Solar energy in the Czech Republic: Experience 2000- 2022

The Clinic Workshop "Renewable Energy in Central Asia: Potential for Small- and Medium-sized Solutions" Almaty, 19 May 2022

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Content of presentation

- Solar energy – facts and figures
- Policies
- Instruments to support solar energy

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Facts and figures: Shares of renewable energy in electricity generation in 2019 (%)

Source: IEA	World	OECD	EU	USA	China	Czech Republic
Biofuels	2.0	2.6	5.4	1.3	1.5	5.7
Hydro	16.0	13.6	10.9	7.1	17.3	3.6
Geothermal	0.3	0.5	0.2	0.4	0	0
Solar PV	2.5	3.1	4.1	2.1	3.0	2.7
Wind	5.3	7.4	13.3	6.8	5.4	0.8
Tide	0	0	0	0	0	0
Renewable waste	0.1	0.3	0.7	0.2	0	0.1
Total	16.2	27.5	34.6	17.9	27.2	12.9

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Facts and figures: Share of renewable energy in electricity generation in the Czech Republic (%)

Source: IEA	1990	1995	2000	2005	2010	2015	2020
Biofuels	0	0.7	0.7	0.9	2.5	5.6	6.3
Hydro	2.3	3.7	3.1	3.7	3.9	3.7	4.2
Geothermal	0	0	0	0	0	0	0
Solar PV	0	0	0	0	0.7	2.7	2.7
Wind	0	0	0	0	0.4	0.7	0.8
Tide	0	0	0	0	0	0	0
Renewable waste	0	0	0	0	0	0	0.1
Total	2.3	4.4	3.8	4.6	7.5	12.7	14.1

Rapid growth in biofuels, solar PV and wind after 2005.

(Solar generation of heat is negligible)

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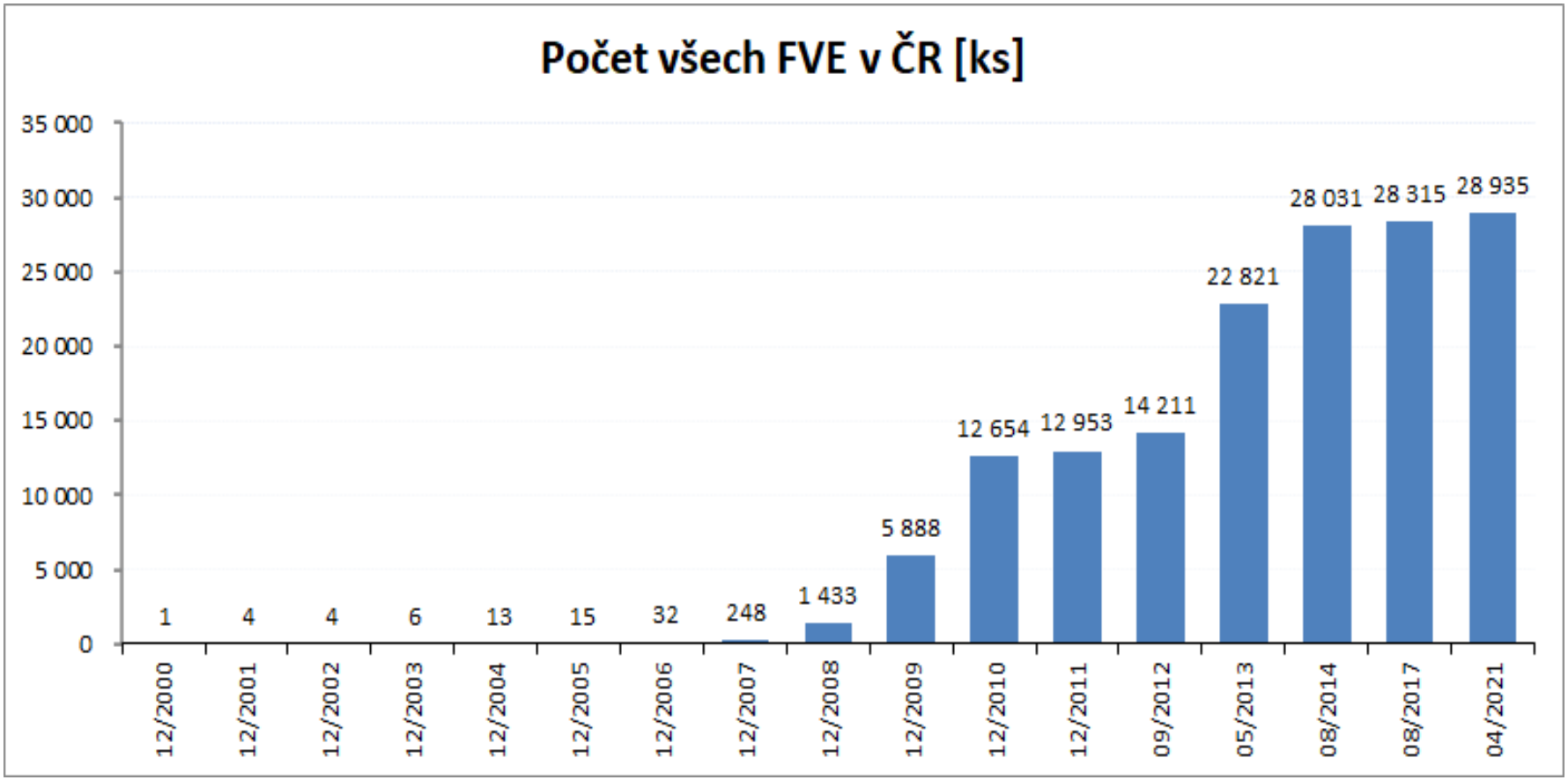
Facts and figures: Solar electricity in the Czech Republic - 1



Number of photovoltaic plants 2000 - 2021

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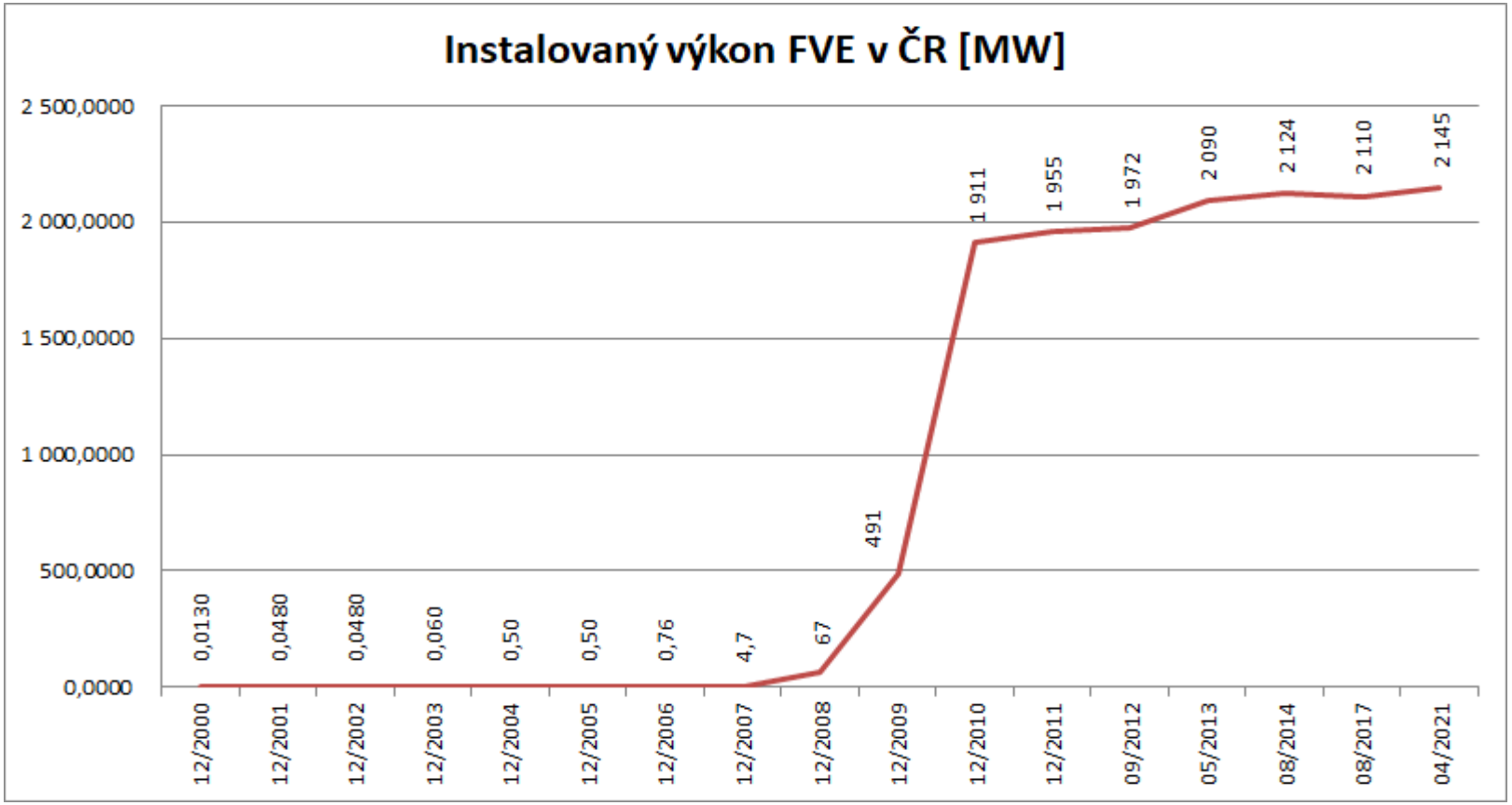
Facts and figures: Solar electricity in the Czech Republic - 2



Installed capacity of photovoltaic plants (MW) 2000 - 2021

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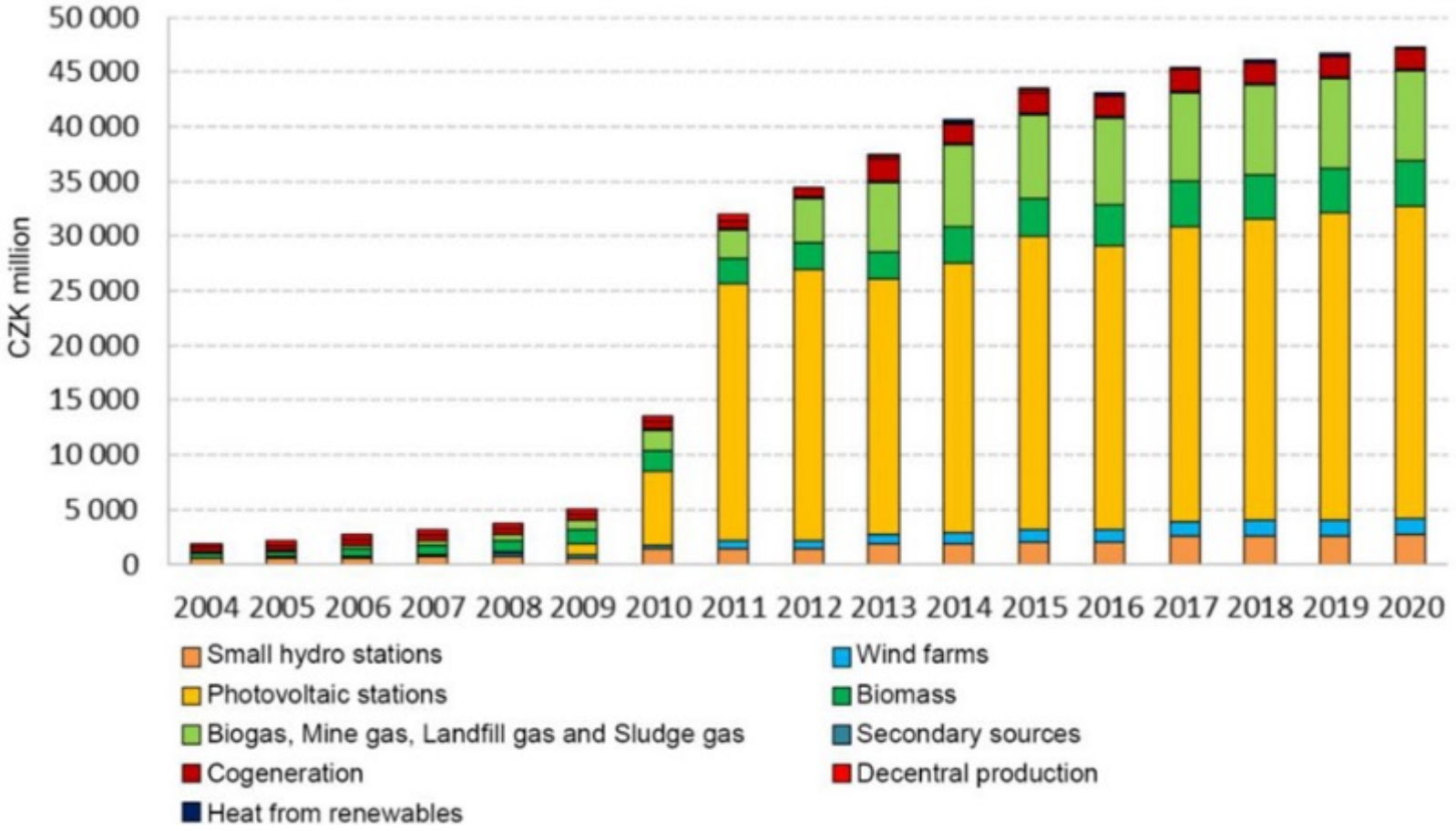
Facts and figures: Historical cost of existing operating support for SES (2004–2020)



1 EUR = 25 CZK

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Facts and figures: Map of PV power plants in the Czech Republic

Targets

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Facts and figures: Top five PV power plants in the Czech Republic

FVE Ralsko Ra 1, 55.8 MW

FVE Vepřek, 35.1 MW
FVE Ševětín, 29.9 MW
VE Brno - Letiště Tuřany, 21.2 MW
FVE Mimoň Ra 3, 17.5 MW

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EU targets for the Czech Republic

Targets at national level - shared but differentiated committments based on available renewable potentials.

The 2020 target:

- **13 % share of energy from renewable sources in gross final consumption of energy (reality 17.3 %)**

The 2030 target:

- **22% share of energy from renewable sources in gross final consumption of energy in 2030 share of energy from renewables (the European Commission recommends at least 23.7 %)**

The European Commission proposed on 14 July 2021 to increase the current target from 32 % to at least 40 % renewable energy sources in the EU's overall energy mix by 2030. The proposal is now with the European Parliament and the Council.

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National Energy and Climate Plan of Czechia 2021-2030 (NECP)

Expected development of RES in the electricity generation sector

Consumption	Unit	2016	2020	2025	2030
Biomass	TJ	7 443,9	7 899,7	8 607,8	8 988,4
Hydro		8 205,5	6 923,0	7 041,8	7 149,8
Waste (renewable)		354,8	432,8	1 354,4	1 603,8
Biogas stations		9 320,5	9 469,5	9 019,8	6 013,5
Geothermal energy		0,0	152,1	152,1	404,1
Wind power plant		1 867,1	2 424,8	4 147,3	6 459,7
Photovoltaic power plants		7 673,2	8 050,8	10 092,9	15 077,1
Total renewables		34 865,0	35 352,7	40 416,0	45 696,4
Share of photovoltaic	**%**	**22.0**	**22.8**	**25.0**	**33.0**

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Potential for renewable energy (by Charles University, Prague)

In the **Conservative Scenario**, the increments of the installed capacity of photovoltaic sources (PV) by 2030 reach **several hundreds of MW** and the greatest development is predicted for rooftop PV systems (approximately 115 MW in 2030).

In the **NECP Scenario**, the installed PV capacities will increase to a total of **3.935 MW**.

In the **Modernization Scenario**, large and industrial PV power plants in particular are being developed up to a total of **4.751 MW** in 2030. In the **GHG55 Scenario**, the development of the installed capacity of renewable electricity is the same as in the Modernization scenario.

The **Green Scenario**, with an uncapped volume of investment support for renewables, leads to the massive development of PV. By 2030, the installed capacity will increase by 9.617 MW large, 666 MW industrial and 84 MW rooftop PV systems. The total installed capacity in the Green Scenario in 2030 will therefore reach **12.454 MW** of PV systems.

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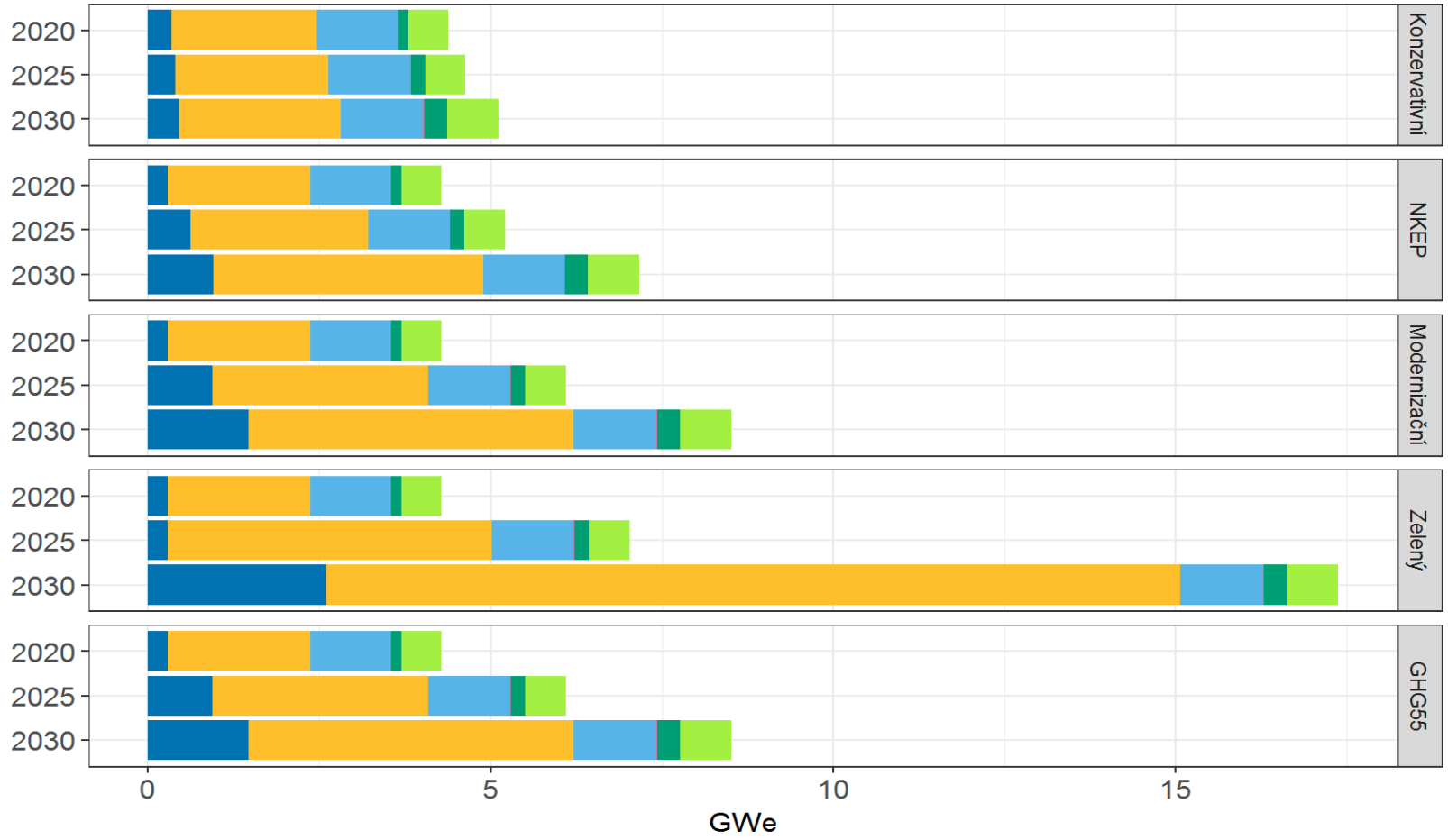
Potential for renewable energy (by Charles University,Prague) photovoltaics in orange colour



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Most important existing policies on photovoltaic energy

- Indirect support (reduction of administrative requirements, mandatory assessment of installation, guarantees of origin of energy, spatial planning)
- Operating support (feed- in tariff or green bonus)
- Investment support – (State programs, EU operational programs)
- Tax instrument (tax exemption, reduction or refund)

- Problems with over-compensation occurred in the past („solar barons“)
- Total cost of electricity includes payment for renewables: Appr up to EUR 21 per MWh (around 10 % of total cost)

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Policies to ensure the achievement of renewable energy target by 2030

The selected „pro-market“approach is a comprehensive solution for the new support setting in the period 2021–2030 for the development of new RES sources as well as for the maintenance of energy-efficient plants that are currently in operation.

- modification of the current form of support for small sources up to 1 MW, where the support will no longer be used in the form of feed-in tariffs, but only in the form of an hourly green bonus.
- Introduction of support through competitive tenders (auctions) for sources above 1 MW.
- Introducing a new form of support so that some existing sources can be maintained in operation and some other new sources can develop (high participation of EU funding is expected).

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Thank you!

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