# REVIEW OF THE ACHIEVEMENTS IN CZECH **REPUBLIC**



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### **BARRIERS TAKEN INTO ACCOUNT**

- National legal Framework & policies
  - Legislative for consumer **protection**
  - Ownership of technology operation and development
  - **Sharing** energy and community ownership principles
- Ensuring the correct and efficient use of technologies (economic, environmental)
  - Energy **production**, **storage**
  - Energy **efficiency**
  - Demand response































### POINTS TO REMOVE NATIONAL BARRIERS

- Amendment to **legislation only in the form of a proposal**
- Several working groups established / legislators work underway
- Major discussions related to:
  - whether to introduce lower distribution tariffs for "Mieterstrom" models
  - which stipulations put into law and into decrees
  - how to incorporate new legal entities into electricity market (which is to be "upgraded" by central datahub from 2024 onwards)

















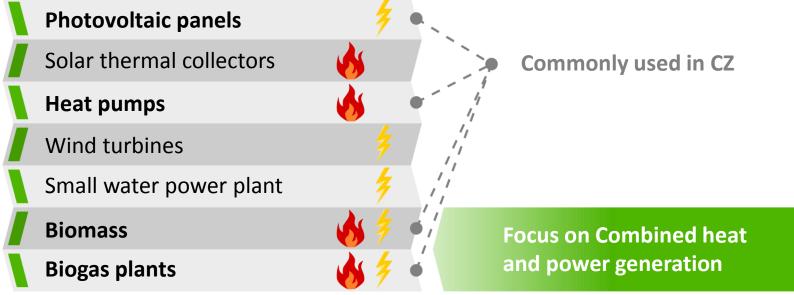






### **SELECTION OF RENEWABLES**

Systems based on renewable energy technology



Other technical solutions:

(Waste) Heat recovery





















### PERSPECTIVES FROM THE CZECH REPUBLIC **ENERGY COMMUNITY OF PŘEŠTICE**





























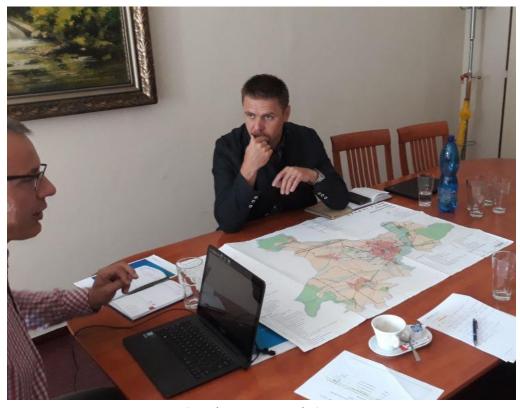
# **PŘEŠTICE - AT THE START**

Southern Bohemia Population of 8,000

Meeting 08/15/2022



- Presentation of the Draft of Feasibility Study for the City
- Getting to know the next steps
- Exchange of necessary information and data



Meeting the mayor and vice-mayor



















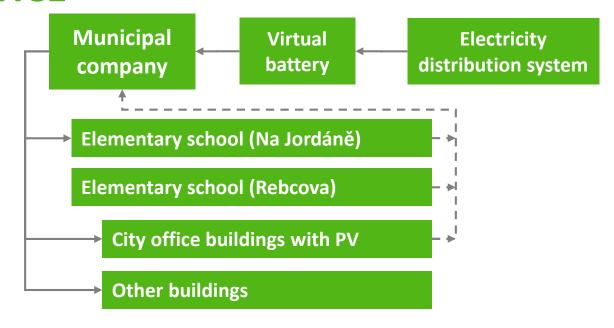




### PRACTICAL EXAMPLES - PŘEŠTICE The

The power supply system:

- ☐ The proposed structure of electricity management is assumed to be the same as used in one of the first and pilot projects in the Czech Republic.
- Two buildings already have PV plants installed
  - Na Jordáně
  - Rebcova
- Additional objects will be selected



- The municipality is the founder of a municipal company that produces electricity and supplies it to its customers.
- The municipal company is the only supplier of electricity to its customers.
- Electricity is produced on site by technologies managed by the municipal company









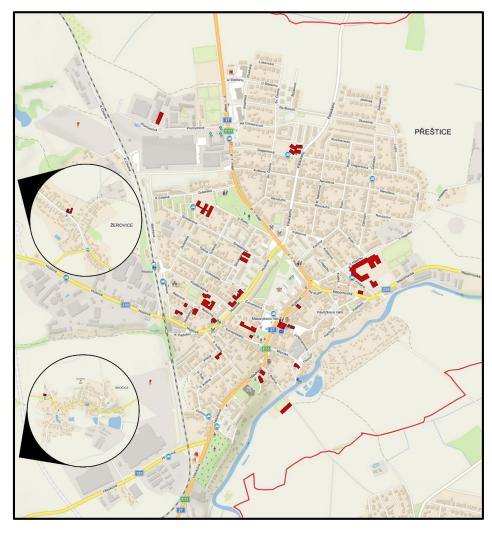








- Objects selected for connection to the energy community
- Verification of the suitability of the object
  - Type of object
  - **Energy consumption**
  - potential energy production



Location diagram of objects in the city:



















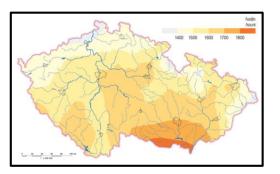


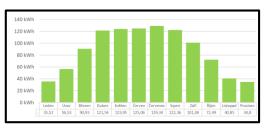


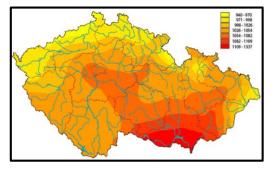
- Determination of the possibility of PV power production
- Evaluation of each object
  - Determination of the usability of the building areas
  - Orientation
  - Roof plane slope
- Considering different types of PV panels
- Accounting for PV panel efficiency

Číslo	Označení objektu	Adresa		kWh/rok pro 1kWp	roční odchylka	kWh /(m2.rok)	MWh/rok	
1	Radnice	Masarykovo námě	stí 107	1 037	60	1 302	162,75	
				924	53	1 163	69,78	
2	MěÚ Husova	Husova 465				1 232	24,64	
						1 234	37,02	
3	MěÚ + Knihovna	Husova 1079		1 054	65	1 320	264,00	
4	DPS	Máchova 556		1 022	58	1 183	44,95	
5	KKC + U <u>Přeška</u>	Masarykovo námě	stí 311	1 030	61	1 292	155,04	
				900	53	1 134	113,40	
6	DHP	Třebízského 24		871	43	1 105	8,84	
7	Depozitář DHP	Hlávkova 22		970	62	1 216	60,80	
8	Středisko volného času Slunečnice	Rebcova 499		938	60	1 179	58,95	
9	Hasičská zbrojnice	Mlýnská 1123		1 012	55	1 273	89,11	
10	Veřejné WC	Veleslavínova 1318	8	753	40	963	23,11	
11	Občanská vybavenost	Žerovice 41		941	58	1 184	59,20	
12	кčт	V Brance 1344		1 000	62	1 264	189,60	
13	ZŠ Na Jordáně	Na Jordáně 1146		996	65	1 247	187,05	
						4040	455.00	
	13 Z3 N8	jordane i	va jordar	IC 1140		996 6	5 1 24	

				000		4040	455.00	
_		13	25 Na Jordane	IVa Jordane 1146	996	65	1 247	187,05
	-×				986	56	1 240	155,00
14	ZŠ Rebo				945	47	1 193	298,25
15	Školní jí	14	ZŠ <u>Rebcova</u>	Rebcova 386	938	60	1 179	141,48
16	ZŠ + MŠ	15	Školní jídelna	Na Jordáně 1146	1 020	66	1 276	319,00
17	MŠ Duk	16	ZŠ + MŠ Skočice	Skočice 98	1 050	62	1 316	78,96
18	MŠ Gag	17	MŠ Dukelská	Dukelská 959	1 054	65	1 320	1 320,00
19	ZUŠ	18	MŠ Gagarinova	Gagarinova 202	1 054	65	1 320	1 056,00
		19	ZUŠ	Poděbradova 1027	1 054	65	1 320	158,40
20	Dům ob vybaven				1 054	65	1 320	126,72
	Dům oh	20	Dům občanské vybavenosti (zubaři)	Masarykovo náměstí 104	1 054	65	1 320	52,80
21	vybaven				1 054	65	1 320	31,68
	záchran	21	Dům občanské vybavenosti (lékaři,	Sedláčkova 553	4.054	65	4 222	50.05
22	Dům ob		záchranná služba)		1 054	58	1 320	63,36
22	vybaver	-	Dům občanské		920	58	1 158	46,32
23	Sběrný e	22	vybavenosti (lékaři)	Husova 760	956	59	1 202	72,12
24	Vishay				1 016	56	1 276	102,08
25	Prodein	23	Sběrný dvůr	Průmyslová 454	927	51	1 171	175,65
-/-		24	Vishay	Mlýnská 1095	1 054	65	1 320	323,40
		25	Prodejna	Veleslavínova 309	753	40	963	28,89
		26	Pizzeria	Veleslavínova 310	753	40	963	30,82
		27	Hostinec <u>Žerovice</u>	Žerovice 127	1 039	60	1 303	93,82
		28	Bytový dům + provozovny	Rybova 287	998	62	1 252	140,22
		29	Bytový dům	Slovenská 1048, 1049	960	50	1 213	121,30
		30	Bytový dům	Slovenská 1050, 1051	960	50	1 213	121,30
		31	Bytový dům	Nepomucká 294	1 045	62	1 310	98,25
					College's pos	onciální vák	on [MWh/rok]	6 704,06







Calculation of electricity generation potential:

















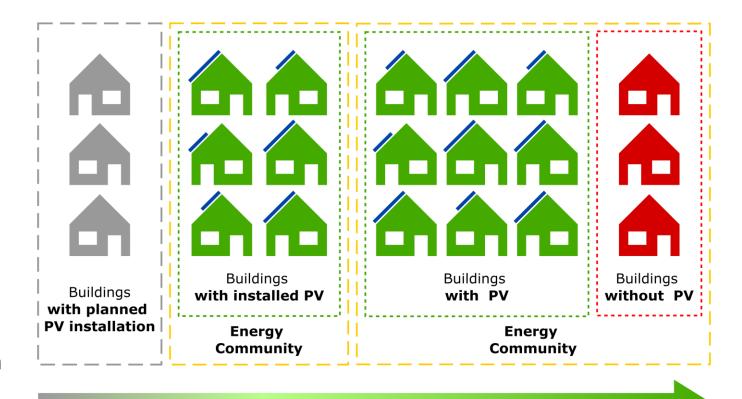








- **Establishing phases for engaging** objects in the energy community
- Phase I
  - Connection of buildings with installed PV or planned installation of PV
- Phase II
  - Connection of buildings without PV
  - Facilities selected based on community energy balance



The phased establishment of the Energy Community reduces risk and increases efficiency















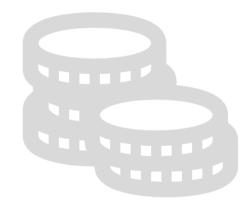






#### Study chapters in the process of completion

- Creation of a timetable for the financing of the individual phases of the project
- Determination of the necessary funding for the implementation of cost-saving measures
- Proposed financing
- Determining the use of subsidy titles



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#### Next steps to complete the feasibility study

- More detailed data has been requested and arranged
  - More detailed energy consumption data can be used to model the energy community more accurately
- Prioritizing buildings for energy community engagement in partnership with the city
- Validate the energy community model using data from existing PV systems
- Presentation of the Feasibility Study to the city representatives





















## PERSPECTIVES FROM THE CZECH REPUBLIC **ENERGY COMMUNITY OF TÁBOR**





























### TÁBOR – 1. STEPS

Southern Bohemia Population of 34,000

☐ The city deals with the possibilities of energy communities

Many surveys and data collections have been carried out

- List of buildings in the city administration (210 buildings) is created
  - Building **evaluation criteria**: suitability of the PV plant installation (location, roof, orientation, possibility to use energy at the place of production)
- Energy supply organization already exists
  - BYTES s.r.o.



















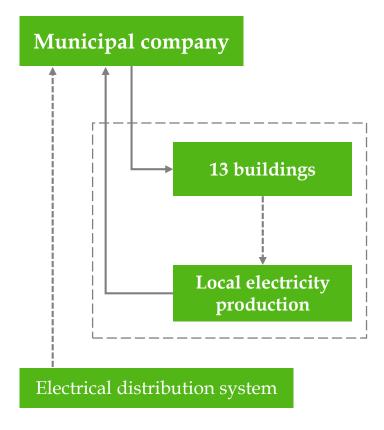




### PRACTICAL EXAMPLES – TÁBOR

- Southern Bohemia ₱ Population of 34,000
  - Meeting 1/13/2022
  - ☐ The city has identified 13 Buildings for the installation of PV power plants
    - feasibility studies are in progress for each building
    - grants are expected
  - ☐One of the buildings is an apartment building for social housing
    - A good example for the public

#### Design of power supply system:



















# PERSPECTIVES FROM THE CZECH REPUBLIC **ENERGY COMMUNITY OF ČESKÉ BUDĚJOVICE**





























# **ČESKÉ BUDĚJOVICE - THE EPC PROJECT IN PROGRESS**

- 10 areas
  - 6 elementary schools
  - 2 kindergartens
  - 2 retirement homes



EPC

- comprehensive energy measures
- All 10 buildings with the PV installation
- PV power plants installation
  - Installed power 1 126 kWp
  - **Expected production 1063MWh**
  - Own consumption 491 MWh\*

















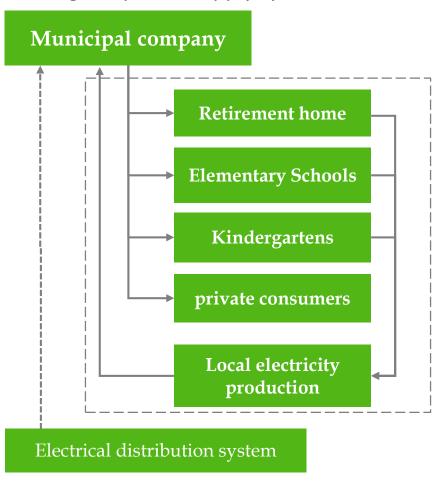




### THE FOLLOW UP STEPS

- PV plant installation **2024**
- Creating an energy community within these 10 buildings
  - municipal contributory organization for energy management – **2025**
- Extension of the energy community
  - Involvement of private consumers in the energy economy - **2026**
  - Installation of new PV power plants 2026

Design of power supply system:























## LONG-TERM VISION OF ECS CONCEPT IN ČESKÉ BUDĚJOVICE

Estimated annual production and consumption of energy produced from PV power plants

Production **1163** MWh Consumption **1163** MWh

Consumption **1800** MWh

Production **1800** MWh

Production **1163** MWh Consumption **491** MWh

The energy produced and the energy consumed are equal in the estimates, because it will be evaluated from the annual balance and not from the immediate production and consumption.

**Construction of PV** power plants on the buildings of the city České Budějovice

**Establishment** of an energy community (consumption within 10 objects)

**Enlargement** of the energy community (new PV power plants + *private consumers)* 





















## PERSPECTIVES FROM THE CZECH REPUBLIC **CURRENT EVENTS IN LEGISLATION**































### **AMENDING ENERGY ACT**

- Pressure to react on current events including boosting energy communities
- More amendment threads ongoing
- ☐ Ministry of Industry and Trade proposes to increase the limit for PVE without license
- Energy Regulation Office aims to codify conditions for energy communities (details not known yet)
- Directives 2018/2001 RES and 2019/944 RED II not transposed so far

























## THANK YOU FOR YOUR ATTENTION

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