

RENEWABLE ENERGY

Medium-Term Market Report 2014

PV in the selected IEA publications

Cédric PHILIBERT

Renewable Energy Division

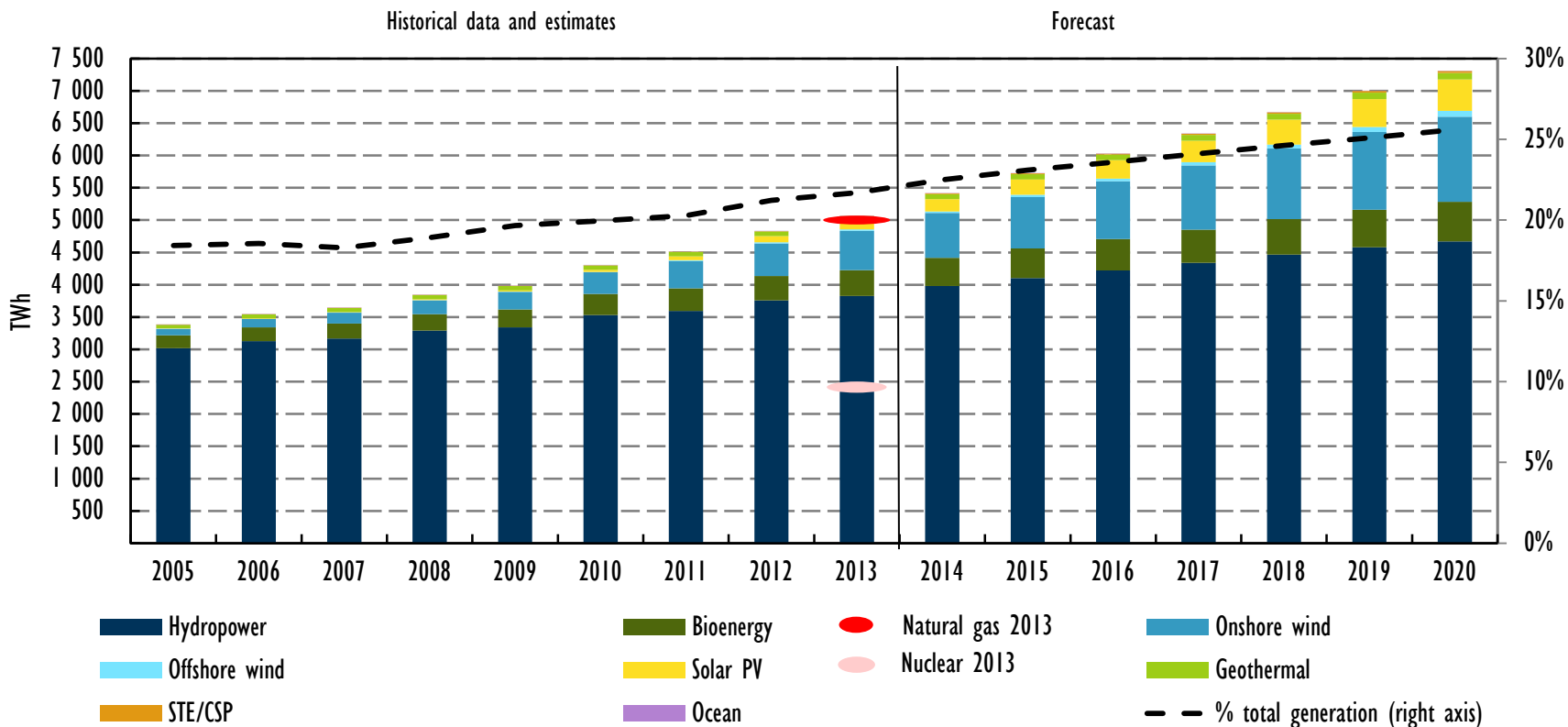
International Energy Agency

Market Analysis and Forecasts to 2020

Strong momentum for renewable electricity



Global renewable electricity generation

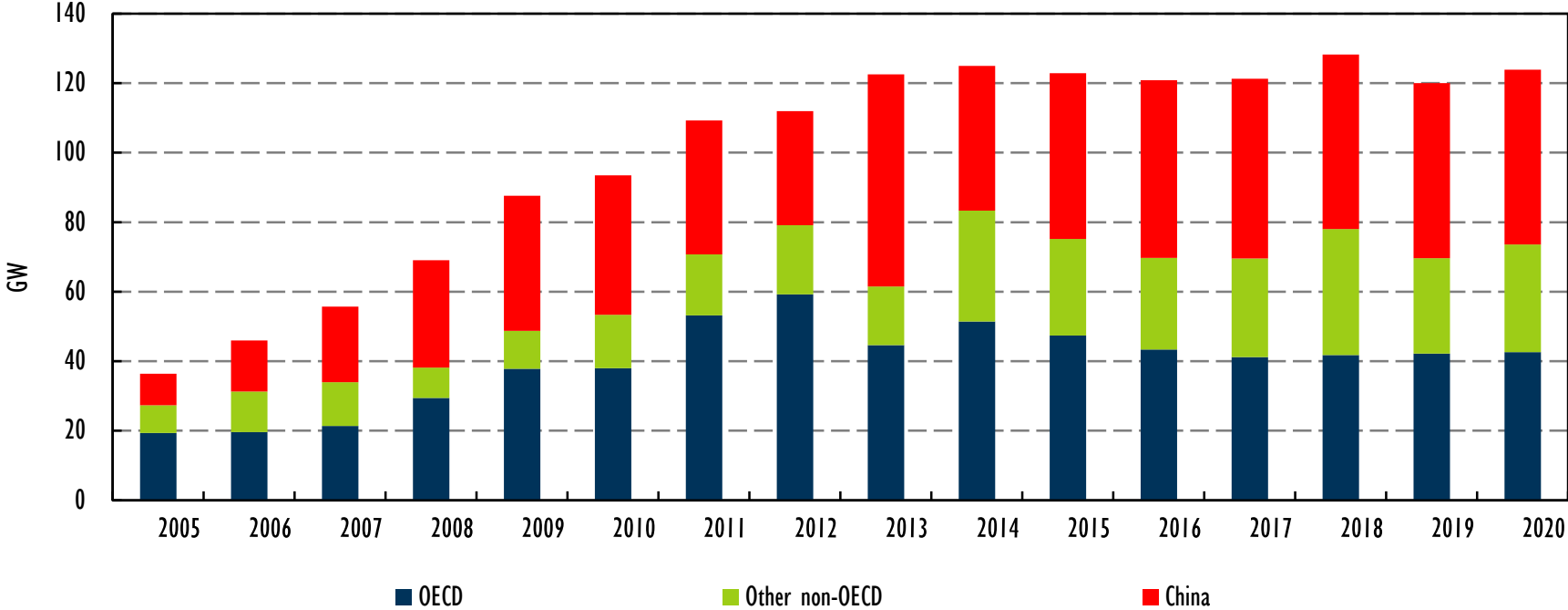


Renewable electricity projected to scale up by 45% from 2013 to 2020

The role of China



Renewable power annual net capacity additions

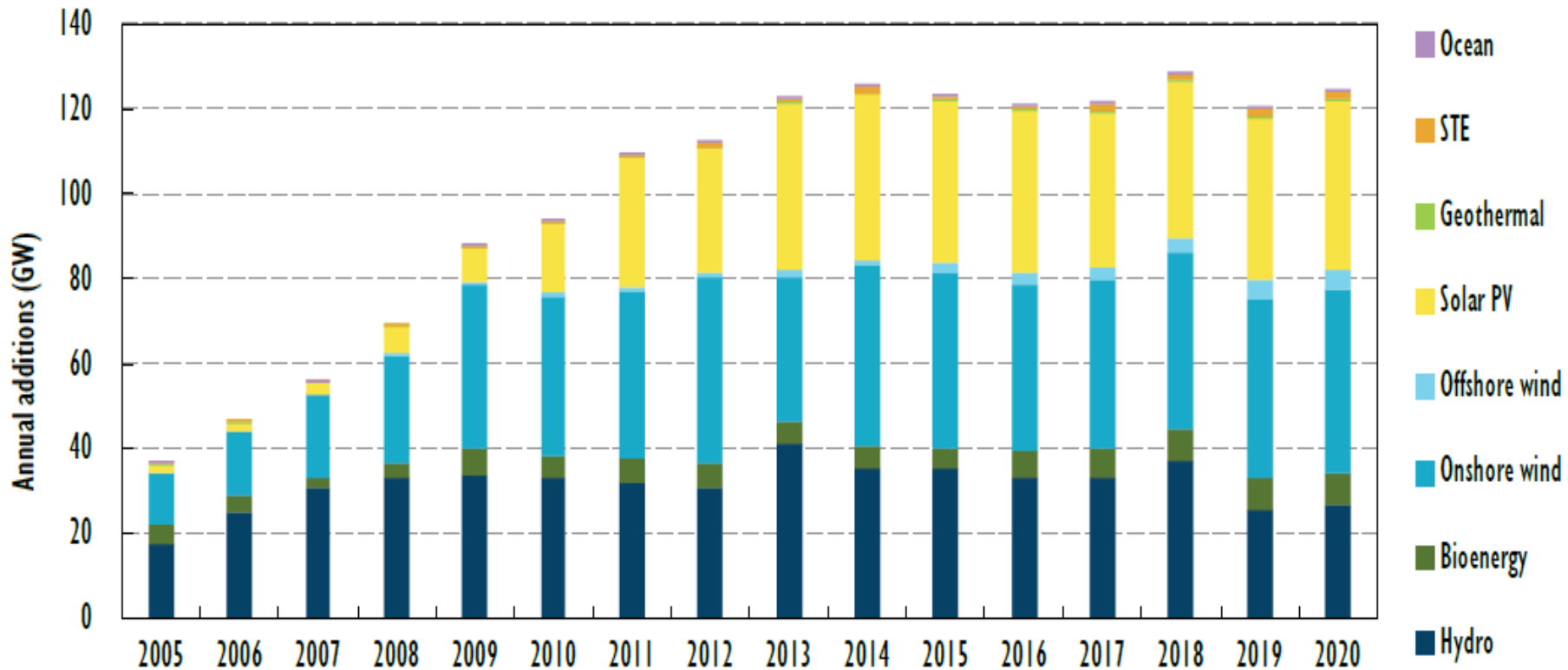


China dominates the capacity additions

Increasing risks are expected to slow renewable growth



Renewable power annual net capacity additions

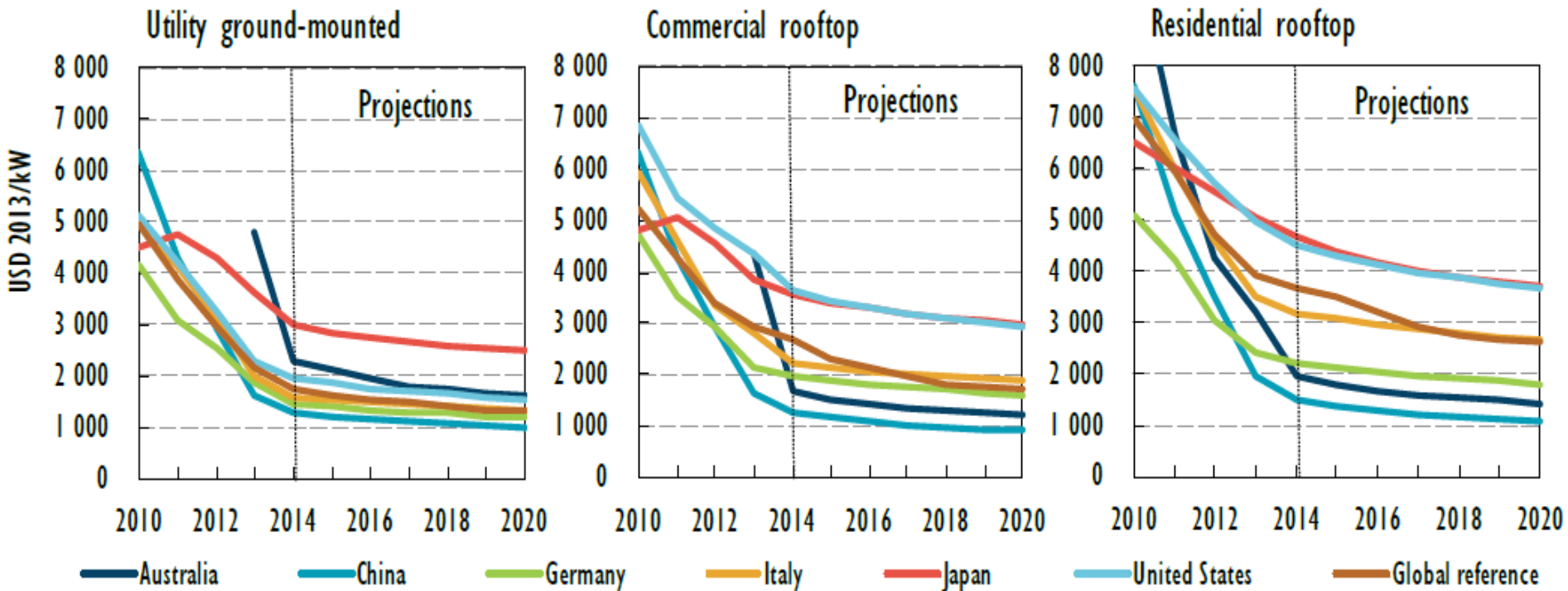


■ PV, wind and hydropower dominate the capacity additions

Rapid cost decrease for PV systems...



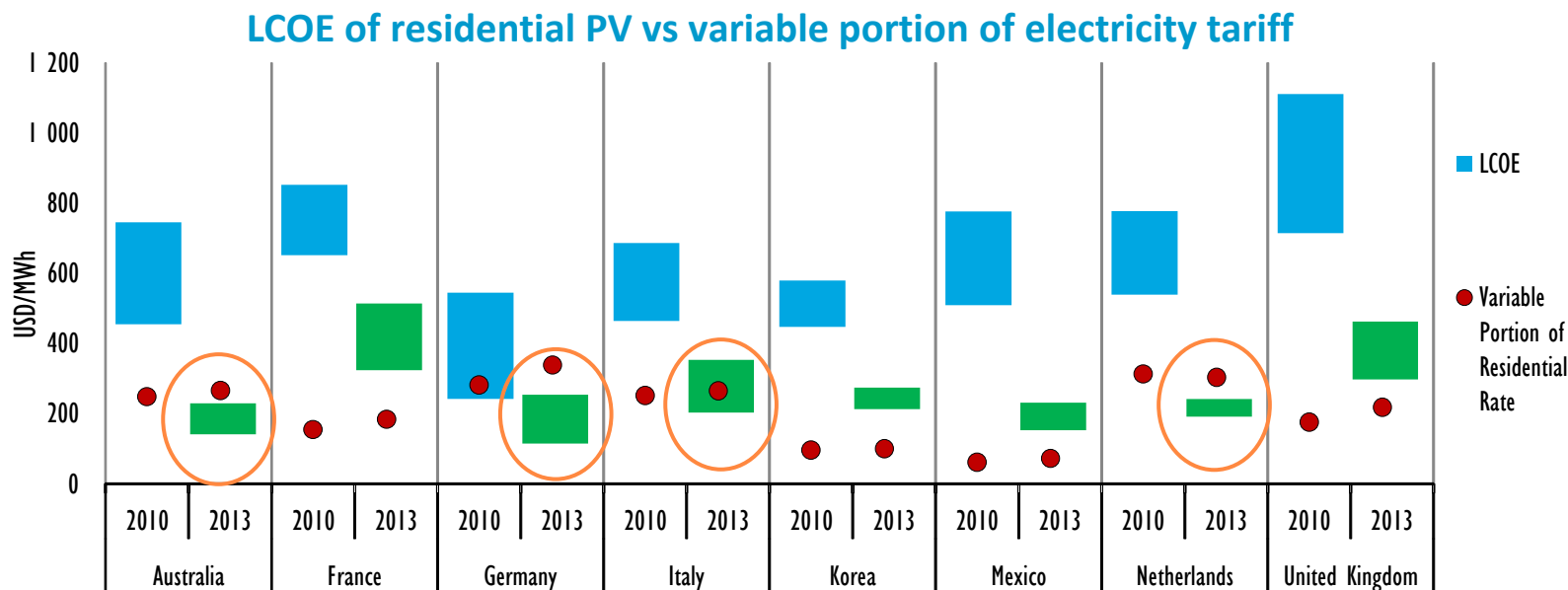
Historical and projected typical solar PV investment costs



Notes: investment costs are overnight costs and include value-added tax or sales tax where relevant; costs are indicative and may not represent all transactions. National currencies converted to USD at average 2013 exchange rates. Historical data points omitted for Australia where market was not well established. Global reference is the estimated global weighted average.

Source: IEA analysis based on IEA-PVPS (Implementing Agreement for a Co-operative Programme on Photovoltaic Power Systems) (2014a), *PV Cost Data for the IEA*, personal communication; SEIA (Solar Energy Industries Association)/GTM Research (Greentech Media) (2014), *US Solar Market Insight*, GTM and SEIA, Washington, DC.

Socket parity emerging as potential deployment driver for distributed PV

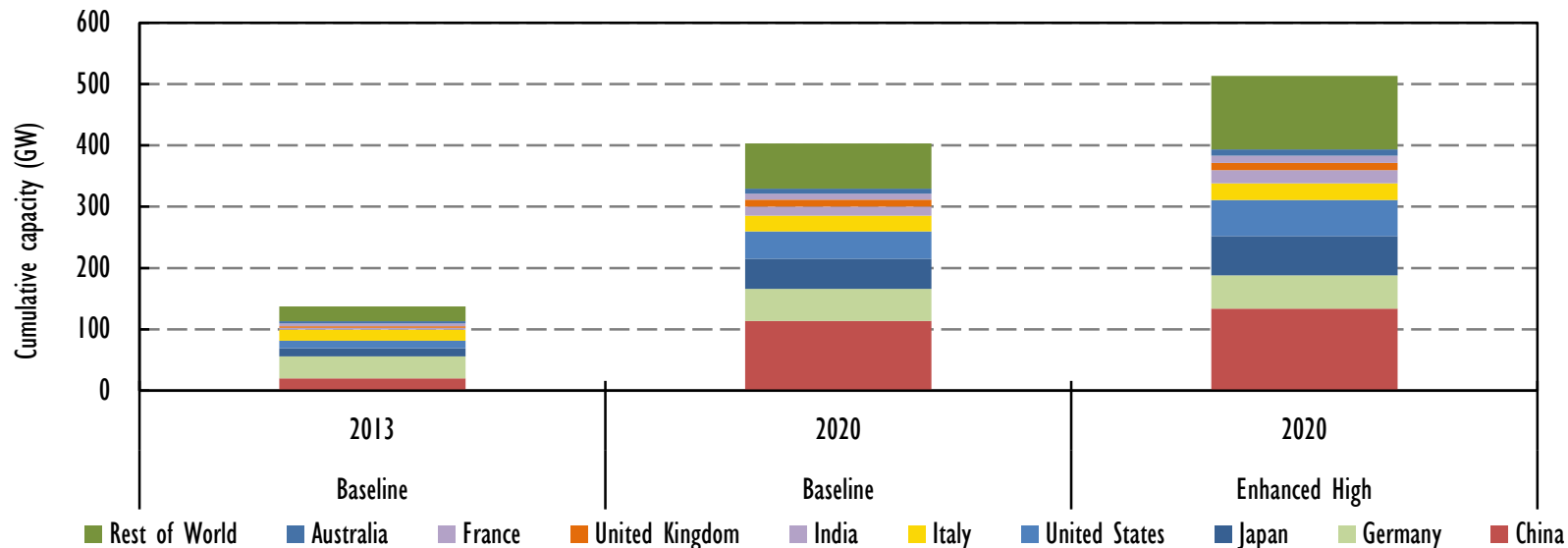


- **Economic attractiveness from offsetting electricity bill requires self-using most of the PV electricity**
 - Currently limits potential, in particular for households
- **Reaching socket parity is a driver for private actors**
 - But PV may still have significant impact on total system costs, in particular depending on allocation of fixed network costs

Higher solar PV under enhanced case



Solar PV cumulative capacity, baseline versus enhanced case



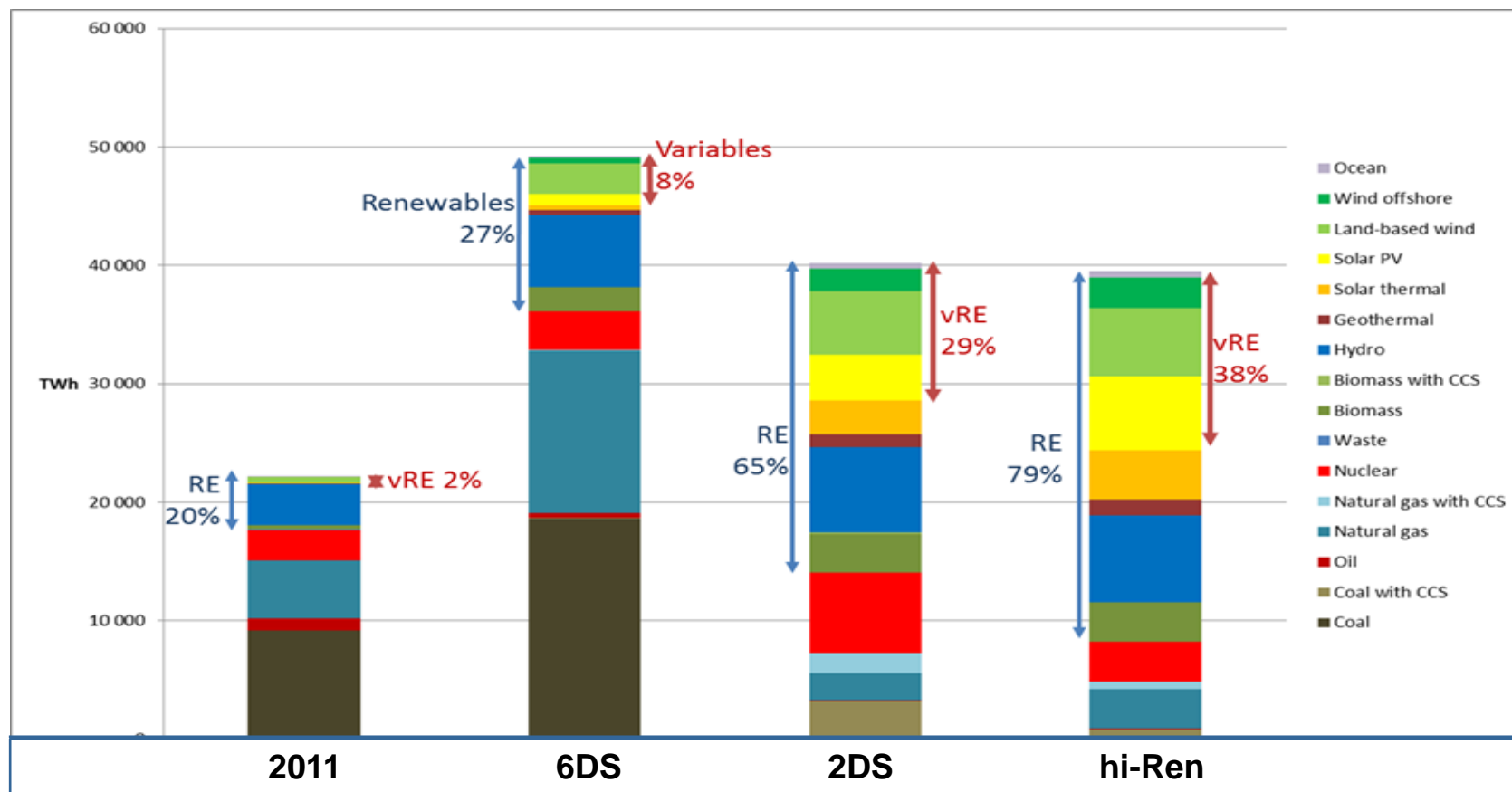
■ With certain market and policy enhancements -

- Fair rules and appropriate electricity rate design for allocating the costs and benefits from fast-growing distributed solar PV
- Greater implementation of ambitious policy aims (e.g. Middle East)
- Faster-than-expected decreases in solar PV costs

■ Solar PV capacity could top 500 GW globally in 2020

New modelling results

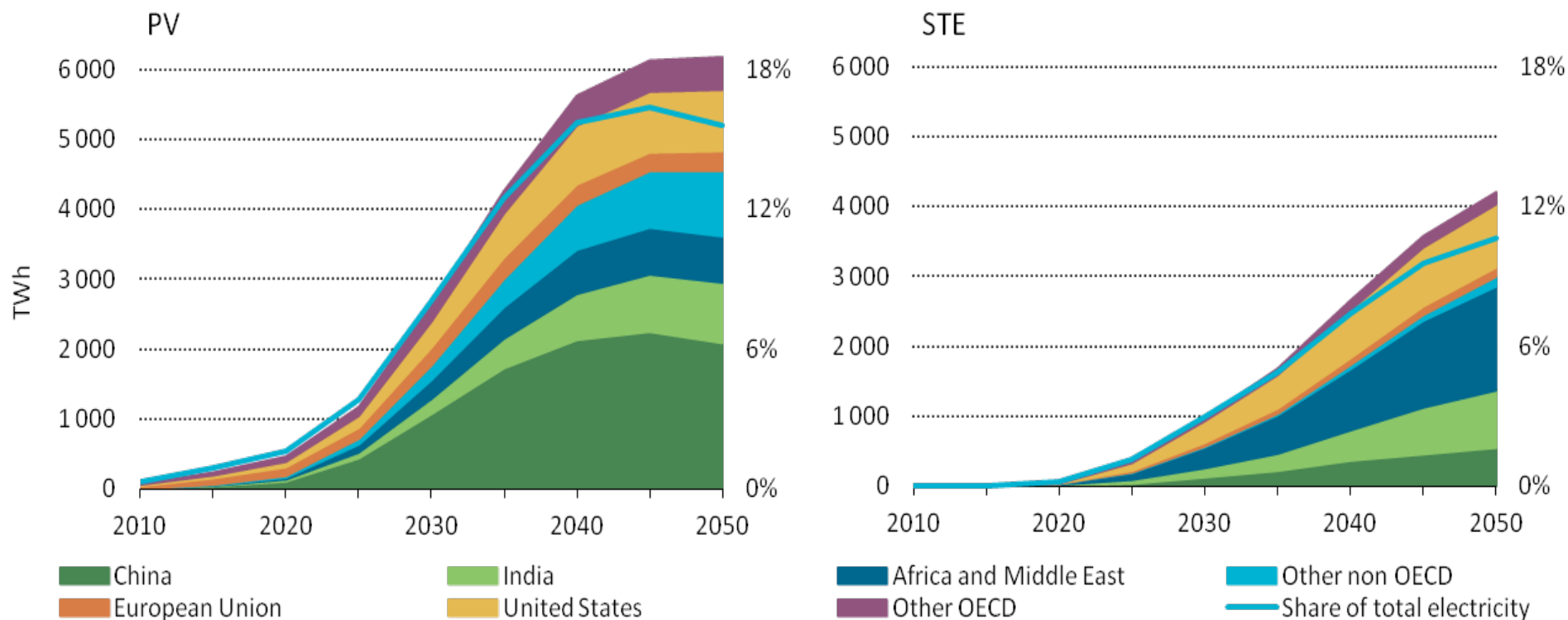
ETP
2014



Increased role of renewables in ETP 2014 climate-friendly electricity mix

Solar deployment in the hi-Ren

ETP
2014



- *In the hi-Ren PV and STE increase by 50% over the 2DS*
- *PV + STE first source of electricity from 2040 on.*



Photovoltaic Energy

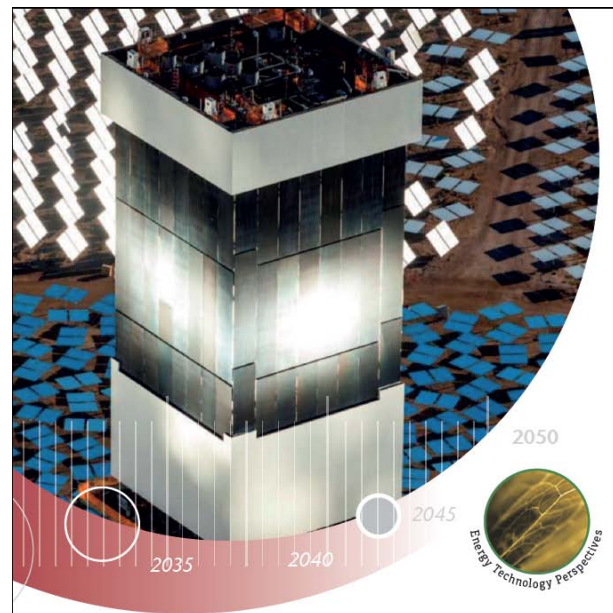


Solar Thermal Electricity

2014 Edition

IEA Technology roadmaps for solar electricity: the 2014 editions

Forthcoming end of September



Technology Roadmap

Solar Thermal Electricity

2014 edition



Technology Roadmap

Solar Photovoltaic Energy

2014 edition



Main messages to policy makers



- **Solutions to future development rest in policy makers' hands**
 - Policy risk main barrier to investment
- **Policies to focus on cost-efficiency**
 - But policy changes must be predictable, and retroactive changes must be avoided
- **Given capital-intensive nature, renewables require market context that assures reasonable and predictable returns**
- **Resolving governance question will be key for investor certainty in post-2020 EU framework**
- **Muddled signals may send the wrong messages about renewables at a time when newer markets have opportunity to leapfrog to more flexible and cleaner energy systems**