

Iceland  
Liechtenstein  
Norway grants



Ministerstvo financí  
České republiky

**TOPIC: Solar power stations**

**NAME: David Rychnovský**

**PROJECT: Comparison of energy potential of  
Iceland and the  
Czech Republic**

**DATE: 1/ 8/2021 – 31/ 8/ 2022**

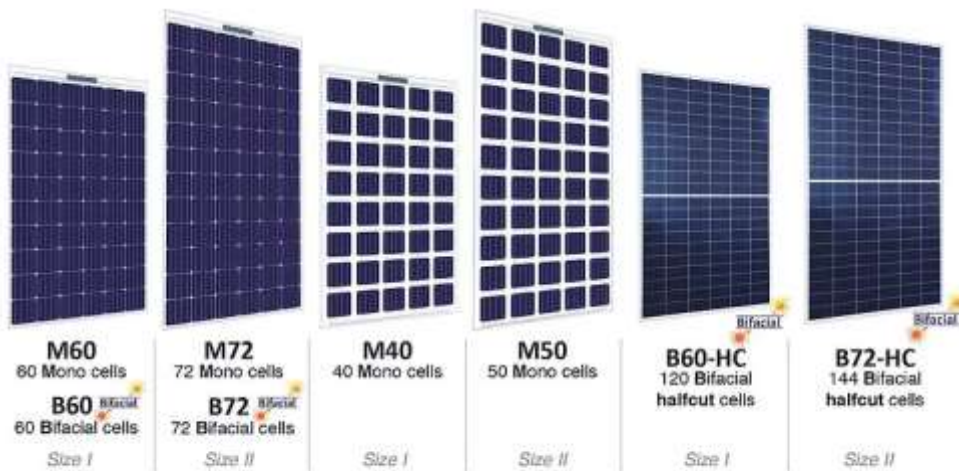
## What are solar power plants

- Solar power plants are used to convert solar energy into electricity using the photovoltaic effect
- Solar power plants consisting of individual solar panels
- Photovoltaic power plants consist of one or more solar panels and are the most common
- These panels consist of individual solar cells
- Solar cells are semiconductor electronic components made of quartz their ability to convert light into electricity using the photovoltaic effect

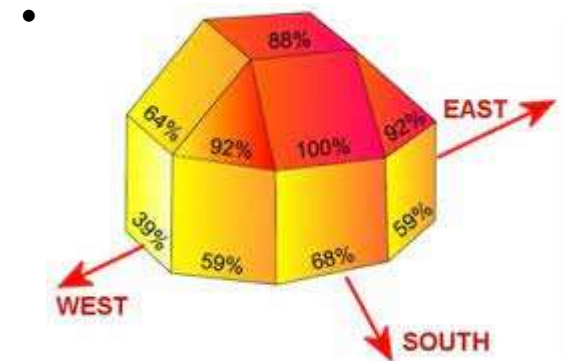


## Performance and efficiency

- The efficiency of conventional solar panels is 13-17% and is slowly growing due to technological progress
- The most powerful domestic solar power plants achieve an output of up to 250 Wp
- One solar panel with an output of 250Wp produces about 250kWh per year



- Power of the solar panel according to the rotation on the world side



## Uses and benefits

- Solar power plants can be used anywhere the sun shines, even on the water
- on the roofs of houses do not occupy useful land
- They produce green electricity



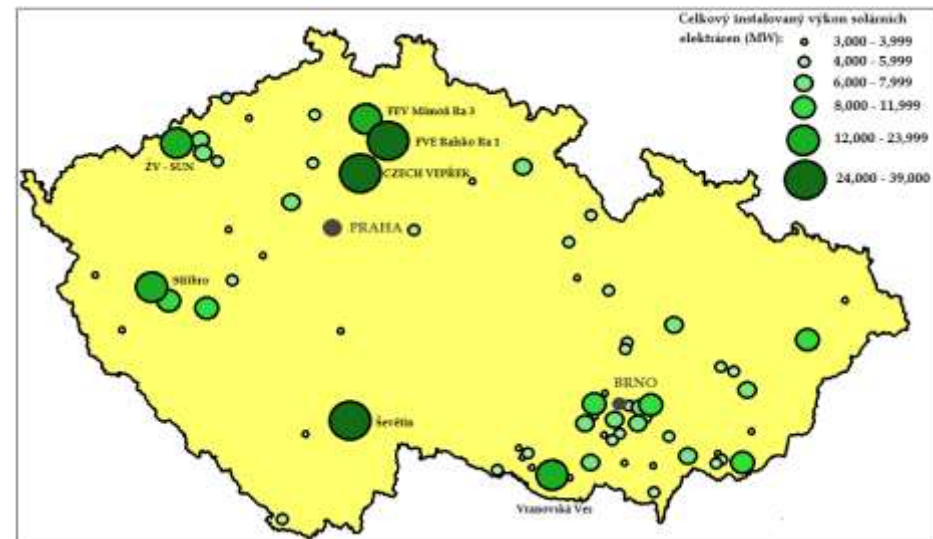
## Disadvantages

- Large solar power plants occupy a lot of useful land
- It produces electricity only when the sun is shining
- Panels must be disposed of as electrical waste at the end of their service life
- Quite expensive investment in a solar power plant, the investment will return +





# Solar power plants in the Czech Republic



-The Czech Republic has suitable conditions for solar power plants, with an average of 1,500 hours a year, but only about 1,100 hours are usable

-Solar power plants in the Czech Republic generate about 3% of the total energy

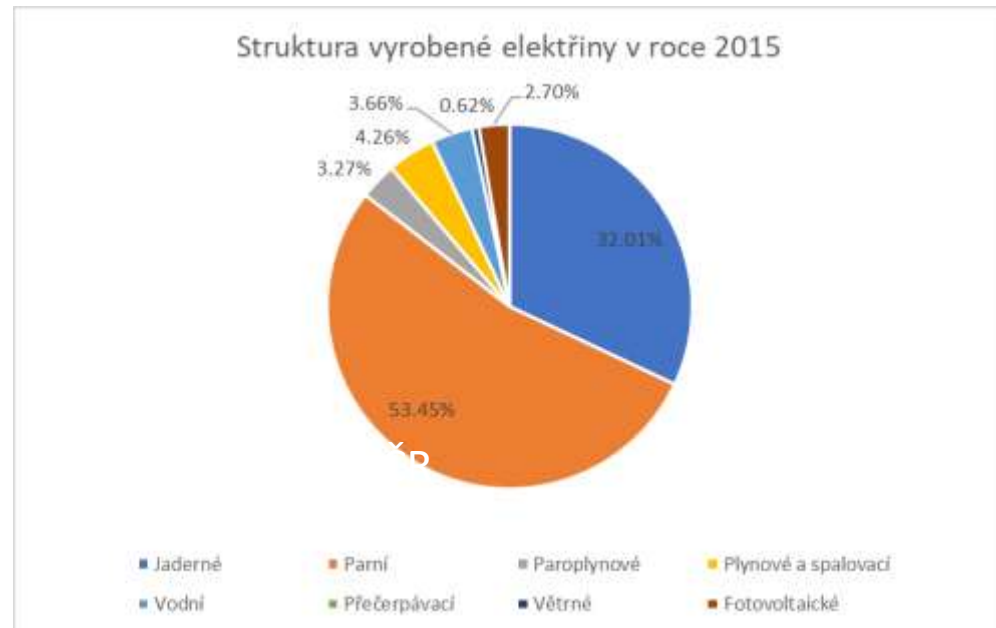
-Solar power plants are not fully widespread in the Czech Republic, but

# Solar power plants in Europe



-Solar power plants today are used throughout Europe, somewhere they are represented more than in other countries, but it depends on the setting of the energy mix of the country

-E.g. in Germany photovoltaic power plants produce + - 10% of their electricity, while in our country it is about 3%. In Germany they also have more suitable conditions for



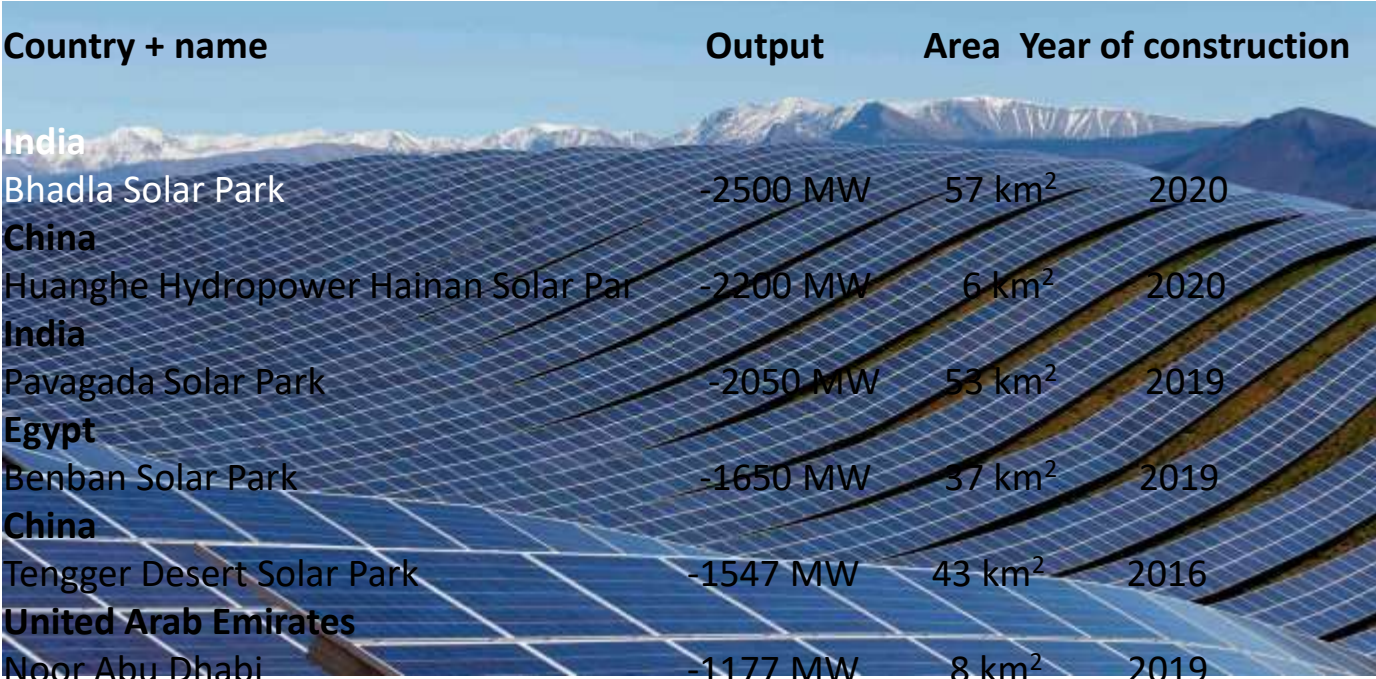
## Solar power plants in the world

- The largest solar power plants are located in China, India, Egypt and the United





# The largest solar power plants



Country + name	Output	Area	Year of construction
<b>India</b> Bhadla Solar Park	-2500 MW	57 km <sup>2</sup>	2020
<b>China</b> Huanghe Hydropower Hainan Solar Par	-2200 MW	6 km <sup>2</sup>	2020
<b>India</b> Pavagada Solar Park	-2050 MW	53 km <sup>2</sup>	2019
<b>Egypt</b> Benban Solar Park	-1650 MW	37 km <sup>2</sup>	2019
<b>China</b> Tengger Desert Solar Park	-1547 MW	43 km <sup>2</sup>	2016
<b>United Arab Emirates</b> Noor Abu Dhabi	-1177 MW	8 km <sup>2</sup>	2019
<b>India</b> Kurnool Ultra Mega Solar Park	- 1000 MW	24 km <sup>2</sup>	2017

# Photovoltaic panel functions

-Photovoltaic power plant consists of photovoltaic panels, which consist of photovoltaic cells that produce electricity using

t

Kovová mřížka

Sluneční svit  
fotony

Skleněná folie

Silikonová vrstva

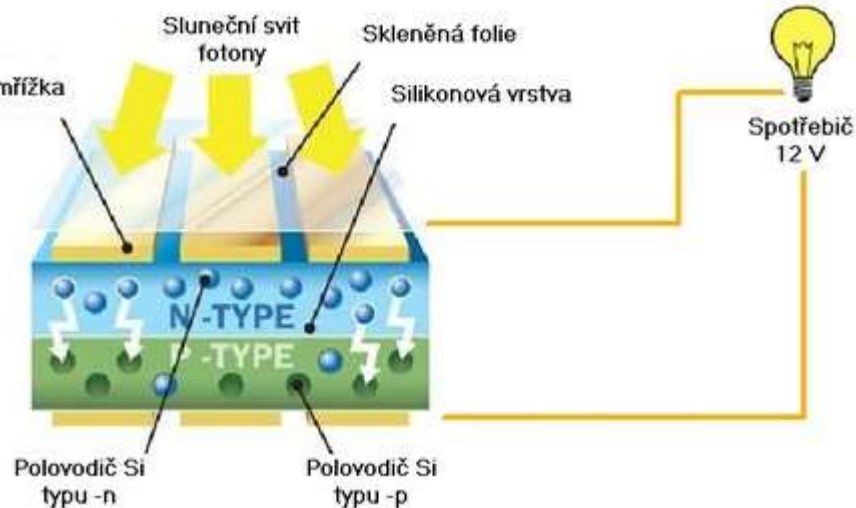
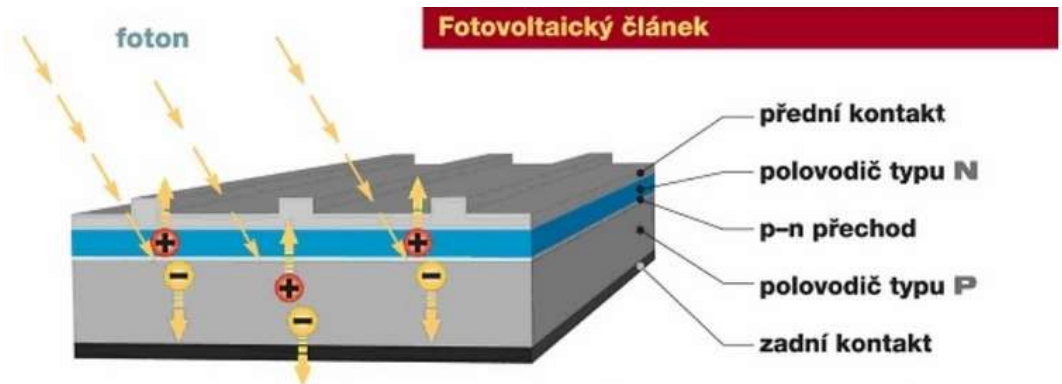
N-TYPE

P-TYPE

Polovodič Si  
typu -n

Polovodič Si  
typu -p

Spotřebič  
12 V



## Solar power plants in Iceland

- Solar power plants probably do not exist in Iceland -> the reason is few sunny days -> little electricity -> it is not worth building



## My opinion on solar power plants

-Solar power plants are a good way to get energy from the sun, but on the other hand they take up a lot of land that could be used for growing agricultural crops, although it is true that solar power plants can keep sheep that have the function of grazing grass and can use be use for meat





Thanks for your attention

Resources:

- [https://cs.wikipedia.org/wiki/Slune%C4%8Dn%C3%AD\\_elektr%C3%A1rna](https://cs.wikipedia.org/wiki/Slune%C4%8Dn%C3%AD_elektr%C3%A1rna)

-- <https://cs.wikipedia.org/wiki/Fotovoltaika>

- <https://www.hybrid.cz/solarni-elektrarna/>

-- <https://www.eon.cz/radce/zelena-energie/solarni-energie/jak-funguji-fotovoltacicke-elektrarny/>

Own knowledge

- google pictures

