely Green, because of the use of Quartz to create silicon. Quartz is extracted from mines, putting the miners at risk of the lung disease silicosis.

The Quartz will then be transformed into polysilicon, and this transformation process creates the very toxic waste, silicon tetrachloride, which, when dumped into water, releases hydrochloric acid, acidifying the soil and emitting harmful fumes.

WHY USE SOLAR ENERGY ?

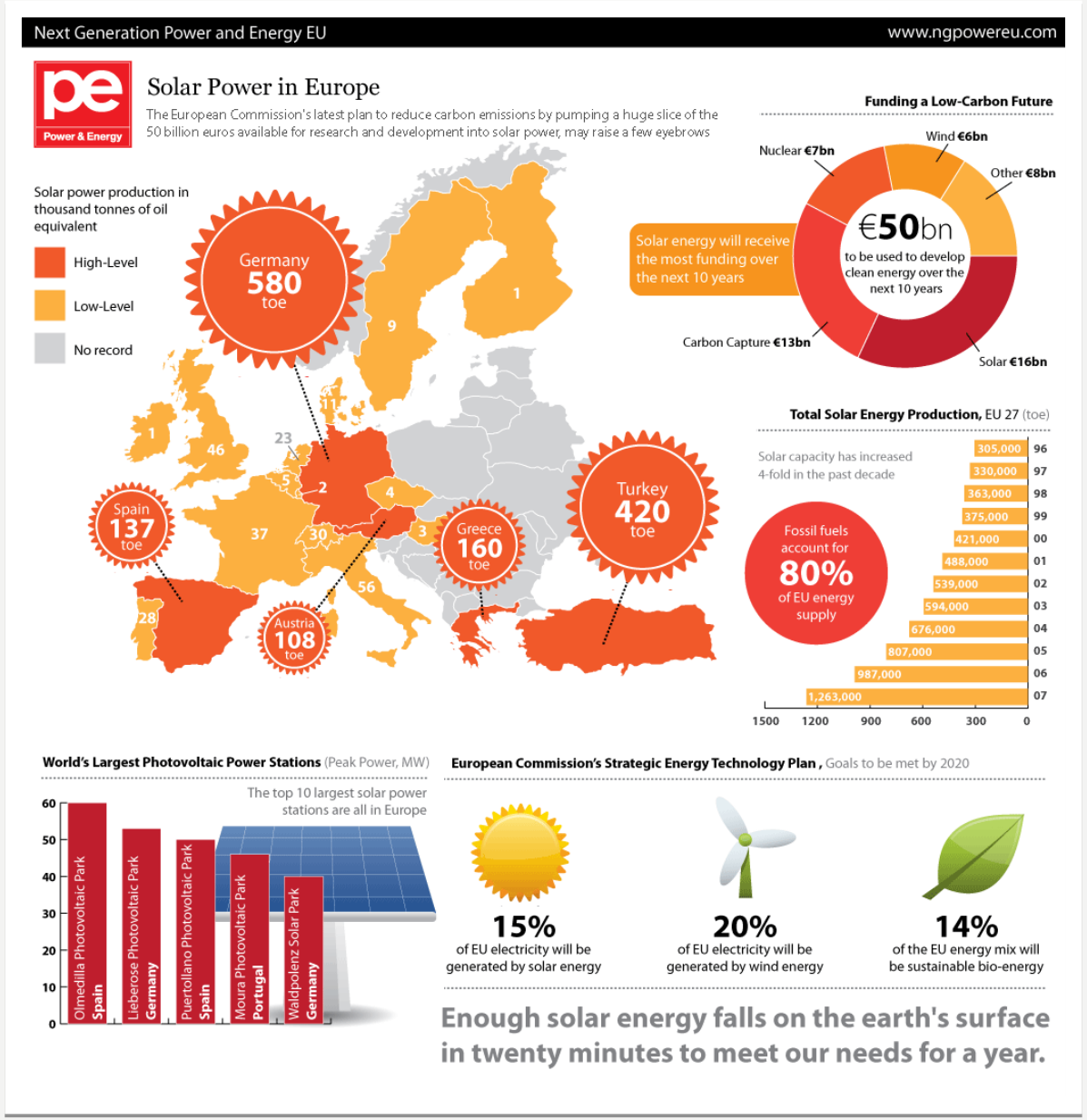
Advantages :

- Limitless source of energy
- One day of solar light produces as much energy as the planet needs for a year
- Clean

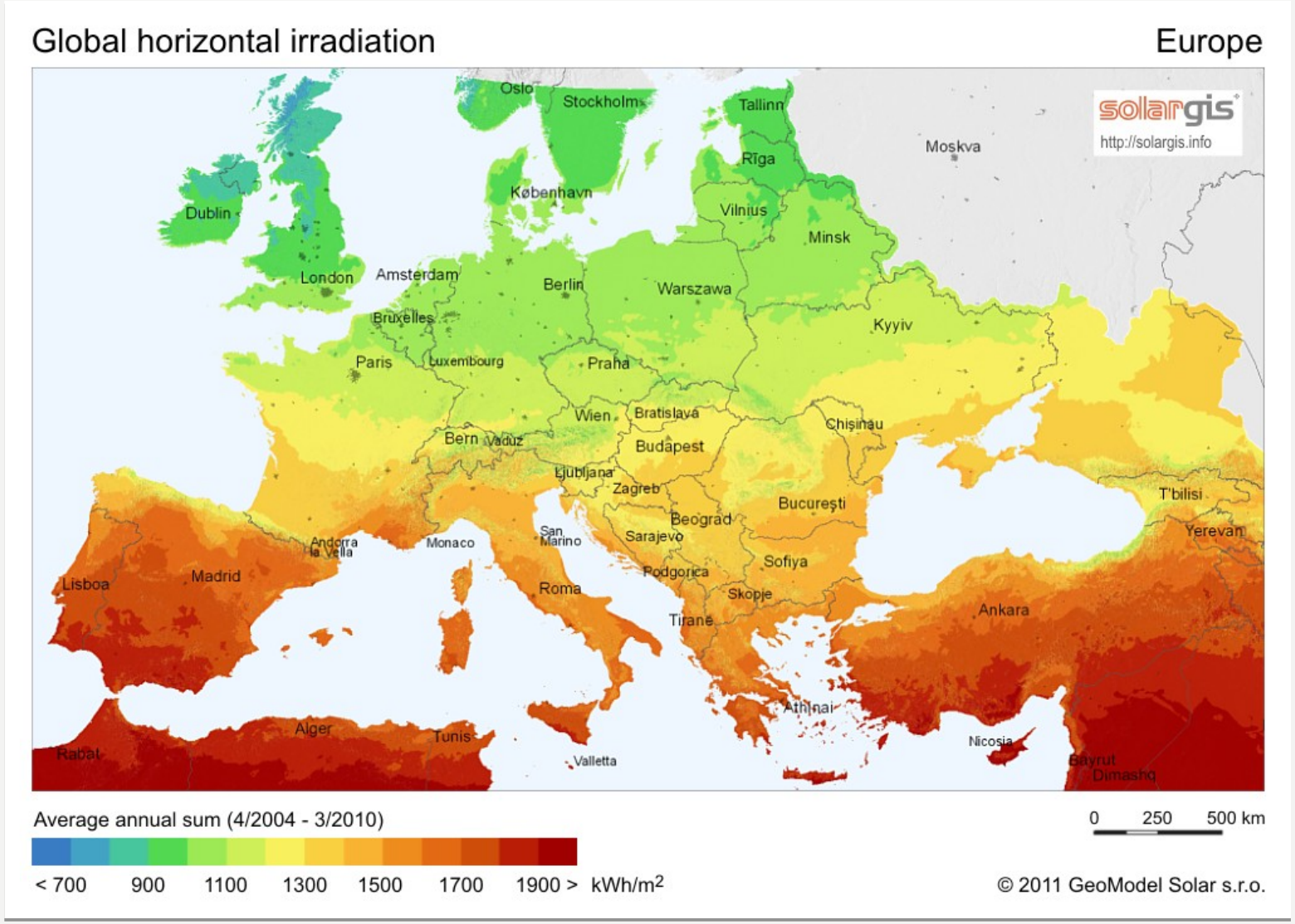
Drawbacks :

- Not as efficient as other energy sources yet (but its getting better)
- Solar panels efficiency depends on the weather and the amount of sunlight
- The production is not as green as everyone thinks

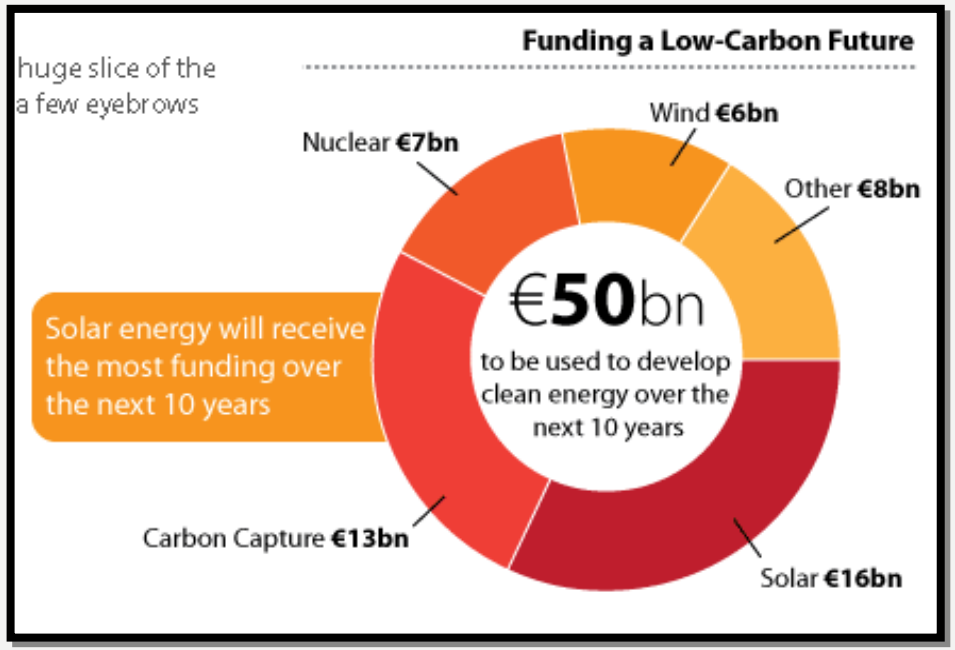
II. USE OF SOLAR ENERGY IN EUROPE



SUNLIGHT IN EUROPE



SOLAR ENERGY OBJECTIVES



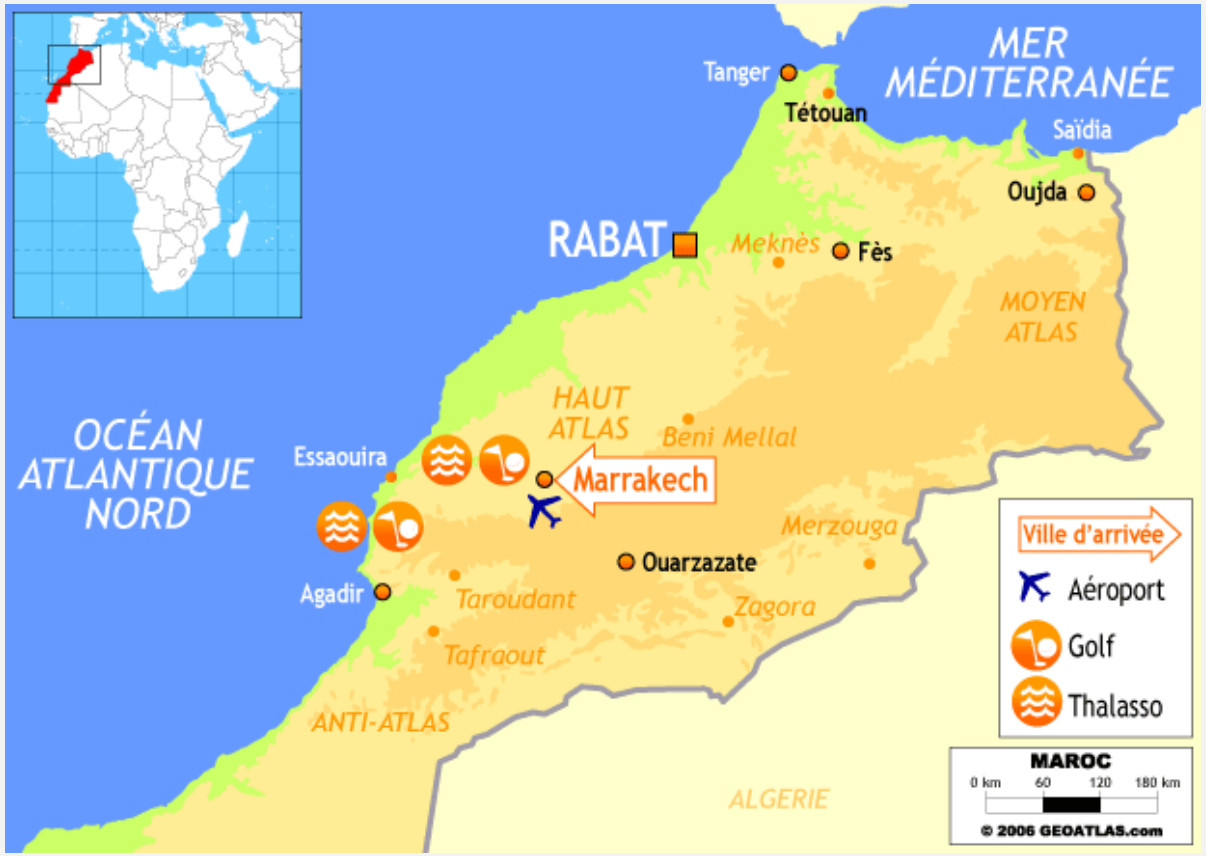
- The European Commission decided on the climat conference in Copenhagen (december 2009) to spend 16 billion extra euro's between 2010 and 2020 on solar energy.
- Solar energy received the most funding for the next decade with the goal of producing 15% of the EU's electricity from solar power by 2020
- "Solar power has the greatest potential but also has the highest costs at the moment," "Those costs will decline but it will take investment to do that."
- The additional 50 billion euros worth of spending could create as many as 600,000 new jobs, with the European renewable energy sector employing as many as 2.8 million people by 2020

MOROCCO & SOLAR ENERGY

- Biggest project concentrating solar power plant at the edge of the Sahara desert

- **Morocco :** country having one of the highest rates of solar insolation of any country

- City : **Ouarzazate** nicknamed the "door of the desert"



Project : complex of 4 linked solar mega-plants

- 30 square km area
- Occupy a space as big as Rabat
- Generate 580MW of electricity (enough to power a million homes)

- Cost : $9bn
- Goal : provide nearly half of Morocco's ele
- Ambition : Use its untapped deserts to become a global solar superpower to export to Europe

Technology : Mirror technology – more expensive – produces energy H24

« Solar energy will make up a third of Morocco's renewable energy supply by 2020, with wind and hydro taking the same share each. » Morocco's environment minister, Hakima el-Haite

Export ?

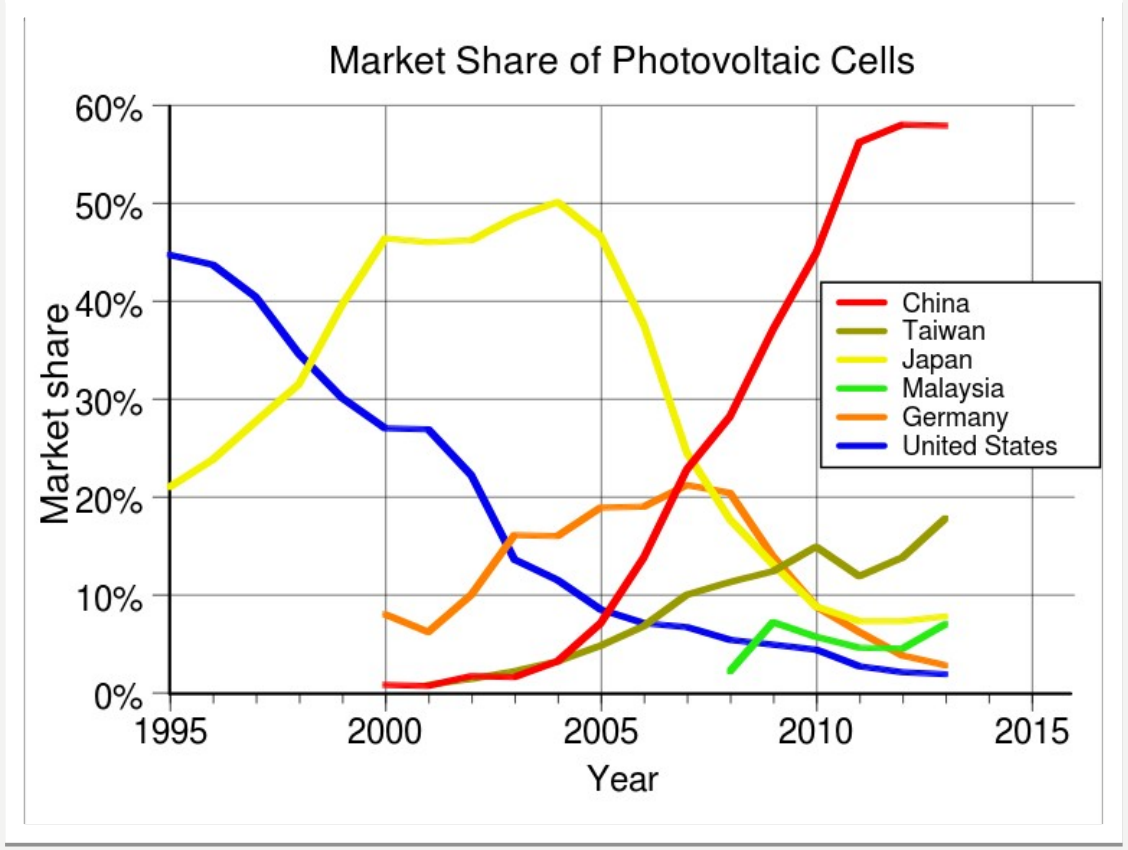
- Will reduce carbon emissions by 700,000 tons per year and even generate an energy surplus for exports

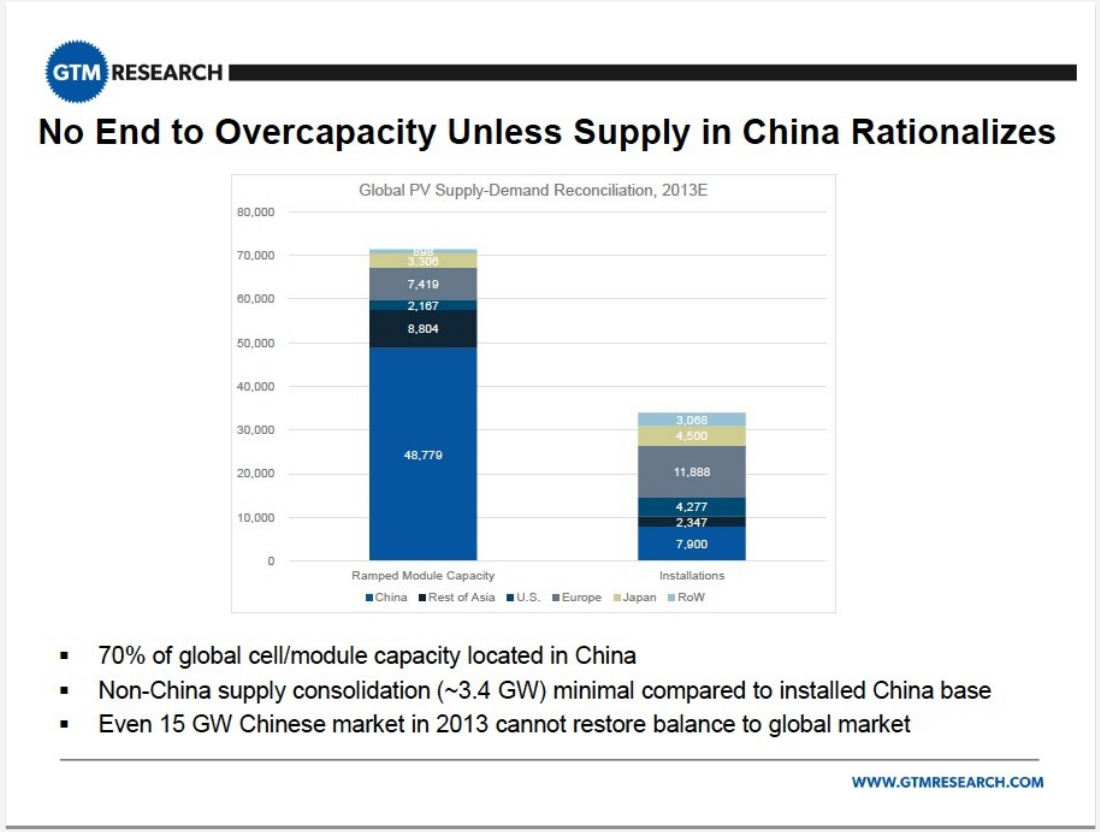
« We believe that it's possible to export energy to Europe but first we would have to build the interconnectors which don't yet exist »

« In the meantime, Morocco is focused on using solar to meet its own needs for resource independence. »

III. EU SOLAR PANELS IMPORT FROM CHINA

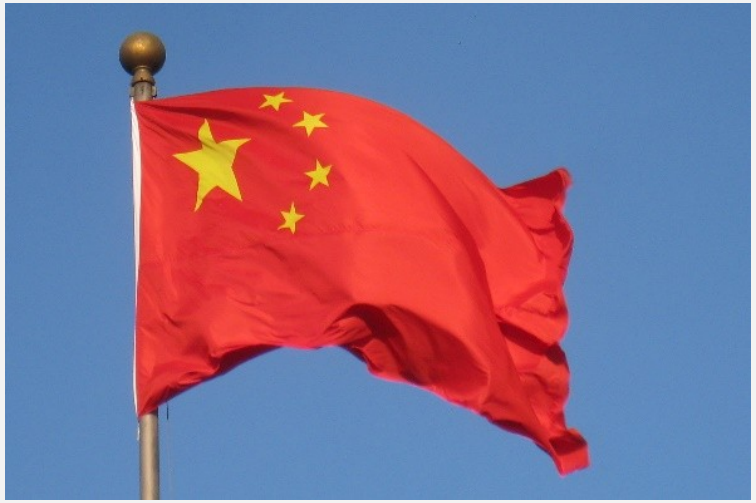
→ China is dominating the world's market in solar panels





EU SOLAR PANELS IMPORT FROM CHINA

- China export to EU estimation: 21 billion annually (80% market share)
- China imported into EU at very low prices
- December 2013: EU imposed anti-dumping and antisubsidy duties (average of 47% import tariff)
- Minimum import price to increase to level at which EU can compete
- Consequence: decrease in solar demand → bankruptcy of major business → decrease in EU solar sector employment
- Boost to domestic EU solar manufacturing → increase in employment
- Chinese solar companies trying to evade import tariffs by shipping their products via Taiwan and Malaysia



EU SOLAR PANELS IMPORT FROM CHINA

Higher overall carbon footprint in manufacturing solar panels in China than in EU

- → fewer energy regulations, reliance on coal, transportation
- EU duties expire mid-December 2015
- EU commission will probably start expire review, so duties will extend for at least a year
- EU solar panel manufacturers asked for extension of import restrictions
- China is 2nd trading partner of EU, EU is 1st trading partner of China