



## PV in Norway

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61<sup>st</sup> Task 1 Meeting [Adelaide, Australia]



# What is IEA PVPS?



- The International Energy Agency (IEA), founded in 1974, is an autonomous body within the framework of the Organization for Economic Cooperation and Development (OECD).
- The Technology Collaboration Programme was created with a belief that the future of energy security and sustainability starts with global collaboration. The programme is made up of thousands of experts across government, academia, and industry dedicated to advancing common research and the application of specific energy technologies.



# What is IEA PVPS?



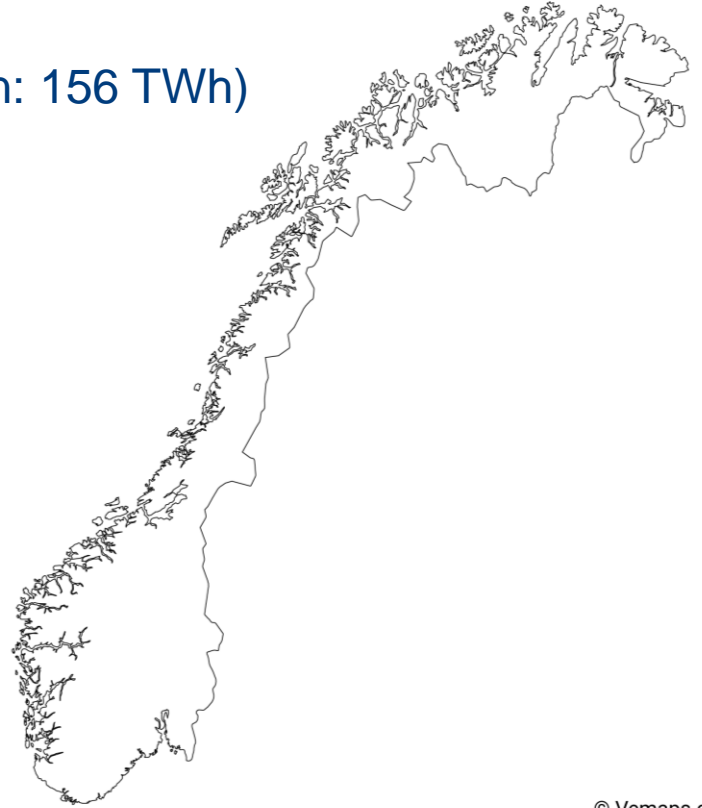
- The IEA Photovoltaic Power Systems Programme (PVPS) is one of the Technology Collaboration Programme established within the International Energy Agency in 1993
- 32 members - 27 countries, European Commission, 4 associations
- *“To enhance the international collaborative efforts which facilitate the role of photovoltaic solar energy as a cornerstone in the transition to sustainable energy systems”*



# Norway – general information



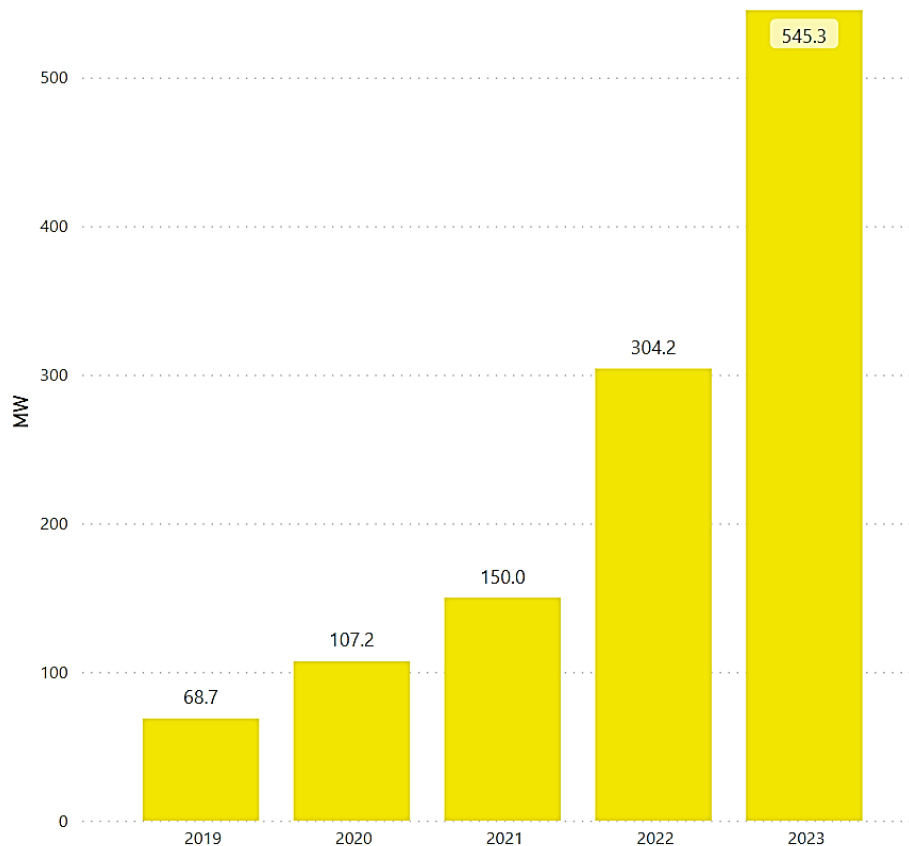
- Population: 5.5 million
- Total electricity demand: 135 TWh (Generation: 156 TWh)
- Share of renewables: 98%
- Share of solar: 0.3 %
- Solar development targets: 8 TWh in 2030



# PV market evolution in Norway – still fast



● Solkraft



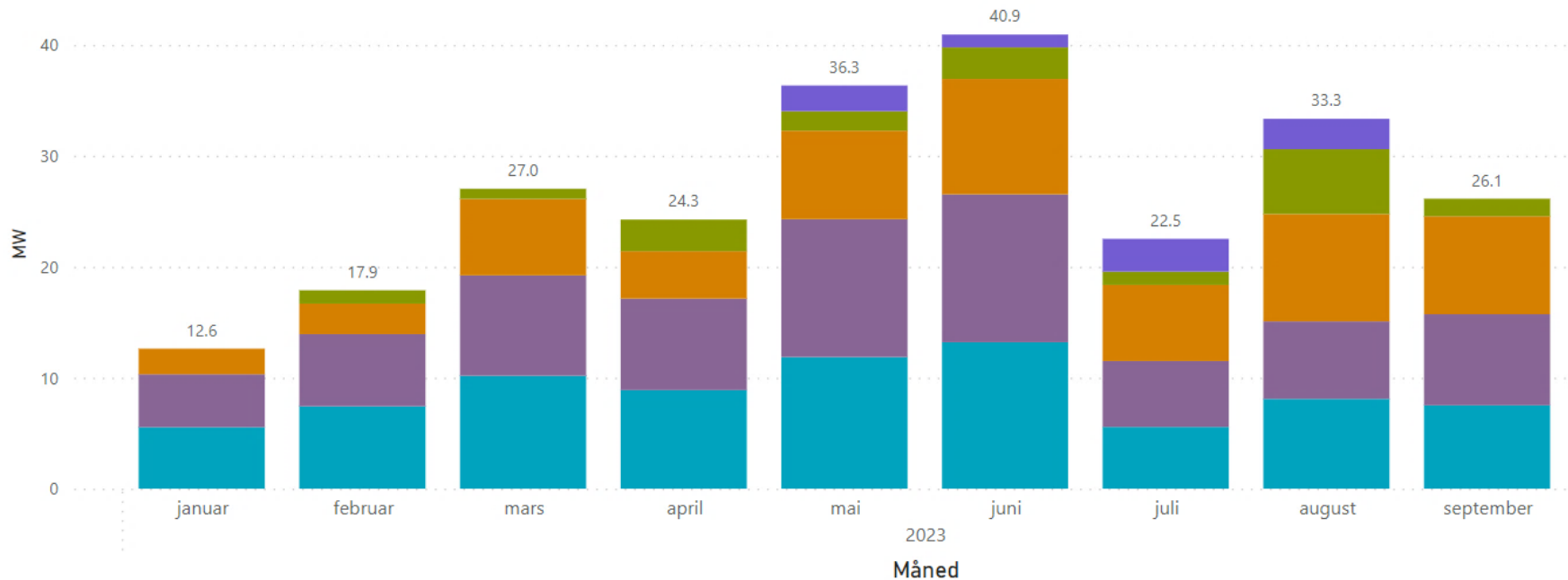
Number of new PV systems  
per year

2019	4412
2020	2112
2021	2385
2022	7708
2023	10342
<b>Total</b>	<b>26959</b>

# PV market segments – only self consumption



Effektgruppe ● 1. 0-20kW ● 2. 20-100kW ● 3. 100-500kW ● 4. 500-1MW ● 5. 1-10MW



# Overview of market drivers



- What are the current key drivers?
  - High electricity prices was a key driver to speed up
  - For commercial it's also about wanting to contribute to the energy transition
- Support mechanisms
  - Investment support for residential systems
    - 672 USD + 112 USD per kWp
- Ground mounted / centralized is moving faster
  - Went from 4 projects in licencing process in April, to 20 now. Around 80 planned projects in total

# Investment costs



~1200 USD/kWp  
(excluding VAT)



~650 USD/kWp



~600 USD/kWp





# Showcase system – The Petroleum Directorate



PVPS



- There were 4 actors, now 3
  - NorSun, REC, ~~Norwegian crystals~~ and Quartz crop
- What is the manufacturing capacity?
  - REC (8400 tons (multi) -> 4150 tons (mono))
  - NorSun 1 GW



# Key subjects of the past 6 to 12 months

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- The new target of 8 TWh in 2030
  - Sharing scheme - virtual self consumption
  - How to avoid grid costs
  - Feed in regime and measures for over voltage

# Norwegian perspectives on grid costs for PV



Pay for grid usage  
during consumption

Grid costs from PV  
itself

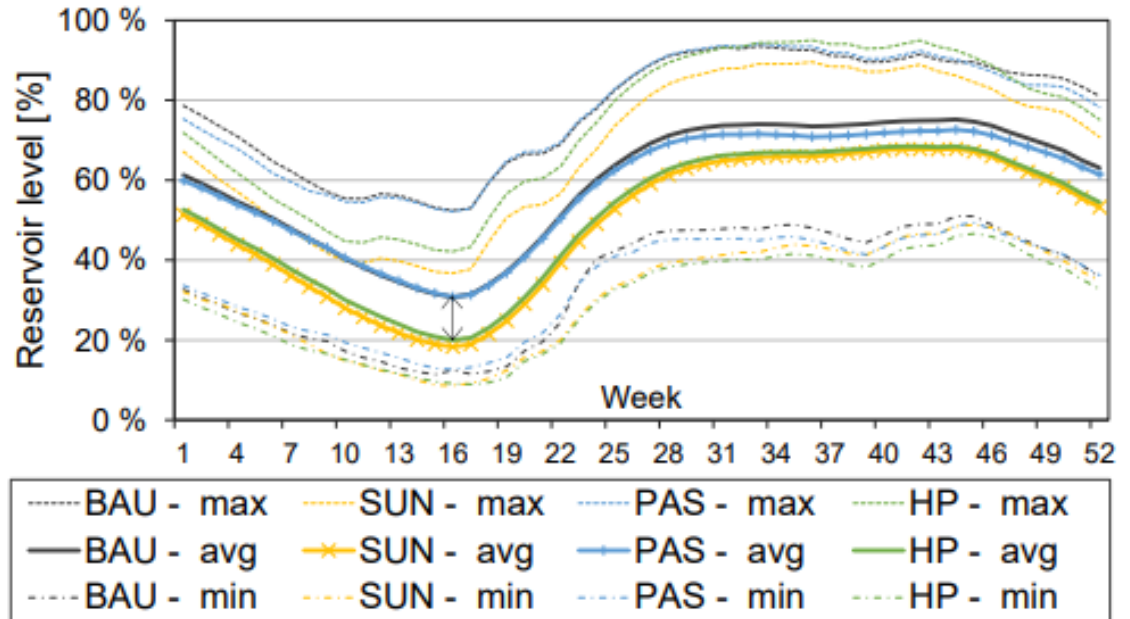
# BIPV in your country



# Solar PV in the 100% RES Power System in your country



- The main discussion in Norway is about the value of PV and the need for flexibility.





# Årdalstangen 16th to 19th of April



- Welcome to the middle of nowhere!



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