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Actual execution of the Implementation Plan
for Photovoltaics and monitoring the
Implementation Plan's delivery

Workshop: Financing PV manufacturing in Europe using IPCEI

Brussels, 28 November 2019

Report

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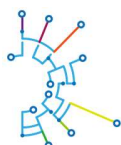


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About PV IMPACT

PV IMPACT will try out a variety of approaches to stimulate PV research, development and innovation initiatives in Europe. The first part of the project will focus on inviting companies to matchmaking events so they can find partners with whom to work on future projects under EU and/or national funding schemes. The project will also target two specific industrial companies: ENEL Green Power and Photowatt. Another important part of the project will be to monitor progress in PV. Data will be collected on public spending in the EU, on private spending, on the kinds of projects being funded and on the overall performance of PV technology. Forecasts for future spending will be made according to various scenarios. The project will track whether improvements in the performance of technology are keeping pace with expectations and will make recommendations to European funding authorities.

PV IMPACT Partners



Document information

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| PU | Public | X |
| RE | Restricted to a group specified by the Consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | |

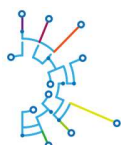


Table of contents

| | |
|-------------------------------------|----|
| 1. Introduction..... | 5 |
| 2. Participants..... | 5 |
| 3. Presentations..... | 6 |
| 4. Discussions and conclusion | 8 |
| 5. Contacts..... | 10 |
| Annex : Presentations | 11 |



1. Introduction

Task 1.3 of Work package 1 ('Matchmaking and mentoring') consisted in organizing a reflection on the financing of PV manufacturing in Europe, with a focus on the IPCEI tool (Important Project of Common European Interest).

A specific workshop was therefore organized in Brussels on 28 November 2019. The objective was to have an accurate view on the criteria and opportunities for an IPCEI and discuss about its potential application for a project proposal within the PV value chain.

This workshop was organized with the support of the European Solar Manufacturing Council (ESMC), the European Technology & Innovation Platform for Photovoltaics (ETIP-PV) and the European Energy Research Alliance (EERA). It was advertised on the PV Impact website and invitations were disseminated by the project partners and the supporting associations.

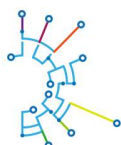
The call for participation targeted industrial companies and research centers having potential project proposals that could be developed under an IPCEI.

Representatives of the European Commission (DG COMP, DG GROW, DG RTD, DG ENER) were also invited to be part of the discussion.

2. Participants

About 30 different companies and organizations attended the workshop, including partners of the project. Representatives are listed in the following table:

| Organisation | Name | Surname | Organisation | Name | Surname |
|--------------------------|----------|----------------|-------------------------|-----------|-----------|
| 3E | Mauricio | Richter | Innoenergy | Guillaume | Gillet |
| Apricum | Nikolai | Dobrott | Innoenergy | Teresa | Grijelmo |
| Aurinka PV Group | Eduardo | Fornies | IPVF | Katherine | Alvino |
| Becquerel Institute | July | Van Wetter | ISC Konstanz | Rudolf | Harney |
| Becquerel Institute | Gaëtan | Masson | ISFH | Byungsul | Min |
| CEA | Anis | Jouini | Meyer Burger Technology | Gunter | Erfurt |
| CEA | Stéphane | Guillerez | NorSun | Carsten | Rohr |
| CEA | Simon | Perraud | Protech | Juras | Ulbikas |
| CENER | Ana Rosa | Laguna Sánchez | REC Solar Norway AS | Torgeir | Ulset |
| EDF ENR PWT | Vincent | Bes | SOLEAN | Arnaud | Goy |
| Enel green power | Fabrizio | Bizzarri | SOLEAN | Claude | Jacquot |
| ESMC | Eicke | Weber | Soli Tek R&D | Julius | Denafas |
| EUREC | Emiliano | Corà | TOTAL | Lars | Oberbeck |
| EUREC | Greg | Arrowsmith | Valoe | Tuukka | Savisalo |
| Forschungszentrum Jülich | Kaining | Ding | VDMA | Susanne | Herritsch |
| IMEC | Jef | Poortmans | Vitronic | Richard | Moreth |
| IMEC | Philip | Pieters | VOLTEC SOLAR | Lucas | Weiss |



Representatives of the European Commission also participating to the discussions were:

| DG | Name | Surname |
|---------|-------------------|----------------------|
| DG COMP | Rodrigo Nadine | Peduzzi Muller |
| DG ENER | Pedro | Quintela de Sardanha |
| DG GROW | Jyri | Ylkanen |
| DG RTD | Maria | Getsiou |

3. Presentations

The workshop started with a presentation from Rodrigo Peduzzi, Case Handler for State Aid within the DG Competition. This presentation (slide deck in annex) provided very detailed information about the IPCEI tool and process and raised several questions and interesting discussions among the participants.

Summary of presentation on IPCEI

An “Important Project of Common European Interest” allows for significant **State aid** by Member States without contravening the State aid rules. An IPCEI does hence not mean funding by the European Commission; by essence, it requires **funding by Member States**.

The conditions for an IPCEI were laid out in a dedicated Communication by the Commission in 2014 ([link](#)).

A. Criteria

1) Eligibility criteria

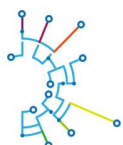
The project can be a single or preferably **integrated project** that groups single projects all **complementary and necessary** to achieve the important European objective.

It must be **quantitatively or qualitatively important** (large in size/scope and/or implying considerable level of technological or financial risk).

To be considered of Common European Interest, the project must respond to the following criteria.

a. General cumulative criteria:

- contribute to **strategic EU objectives** (competitiveness, sustainable growth, societal challenges, value creation, ...)
- involve **more than 1 Member State** (preferably several)
- have **positive spillover effects** => benefits must not be confined to the financing MS and concerned sector(s) but must have wider application to the European economy or society
- be **co-financed** by the beneficiary



b. Specific criteria:

- **R&D&I** projects must be of **major innovative nature** or of **important added value** in the light of the **state of the art** in the sector
- **First industrial deployment (FID)** projects are also eligible (contrary to the normal R&D&I state aid rules!). However, they must allow for the development of a **new product with high R&D&I content** or of a **fundamentally innovative production process**.

2) Compatibility criteria

a. Necessity and proportionality of the aid

The maximum aid corresponds to the **funding gap** and can be **up to 100 % of the eligible costs** (contrary to the normal aid rules where upper limits to the funding apply).

- A **funding gap analysis** needs to be performed and reported in the submission. This one should show that the project would **not be profitable on its own** (negative net present value when submitting => market failure to finance)
- **Eligible costs** are provided in the annex of the Communication on IPCEI
- For **FID**, costs for upscaling pilot facilities or for **first-in-kind** equipment, including testing phase, can be covered but funding **cannot support mass production** or commercial activities

b. Prevention of undue distortions of competition and balancing test

Evidence should be provided that the aid measure is necessary and that other less distortive policy or aid instruments would not achieve the same result. The negative effects of the aid measure in terms of distortions of competition must be outweighed by the positive effects in terms of contribution to the objective of the common European interest.

c. Transparency

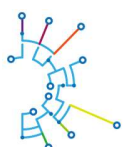
Information on the granted aid shall be made publicly available by the MS.

B. Details on process, good practices and highlights

In addition to the above criteria, several details, good practices and previous examples on the process were highlighted.

The **timeframe** for the approval of the first IPCEI proposal on an R&D project (microelectronics) was about 3 years! However, experience (both on MS and EC side) has been gained on the process, which has become more efficient. Shorter timeframes should definitely be possible. From the experience, the most time-consuming step is for putting together all MS and find an agreement, rather than the reviewing step by the EC. For an efficient process, one MS clearly has to **take the lead and coordinate** to build up the overall project.

In terms of the **documentation** to be submitted, a joint “chapeau” document has to be established for the integrated project, justifying all eligibility criteria as described above. For the demonstration



of the compatibility criteria, a more confidential company level document is set up for each individual part of the global project.

The documents should be thoroughly prepared by the MS. Some **template** documents have been created by some MS in order to ease the filling in of the criteria for the IPCEI by the partner companies of the project. The existing templates can be shared by DG COMP upon request.

Involvement of the EC in the design of the IPCEI proposal is highly recommended. Discussions with the EC can start once there is a clear project plan with collaboration from the MS. It is not needed that all detailed information on the fundings be available right away before starting these discussions.

Openness for participation to all MS and selection of participating companies through open calls will be considered an asset for the project proposal, even if not mandatory.

There is no **budget** limit as such for the aids and no specific rules as to the distribution of the aid amounts between participating MS (for microelectronics, the total amount of the aids was around 2,9 billions of Euros).

Finally, it must be acknowledged that the IPCEI process is quite a **heavy process** and that it requires time and commitment. **Other financing alternatives** should be kept in mind depending on the scope and contents of the intended project. The [Innovation Fund](#) from the EC and the [InnovFin Energy Demonstration Projects](#) funding from the EIB are some of these alternatives that should be considered.

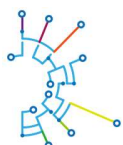
4. Discussions and conclusion

From the information presented, many discussions arose among the participants. Some key points of these discussions are presented here before drawing a conclusion on the global outcome of the workshop.

It was recognized that IPCEI is **not the right tool for a short term** project to be developed, whereas there is a need to have a rapid revival of PV manufacturing in Europe, otherwise it might definitely be too late.

Still, there are opportunities to seriously consider within an IPCEI perspective, probably in parallel to other measures. One of these opportunities would be to have PV potentially integrated into other projects that are further ahead in the process of developing an IPCEI and that additionally have the advantage of being in the scope of the **EU key Strategic Value Chains (SVC)**, as they were identified and formalized in a [recent report from DG GROW](#).

In this context, the **“Silver Frog”** project for green hydrogen production can be highlighted. This project that has recently been proposed for an IPCEI aims at developing an H₂ production capacity of 5 GW. The green electricity needed would be generated by PV and the construction of a 5 GW PV manufacturing plant has been added to the project for this purpose (with Ecosolifer and Meyer Burger as manufacturers). The project is still in a draft state and could further integrate PV.



Even if an IPCEI on PV alone could make sense, there is much **time to gain by “jumping on the train”** of green hydrogen. Another of the 6 identified key SVCs to consider connecting to is the low carbon industries. Meetings are planned in January by DG GROW for discussion on **low carbon industries** and **H₂ SVCs**. This would be a good opportunity for PV to connect with the industries of those sectors.

Other ideas for an IPCEI on PV were discussed. Within the frame of an FID project, a proposal was put forward to construct scaling-up lines for several new (= 1st of a kind) technologies (e.g. 1 GW of each of 4 or 5 technologies).

To gain time, a question was also raised whether a project could be started without waiting for the approval from the EC on the IPCEI. The answer from DG GROW was that it could potentially be started at risk, once at least the process of application to the MS has been launched. It must be kept in mind that state aid must be an incentive for projects that would otherwise not have been able to be set up and financed without the aid.

Broader considerations on the European context for PV were also brought to the discussion. Some of these are reported here.

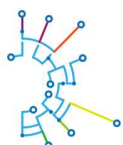
It was emphasized that there is still a **very strong R&D ecosystem** for PV in Europe with significant funding. However, what is lacking is industrial take-off and this could be changed by appropriate support from the EC. European PV can be competitive (with a 1,5-2GW factory, as shown by a study from Fraunhofer-ISE) but there are **barriers to the investors** and these should be taken away. There could for example be credit guarantees (like in China).

Specific business cases could also be developed, like for example synergies with major industrial sectors that are the **automotive and building sectors** (BIPV, by nature, will be local manufacturing). A better securement of Intellectual Property could also allow to keep new developed technology for manufacturing in Europe.

Carbon footprint and recyclability should also be considered as important assets of European PV manufacturing, which could be promoted by adequate policies.

Some very positive perspectives were also reminded by the EC representatives that were present: those are the massive financing of RES that will come through the Green Deal and the significant investments in green energy that will be done by the EIB (vs. recent announcement of phasing out fossil fuel investment)

As a general conclusion to the workshop, a detailed strategy for European PV manufacturing must be drawn and a **mapping of all possible financing instruments** be established. Based on this, financing solutions will be identified and implemented, keeping **IPCEI as a (parallel) option for a joint project with key SVC**.



5 . C o n t a c t s

Task Leader

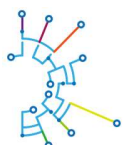
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Annex : Presentations

Presentation on IPCEI process – R. Peduzzi – DG COMP



EU rules for Important Projects Of Common European Interest (IPCEI)

Directorate General Competition
Unit H2 – R&D&I, IPCEI and Environment

The views expressed in this document are those of the author and may not in any circumstances be regarded as stating an official position of DG Competition or of the European Commission.

Competition



Background

- The notion of "Important Project of Common European Interest" is laid down in Art. 107(3)(b) TFEU as part of the State aid rules
- It is a specific possibility to find aid compatible with the internal market, but was in the past rarely used (e.g. some collaborative R&D programmes, some infrastructure projects)
- In 2014, the Commission revived this clause by adopting a dedicated Communication laying out the conditions for its application. Until now, was used for 1 infrastructure project decision (Fehmarn Belt fixed rail-road link between Denmark and Germany) and for R&D project (Microelectronics - Germany, UK, France and Italy)

2

Competition





Advantages of an IPCEI (compared to other State aid rules)

- The existence of the **market failure** affecting the project can be presumed
 - Under normal R&D&I aid rules, this needs to be clearly demonstrated for larger projects
- The project can be aided up to 100% of the funding gap on the basis of a large set of **eligible costs** (detailed in Annex)
 - Under normal regional aid and R&D&I aid rules, there are upper limits and the closer to the markets, the lower the caps
- Costs of **first industrial deployment** (i.e. between pilot/demo line and before start of mass production) are considered eligible
 - Under normal R&D&I aid rules, this is not possible. Under regional aid rules, aid is only allowed for investment in assisted regions

3

Competition





What are IPCEI projects about?

- **Contribution to Union objective(s)** and significant impact on economic growth, sustainability, or value creation across the EU
- Project involving **more than one Member State**
- **Positive spillover effects** on internal market/Union society; benefits not limited to participating Member States & companies
- **Co-financing** by the beneficiary
- In case of R&D&I, projects must be of a **major innovative nature** or of important added value in the light of the state of the art in the sector
- First industrial deployment covered where it allows for the **development of a new product** with high R&D&I content or of a **fundamentally innovative production process**

4

Competition





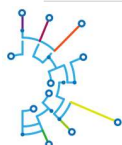
Assessment under IPCEI Communication

A. Eligibility criteria

1. Definition of a project (single or integrated project)
2. Common European interest
3. Importance of the project

B. Compatibility criteria

1. Necessity and proportionality of the aid
2. Prevention of undue distortions of competition & balancing test
3. Transparency





A. Eligibility criteria

1) Single project or integrated project

'Integrated project' = a group of single projects, inserted in a common structure/roadmap or programme, aiming at the same objective and based on a coherent systemic approach

The **individual components** may relate to separate levels of the supply chain, but must be **complementary & necessary** for the achievement of the important European objective





A. Eligibility criteria

2) Common European interest

General cumulative criteria:

- 1) Clear, identifiable and important contribution to one or more Union objectives (e.g. KETs, etc.) and significant impact on competitiveness of the Union, sustainable growth, addressing societal challenges or value creation across the Union
- 2) More than 1 Member State (*preferably several*)
- 3) Benefits must not be confined to the financing Member States, undertakings or sector(s) concerned, but must be of application to the European economy or society through **positive spillover effects** which are clearly defined in a concrete and identifiable manner
- 4) Co-financing by the beneficiaries

+ Positive indicators (e.g. open to all MS, involvement EC, co-financing by Union funds)

7

Competition





A. Eligibility criteria

2) Common European interest

Specific criteria:

- i. **R&D&I projects** must be of **major innovative nature** or constitute an **important value added** in terms of R&D&I in the light of the **state of the art** in the sector concerned
- ii. **Projects comprising of industrial deployment** must allow for the development of a new product or service with **high research and innovation content** and/or the deployment of a **fundamentally innovative** production process. Regular updates without an innovative dimension of existing facilities and the development of newer versions of existing products do not qualify as IPCEI

3) Importance of the project

Project must be quantitatively or qualitatively important; either particularly large in size or scope and/or imply a very considerable level of technological or financial risk

8

Competition





B. Compatibility criteria

1) Necessity and proportionality

Maximum aid = funding gap and up to 100% of eligible costs

- **Funding gap analysis**
- **Eligible R&D&I costs**
- **Eligible FID costs**
 - Upscaling of pilot facilities or first-in-kind equipment and facilities, which covers the steps subsequent to the pilot line including the testing phase, but neither mass production nor commercial activities
 - As long as FID follows on from an R&D&I activity and itself contains a very important R&D&I component which constitutes an integral and necessary element for the success of project

2) Prevention of undue distortions of competition & balancing test

3) Transparency

Competition





Good practices

- ✓ Openness for all Member States to be able to participate
- ✓ Involvement of the Commission in designing the IPCEI
- ✓ Intense (and early) cooperation/joint work streams between Member States; Member States build up the overall project **together**
- ✓ Certain coordination of timing and decision-making of Member States (e.g. budget commitments)
- ✓ Selection of participating companies via open calls
- ✓ Thorough preparation of all documents by the Member States
- ✓ If many participants: template documents are useful
- ✓ The approach in every IPCEI is case specific – different technologies





Messages for IPCEIs

IPCEIs are NOT about

- Support for mere building of production capacity, factories and mass production lines
- Boosting the competitiveness of the aid beneficiaries

Vigilance, especially on FID, needed due i.a. to potential anti-cohesion aspects, high distortive potential, and WTO risks

IPCEIs are about

- ✓ Disruptive and ambitious research and innovation, beyond the state of the art in the sector
- ✓ Followed by first industrial deployment, which is the short period where very important R&D&I is still necessary, e.g. to scale up a pilot line
- ✓ Actions by the beneficiaries to generate positive spillover effects, throughout the EU, on the knowledge & results they generate in the IPCEI beyond their business as usual (quantitatively & qualitatively)

11

Competition

