



TECHNOLOGY PLATFORM

# Creating new opportunities for Europe

Vision of the European Photovoltaic Technology Platform

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on behalf of the Steering Committee

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# PV in a period of transition

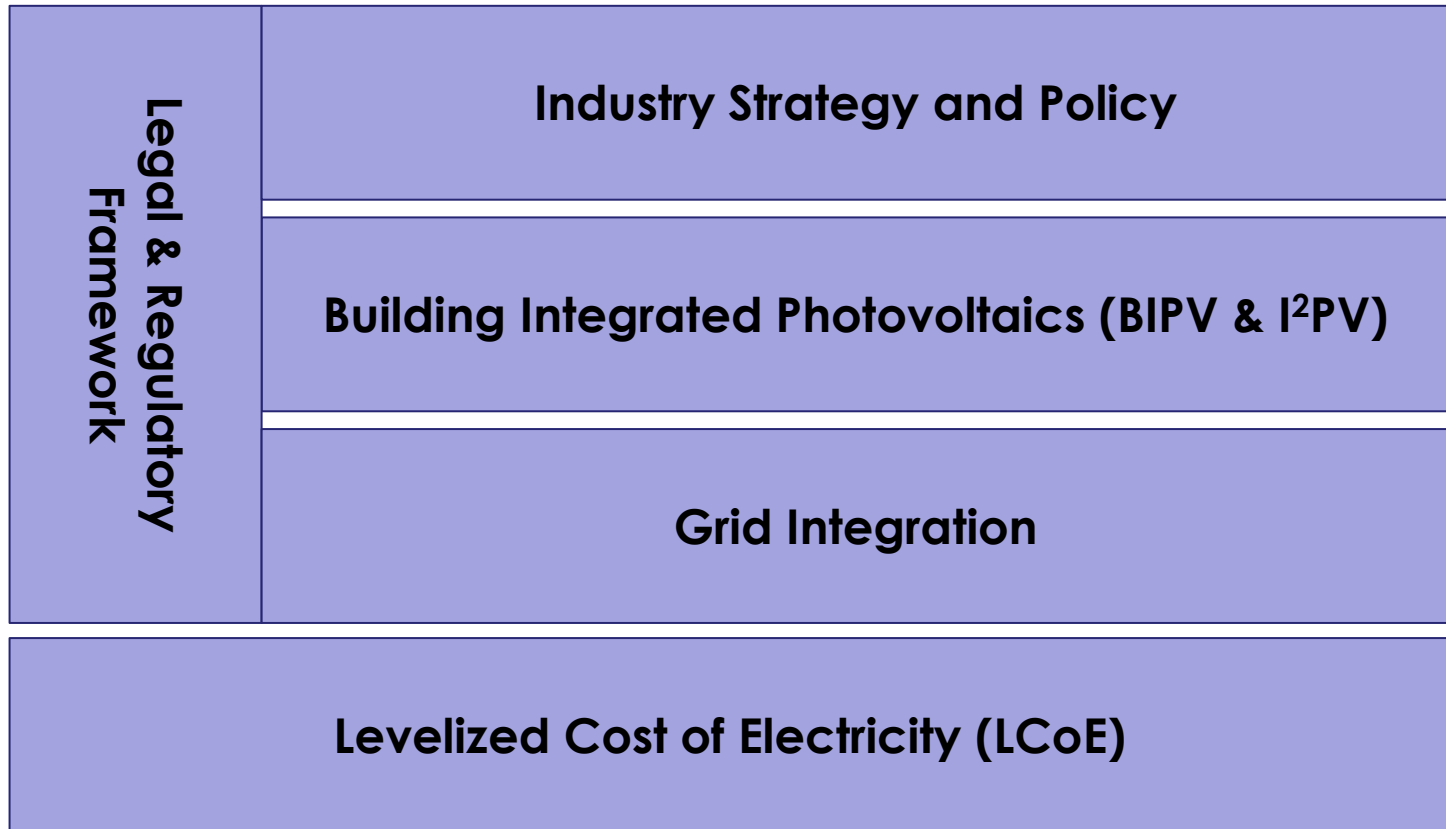
## FROM:

- ▶ Technology-driven developments
- ▶ Incentive-driven markets
- ▶ Small contributions to the energy system
- ▶ Growth limited primarily by generation cost, not by integration
- ▶ Strong position of Europe over the entire value chain

## TO:

- ▶ Market- and application-driven developments
- ▶ Self-sustained commercial markets within a sustainable market design
- ▶ Major contributions to the energy system
- ▶ Growth limited primarily by integration, not by generation cost
- ▶ Fierce global competition; Europe's position continuously challenged

# Key areas of PV TP action identified



## Identify and foster opportunities over the value chain for globally competitive manufacturing in Europe

- Analyse critical success factors and define actions needed
- Support EU and national governments in designing appropriate strategies and policies

# Industry Strategy and Policy

|   |   | Current position<br>(per sub-<br>element)   | Future<br>perspectives and<br>opportunities | Advised actions<br>(science and<br>technology,<br>market, policy,<br>etc.) |
|---|---|---|---|--|
| R&D, consultancy<br>and other<br>technical services<br><br>IP management<br><br>Overall quality<br>control<br><br>Financing,<br>insurance and<br>other non-<br>technical services | Production and<br>supply of materials                             | Fabrication and supply of<br>manufacturing, testing<br>and measurement<br>equipment | .....<br>.....<br>.....                     |  |
|   | Fabrication and supply of PV cells and<br>laminates/modules/foils |   |   |  |
|   | Fabrication and supply of<br>(BoS) components for<br>PV systems   | Fabrication and supply of<br>(BI en I <sup>2</sup> ) PV elements                    |   |  |
|   | System integration and supply of PV systems                       |   |   |  |
|   | Installation of PV systems  | Development of<br>PV projects   |   |  |
|   | Exploitation, management and maintenance of PV<br>systems         |   |   |  |
|   |   |   |   |  |

# Building Integrated Photovoltaics

## Bring BIPV from niche to mainstream

- Narrow the cost gap with other forms of PV
- Combine standardisation and flexibility
- Joint effort with building sector
- Link with energy efficient & positive energy buildings
- Provide input for practical, (more) harmonised norms, codes and procedures

# Grid Integration

## Enable massive deployment of PV in the power system

- Full-system integration:
  - Electricity market:
    - Rules for electricity trading and barriers to PV
    - Economic value of PV electricity
    - Aggregation mechanisms, combination with demand-side management
  - Power system enabling more than 20% of annual electricity from PV:
    - Transmission system design
    - Energy mix and seasonal and/or central storage



# Grid Integration

- Integration at low voltage level
  - Micro-grids and related concepts:
    - AC and DC micro-grids
    - Building energy management systems
    - Distributed energy storage
  - Energy economics and regulations:
    - Financing of distribution system infrastructures
    - Innovative tariff structures and metering schemes
    - Forecasting (mandates and technology)
  - Advanced features of inverters

# Legal and Regulatory Framework

## Provide support to the other Working Groups

- Analysis of the evolutions of the regulatory framework that have impact on market deployment
- Supportive regulatory frameworks for industrial development in Europe
- Legal status quo for the use of PV in buildings; Identification of best practices and gaps

# Legal and Regulatory Framework

- Analysis of the current Internal Energy Market rules: what is the impact of the unbundling regime on the TSOs and DSOs capabilities to ensure balancing
- Analysis of the different national regimes for trading PV electricity

# Levelized Cost of Electricity

**Identify the main drivers to reduce PV LCOE, covering different country profiles, technologies and market segments**

- Analyze and discuss ongoing efforts (Agora Energiewende/Fraunhofer, SEMI/ITRPV, IEA, etc.)
- Select learning curves and/or bottom-up approaches to be used
- Find sources for realistic OPEX values

# The Vision summarized

- PV offers great opportunities for energy and economy
  - offers no country or region can afford to refuse
  
- Europe kick-started global developments
  - positioned to take part in the “end game”
  
- Competition is and will stay strong
  - focusing and joining forces are essential for success

# The Vision summarized

- The European Photovoltaic Technology Platform brings together all stakeholders
  - credible to support realising European ambitions

**Thank you for your attention!**