

Q2 2021- Q1 2022 ACTIVITY CATALOGUE



The European Solar Manufacturing Council (ESMC) is the organisation representing the interests of the European PV manufacturing industry. The Council relies on key industrial companies, organisations and research centers active in the PV sector rooted in Europe. ESMC aims at promoting and supporting the PV manufacturing industry and its value chain at the European level.

CORE STATEMENTS

MISSION

ESMC strives to take a position that reflects the interests of the upstream part of the PV industry in Europe, in order to promote manufacturing companies, equipment manufacturers and R&D organizations.

CENTRAL POLICY TARGETS

Financing tools and policy frameworks should be mobilized to achieve a strong European PV Industry. Grants, loans, or loan guarantees are decisive elements for investment decisions and help mobilize private capital for the European companies. Several other global players are taking strong and fast actions, to ensure the competitiveness of local PV manufacturing. ESMC advocates for a package of instruments to be implemented in Europe without any further delay.

- 1) Financing tools** — at least € 10 billion of grants and €10 billion credit guarantees would mobilize the necessary private capital.
- 2) Policy frameworks** — the targets of the Green Deal ensured increased clarity for the market of deployment of renewables, now the focus should be turned to achieve clarity and confidence for the PV manufacturing industry.
- 3) Integration of PV installations** — a competitive advantage for European PV manufacturing to deploy PV in integrated systems should be extensively supported to maintain the sustainable competitiveness of the EU.

IPCEI

IMPORTANT PROJECTS OF COMMON EUROPEAN INTEREST

The Treaty on the Functioning of the European Union provides for the possibility of approving state aid for 'Important Projects of Common European Interest' (IPCEI). IPCEIs allow European Member States to jointly support transnational cooperation projects with major synergies that make an important contribution to economic growth, jobs and the competitiveness of the EU industry and economy. One of ESMC goals is to create an IPCEI for PV manufacturing. ESMC initiated a process and a working group in spring 2021, in collaboration with the European Solar Initiative. Throughout 2021, the IPCEI consortia attracted over 50 European companies and research organizations, all actively engaged in forming an IPCEI for PV manufacturing under the lead of ESMC. The following 5 projects have been formed:

Project title

Confirmed partners

Industrializing HTJ technology to the GW-scale



TOPCon PV cells and silver paste



Industrializing Tandem technology to the GW-scale



PV integrated solutions



Circular PV production



INDUSTRIAL POLICY LETTER

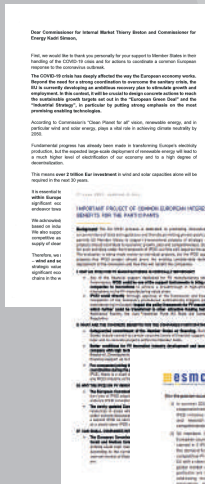
ESMC's Policy Director Mr Vaičiūnas gathered support from 8 EU Member States for a PV IPCEI in his previous role as the Lithuanian Energy Minister.

IPCEI ONE-PAGER

ESMC has produced a one-pager that summarizes the benefits for the Member States participating in the work to create an IPCEI for Solar PV Manufacturing.

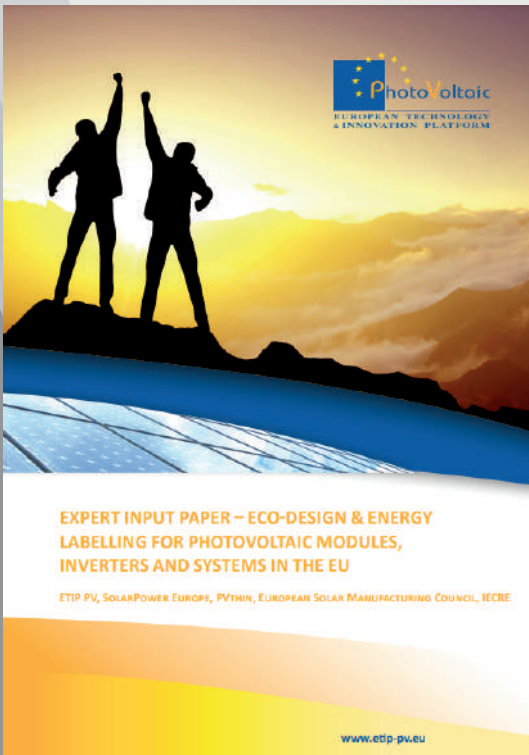
IPCEI COMMUNICATION

The arguments for an IPCEI as well as the progress as of 2021 is summarized in an internal communication document to be used before the official launch of the IPCEI. Additionally, Invitation letters to seek initial Member State support have been sent and can be found [here](#).



ECODESIGN AND ENERGY LABELLING

As the European Commission is considering introducing environmental policies for PV and other markets, ESMC promotes a specific position aiming at mandatory policies rather than voluntary schemes, with a preference for a strong EcoDesign scheme. The inclusion of CO2-footprint, in addition to other environmental requirements, is a key success for ESMC, and we actively follow the development, both in an internal working group and in collaboration with partner organizations.



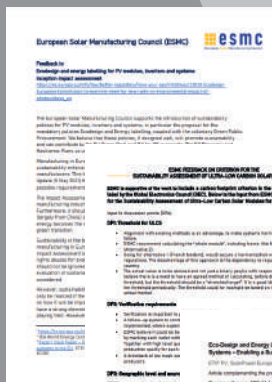
EXPERT INPUT PAPER

ESMC initiated a Joint Mission Group (JMG) under ETIP-PV, that created an Expert Input Paper and a conference paper in 2021.

The recommendations presented in the Expert Input Paper are the result of the JMG of collaborating Solar Industry Experts and Researchers, building on the findings of the European Commission Preparatory Study for Eco-Design, Energy Labelling, Green Public Procurement and Ecolabelling.

The findings of the Expert Input Paper aim to support the criteria development process within the framework of compulsory policy instruments further evaluated in the supporting study.

Other deliveries from this working group include:



ESMC FEEDBACK TO THE EUROPEAN COMMISSION REGARDING THE INCEPTION IMPACT ASSESSMENT.

ESMC FEEDBACK TO THE ULTRA-LOW CARBON SOLAR (ULCS) CRITERION.



JOINT MISSION GROUP ARTICLE PRESENTED AT THE EU PVSEC CONFERENCE 2021.

ACTIVITY PRIOR TO 2021

Response to JRC on solar PV - preparatory study (Sep 2019)

Position paper on Eco-Design policy development (June 2020)

EU RECOVERY AND RESILIENCE FACILITY (RRF)

As part of a wide-ranging response, the aim of the Recovery and Resilience Facility is to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions. During 2021, ESMC addressed the EU Commission and followed the development of the Recovery and Resilience plans (RRP), and thereafter studied and summarized the total support for PV manufacturing in the endorsed plans.



REVIEW SUMMARY
SOLAR MANUFACTURING IN THE NATIONAL RECOVERY AND RESILIENCE PLANS
An analysis compiled by the European Solar Manufacturing Council (ESMC)

The European Solar Manufacturing Council (ESMC) is the organization representing the interests of the European PV manufacturing industry. The ESMC represents key industrial companies, organizations and research centers active in the PV sector rooted in Europe. ESMC aims at promoting and supporting the PV manufacturing industry and its value chain at the European level, speaking with one voice.

Any questions regarding the statement analysis or requests on additional information can be addressed to the Secretary-General, Dr. Johan Lindahl (jlindahl@esmc.europa.eu) or the Policy Director, Mr. Zigmantas Vaitiekunas (zigmantas@esmc.europa.eu).

REVIEW SUMMARY - PV SUPPORT IN THE RECOVERY AND RESILIENCE PLANS

ESMC evaluated and summarized the content of 10 endorsed RRP, namely those of Austria, Croatia, Denmark, France, Germany, Greece, Italy, Portugal, Romania, and Spain. The other Member States that had submitted plans at the time of writing – Belgium, Bulgaria, Cyprus, Czechia, Estonia, Finland, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Slovakia, Slovenia, and Sweden – didn't include any meaningful support mechanisms for PV manufacturing and its deployment in their respective RRP.

In ESMC's RRP evaluation effort, a total of €477 million have been identified as possible direct support for PV manufacturing. They consist of both loans and grants to establish or strengthen the PV value chain in Italy, Romania, and Croatia.



POLICY STATEMENT
SOLAR MANUFACTURING RENAISSANCE IN EUROPE – APPEAL FOR RRF COMMITMENT
A communication compiled by the European Solar Manufacturing Council (ESMC)

KADRI SIMSON
MEMBER OF THE EUROPEAN COMMISSION
ENERGY

Brussels, 1 September 2021
MEM/21/5942/10

Dear Dr. Lindahl,

Thank you very much for your letter to Executive Vice-President Ferrero-Waldner, Commissioner Bragança and myself on your ambitious plans for a European solar manufacturing renaissance, particularly in the context of the EU Recovery and Resilience Facility (RRF). We have read with interest your policy statement document. Let me start by thanking you for your support to the European Green Deal and recognizing the important challenges and opportunities its implementation is facing, particularly in a post-Covid-19 context.

Following the European Parliament's consent end of last year, the European Council adopted the regulation laying down the EU's long-term budget together with the Next Generation EU recovery instrument totaling €2.3 trillion. The funds will help Member States address the economic and social impact of the COVID-19 pandemic while ensuring that their economies benefit from the green and digital transitions, becoming more sustainable and resilient. The Financial package confirmed the European Green Deal objectives as a driving force of the European economic recovery.

Member States have submitted the national Recovery and Resilience Plans and those have a strong focus on a green recovery as a minimum of 37% of expenditure will be related to climate. A large part of this will translate into energy-related investments.


In your letter you expressed concern about the distribution of the RRF in the national Recovery and Resilience Plans, you were observing that power generation projects from wind and solar are well

POLICY STATEMENT - APPEAL FOR RRF COMMITMENT.

THE ANSWER TO OUR STATEMENT, FROM COMMISSIONER KADRI SIMSON.

EUROPEAN SOLAR STRATEGY

Promoting the development of manufacturing capacities for sustainable PV products in Europe requires implementation of support policies, without slowing down market development. Following the EU industrial strategy, ESMC have requested a Solar Strategy in which the significance of PV manufacturing will be addressed.

2021-07-09 

EU NEEDS A SMART AND FAST FINANCING STRATEGY ALONG WITH POLICY FRAMEWORKS TO EMPOWER THE PV MANUFACTURING POTENTIAL IN EUROPE

Problem: the European PV market is at the edge of double-digit growth, but the PV manufacturing industry in the EU is dramatically small. In 2020, the installed PV capacity in Europe reached 20.6 GW (in comparison, new wind power installations amounted to 14.7 GW). Forecasts expect that PV annual installations could double in 2-3 years in the EU – reaching 40-45 GW annual installations in 2023-2024!

While in the EU about 15% of the new global PV systems were installed in 2020, Europe only produced 1% of the PV silicon, 1% of ingot and wafers, 0.4% of cells and 0% of modules of the global production. The global annual PV manufacturing market is forecasted to grow from 150 GW to 400 GW annually within this decade, but up to now in the EU only 10 GW of new PV manufacturing capacity is planned. The EU should have PV manufacturing in focus when implementing the installation boom that will be part of the EU Green Deal.

Target: At least 60 GW by 2026 and 100 GW by 2030 annual PV manufacturing capacity across the whole value chain should be established in Europe, to support sustainable implementation of the Green Deal objectives and Europe's competitive participation in global PV production value chains. This can be well based on decades of intense and successful R&D efforts in the development of low-cost and high-efficient PV cell and module concepts in Europe. As of today, Europe still has a global technology leadership role in PV.

The ESMC has extensively addressed EU Member States to dedicate adequate fractions of the Recovery and Resilience Facility financing for PV manufacturing, and is now forming a consortium to establish an important Project of Common European Interest (PCI) for PV manufacturing. The timing for the EU to achieve the breakthrough in PV manufacturing is critical. Accordingly, three key instruments are proposed to be implemented.

Financing tools (grants, credit guarantees, loans) and policy frameworks should be mobilised to achieve the PV manufacturing targets described above. Grants, loans or loan guarantees are decisive elements for investment decisions and help mobilise private capital for the European companies. Several other global players, such as China, India and now also the USA under the Biden administration, are taking strong and fast actions, to ensure the competitiveness of local PV manufacturing based on smart financing measures. A package of instruments should be implemented in Europe without any further delay.

- 1) Financing tools – at least €10 billion of grants and €10 billion credit guarantees would mobilise the necessary private capital.** Public (local, regional, national, European) and private financing tools will have to be adapted to support local PV manufacturing. A special focus on the activities of the European Investment Bank (EIB) and on rules of engagement are needed, combined with a novel, off-takers based approach, to de-risk the establishment of PV manufacturing.
- 2) Policy frameworks – the targets of the Green Deal ensured increased clarity for the market of deployment of renewables, now the focus should be turned to achieve clarity and confidence for the PV manufacturing industry.** Sustainability policies, such as EcoDesign, green public procurement, Eco-labelling, and the Carbon Border Adjustment Mechanism are critical to promote high environmental standards and low carbon footprint in manufacturing. The forthcoming "Fit for 55" legislative package should ensure the practical implementation of these core principles.
- 3) Integration of PV installations – a competitive advantage for European PV manufacturing to deploy PV in integrated systems should be extensively supported to maintain the sustainable competitiveness of the EU.** Local manufacturing of PV modules optimised for deployment in Building Integrated PV (BIPV), Vehicle Integrated PV (VIPV), Floating PV (FPV) and Agricultural PV (APV) should be supported on European and national levels.

ESMC believes that a mobilisation of these efforts, together with the establishment of a PV manufacturing PCI, will have the potential to establish 100 GW PV manufacturing capacity in Europe, generating at least €10 billion annual local benefits, and secure 100 000 additional jobs. Currently, there are several suitable financial and policy instruments available in the EU (Recovery and Resilience Facility, Just Transition Fund, EU Cohesion fund, Horizon Europe program), but without streamlined efforts to mobilise at least €10 billion of grants and €10 billion of credit guarantees for the industrial PV manufacturing, Europe risks to lose the potential benefits of the Green Deal, by entering into a new type of energy dependency of importing key components for PV installations.

CALL FOR A EUROPEAN PV STRATEGY

In summer of 2021, ESMC alerted the European Commission on the need for financing tools (grants, credit guarantees, loans) and policy frameworks mobilized to achieve the proposed PV manufacturing targets.

Several global players, such as China, India and now also the USA under the Biden administration, are taking strong and fast actions, to ensure the competitiveness of local PV manufacturing based on smart financing measures. A package of instruments should be implemented in Europe without any further delay.

March 14, ESMC co-arranged a workshop with the European Commission to discuss the key advantages, challenges, and the actions to be taken for the EU PV manufacturing sector to be competitive on the long-term and sustainable basis.

European Commission Executive Vice-President for the European Green Deal **TIMMERMANS**
European Commissioner for Energy **MADRID**
European Commissioner for the Internal Market **BRETON**

24 April 2021

Dear Executive Vice-President **TIMMERMANS**,
Dear Commissioner **MADRID**,
Dear Commissioner **BRETON**,

The EU currently faces enormous challenges and huge opportunities with the implementation of the ambitious European Green Deal. The green transformation will decisively impact a variety of sectors, and will require massive investments in Europe's economy and industry. The completion of the Green Deal, a joint endeavour of investment and the Recovery and Resilience Facility (RRF) creates unique opportunities for the EU to restore and strengthen key value chains and industries.


Power generation from wind and solar has been extensively included in Member States' national Recovery and Resilience Plans (RRPs), which will be on the agenda of the European Commission and the European Council for the next months, and in Member States' policies for the coming years. The European Solar Manufacturing Council (ESMC), which represents the interests of the European PV manufacturing industry, delivers in attachment to this letter a Policy Statement, which calls for better PV manufacturing opportunities in the European RRF and national RRFs.

In 2020 new wind power installations in the EU accounted for 14.7 GW, and new solar PV installations reached 20.6 GW, adding capacity to many forecasts. The annual solar PV installations will double each year – reaching 40-45 GW already in 2023-2024. The current PV manufacturing capacities in the EU are critically low, representing only 1.4% of global cells and 0% of modules global production. Thus, the EU is about to enter a new type of energy dependency, by importing critical components for the PV installations. The ESMC strongly advocates the EU to avoid such a critical dependency and appears for dedicated, strong and unique actions to improve the EU's strategic resilience.

ESMC believes that at least 70% of European PV installations should be manufactured in Europe, and two thirds of the production should be outside Europe. This would amount to about 60 GW of manufacturing capacity, and a 4x production utilisation in Europe by the end of the RRF cycle in 2026. As a consequence, the investment of 7.4 billion euros for PV cell and module would be transformed into a local PV manufacturing value of about € 50 billion, and around 70 000 additional jobs by 2026. PV is a clean and powerful solution to provide jobs, economic growth and European energy security, as well as to reduce climate change. Thus, € 50 billion for 70% of RRF financing would constitute a real chance for the PV manufacturing industry in Europe for accelerated growth, leading to a PV manufacturing renaissance, and long-term benefits on the way to a carbon neutral economy by 2035.

As the benefits of PV manufacturing are horizontal, involving various sectors, we would like to ask for your assistance in creating and financing unique incentives for the PV manufacturing industry in the EU. In this letter, ESMC is kindly requesting a meeting to discuss the proposals included in the Policy Statement, and to agree in detail on the future of the PV manufacturing industry in Europe. The comprehensive launch of the Green Deal is the perfect moment for the sectoral strategy to be improved and implemented. In parallel to the Others' strategy presented by the Commission last year, we would like to see a similar comprehensive European solar strategy adopted including appropriate and diversified incentives, the guidance for an RRF for PV manufacturing and other initiatives which would be instrumental for the Green Deal implementation. ESMC is convinced that implementing urgent horizontal and sectoral PV manufacturing in Europe could ensure the best available coverage of the Green Deal implementation and European economy growth for the forthcoming decades.

On behalf of the European Solar Manufacturing Council,

Co-President
Rijkman Groenewold

Co-President
Susana Montes

Vice-President
Corinne Ritz

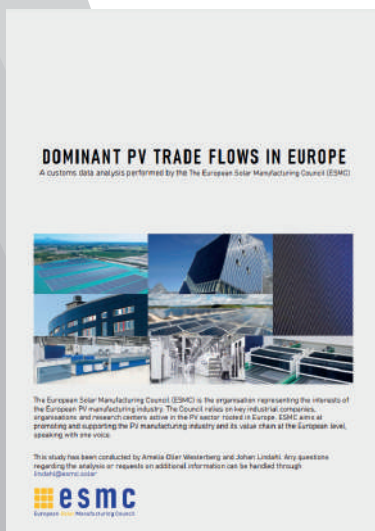
Secretary General
Johann Lindeit

ESMC LETTER TO THE COMMISSIONERS FRANS TIMMERMANS, KADRI SIMSON AND THIERRY BRETON.

In the latest update of the **EU industrial strategy**, published on 5th of May 2021, the significance of PV manufacturing in EU has finally been addressed. ESMC is currently working on the consultation feedback to form the content in the Solar Strategy and have close discussion with the EU Commission

MARKET INTELLIGENCE

Partly as a membership benefit, partly as a tool in our advocacy work, ESMC produces reports that describe and concretize the situation of the European PV Industry. During 2021, a customs data analysis was conducted to map out the most dominant trade flows in to and out of Europe. Additionally, an analysis of the PV manufacturing lessons learned in Europe between 2022 and 2010–2012 has been released, with an emphasis on how to turn market differences into opportunities.



DOMINANT PV TRADE FLOWS IN EUROPE

In the analysis, the most dominant trade flows were mapped out, as well as the monetary value of the trade. As the disruption of supply and silicon shortage have been further actualized in 2021, it is important to communicate to the policy makers that while the regional market is growing, Europe is becoming more import dependent.

In the report, the dominant trade flows are presented, based on traded monetary value (US\$) of; Photosensitive semi-conductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; Light emitting diodes.

| | 2016 [kUS\$] | 2017 [kUS\$] | 2018 [kUS\$] | 2019 [kUS\$] | 2020 [kUS\$] |
|-------------------|--------------|--------------|--------------|--------------|--------------|
| Extraneous import | 6 330 809 | 6 484 161 | 8 106 778 | 10 471 637 | 10 413 196 |
| Extraneous export | 1 701 633 | 1 645 606 | 1 720 856 | 1 564 790 | 1 766 641 |
| Imbalance | - 4 629 176 | -4 838 555 | -6 385 922 | -8 906 847 | -8 646 555 |



PV MANUFACTURING LESSONS LEARNED IN EUROPE

In 2022, the European PV manufacturing industry is potentially at the edge of a renaissance, due to several key differences, while the European PV manufacturing success story at the time around 2010–2012 turned into a period of great risks and shrinking margins, ultimately leading to a diminishing of European PV manufacturing industry during 2012–2014.

These differences of the situation today are described in this analysis, compared to the situation a decade ago are critical for the trust in the re-establishment of PV production in Europe, including its long-term benefits.

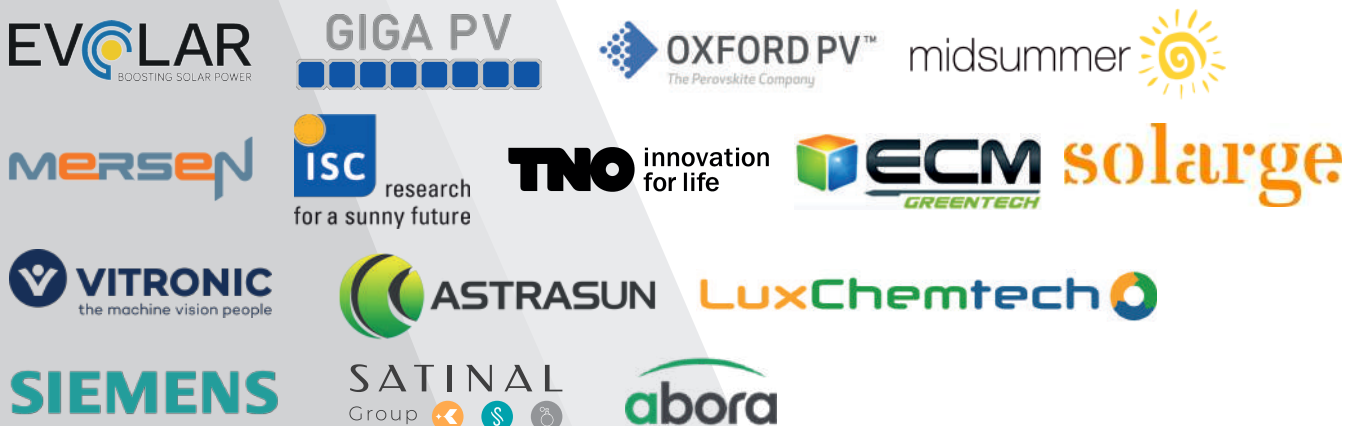
OFFICIAL PRESENTATIONS SINCE THE GENERAL ASSEMBLY

| Date | Conference | Organizer | ESMC representative |
|----------------|--|---|--------------------------------|
| 10 June | Made in Europe/ Sustainability Roundtable | PV Magazine | Johan Lindahl |
| 6-10 September | 38th EU PVSEC 2021 - Paper and presentation | EU PV SEC | EcoDesign WG (Carsten Rohr) |
| 7 September | Solar Industry Forum | EU PVSEC | Johan Lindahl |
| 15 September | Belgian Solar Day | Becquerel Institute | Lucas Weiss |
| 6-8 October | Intersolar Europe 2021 | Intersolar | ESMC ExCo |
| 13 October | Fachtagung für PV- und Stroms- peicherung | Photovoltaic Austria & Austrian Photovoltaics Technology Platform | Johan Lindahl |

ESMC MEMBERS



NEW MEMBERS SINCE THE GENERAL ASSEMBLY 2021



OFFICIAL MEETINGS SINCE THE GENERAL ASSEMBLY

| Date | Meeting | Title | Meeting topic |
|----------|-------------------------|--|--|
| 26 March | Michael Bloss | Member of the European Parliament | Political framework for the support of PV manufacturing. |
| 7 April | Jacup Dalunde | Member of the European Parliament | Political framework for the support of PV manufacturing. |
| 23 April | Ditte Joergensen | Director General of DG Energy | PV manufacturing inclusion in RRF and RRP - role of the European Commission and the need for a comprehensive EU solar strategy with the inclusion of PV manufacturing. |
| 6 May | Anton Muyltermans | Cabinet Secretary of State of Belgium for Recovery and Investments strategic | PV manufacturing inclusion in the Belgian RRP and Belgium's competitive advantages in PV manufacturing. |
| 1 June | Rosalinde van der Vlies | Director of Directorate C "Clean Planet", DG Research & Innovation | ESMC goals and targets. The need for a horizontal approach of the European Commission and the forthcoming Horizon Europe Work programme 2021-2022. |
| 7 June | Arno Gattinger | Austrian federal Ministry of Climate Action | PV manufacturing inclusion in the Austrian RRP, and a possible Austrian interest in an IPCEI. |
| | Theresia Vogel | Director of the Austrian Climate and energy fund | |
| 22 June | Stefano Grassi | Head of the Cabinet of Kadri Simson, Member of the European Commission | ESMC goals and targets and the need and actions for the comprehensive and supportive EU approach to PV manufacturing. |
| 20 Oct | Davide Polverini | Policy Officer, DG GROW | Drafting process of the EcoDesign legislation framework. |
| 22 Nov | Karl Nyström | Official at the Swedish Government Offices, | Initial swedish support for an IPCEI on solar PV manufacturing with personnel at the Swedish Government Offices. |
| | Matilda Killander | Trainee | |
| | Lars Guldbbrand | Subject advice | |
| 23 Nov | Jacek Truszczynski | Deputy Head of the Green and Circular Economy Unit, DG GROW | General Situation of PV manufacturing in and IPCEI communication with DG GROW. |
| | Daniel Gerber | Policy Officer, GROW.I.3 Green and Circular Economy, DG GROW | |
| | Nick Sinner | Policy Officer, GROW.I.3 Green and Circular Economy, DG GROW | |
| 7 Dec | Kerstin Jorna | Director General, DG Grow | IPCEI communication with DG GROW. |
| | Matija Matokovic | Policy Officer, DG GROW | |
| | Daniela Filipescu | Policy Officer, DG GROW | |
| | Pedro Saraiva | Legal and Policy Officer, DG GROW | |



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