



**Deputy Director-General Patrick Child**

**European PV Solar Energy Conference and Exhibition (EU  
PVSEC)**

**Parallel event: Backing the European PV industry**

**SQUARE - Brussels Meeting Centre,**

**Rue Mont des Arts, Brussels, Belgium**

**Thursday, 27/09/2018**

**13:30**

## 2. SPEAKING POINTS

- Ladies and gentleman. I am happy to be speaking today at the largest international Conference for Photovoltaic research, at this session dedicated to backing the European PV Industry.
- There are 4 messages that I would like you to take away today: 1/We need to accelerate the transformation of the energy system to reach the targets set by the Paris Agreement; 2/ Photovoltaic (PV) technology is a pillar of the future energy system; 3/Europe's role needs to become one of technological leader in Photovoltaic and 4/To achieve this we have strongly supported the sector through Horizon 2020 and will continue to do so in Horizon Europe.

### 1. We need to accelerate the transformation of the energy system

- The transformation of our economy into a long-term sustainable economy is arguably the greatest global challenge for this century. The energy sector is, in addition, the main cause of man-made emissions of climate-influencing gases. Therefore, the transformation of our energy system is a prime task that has to be dealt with as quickly as possible.
- The Paris Agreement of 2015 showed the global consensus on the importance of this issue. However, the current growth of low-carbon energy share will not be enough. The combined pledges of all countries will not be sufficient to limit global warming to 2°C, let alone to 1.5°C.
- The message therefore is clear: We need to accelerate the transformation of the energy system, which is responsible for 65% of the world's current CO<sub>2</sub> emissions! Doing so will require policies that are more ambitious but also increased effort in research and innovation.
- In fact, the **EU wishing to maintain its leadership on climate action has to maintain/increase its leadership in research and innovation for**

**developing the renewable, zero-carbon energy solutions** towards full decarbonisation by 2050. At the same time, it will also ensure and grow the competitiveness and sustainability of its economy.

## **2. Photovoltaic (PV) technology is a pillar of the future energy system**

- Among all the renewable energy solutions, **photovoltaic (PV) technology is a pillar of the future energy system**: it can be deployed (in a modular and synergistic way) almost everywhere on this planet and at all scales.
- PV technology has experienced an amazing development during the last 15 years, becoming a significant player in energy supply and a truly global industry. It is characterised by rapid innovation and increasing cost-competitiveness.
- EU R&D has contributed to the impressive cost reduction of PV, through efficiency improvements and process technology development. However, the economies of scale, thanks to the market development in the EU and the industrial development in China, brought about a cost reduction by a factor of five in this short time span.
- **Still, PV has harnessed a small fraction of its vast potential.** According to any plausible scenario, photovoltaics is expected to provide a substantial share of global electricity generation and total energy demand. This opportunity raises a number of questions:
  - What technical, infrastructure or economic barriers do we need to overcome for PV to grow to the multiple terawatt (TW) scale?
  - **What future role does Europe want to play in this setup?**
  - What are the opportunities for the development of a novel PV industrial activity in Europe, and how to seize them?
  - How to face the strong international competition - common in a fast-developing sector?

- How to structure research and innovation and define R&I priorities so as to help achieve our objectives of jobs and growth for the benefit of the PV sector and EU as a whole?

### **3. Future role for EU: a technology leader in PV**

- I am convinced that **the answer to all these questions is technology leadership**: With continued sustainable price reductions, focused in further technological innovation, optimisation of supply chain flows, complementary technologies, differentiated products for different applications, the volume of PV products manufactured and installed in the coming decades would eclipse today's number.
- **Technology leadership, however, needs to be accompanied by important manufacturing capacities and strong supply chains across Europe.**
- Linking technology with manufacturing strength will be highly beneficial. It will guarantee strategic access to power generation technologies by keeping a manufacturing capacity for PV (i.e. security of supply), with positive impact on competitiveness and jobs.
- This ambitious scenario is far more beneficial for Europe than one, which assumes the concentration of PV production mainly in one geographic region of the world - Asia.

### **4. What support from the EC to achieve EU technological leadership?**

- To realise this, the European Commission involved Member States and private stakeholders and together with the European Technology and Innovation Platform (ETIP), we have set up the SET-Plan Implementation Plan for Global Leadership in Photovoltaics.

- **With Horizon 2020 we supported many of the identified R&I challenges:** High performance novel cell architectures, high throughput manufacturing processes, novel materials and concepts like Perovskite-Silicon tandem cells, Building Integrated PV (BIPV), etc. Our invited projects will present today what they have achieved so far towards the challenge they have undertaken.
- In addition to supporting R&I projects under Horizon 2020 **we launched with** the European Investment Bank (EIB), an innovative, sectoral debt facility, **the InnovFin Energy Demo Projects facility, to support first-of-a-kind demonstration projects** in the fields of renewable energy, energy storage, smart grids etc. Under this scheme, Oxford PV Germany GmbH, for example, got support for the transfer of its perovskite - silicon tandem solar cell technology from lab scale to commercialisation.

## **5. What future support through Horizon Europe?**

- **The path towards technology leadership will continue with Horizon Europe**, the new framework programme that the European Commission has put forward for the period 2021-2027 with a proposed budget of €100 billion.
- Learning the lessons from Horizon 2020, the Horizon Europe design and implementation modalities will rationalise the EU funding landscape for R&I, and maximise its impact, its relevance to society and its potential for breakthrough innovation.
- There will be a strong degree of continuity: three pillars, excellence at the core, changing as little as possible in rules and procedures for participation.
- The first pillar ('Open Science') will provide bottom-up support to frontier science.
- The second pillar ('Global Challenges and Industrial Competitiveness') will provide support to collaborative research and innovation for addressing the grand challenges of our time, as embodied in the UN's sustainable

development goals. This pillar will be implemented through usual calls for proposals, through a streamlined set of partnerships and through missions.

- The third pillar ('Open Innovation') will foster market-creating innovation through the European Innovation Council (EIC). This pillar will also support European innovation ecosystems, and it will include the European Institute of Innovation and Technology.
- Energy issues will mainly be dealt with in cluster 4 'Climate, Energy and Mobility' of the second pillar, for which EUR 15 billion have been proposed. Intervention areas of this cluster include climate science, energy supply, energy systems and grids, communities and cities, industrial competitiveness in transport, clean transport and mobility, smart mobility and, importantly, energy storage.
- The two key novelties are a new focus on scaling up breakthrough market-creating innovation through the establishment of a European Innovation Council; and a mission-oriented approach, which will be designed to engage the public and achieve ambitious, time-bound goals that will benefit society.
- The Horizon Europe proposal is now being examined by the European Parliament and the Council. Both have received the proposal in a very positive mind-set.
- With Horizon Europe we can maximise impact, we can deliver on technological and society needs, and we can make a difference.
- With Horizon Europe we will set a new level of ambition to face the challenges for Europe's global leadership in renewables.
- To reach the objectives set in the Paris Agreement, we need to accelerate the transformation of the energy system through sustained investment in research and innovation. Photovoltaic technology is a pillar of this future energy system and the EU and Europe's role in this set up will be one of

technological leader, which will be achieved through sustained support through Horizon Europe, the new EU's research and innovation framework program.

- Almost 200 years after Becquerel's discovery of the PV conversion of light to electricity, the realisation of this vision is both more urgent than ever and within our grasp.