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FME SOLAR Newsletter #2

In this newsletter, you will learn about the first hires of FME SOLAR, some updates from IEA-PVPS, our first successful grant proposal and the upcoming events before summer.

Wondering about the latest positions available within FME SOLAR? Or wondering about upcoming events? All information can be found on our website fmesolar.no, which is regularly updated with the most current information.

[Go to our website](#)

From the centre director



The International Energy Agency's PV Power Systems programme (IEA-PVPS) has recently published their estimations of new, global PV capacity additions in 2024. The numbers are truly impressive! New PV power plants with a power production capacity of $\sim 600 \text{ GW}_p$ were installed last year alone bringing the total, global PV production capacity to $\sim 2.2 \text{ TW}_p$. This means that PV power plants are now able to supply more than 10% of the global electricity demand. This number is set to increase substantially already this year, which is anticipated to become yet another record year in the PV industry.

The accelerating growth of PV globally is, of course, extremely good news for our research centre FME SOLAR. First of all, the PV industry is making an immensely important contribution in the form of enabling sustainable electricity production at scale. Moreover, many of our partners have their main activities outside of Norway, where they make their living from contributing to this growth. The acceleration also means that the overall scope of FME SOLAR is highly relevant. FME SOLAR was set up to address some of the most pressing challenges arising from massive-scale PV deployment including area use, grid-integration, sustainability and social acceptance.

Next week, a large part of the Norwegian PV community travels to Son for the annual Norwegian Solar Cell Conference (NSCC 2025). Here, we will share and discuss the most recent scientific and technological results from the research groups, companies and public sector in this highly important field.

In addition to more details regarding the NSCC 2025, this newsletter also contains information about the first two PhD candidates hired within FME SOLAR. You will also learn more about the next scheduled webinar, which addresses reliability of PV + battery energy storage systems (BESS). This newsletter also contains a brief update on recent reports published by the IEA-PVPS organization, several of which have been made with a significant Norwegian contribution.

I look forward to seeing many of you in Son!

Grant on solar energy education



Education is one of the pillars of FME SOLAR. In [WP7 - Education](#), we aim to address any gaps within solar energy education, with an emphasis on re-education to support sector shifts required by the green transition. A team lead by Tore Sandnes Vehus from UiA, supported by WP7 colleagues from NTNU, UiO, NMBU and IFE, received a 2.8MNOK grant from the Norwegian Directorate of Higher Education and Skills to develop two flexible courses in collaboration with stakeholders/industry that can be undertaken alongside regular work.

"It is important to have industry-specific education that contributes to developing the necessary competence for the solar power industry," says Associate Professor Tore Sandnes Vehus at the Faculty of Technology and Natural Sciences at UiA.

The first course module deals with the design and implementation of solar power systems on buildings, energy storage, and control systems. The second course module covers solar systems installed on the ground and how they can be integrated into the power grid.

The education will be free of charge, and there are plans for 50 participants per session: one in 2026 and one in 2027.

Well done, Tore *et al.*!

The Norwegian Solar Cell Conference (NSCC) 2025

The most important meeting of the year: the Norwegian Solar Cell Conference is nearly upon us! We are looking forward to many interesting talks and discussions. The program can be found on the NSCC section of our website: [FME SOLAR | NSCC](#).



Webinars

Below you can find information and a link to sign up for the next webinar. If you are unable to join, recordings will be made available to all FME SOLAR partners on the FME SOLAR Teams site, in the "Seminar and Conferences" channel.



Reliability of PV + BESS

June 10th, 2025, 12:15 - 13:00

At this webinar, you will learn more about the work performed in the IEA-PVPS Task 13 related to the reliability of PV + BESS (Battery Energy Storage System). Presentations will be given by Erik Stensrud Marstein, the activity lead and one of the main contributors, Dan-Eric Archer from the Swedish BESS company Checkwatt. Sign up to have the Teams invite sent to your e-mail.

[Sign up here](#)

Workshops

Whereas Webinars feature presentations of work relevant to FME SOLAR, the workshops will concentrate on facilitating discussions on current topics, aiming to shape the direction of the work going forward. There are two workshops planned before summer.



Recycling of silicon and PV modules / Use of Machine Learning

June 3rd - June 4th 2025, Trondheim

Welcome to the workshop on **Recycling of silicon and photovoltaic (PV) modules, and Machine learning (ML)**! As a first workshop on this topic within the frame of the FME-Solar, we want to give an overview of the current research activities on recycling and how ML can be used to optimize these processes. The workshop is co-organized by NTNU, SINTEF and IFE, and will take place in Trondheim on June 3rd and 4th (lunch to lunch).

[Sign up here](#)

Integration of PV into the power grid

June 23rd, 2025, 09:30 - 13:30, Forskningsveien 1, Oslo

We invite user partners and research partners in FME SOLAR to a workshop where we will discuss the integration of PV into the power grid. The workshop will start with presentations from some of our user partners to gain insight into the technologies used today, including the use of curtailment and batteries. Then, our research partners will give us an overview of their developed methods and tools, before we conclude with a discussion on how this should be further developed based on the research needs of the user partners.

After the workshop, there will be time for lunch and mingling, before the research partners continue with an internal WP3 meeting.

Sign up here

Meeting WP 1 & 2

WP1 ([PV power plants](#)) and WP2 ([PV in nordic conditions](#)) will host its first joint WP meeting on the **27th of May at 12:15 - 14:00**, on Teams. Here, you can get an overview of what is happening in the WP, as well as come with suggestions and comments to future work. The meeting invite has been sent to all participants of FME SOLAR. If yours is missing, please let us know at fmesolar@ife.no.

Agenda for the meeting:

- Introduction round
- Scientific presentation WP1: *Short-term PV Power Forecasting Using Time-Series Decomposition and Machine Learning*, Alfredo Sanchez (SINTEF)
- Scientific presentation WP2: *Impact of snowdrifts on PV-yield*, Iver Frimannslund/Thomas Thiis (NMBU)
- Presentation of workplans WP1 and WP2

New hires



Nikolas Recke
PhD Student
UiO

Nikolas will be working in WP1 on distributionally robust model predictive control for virtual power plants. Welcome, Nikolas!



Johannes Gerhardus Venter
PhD Student
NMBU

Gerhard will be working in WP3 on mathematical modeling of power system stability. Welcome, Gerhard!

IEA PVPS Update

The IEA Photovoltaic Power Systems Programme (PVPS) is a collaborative R&D Agreements established within the International Energy Agency (IEA) and was established in 1993. Today, PVPS experts from the 30 member countries jointly conduct projects structured into 8 active tasks related to PV. IEA-PVPS has published several reports so far this year, which should be of interest to the FME SOLAR consortium. These reports are (newest to oldest):

- TASK 13 Report: [“Floating Photovoltaic Power Plants: A Review of Energy Yield, Reliability, and Maintenance”](#). This report gives a good update on the status of knowledge in this very important field. The work towards this report was led by Dr. Josefine Selj, who heads the floating PV research group at IFE. Also Nathan Roosloot, Gaute Otnes and Vilde S. Nysted from IFE contributed to this report.

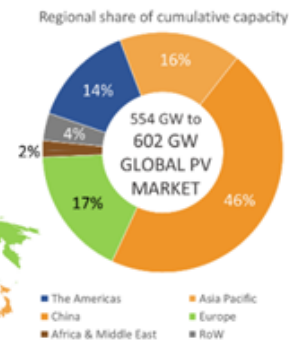
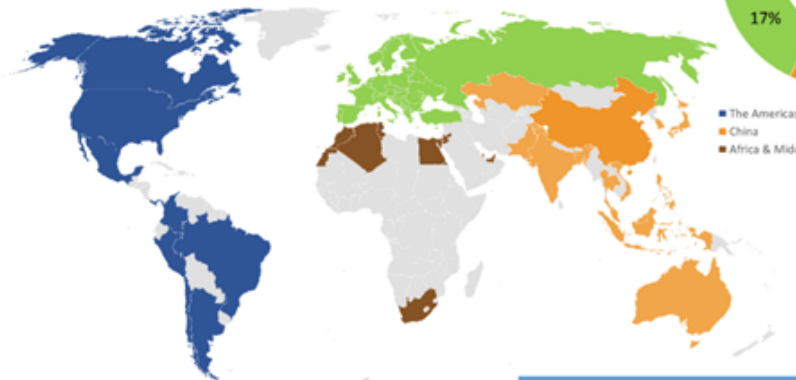
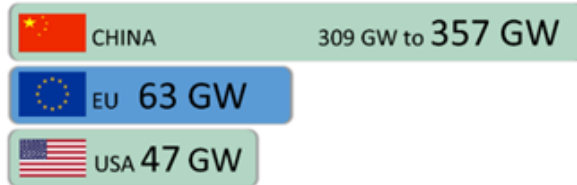


Figure 1. Annual and cumulative growth in deployment of FPV by installed capacity (MW_p) and by percentage of total global PV installations (%).

- TASK 1 Report: [“IEA PVPS Country Updates 2024”](#). This report gives an update on the status of PV in the different member countries of IEA PVPS. Jarand Hole (NVE/NTNU) is a member of Task 1 who developed this report.
- TASK 1 [“Snapshot 2025”](#). This report is an annual highlight and one of the first good sources for recent, annual installation rates globally. Also here, Jarand Hole has represented Norway through Task 1.

A Snapshot of Global PV Markets

TOP PV MARKETS 2024



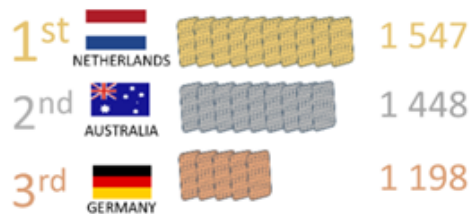
2 246 GW were installed all over the world by the end of 2024

China is the world's #1 PV market

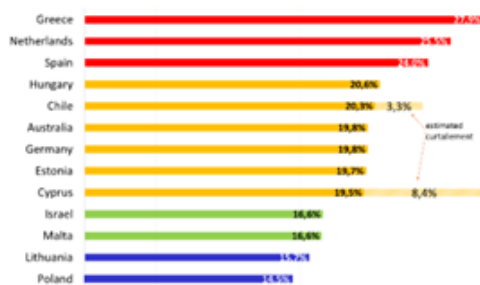
34 countries installed at least 1 GW of PV in 2024

23 countries have installed at least 10 GW of cumulative capacity at the end of 2024

SOLAR PV PER CAPITA 2024 Watt/capita



COUNTRIES WITH HIGHEST PV PENETRATION



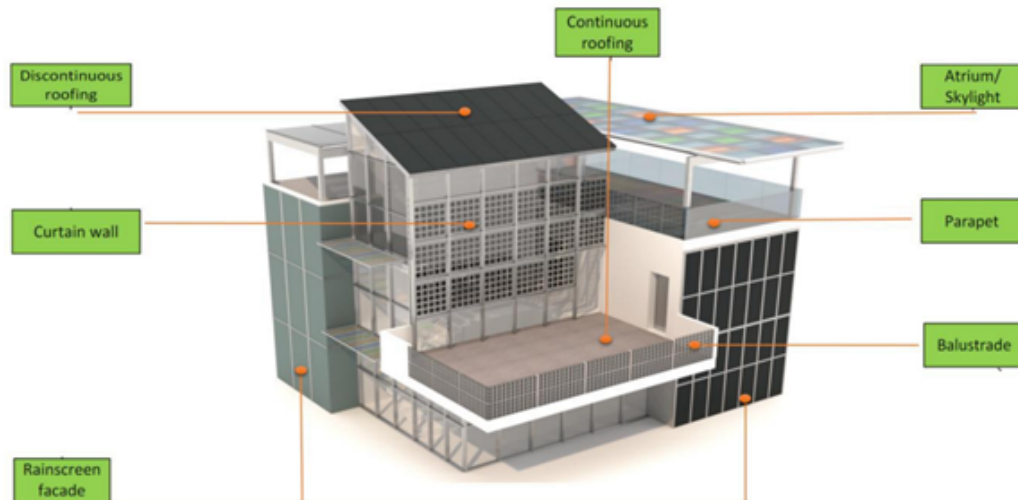
EVOLUTION OF ANNUAL PV INSTALLATIONS



Task 1 Strategic PV Analysis & Outreach | www.iea-pvps.org

- TASK 13 Report: [“Dual Land Use for Agriculture and Solar Power Production: Overview and Performance of Agrivoltaic Systems”](#). This report gives a good update on the status of knowledge in the rapidly growing field of Agri-PV. From Norway, Erlend H. Honningsdalsnes and Magnus M. Nygård from IFE have contributed to the report.

- TASK 15: ["Analysis of Technological Innovation Systems for BIPV in Different IEA Countries"](#). This report provides a comparative analysis of national innovation ecosystems for Building-Integrated Photovoltaics (BIPV) in Austria, Australia, Finland, Italy, the Netherlands, Spain, and Sweden.



- TASK 13: ["Degradation and Failure Modes in New Photovoltaic Cell and Module Technologies"](#). This report addresses the important topic of degradation and failure modes in modern PV technologies. From Norway, Junjie Zhu IFE has contributed to the report.
- TASK 17: ["PV-Powered Electric Vehicle Charging Stations: Requirements, barriers, solutions and social acceptance"](#). This report gives an update to the important field of PV-powered EV charging stations.
- TASK 17: ["Irradiance and Temperature Uniformity on Vehicle Roof"](#). This report investigates irradiance and temperature uniformity on vehicle roofs, important parameters for Vehicle-Integrated PV (VIPV).

Have you published a paper? Do you have new, exciting results from your work? Are you advertising (summer) jobs?

We would like to hear from you! We want to make both this newsletter and the FME SOLAR website as active and relevant as possible. Therefore, news from our partners and colleagues are most welcome!

If you have anything to report, please send an e-mail to kristin.bergum@ife.no with more information.

Photo credit top image:

Erlend Honningsdalsnes, IFE

Photo credit delaminated solar cell:

Rune Søndenå, IFE

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