IEO ec brec
Institute for Renewable Energy

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

# Solar Energy Success Stories of Polish municipalities

## Succesfull implementation of photovoltaic projects within EU framework

*Grzegorz Wiśniewski & Albert Pawłowski, IEO*

# EU Pre-accession financial support *(started before 2004)*



- Phare - Poland and Hungary: Assistance for Restructuring  Economies (1989)
- ISPA - Instrument for Structural Policies for Pre-Accession (1999)
- SAPARD - Special Accession Programme for Agriculture and Rural Development (1999)
- IPA – Instrument for Pre-accession Assistance (2001)

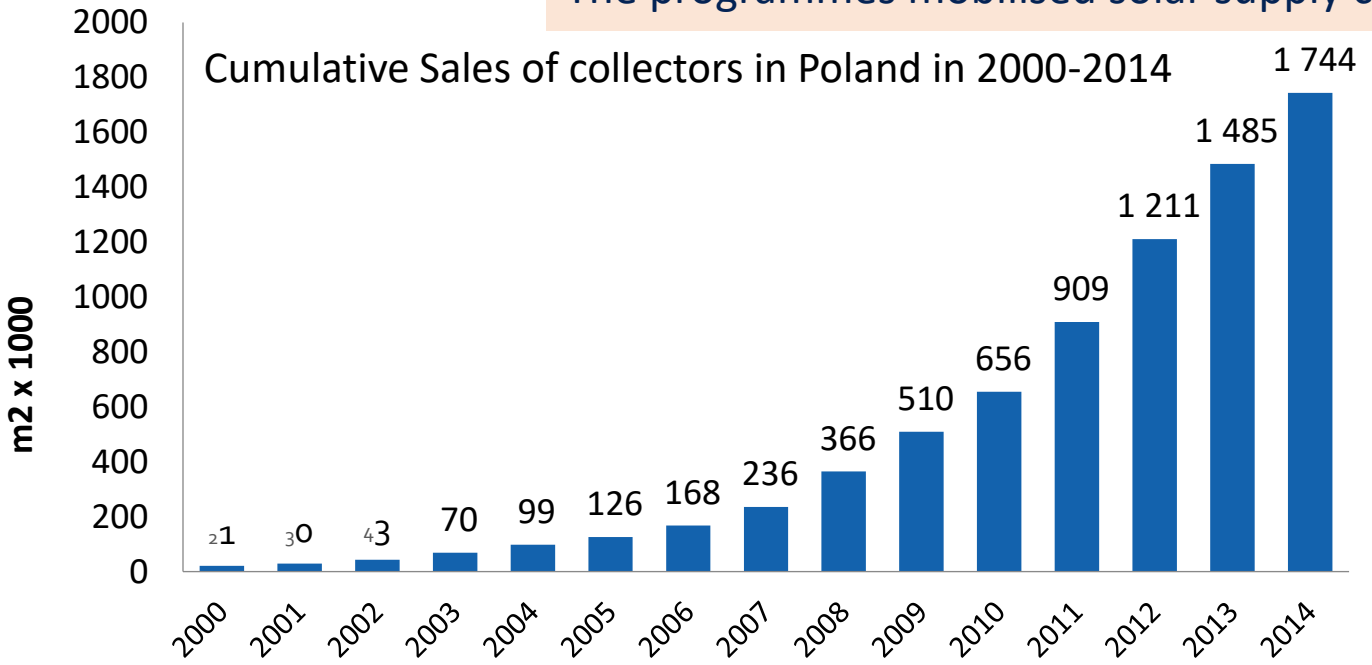
# 1st success story - solar thermal collectors in Poland

EU pre-accestion funds boosted the development of **solar thermal collectors** (for domestic tap hot water in 2000-2008.

After EU accession the solar collectors were supported by other EU Funds, distributed by regions and municipalities

In 2010 a national subsidy program for the purchase of solar collectors was launched by the National Environmental Protection Fund (€ 112 million, 45% subsidy). In the years 2010-2014, more than 40% of the installations were subsidized by this program.

The programmes mobilised solar supply chain: manufactures, distributors, installers, banks.




In 2014 te subsidy program for the purchase of solar collectors was replaced by the „**Prosument" program** (for prosumers), which was the stimulus for the development of **photovoltaics** in Poland.

Administration, municipalities and installers benefited from the experiences from solar collectors programs.

# EU post-accession and national support for solar energy



- Infrastructure and Environment Program (2014-2020) 120 mln € (centrally distributed )
- **Regional Operational Program (2014-2020) 990 mln €** (regionally distributed )
- EEA Norway Grants (2009-2014) 580 mln € (centrally distributed)
- **Swiss Contribution (2007-2017) 500 mln € (regionally distrubutted)**
- National programme „My Power", successor of „Prosument" programme, partly co-finance from EU financial mechanism –Modernisation fund ) **€ 320 mln** (centrally distributed)

# EU Regional and Central Programs 2014-2020 for solar energy



| ***Results of EU regional & central programs 2014-2020*** *(as of Dec. 2021)* | |
|---|---|
| **Total installed capacity (estimated)** | 1261 MW |
| **Total investments cost (estimated)** | € 1560 million |
| **Total funding allocation(app. 60-80% of CAPEX)** | € 950 million |

Data both solar technologies:

- for solar pphotovoltaics (app. 75% of the total)
- for solar thermal (app. 25% of the total)

# The role of microfinancing for prosumers development



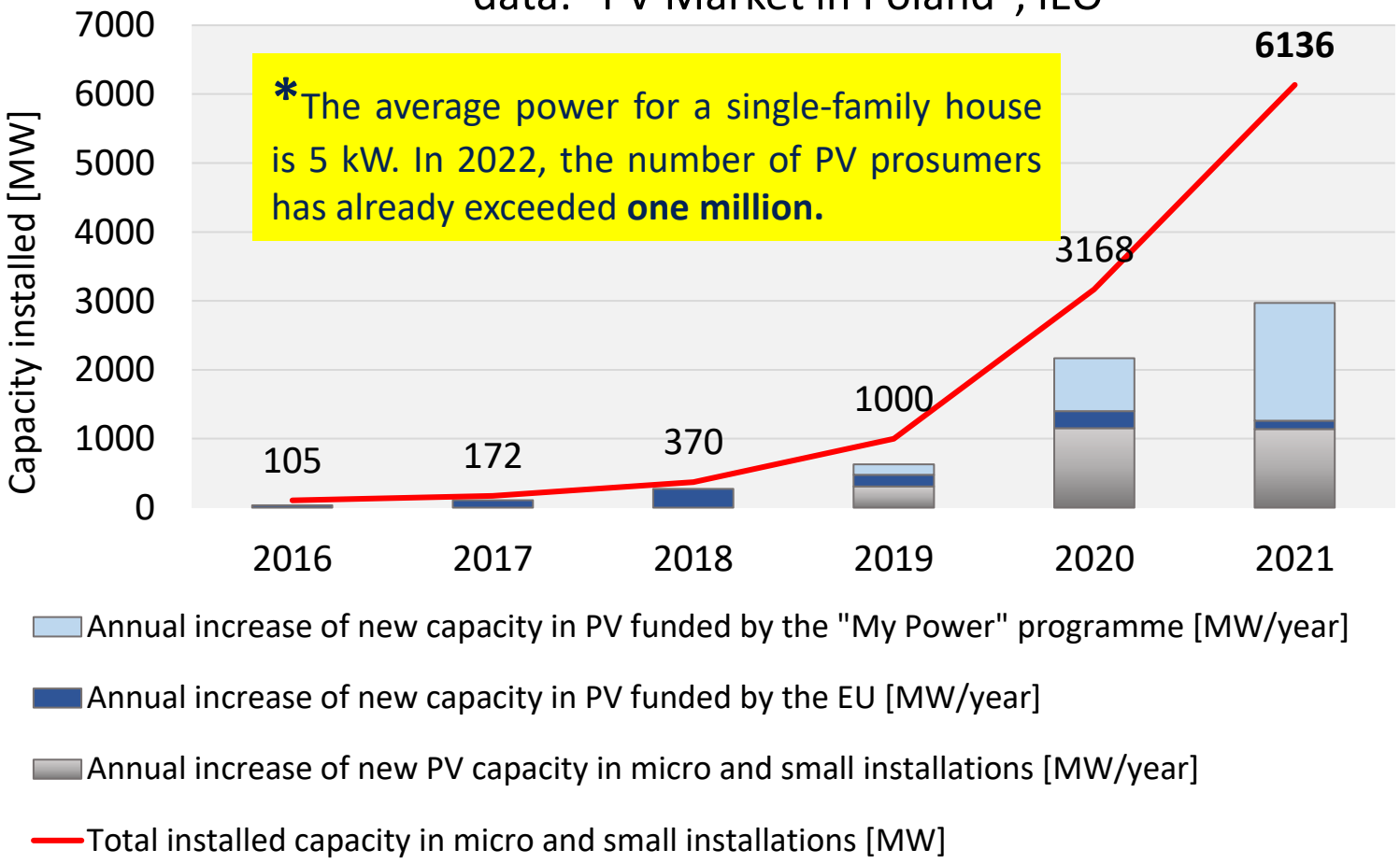
Beneficiaries of PV microinstallations **(<50 kW, net-metering)** financing by national program „My Power": households (only)*

Beneficiaries of PV microinstallations **(<50 kW)** financing by EU regional programs:

- **municipalities (63%)** -often use their funding to support households* (**aggregated/collective projects**)
- small enterprises (18%)
- large enterprises (8%)
- NGO (1%).

Companies (SMS) are **excluded from net-metering** investing both in **micro (>50kW)& small (50-500 kW)** installations are **partly finance by EU regional programmes** and on commercial base

Total and annual capacity installed in PV microinstallations data: "PV Market in Poland", IEO



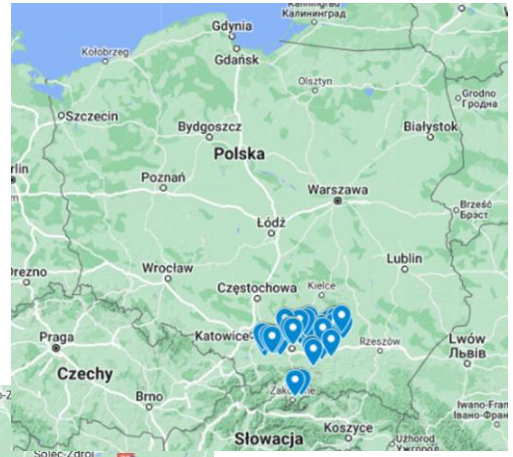
# How to build million PV small installations in short time? - Case study I – EU regional fund in Małopolska Region (1)

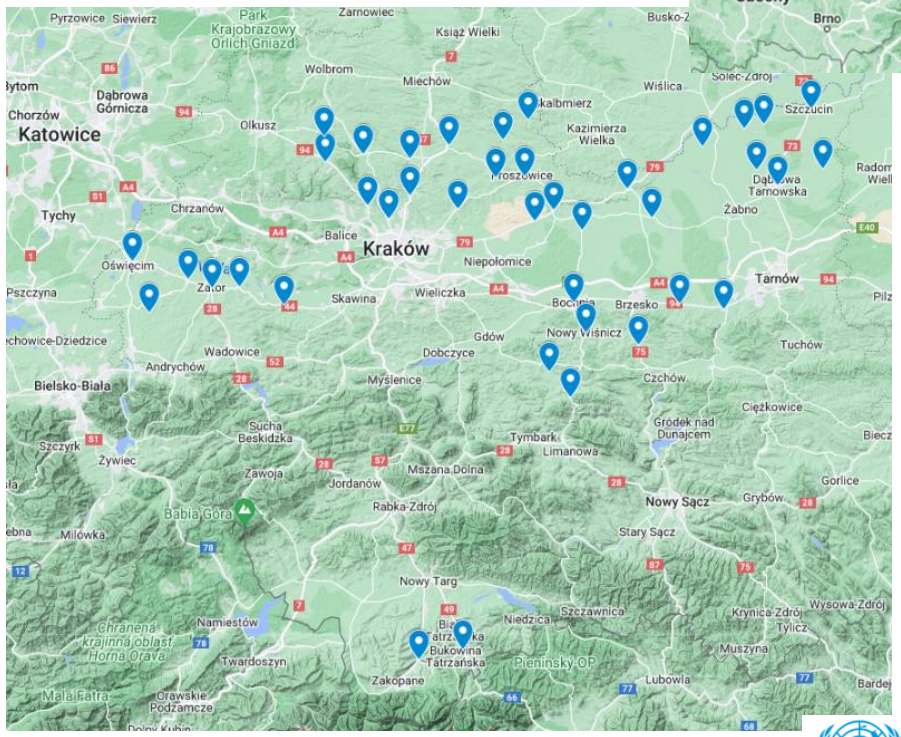


Example of one of latests projects 2020-2021

- 31 communities (lead by Kocmyrzów-Luborzyca minicipality
- **10 mln euro**
- 85% co-financed with EU regional fund
- **Photovoltaics (PV) (2338 houses)**
- Solar collector (815 houses)
- Heat pumps, biomass boilers

Success story in microfinancing – collective projects in one or a dozens of municipalities



# How to build million PV small installations in short time - Case study I – EU regional fund in Małopolska Region (2)

Collective renewable energy projects reduce the transaction costs, assure high quality (procurement) but required skilled installers (EPC) companies

Source: sanito

# Collective climate and renewable energy action - Case study II – Swiss Contribution for 4 regions, 2011-2016 (1)



**8 agregated projects for RES systems on public and private buildings** (mainly PV + solar thermal)

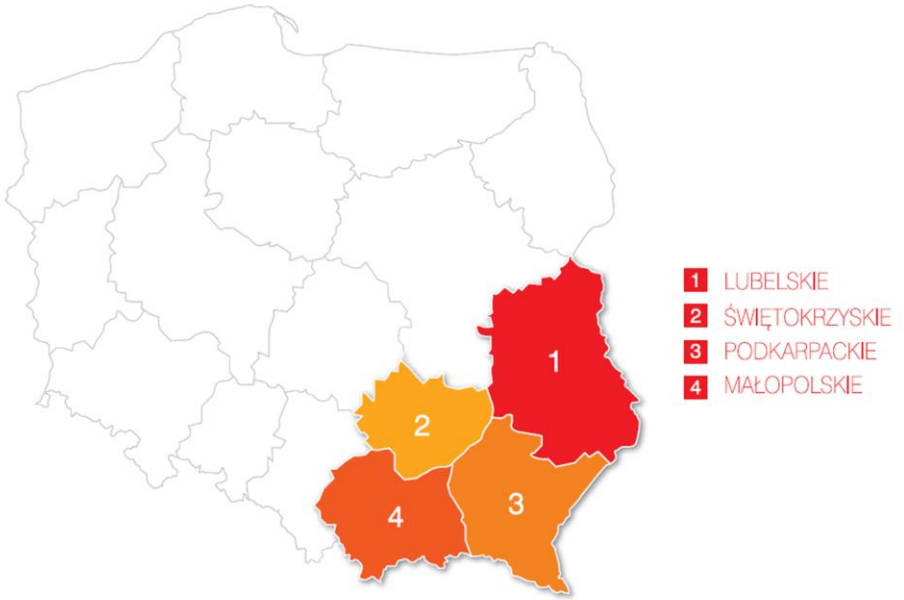
circa **17,000** ..... **households**

circa **200** ..... **public buildings**

circa **45** ..... **communes**

**140,990 CHF** ..... **total budget**

**101,983 CHF** ..... **Swiss contribution**




Example of one of the collective projects operators (agregator):

ASSOCIATION OF THE WISLOKA RIVER BASIN COMMUNES (region No 4, Małopolska)

# Collective climate and renewable energy action - Case study II – Swiss Contribution for 4 regions, 2011-2016 (2)

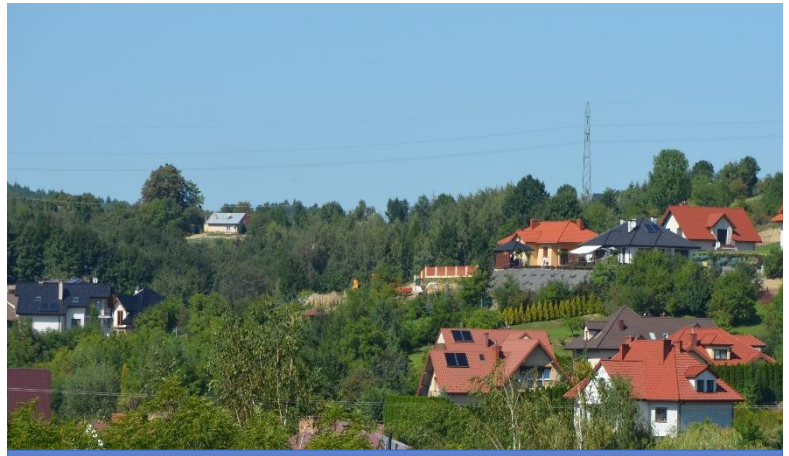


## Association of the *Wisloka River Basin Communes*

- Successful transformation through consistent cooperation despite political differences
- Work with municipalities to protect the environment in the podkarpackie region bringing together 22 mayors to tackle Environmental degradation and air pollution
  - 22 municipalities from southern Poland
  - 308,000 inhabitants, 2000 km2
  - Operator of RES projects (approx. 115m EUR, including Swiss Contribution)

# Collective climate and renewable energy action
# - Case study II – Swiss Contribution- Wisloka River Basin Communes (3)





SOLAR SYSTEMS ON OVER **10.500** PRIVATE HOUSES

**150**+ OF OUR PUBLIC BUILDINGS USE SOLAR ENERGY

SOLAR ENERGY FOR A PUBLIC SPORTS CENTRE IN DĘBICA

PHOTOVOLTAIC ROOF ON A SWIMMING POOL IN JASŁO

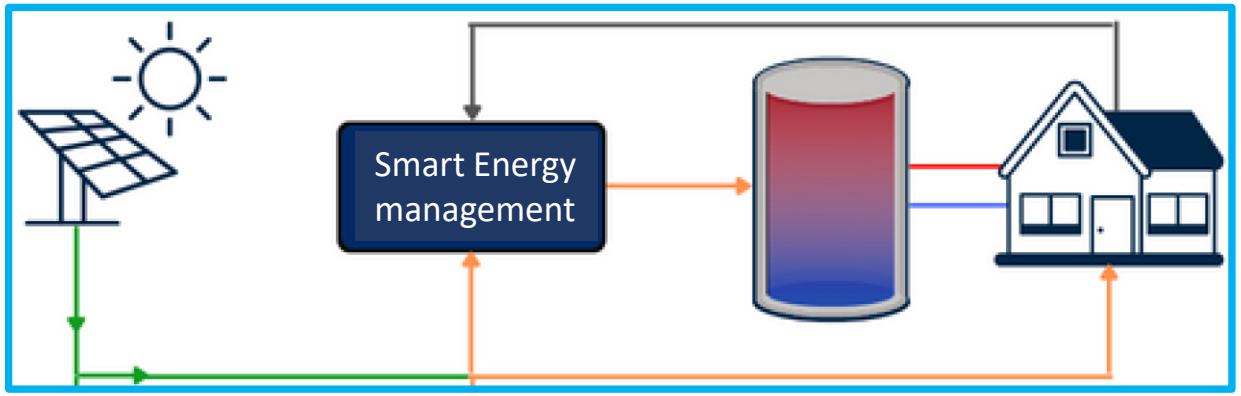
PVs AS A ROOF OF A LOCAL MARKET – ELECTRICITY AND SHADE

PUBLIC HOSPITAL IN JASLO WITH SOLAR COLLECTORS

# Collective climate and renewable energy action
# - Case study II – Swiss Contribution Wisloka River Basin Communes (4)

Example of innovative project for cities and sites with „hot islands" and over sun radiation

# Collective climate and renewable energy actions
# - Case study II – Swiss Contribution Wisloka River Basin Communes (5)




## Example of innovative project build on the experiences in participation in collective PV project

Family house in Bączal Dolny with photovoltic installation subsidized by Swiss Contribution

Plus:

- heat pump supported by PV
- Innovative heat storage -demonstration supported by EU program for Innovation (Horizon'2020-2023) ComBioTES project)

➢ Heat storage is helpful in migration from **net-metering** settlements for prosumers for **ne-billing** (more about settlements for prosumers -next presentation)

# Lesson learned in PL for potential for exploring of collective municipal projects in GE

# Key policies that can make successfully boost Solar PV at municipal level

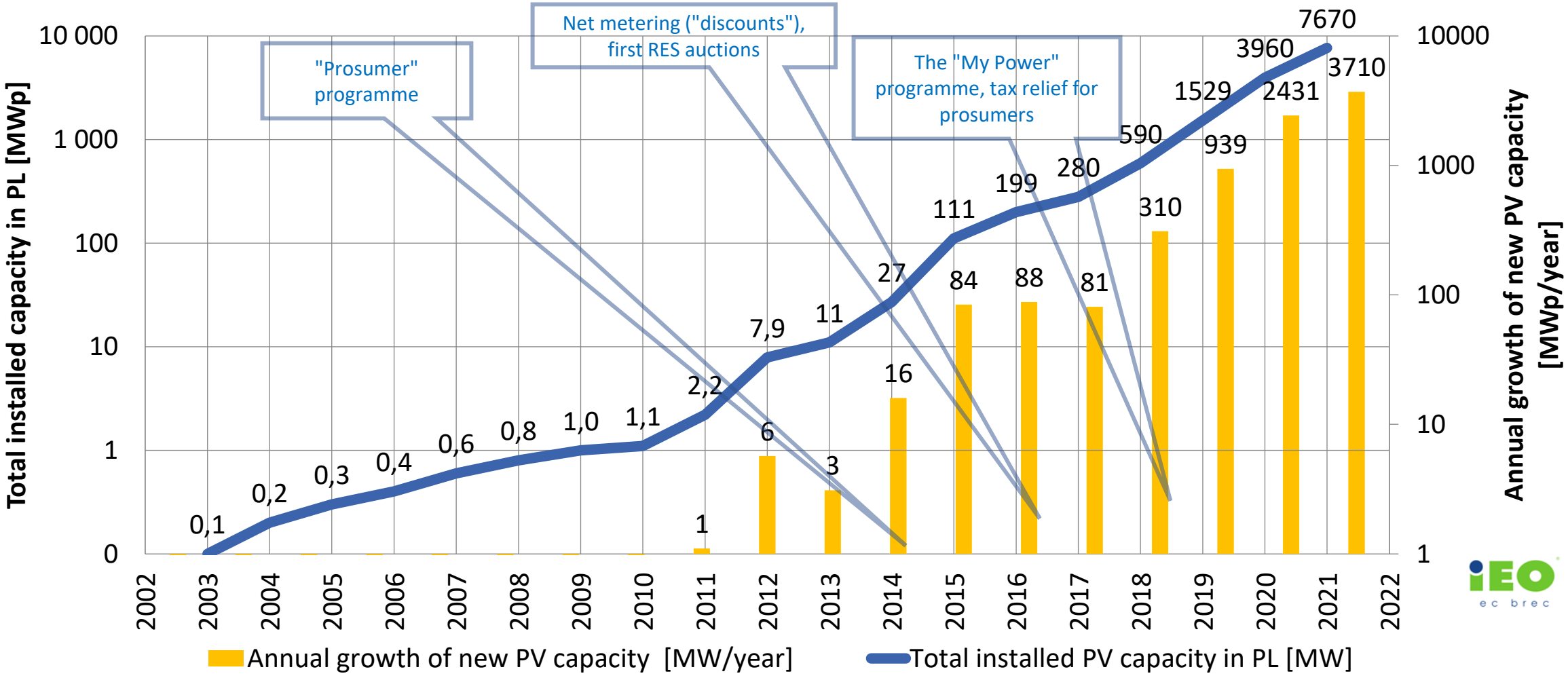


- ✓ To **start form simple projects** (solar thermal, smaller scale PV, small portfolios)
- ✓ Collective PV projects through coordinated actions brings **consistent approach to project implementation and unified standards**
- ✓ Collective approach increasing the impact of interventions and facilitating winning funding- **donors appreciate the scale of the impact** and experience of the leader
- ✓ Clustering of solar projects significantly **support smaller municipalities** that struggle with capacity, expertise and leverage, and significantly contribute to the effect of scale and education
- ✓ One contractor, significantly lower costs, **unified high quality** (procurement and control)
- ✓ Multiplied local climate and RES actions **boost (and learn) supply chain**: technology providers, installers, mobilize finance and helps in scaling up.

# The important added value of the Polish PV boom



**PV industry in 2021:**

- Over 10,000 companies
- Over 40,000 employees

# Local actions contributing to national results