

An Industrial Competitiveness Strategy for the Solar Value Chain in Europe

With the energy transition comes an industrial transformation. Some existing sectors are facing tremendous challenges and will require all the policy levers to ensure a socially just reconversion.¹ Other sectors hold new promises because of their inherent ability to provide concrete responses to new challenges.

The challenge facing Europe is how to benefit from these sectors and how to develop and scale up the technologies in these sectors. The digital revolution is also moving quickly into energy and will have a consequence on jobs in the sector, but will also bring new jobs with new skills and requirements. Developing an industrial competitiveness strategy addressing such clean tech sectors is an opportunity to benefit from this change, and for Europe to provide the right skills and training for its people to take advantage of the impending transformation of energy.

Addressing clean tech sectors in Europe now is essential from the perspective of jobs and growth. These are the sectors that must provide the new alternative employment and income for people across Europe, and it is therefore imperative that the European Commission acts now to coordinate the development of these industrial technology sectors in Europe. A strategy for clean technology industries should be urgently developed, to identify the means to scale up these sectors to deliver the low carbon economy in Europe, while supporting a reduction in all types of energy imports from third countries. This strategy should be built on the sectors with great potential in Europe to deliver jobs and growth now.

This strategy should dovetail with the ongoing work in the European Union Strategic Energy Technology (SET) Plan. Focusing on renewable energy growth, the development of energy storage, the development of electric vehicles and buildings within the industrial strategy would match the priorities of the SET Plan. Solar is the only technology that cuts across each of these strategic imperatives and as such makes it a technology that is perfectly suited to form the core of a European Clean Tech Industrial Strategy and Forum.

A key element of this strategy should be the convening of a clean tech forum to bring the sectors together to enable the creation of the strategy. The first step of this process would be best served by focusing on a unique and yet established clean technology sector to lead the development of the strategy.

The solar value chain is a unique opportunity for Europe

The solar value chain is one of the sectors with huge promise for Europe, and does not follow the same logic as conventional energy sectors. It is not an extraction industry tied to specific regions, but rather a mass-market industry able to quickly benefit from scale effects. It is not offering only top down, centralised energy solutions, but also consumer to consumer business models where aggregated loads will play a key role in our energy system. It offers empowerment to consumers through self-consumption in a way that no other energy source can.² Solar power also uniquely interacts with buildings and can play a huge role in the

¹ The EU Refining Forum is a good example of such an initiative

² In line with the contents of the European Commission's Guidance on Best Practices on Renewable Energy Self-consumption 2015

decarbonisation of buildings, and can create positive energy buildings.³ Solar power does not rely on a finite and carbon intensive energy fuel, but harnesses a clean and abundant resource.

For all these reasons, solar power is a unique technology. It is scalable, renewable and will become ubiquitous. More importantly, it is an extremely flexible technology with already established bridges with the chemicals, steel, buildings, storage, demand management response, digitalisation and e-mobility sectors, which will lead to a much greater diversification of the solar value chain in the years to come.

Europe simply cannot afford to miss this opportunity. The solar value chain is a means to achieve all the Energy Union's objectives, from innovation to consumer empowerment, from security of supply to decarbonisation.

What should this industrial competitiveness strategy achieve?

We believe that the industrial competitiveness strategy should have at its heart the objective of the EU *taking the global leadership on the existing and next generation of solar technologies, manufacturing and services*.

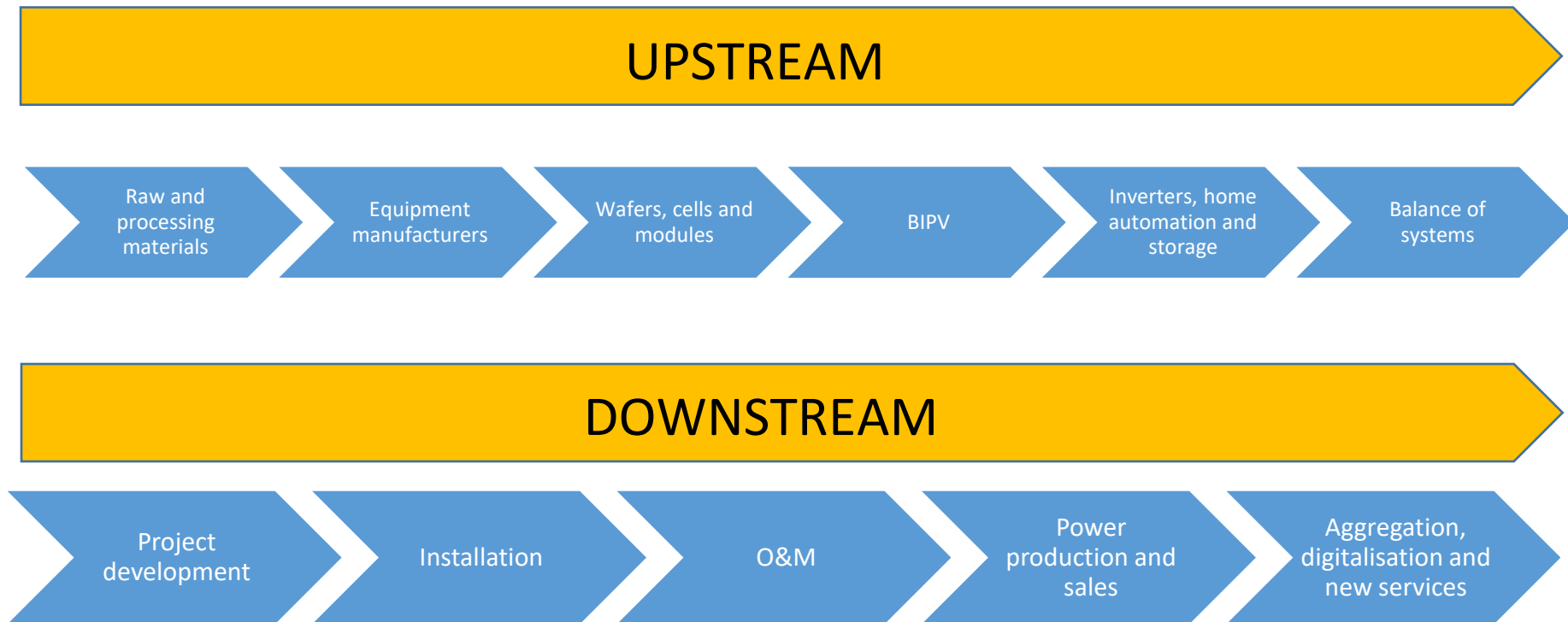
This leadership should translate into the following objectives:

1. The European solar industry is a key facilitator of a socially just energy transition by supporting 300,000 direct and indirect jobs by 2030, from around 120,000 today
2. That we reach 350GW of installed solar by 2030 with 75% from decentralised sources
3. That solar contributes 15% to electricity demand by 2030
4. R&D&I is adequately supported over the coming decade, across the value chain, especially in segments where Europe is currently a front-runner
5. European-based technology and service providers are present in all emerging markets and provide a substantial share of the European market
6. Ensure that at least 70% of the overall solar value chain remains in Europe

To achieve these objectives, we believe the starting point should be an honest assessment of the segments where Europe is front-running, but also of these segments where the international competition is well-established and successful. The figure below is a first attempt to capture these dynamics.

³ This is in line with the nearly-zero energy buildings concept in the Energy Performance of Buildings Directive 2010

Figure 1. The value chain of solar PV and the European potential for global leadership



The value chain of solar PV and the European potential for global leadership											
Segment	Raw and processing materials	Equipment Manufacturers	Wafers, cells and modules	BIPV	Inverters, energy positive buildings, home automation and storage	Balance of Systems	Project development	Installation	O&M	Power production and sales	Aggregation, digitalisation and new services to consumers
Share of jobs (2014 est. in EU 28)	0,7%	Spread across other segments	4%	NA	1,8%	7,5%	36%	29%	21%	NA	NA
Share of gross value added (GVA) (2014 est. in EU 28)	0,7%	Spread across other segments	5,1%	NA	2,4%	8,8%	40%	18%	25%	NA	NA
Estimated contribution to value of a solar system	10%	5%	30%	NA	10% (but can increase)	30%	7%	7%	1%	NA	NA
Potential for global leadership	High but increasing international competition	High but increasing international competition	Low for mass scale, established international competition; leading on niche products and possibility to maintain	High	Very high but increasing international competition	High	High, long experience which can be exported	High but less potential for export (local market)	Very high, long experience which can be exported	Very high, increasing experience on market integration of solar	Very high, Europe is front-runner
Examples of segment-specific actions	Efficient trade policy; access to third markets	R&D action; access to third markets	Access to third markets, R&D action; state aid and investment rules supportive	Supportive building legislation, standardisation	Eco-design / Ecolabel measures; R&D action; access to third markets; state aid rules supportive	R&D action; state aid and investment rules supportive	Favourable RES policy	Favourable RES policy	Promotion of good practices	Appropriate market design and retail competition, favourable RES policy	Appropriate market design and retail competition
Horizontal actions	<ul style="list-style-type: none"> • Identification of synergies and bottlenecks throughout the value chain • Smart financing for industrial and project development • Stable and strong European market for solar 										

Several European initiatives have been launched which can usefully contribute to create a strong solar industrial basis in Europe, from the recently concluded Key Enabling Technologies work to the SET-Plan. But they were disparate and always focused on only one segment of the value chain. None have offered a framework for building an industrial competitiveness strategy in a consistent and coherent manner for the entire European solar value chain as described above.

Existing initiatives have focused on specific segments within the value chain of solar in Europe, rather than taking a comprehensive view of how the value chain interacts and how economies of scale can be built through improved interaction in and between each segment. The purpose of this proposed initiative is to drive forward a coherent policy and drive a political commitment to developing the solar industrial segments in Europe. Equally as important, this initiative will prepare the ground for capturing the value and job creation potential of the next generation of solar technologies, which will be deeply intertwined with storage and digital technologies.

A first step in this process would be the delivery of a workshop with the European Commission to assess the various propositions enclosed in this document and to formalise the structure and coverage of a clean tech industrial forum. This should be held in Q2 2017 and involve representatives from across the Commission DGs and the relevant Commissioners' offices.

The concrete actions recommended for making Europe the world number one on solar

Action 1: identify how synergies can be created throughout the value chain by developing a concrete and actionable strategy for the competitiveness of the solar value chain. We need to ensure consistency and avoid that some policy initiatives which may temporarily benefit one segment of the value chain put at risk other parts of the value chain in the medium term. Additionally, and to keep pace with the fast-developing environment in the energy sector, regular reality checks with neighbouring sectors need to happen. This strategy should begin to be delivered by the end of 2017. Within the strategy specific tasks will need to be undertaken to ensure an update evidence base to work from, including: an employment and GVA study to update the figures from 2014, and production surveys such as the SolarPower Europe modules and cells market report but also for other segments in the value chain.

Action 2: provide a solid basis for a reality check via the creation a Solar Industrial Competitiveness Forum for Europe. To make sure that we have the knowledge of each of the segments challenges, we need to understand what each segment needs and bring all the parties together to agree what are the right tools and measures to grow the solar value chain and thus employment in Europe. Doing this requires the industry and the European Commission to discuss the current state of play and identify the challenges and possibilities for overcoming them. The first Forum should be established in Q4 2017 ahead of the third annual State of the Energy Union address, to showcase the potential of the solar value chain to Europe and the commitment of the European Commission.

As a first step, we would propose the following list of issues that could be included in the industrial competitiveness strategy, it is non-exhaustive:

- **Jobs, skills and growth**, an assessment should be made of the most likely segments to grow and means found to drive the growth of such segments through to be agreed upon initiatives, such as targeted segmental policies.

- **Renewable energy framework**, ensuring a strong market is a pre-requisite for a strong industry. Specific regulatory barriers but also best practices will be discussed.
- **Eco-design and Ecolabel initiatives** relating to solar PV systems – input and feedback to the process can be easily gathered from the industrial sectors in Europe.
- **Trade policy** can be discussed so that its implementation supports European companies access resources that are needed and promotes European products in third markets.
- **Improved access to investment funds** for European-based companies – joint ventures, venture capital and public/private finance instruments. This can be tied in with initiatives such as €315 billion Juncker Plan and the S3 Platform and would look to create opportunities under the newly created Mission Innovation. Concretely we would suggest the development of an online platform that combines all the existing initiatives in one easy to access space, that is run jointly with industry associations to help their members access information and apply for funds.
- **Development policy**, whereby solar can provide concrete, clean and cheap power solutions for supporting the economic development of developing countries. Specific support to the European Commission in its bilateral energy or free trade negotiations with developing countries would be provided to identify opportunities. Concretely here we would expect the European Commission to engage in match-making business forums in third markets and use funds to enable them and work with industry associations to promote awareness of these opportunities.
- **Ensuring that State Aid** rules are consistent with the promotion of solar and recognise the specificity of the technology. This should protect the status granted to KETs.
- **Research and demonstration needs**, to leverage the work done in the context of the SET-Plan and other forums. The strategy must also include the input of all the leading research institutions as they are also leaders in solar globally e.g. Fraunhofer ISE, INES, ECN, IMEC.

The conclusions of the annual Forum could then feed into the yearly State of the Energy Union assessment.

Action 3: prioritize actions and implement this industrial strategy as a key enabler for the achievement of our 2030 energy and climate targets. Given the new 2030 governance currently under discussion, the industrial aspects of the energy transition should be fully planned and monitored over time. This strategy would help identify the potential for job creation and reconversion.

Annex – Format of the Forum

This forum should bring together at the highest level of representation all the segments of the value chain that are vital to building a healthy and strong industrial competitiveness strategy for the solar value chain in Europe, and their counterparts in the European Commission.

The leading research institutes should be engaged in this strategy and therefore should have a seat at the table to inform the discussions of the latest breakthrough technologies expected in the solar sector. In this respect Fraunhofer ISE, IMEC, ECN and INES could be invited.

We would also recommend that to fully engage society both trade union and consumer representation (BEUC) should be present in the Forum to help shape its outcomes and actions,

with a focus on the skills and training that will be needed for Europe to truly benefit from the energy transition.

Given the importance of national decisions in the shaping of an industrial policy for solar, Member States should be involved.

Finally, we would propose that each segment of the value chain works through a taskforce to bring forward very specific proposals relating to their challenges and opportunities in Europe. SolarPower Europe as the coordinator will channel these taskforces and work with the European Commission DGs of relevance to ensure that a set of policy recommendations is created that reflects the needs of the entire value chain.