



**SOLÁRNÍ ASOCIACE**  
SLUNCE • ENERGIE • AKUMULACE

# Perspectives of solar energy in the Czech Republic

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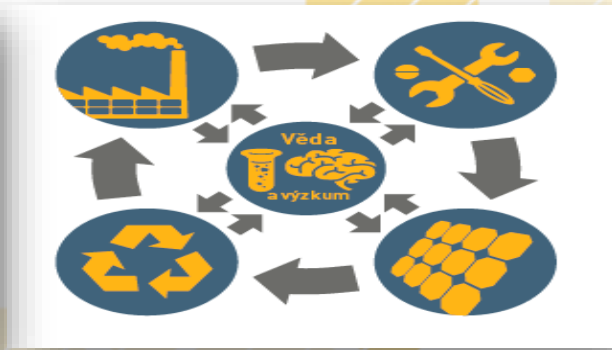
# 1. ABOUT SOLAR ASSOCIATION



# About Solar Association

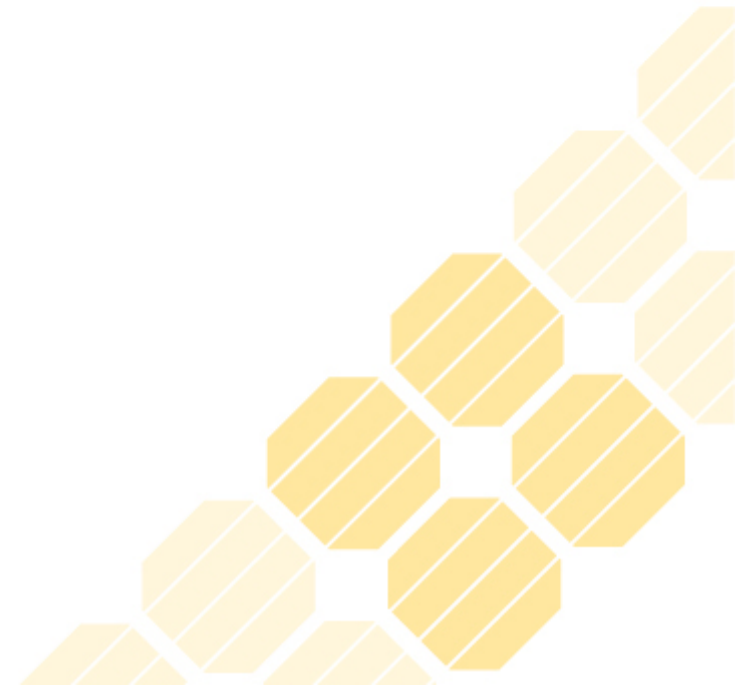
- The most important solar professional organization in the CZ
- We represent 1 211 MW (58% of the market)
- 450 members (installation companies, PV owners, universities, banks, ...)
- We created a unique map of recommended installation and service companies
- We organize conferences, seminars, open days of PVP, competitions, awards, ...

Mapa doporučených instalačních a servisních společností:





# 2. POTENTIAL OF PV IN THE CZECH REPUBLIC





# NAP for RES

- Involvement of the Solar Association in the preparation of the current version of the National Action Plan for RES, which sets a plan of the growth of individual types of RES up to 2020
- Solar power can grow up to **300 MW** per year
- Expected small installations on roofs
- There could be more than **15 000** new PVPs on family houses every year

Also other documents count on the development of RES:

- NAP for SG, ASEK (Update of the State Energy Policy), OTE Balance Study, ...

Národní akční plán České republiky pro energii  
z obnovitelných zdrojů



Ministerstvo průmyslu a obchodu  
Srpen 2012



# Technical potential of PV in CZ

**4 521 MW**



Family  
and  
apartment  
buildings

**7 295 MW**



Other  
buildings





# Estimated potential by 2045

- Roofs of family houses and other buildings: the real potential of **7 GW** represents **236 MW** of installed **annual** power
- PV on buildings can produce about 7.3 TWh/year in 2045
- However, the potential for PV energy production is many times higher (e.g. brownfields, contaminated or otherwise degraded areas, parking lots, landfills)





# 2017: Solar market recovery

nová

zelená

úsporám

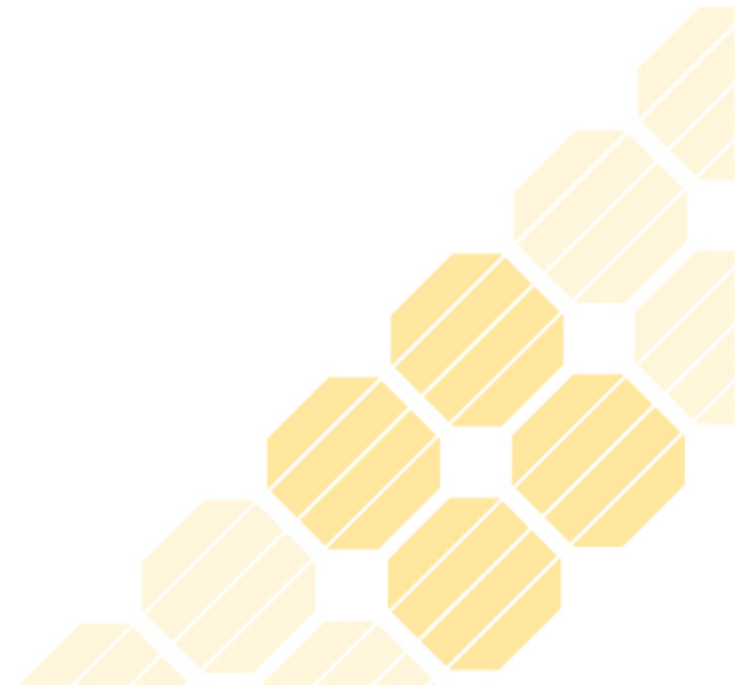
- 2<sup>nd</sup> year of the call
- Rooftop installation at family houses up to 10 kWp
- **800** approved PV installations
- **5 MW** of installed power



- The opening year of the call
- Company PVP above 150 kWp
- **274** applications submitted
- About **40 MW** of installed power



# 3. GOVERNMENT SUBSIDIES





# Subsidy title „Nová zelená úsporám“

Category of PV system	Requirements	The amount (CZK)
For water heating	Minimum 50% for hot water preparation	35 000
Without energy storage, with the use of excess heat	Total usable profit $\geq$ 1 700 kWh per year Minimum 70% of PV energy use in the house	55 000
With energy storage	Total usable profit $\geq$ 1 700 kWh per year Minimum 70% of PV energy use in the house	70 000
With energy storage	Total usable profit $\geq$ 3 000 kWh per year Minimum 70% of PV energy use in the house	100 000
With energy storage	Total usable profit $\geq$ 4 000 kWh per year Minimum 70% of PV energy use in the house	150 000



# Program „OP PIK“ (for companies)

- *OP PIK = Operational Program Enterprise and Innovation for Competitiveness*
- For PVP up to 1 MWp
- Minimum subsidy amount is 300 000 CZK (corresponding to the PVP of 20 kWp)
- The call is open until 30<sup>th</sup> of April 2018 (or until funds are exhausted)
- Possible overflows of solar electricity into the grid up to 30% of annual output
- Usual return of 7 years





# Program „OP PIK“ (for companies)

- The subsidy title: „**ÚSPORY ENERGIE – FVE systémy s akumulací/bez akumulace**“ (ENERGY SAVINGS – PV systems with/without energy storage) – 2<sup>nd</sup> call
- Receipt of grant applications: 2. 1. 2018 – 30. 4. 2018
- Allocation: 2 bln. CZK
- Beneficiaries: Business entities, small, medium and large
- Regional focus: The whole Czech Republic except of Prague
- Grant rate: 60-80 % of the eligible costs according to the size of the company (min. 300 000 CZK and max. 100 mill CZK)
- Supported measures: Installation of PV with or without battery system to cover the company's own consumption



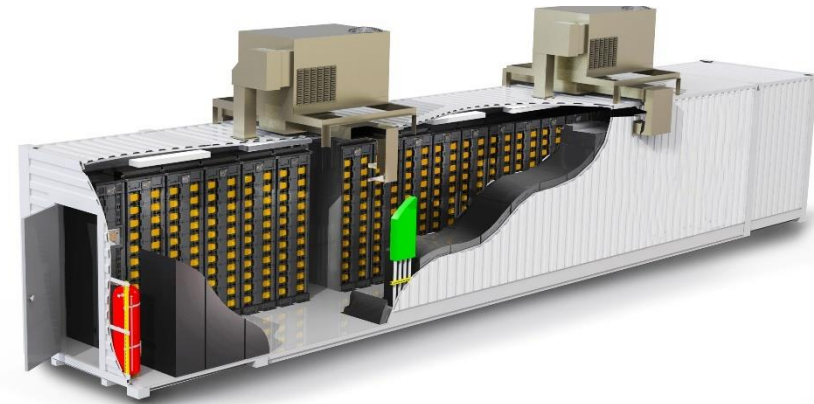
# 4. PV AND ENERGY STORAGE





# What are BESS\* used for

- Stability of grids
- Increasing energy security
  - Lower risk of blackouts
  - Fast start in case of blackout
- Use in ancillary services
- Financial savings
  - Charging and discharging according to the current electricity price
  - Reduction of payments for the so-called reserved output
- Reducing the imbalances of electricity traders
- **Easier integration of growing production of wind and solar power plants**
- Facilitating the growth of electromobility (greater demand on the capacity of the grid)
- Development of decentralized energy
- Off-grid solutions





# Existing BESS in the Czech Republic

## BESS Prakšice



- **Investor:** Solar Global
- **Supplier:** Alfen (NL)
- **Power:** 1 MW
- **Capacity:** about 1,2 MWh

## BESS Mydlovary



- **Investor:** E.ON ČR
- **Supplier:** Siemens
- **Power:** 1 MW
- **Capacity:** about 1,7 MWh



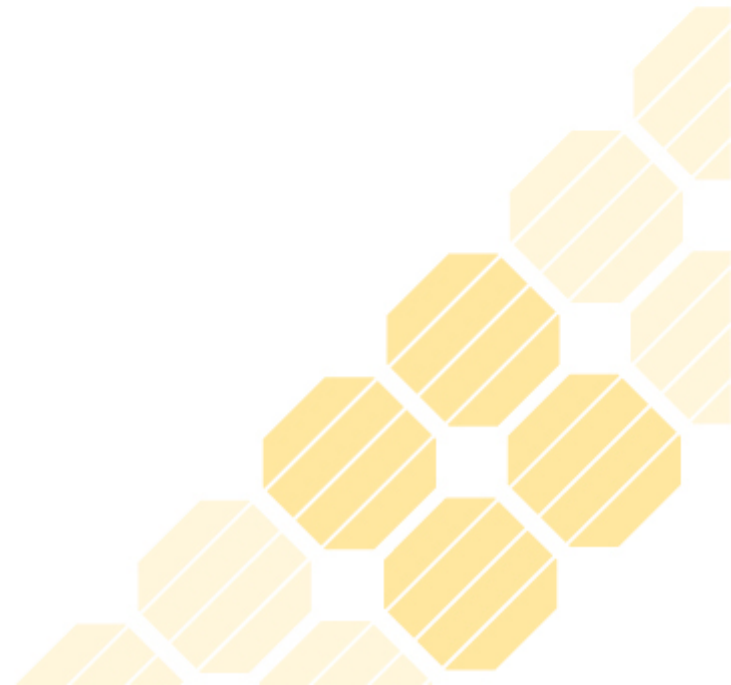


# Missing legislation

- Change to the Energy Act (MPO)
  - Implementation of energy storage
  - Definition of storage device (so far only batteries)
  - License
  - Rights and obligations of the BESS operators
  - Trading with stored electricity
- License (*ERÚ – Energy Regulatory Office*)
- Amending the Code of transmission system (*ČEPS – Czech TSO*)
- Compliance with EU legislation (WEP)



# 5. SOLAR MYTHS





# Myth no. 1 – Excessive profits?

## PV plants have too generous subsidies...

- Decision of European Commission: Support of PV parks is adequate
- The profitability of RES is comparable to other member states





# Myth no. 2 – Costs of 44 billion CZK?

## PV costs us 44 billion CZK a year...



- 44 billion CZK is the cost of all RES (water, wind, cogeneration, biomass, ...)
- PV support is about 26 billion CZK
- The support is received by 28 000 holders of PVP licences (the most widely used RES in the Czech Republic)



# Myth no. 3 – Bad conditions?

**Czech Republic does not have suitable climatic conditions and we can not do without coal...**



- PV is not able to cover 100% of the consumption
- Potential of all suitable roofs: electricity production from the sun 7 TWh/year = 1 Temelin reactor
- Suitable energy mix: combination of sun + wind (up to 12 TWh/year) + biomass
- BESS are key to increasing the usable energy of wind and sun



# Myth no. 4 – Environmental burden?



**The energy input into the solar panels will never return...**

- Energy rate of return of solar panels is up to 2 years in the CZ
- The service life of solar panels is at least 25 years, they actually reach up to 40 years with minimal decrease in efficiency



# Myth no. 5 – Higher electricity prices?

## PV has raised the price of electricity...



- On the contrary, prices of solar panels have fallen by incredible 60-70% since 2010 and are still falling
- In many markets, solar energy competes with conventional sources
- The solar boom was caused by incorrect market regulation, not technology prices
- Auction of new RES capacities



# Myth no. 6 – Problems in the grid?



## Intermittent sources are damaging the power system...

- The grid stability can be successfully addressed by energy storage systems (e.g. UK, Australia, BeNeLux, DE, ...)
- The current share of RES does not have significant impact on the grid





# Myth no. 7 – The threat of blackout?

## RES cause blackouts...



- All massive blackouts in Europe were caused by traditional energy sources or natural disasters
- So far, RES has not caused any blackout
- Decentralized energy is more resilient and local systems have survived during crisis situations



# Myth no. 8 – Land occupation?



## PV plants occupy good quality land...

- PV plants occupy less than 1% of agricultural land
- On top of that, PV does not depreciate the land at all (possible reuse for agricultural purposes)



# THANK YOU FOR YOUR ATTENTION

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