Eleni Despotou
EPIA Secretary General

EPIA
European Photovoltaic Industry Association

Unlocking the Sunbelt Potential of Photovoltaics

COP16 - Cancun, December 2010

Agenda

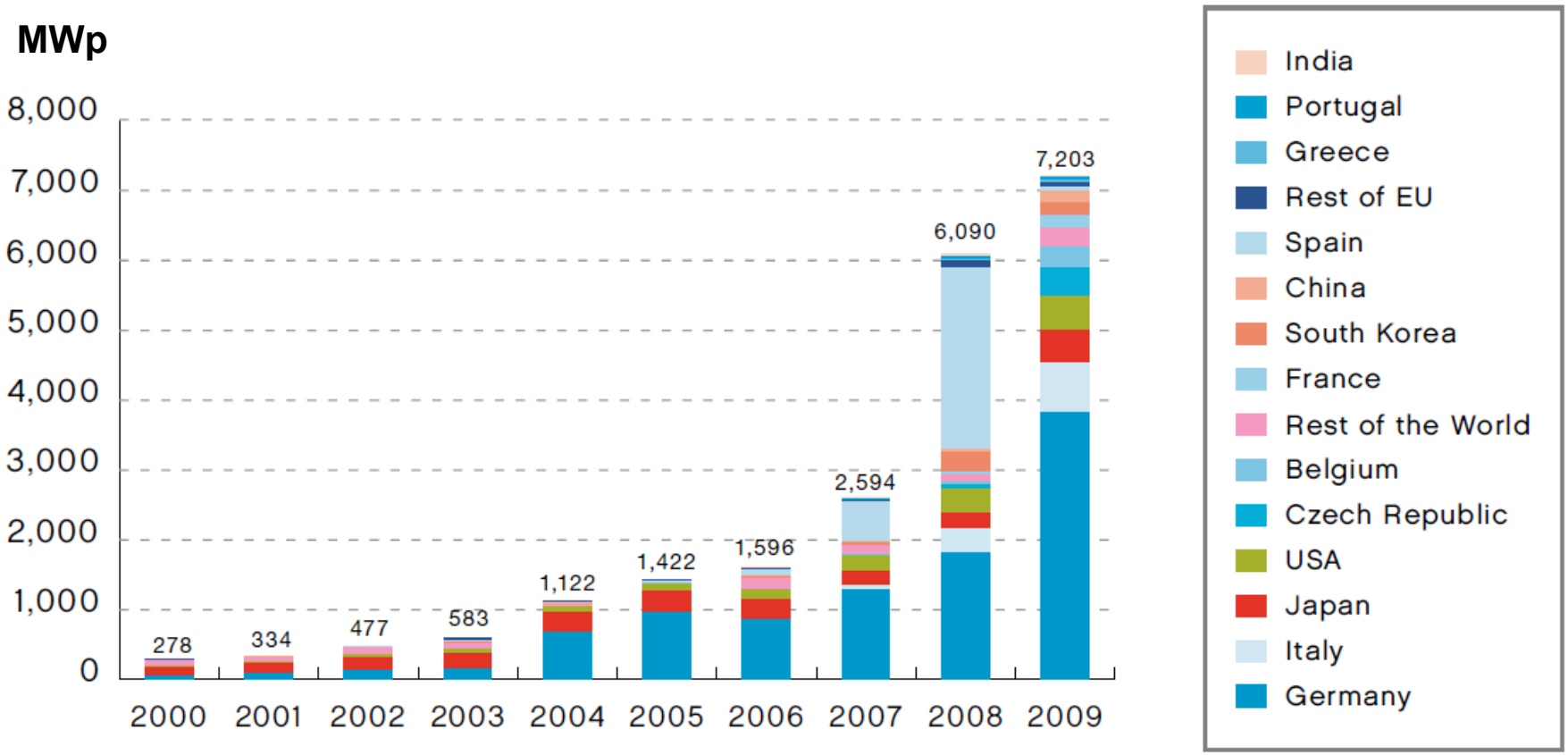
1. Recent market evolution
2. Unlocking the Sunbelt PV Potential
3. Key conditions for market deployment & stakeholders
4. Solar and climate change
5. Conclusions

EPIA
European Photovoltaic Industry Association

1. Recent market evolution

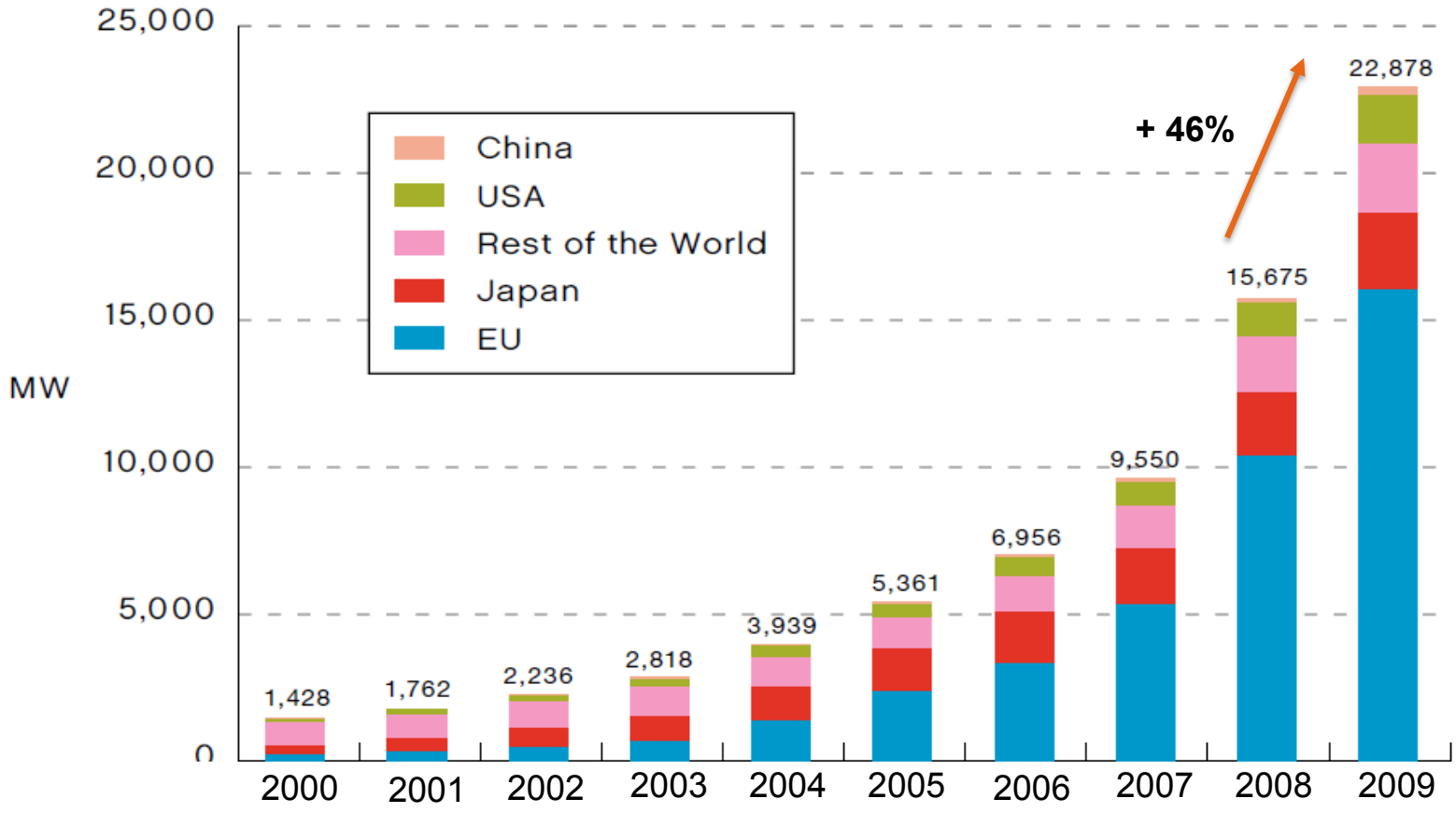
World-wide Market in 2009

In 2009, global market was 7.2 GWp



World-wide cumulative installed capacity

In 2009, cumulative installed capacity grew 46% at 23 GWp

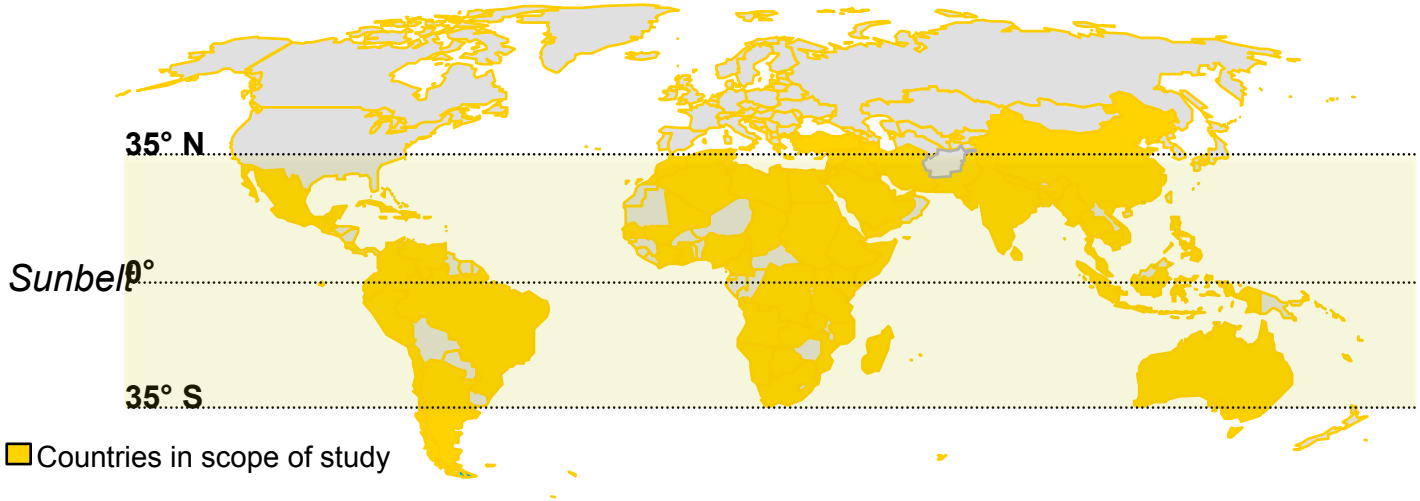


EPIA
European Photovoltaic Industry Association

2. The PV potential in Sunbelt Countries

Sunbelt regions, a tremendous PV opportunity

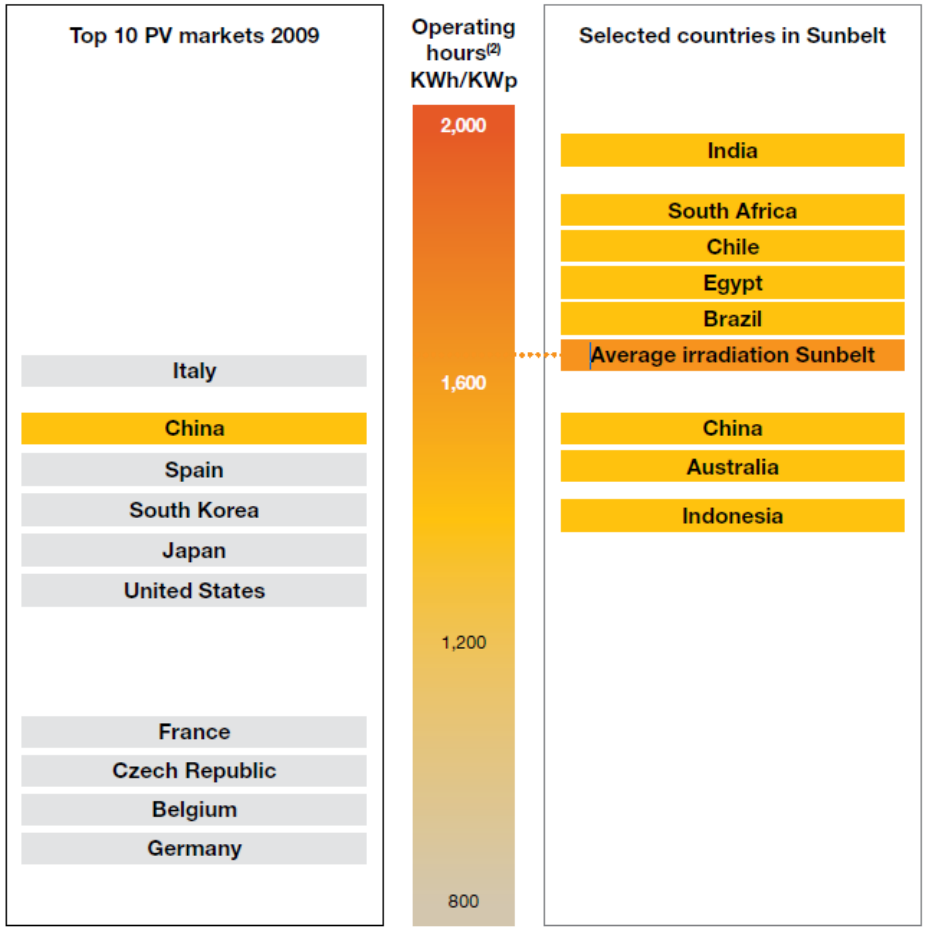
1. 66 Sunbelt countries represent respectively **~75% of 6.7 bn world population** and **39% of the 17.900 TWh** world electricity demand
2. Electricity consumption will **grow by ~150% within the next 20 years**
3. **1.5 bn world citizen** have no access to electricity



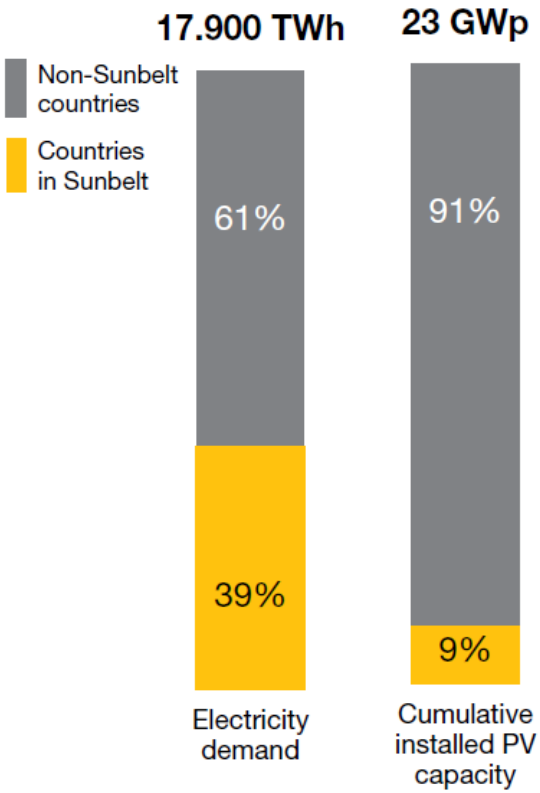
4. Poor infrastructure and **high electricity costs**
5. Very **high solar irradiation**
6. PV, already competitive in some countries will become competitive with **all peak generation by 2020 and most generation technologies by 2030**

However, less than 10% of PV capacity is installed in Sunbelt countries

Irradiation vs. Market size (2009)

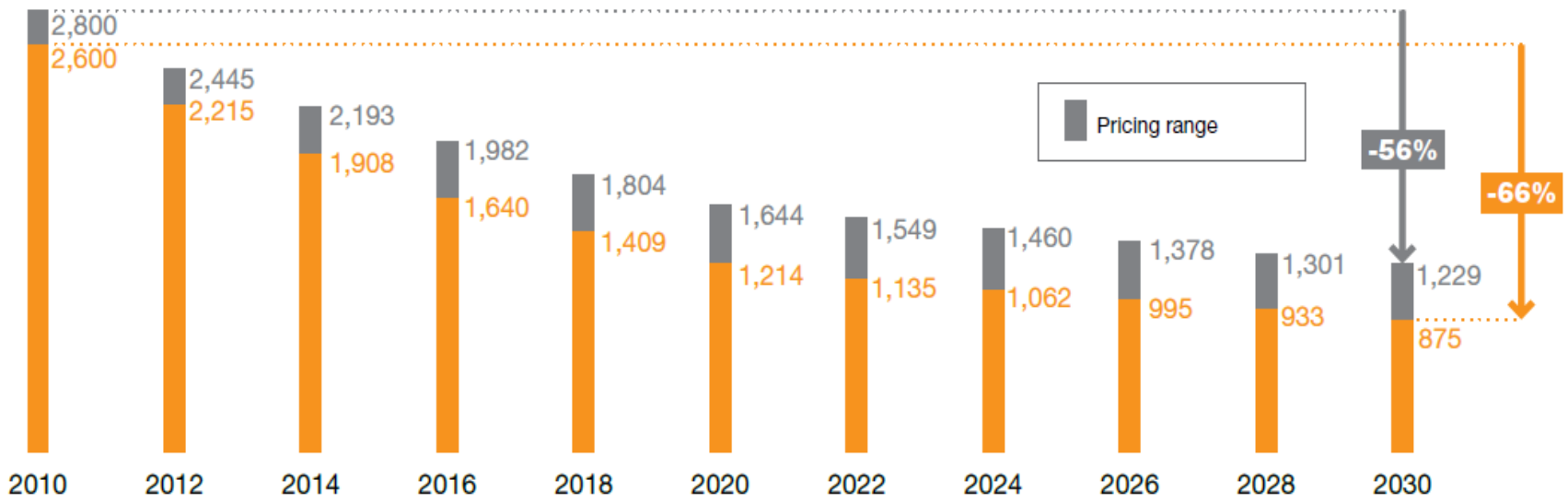


Share in power demand and PV capacity



PV system prices expected to decrease 56% - 66% by 2030

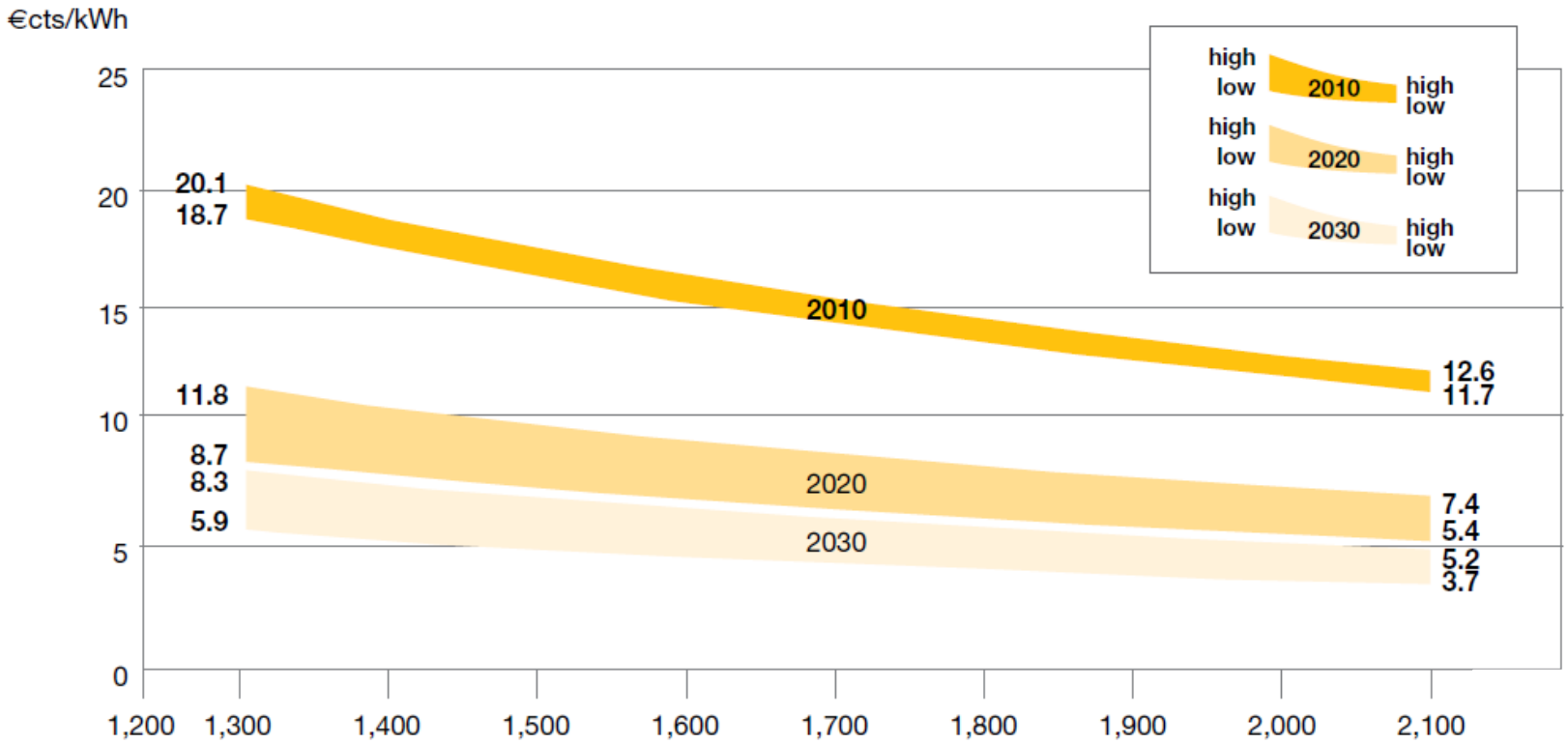
PRICING CAPABILITY FOR LARGE PV SYSTEMS (€/kWp)



Assumed price capability development is in line with price projections from the IEA PV roadmap 2010 report

PV LCOE in Sunbelt could reach 4 - 8 €c/kWh by 2030

PV LCOE RANGES (€c/kWh)

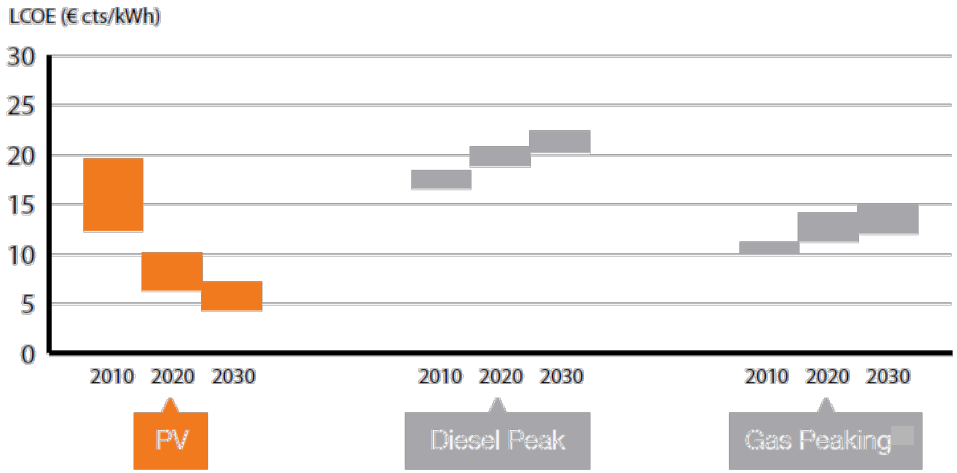


Operating hours (kWh/kW$_p$)

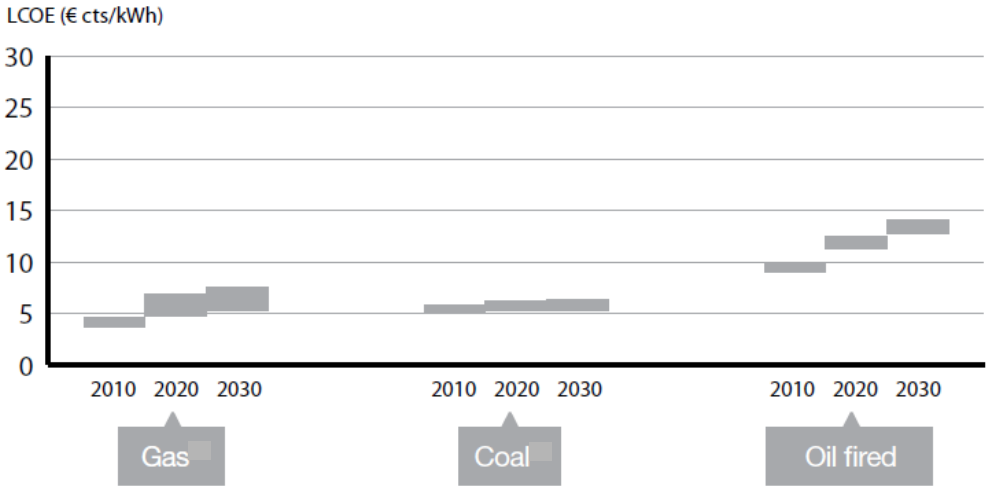
PV can be competitive with all peak load generation by 2020 and with mid-load by 2030

Comparison of LCOE - LOW case fuel projection

Peak Load energy sources



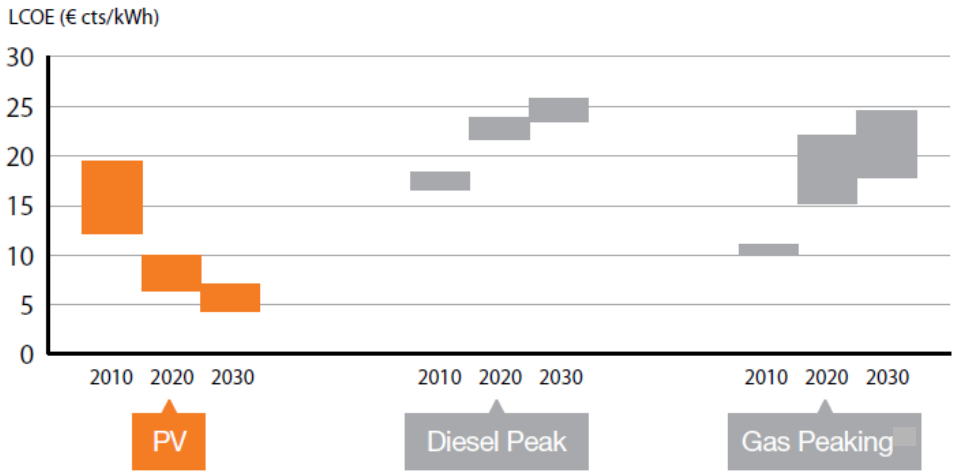
Medium Load energy sources



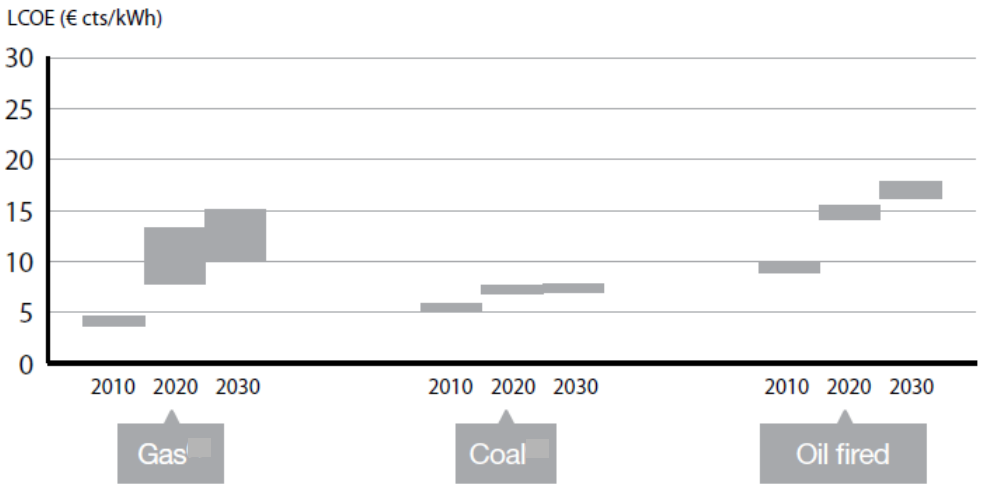
In a “high” fuel-price scenario, competitiveness is reached earlier and is more pronounced

Comparison of LCOE- HIGH case fuel projection

Peak Load energy sources



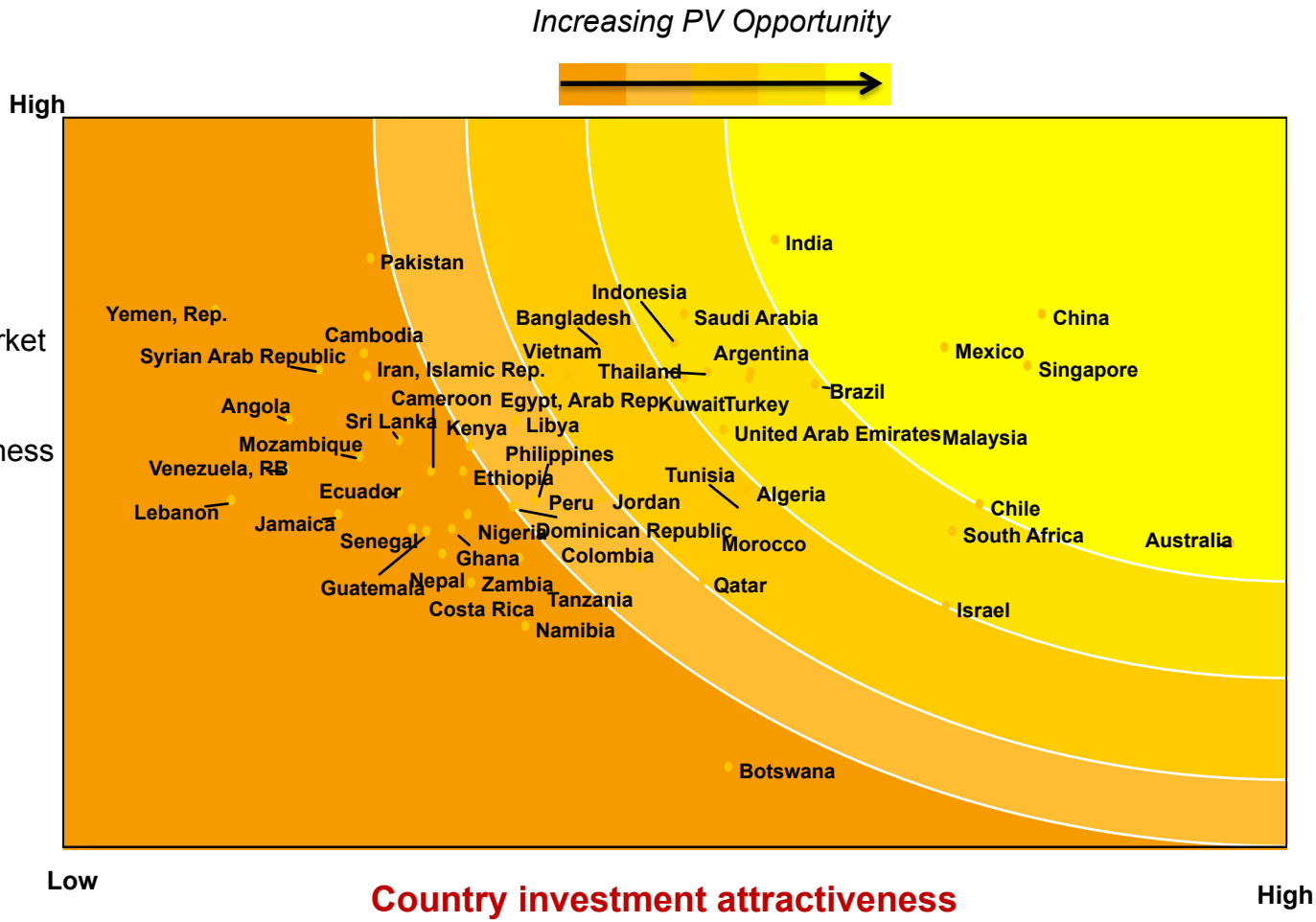
Medium Load energy sources



PV opportunity depends on the investment climate & PV attractiveness for a given country

PV attractiveness for country

- Size of electricity market
- e-demand growth
- PV Cost competitiveness
- Generation portfolio
- Power grid losses
- Power grid coverage

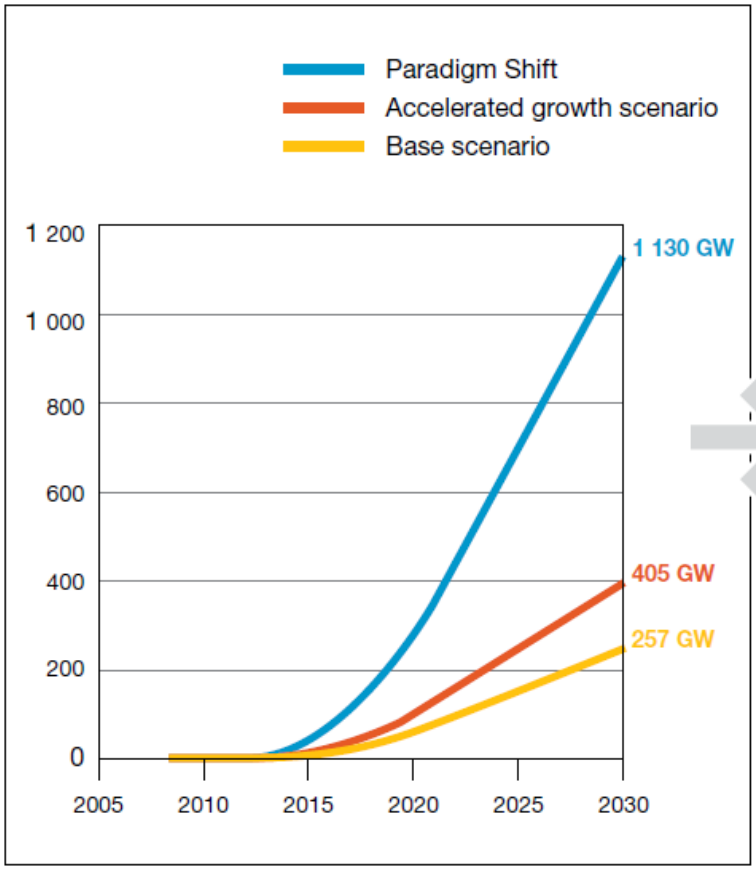


Country investment attractiveness

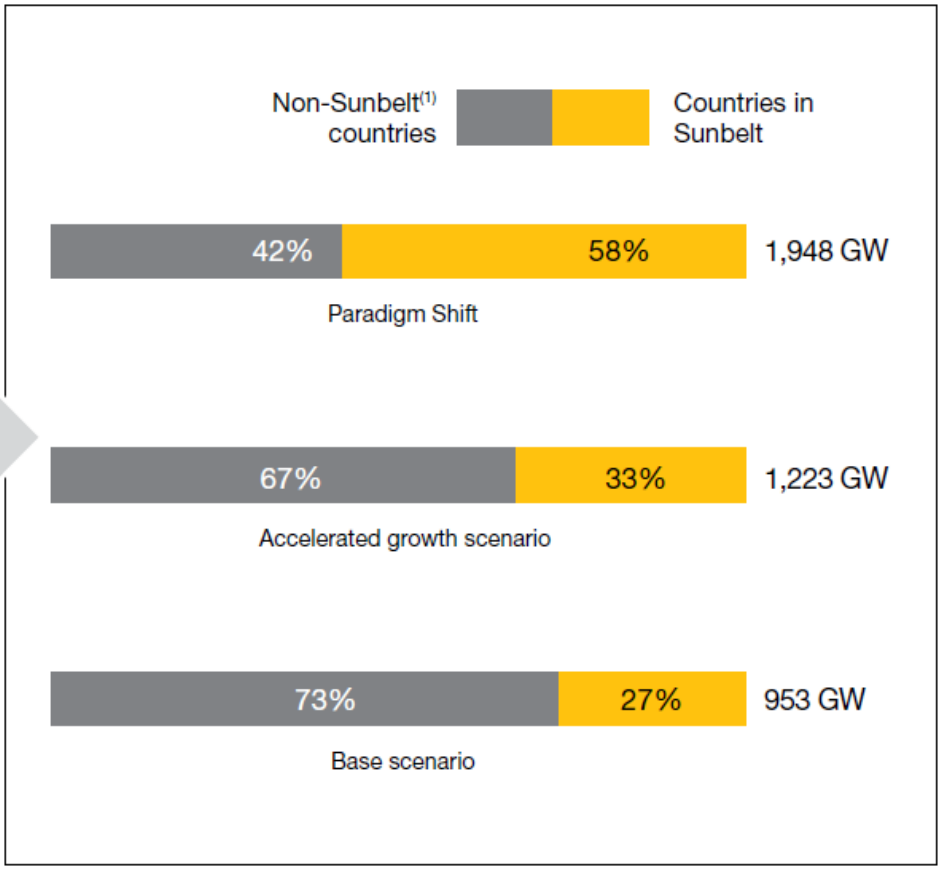
- Market potential
- Political and business environment
- Financial stability
- Policies on renewable energy

Sunbelt potential may reach 260 - 1.130 GW
30% - 60% of Global Installed capacity in 2030

Scenario's Installed PV in Sunbelt (GWp)

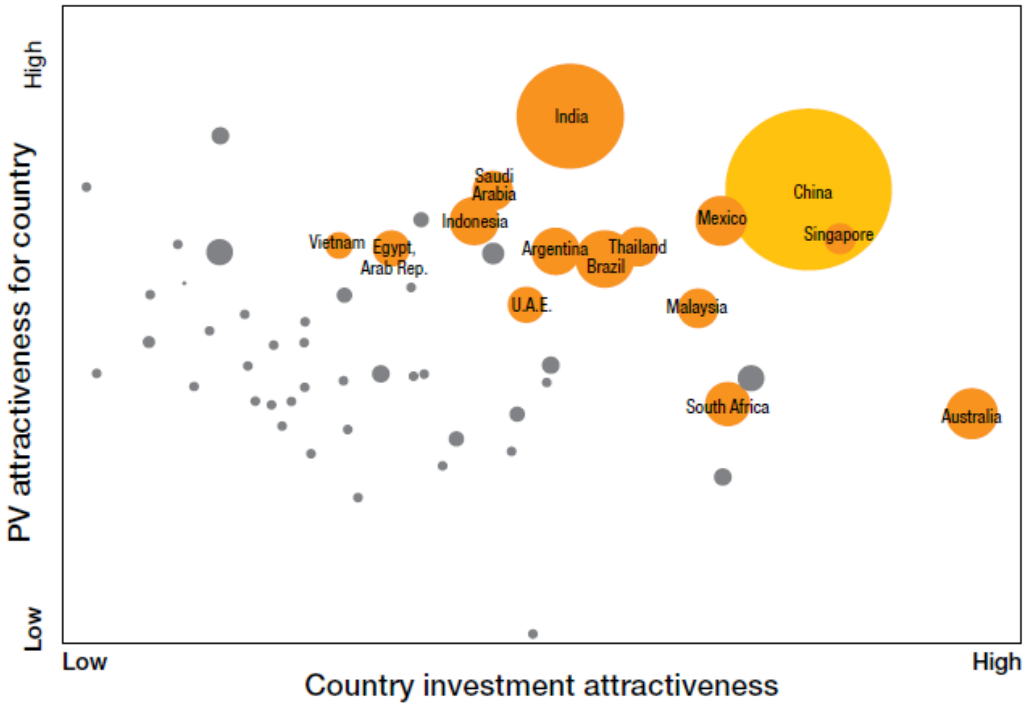


Share in global cumulative installed PV capacity by 2030 (GWp)



Apart from China, the 15 "middle" markets represent sizeable opportunities on their own

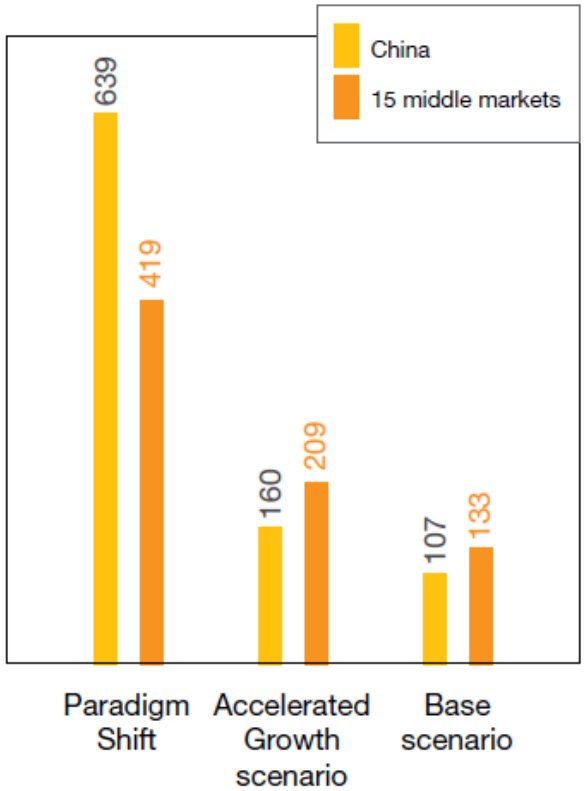
PV potential by 2030 in Paradigm Shift (GWp)



China 15 middle markets Other Sunbelt markets

Size of bubble = PV Potential 2030 in GWp (Paradigm Shift Scenario)

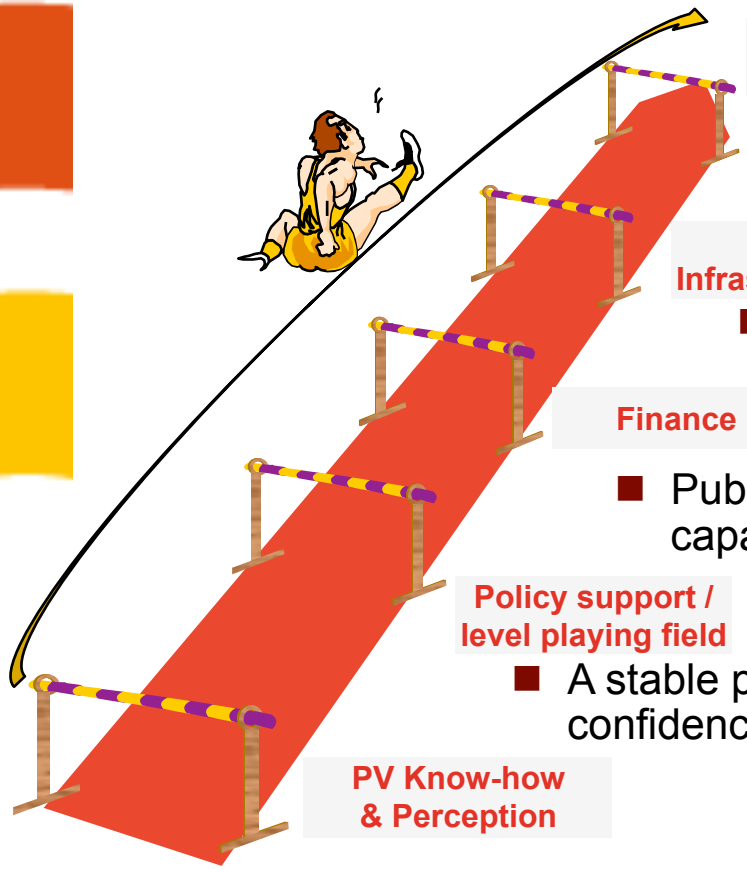
Comparison of PV potential by 2030 (GWp)



EPIA
European Photovoltaic Industry Association

3. Key conditions for market deployment & stakeholders

Conditions to Unlock the Sunbelt Potential



Implementation & Service

- Established PV companies need to take market making actions to create ecosystem for growth

Grid Infrastructure

- Grid operators need to understand the multiple benefits of PV especially as peak generation technology

Finance

- Public and Private investment will ne necessary to finance capacity building and to provide the necessary impetus

Policy support / level playing field

- A stable policy environment is necessary to provide investment confidence and support deployment during pre-competitive phase

PV Know-how & Perception

- Awareness building and information campaign regarding PV is needed among opinion and decision makers in Sunbelt

EPIA will play a catalytic role in realizing conditions for market deployment in the Sunbelt

EPIA
European Photovoltaic Industry Association

4. Solar and climate change

Solar COP16 initiative

- EPIA and SEIA are leading a global solar initiative that has brought together more than 40 international solar organizations.
- We are asking political leaders taking part in the COP16 negotiations to support solar energy as a key solution to fighting climate change, reducing greenhouse gases emissions and bringing clean electricity to both the developed and developing world.

SOLAR POWER
MORE ENERGY
LESS CO_2

Our expectations

- Cancun might not deliver an international binding agreement but should prepare the terrain to close a deal before expiration of fist commitment of Kyoto Protocol in 2012.
- Measures on adaptation, mitigation, technology transfer or climate finance should be part of the outcomes of this summit
- Also governments taking part in COP16 should be ready to advocate for a clear shift to renewable energy sources to reduce the world´s dependence on conventional fuels and satisfy the energy demand of a growing population
- Solar energy technologies are available now and ready to deliver energy with environmental and economic benefits.

EPIA
European Photovoltaic Industry Association

Conclusions

Conclusions

- PV taps into unlimited, indigenous energy supply and can make a sizeable contribution to meet rising power demand.
- The full potential of PV still remains untapped worldwide, especially in the Sunbelt region.
- **PV competitive potential is massive.** In Sunbelt Countries, PV LCOE will reach
  - **12 - 20 €c/KWh currently**, making it competitive with diesel peak generation
  - **6 - 12 €c/kWh in by 2020**, making it competitive with all peak generation technologies
  - **4 - 8 €c/KWh by 2030**, making it competitive with most generation technologies
-

Conclusions

- Depending on the scenario, PV potential in Sunbelt Countries could range from **60 to 250 GW by 2020**, and from **260 to 1,100 GW in 2030**, representing 27-58% of the forecasted global installed PV capacity by then.

- A clear shift by decision-makers to support policies that stimulate deployment of solar energy is crucial to provide a clear direction for the green transformation of the world's economy
- Solar energy has the potential of being a major player in global mitigation efforts if the right policies and incentives are put in place now

Obstacles continue to be political, not technical!

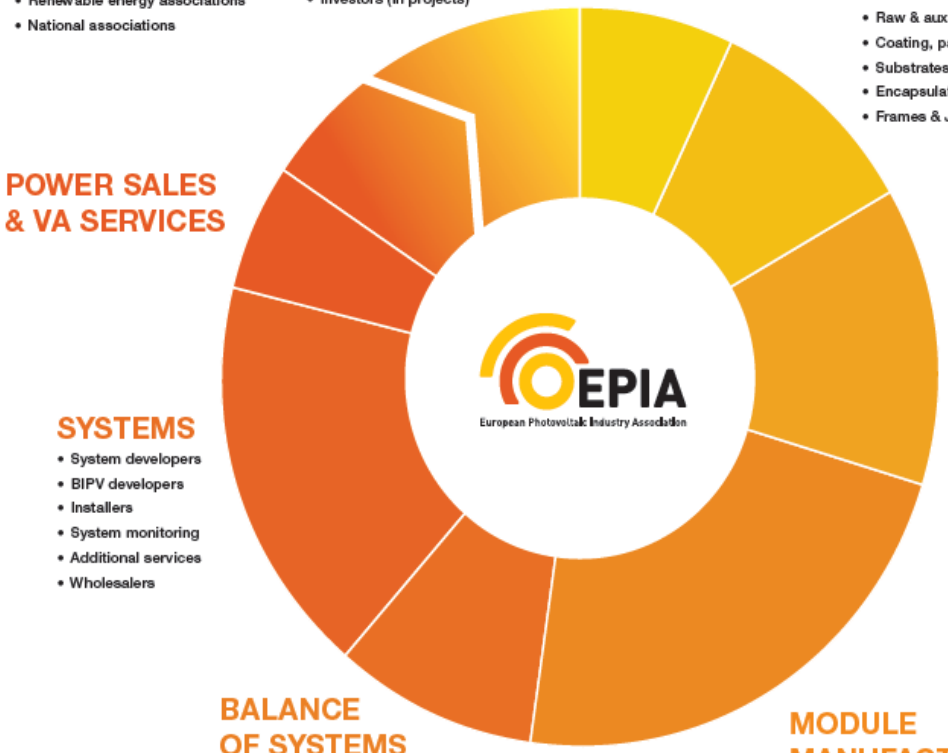
-

About EPIA

The world's largest industry association devoted to the solar PV electricity market

About EPIA

From the whole industry value chain



ASSOCIATE MEMBERS
- Decommissioning & repowering
- Quality control & testing organisations
- Governmental institutions
- Renewable energy associations
- National associations
- Research organisations
- Consultancy firms
- Banks
- Investors (in projects)

FABS & EQUIPMENT
- Equipments
- Turnkey lines
- Factory design

MATERIAL & COMPONENTS
- Raw & auxiliary materials
- Coating, pastes & metallisation
- Substrates & laminates
- Encapsulation
- Frames & Junction boxes

SILICON, WAFERS & CELLS
- Silicon
- Ingots
- Wafers
- Cells
- Organic technologies

MODULE MANUFACTURERS
- CSI modules
- Thin Film modules
- BIPV modules
- CPV modules

BALANCE OF SYSTEMS
- Storage
- Inverters
- Power control tools
- Cables & connectors
- Mounting systems
- Trackers
- Others

SYSTEMS
- System developers
- BIPV developers
- Installers
- System monitoring
- Additional services
- Wholesalers

POWER SALES & VA SERVICES

The Future is here, it is just not widely distributed yet ..

EPIA

European Photovoltaic Industry Association

www.epia.org