

Renewables: Critical Success Factors

What is needed for renewables to contribute to peak emissions?

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www.iea.org

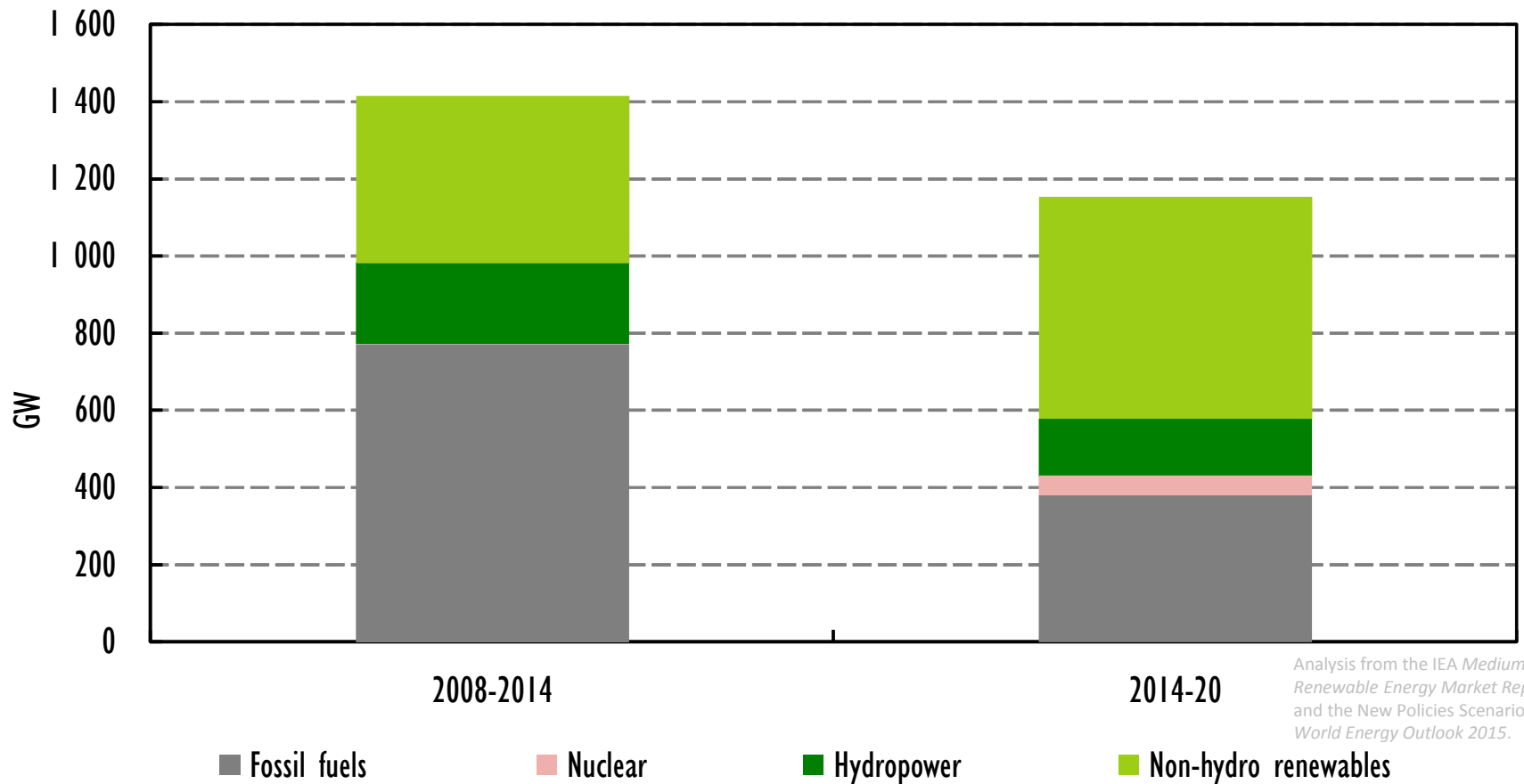
Renewables becoming the largest source of new power generation capacity



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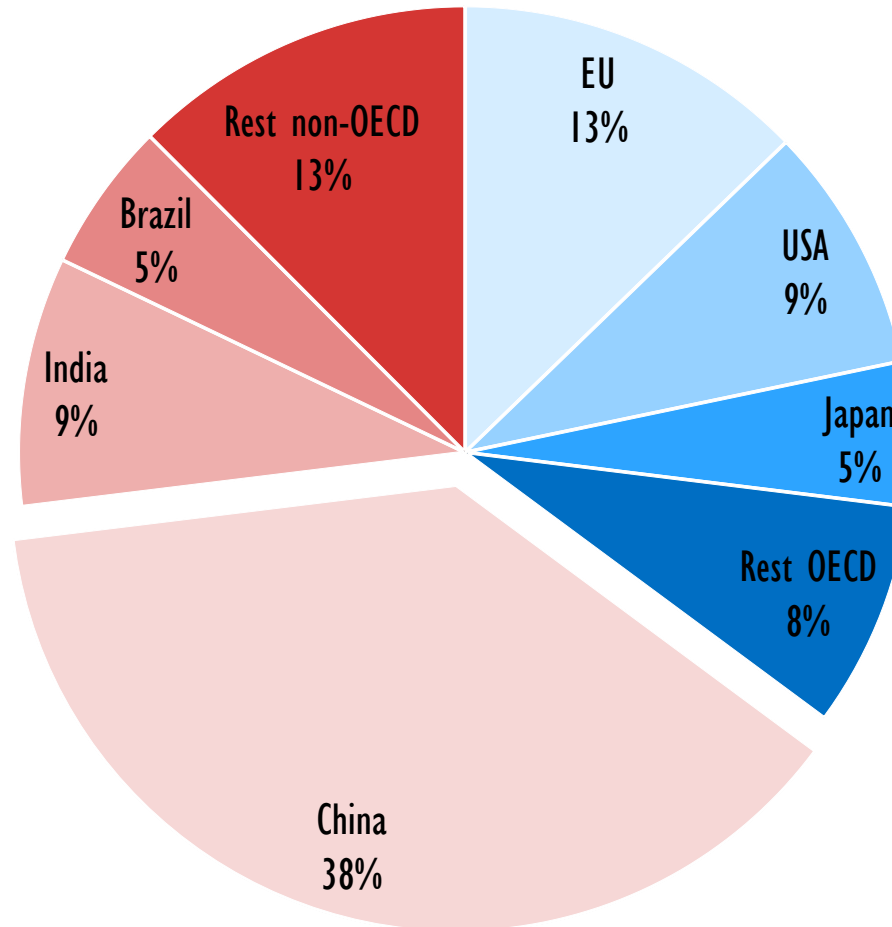
World net additions to power capacity



The share of renewables in net additions to power capacity continues to rise with non-hydro sources reaching nearly half of the total

Growth shifting to emerging markets and developing countries

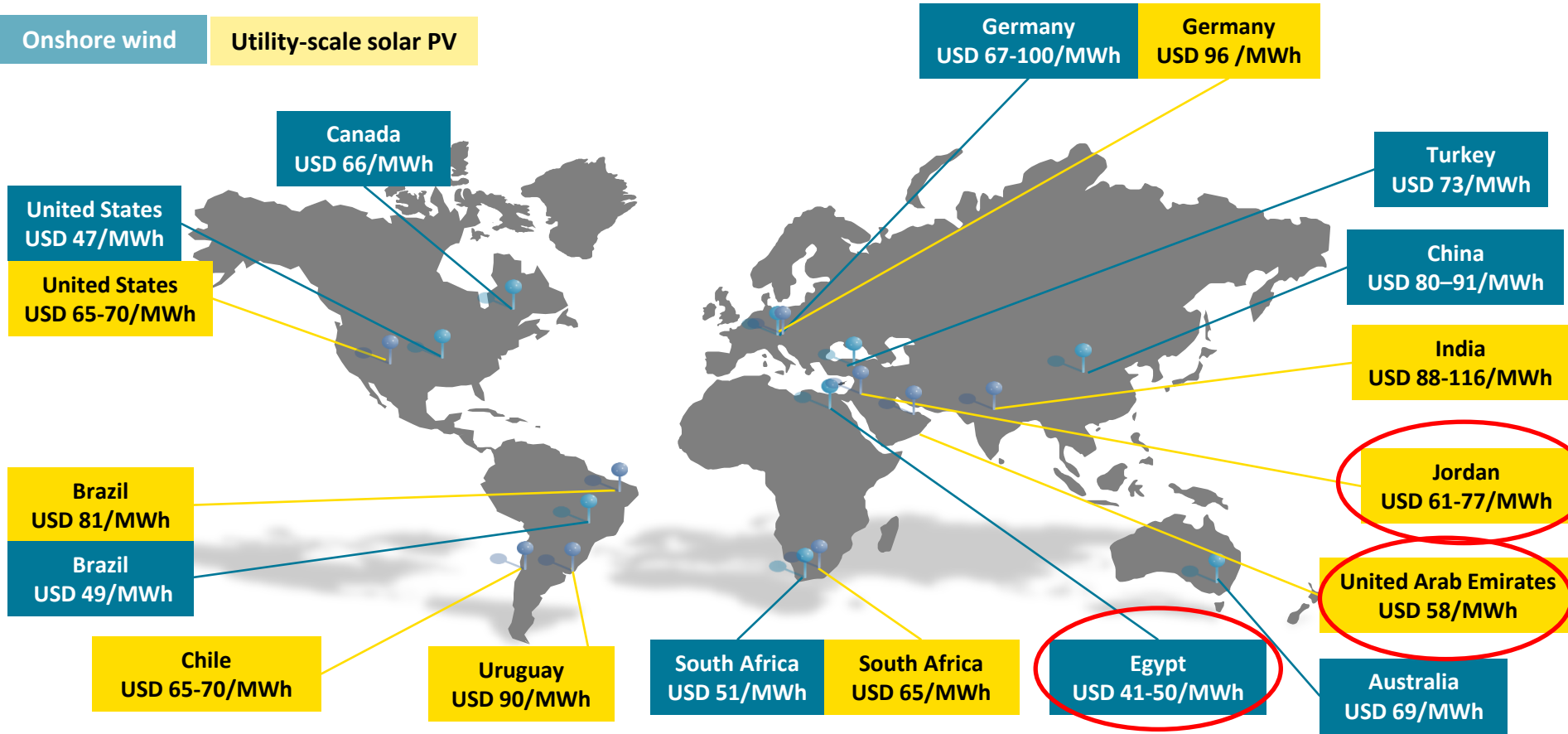
Shares of net additional renewable power capacity, 2014-20



As the OECD slows, non-OECD countries account for two-thirds of renewable growth, driven by fast-growing power demand, diversification needs and local pollution concerns

Wind and solar PV reach new lows

Long-term contract prices for new renewable power to be commissioned in 2016-2019



This map is without prejudice to the status or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area

Price competition, long-term contracts, good resources and financial de-risking measures create lower-cost deployment opportunities in newer markets

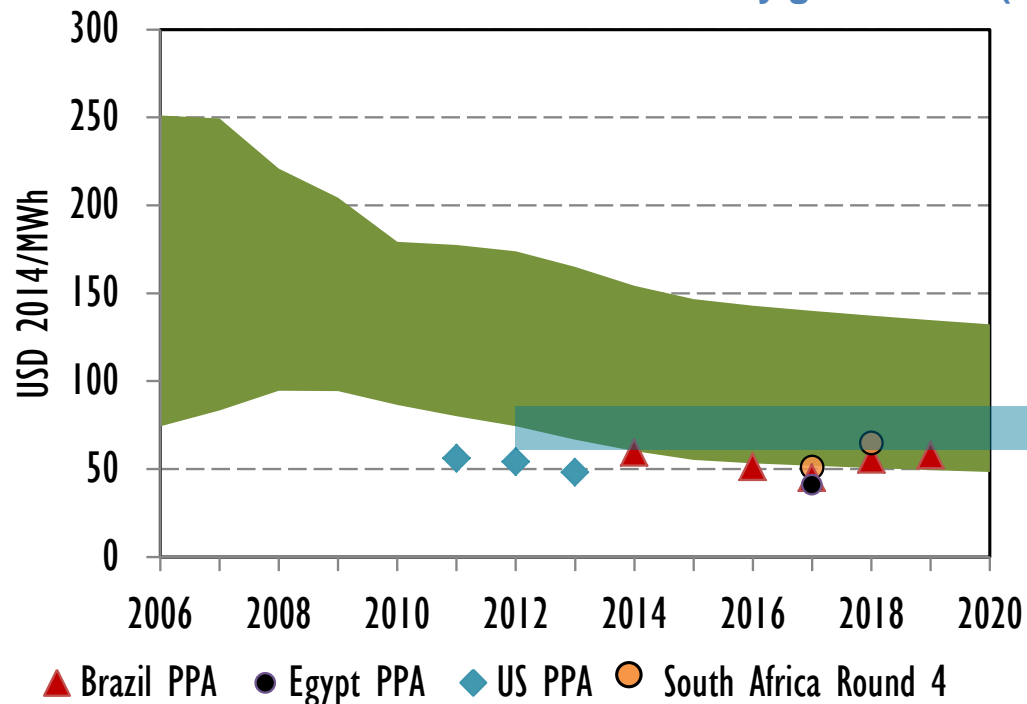
How quickly can RE costs converge towards best world benchmarks?



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Typical onshore wind levelised costs of electricity generation (2006-2020)



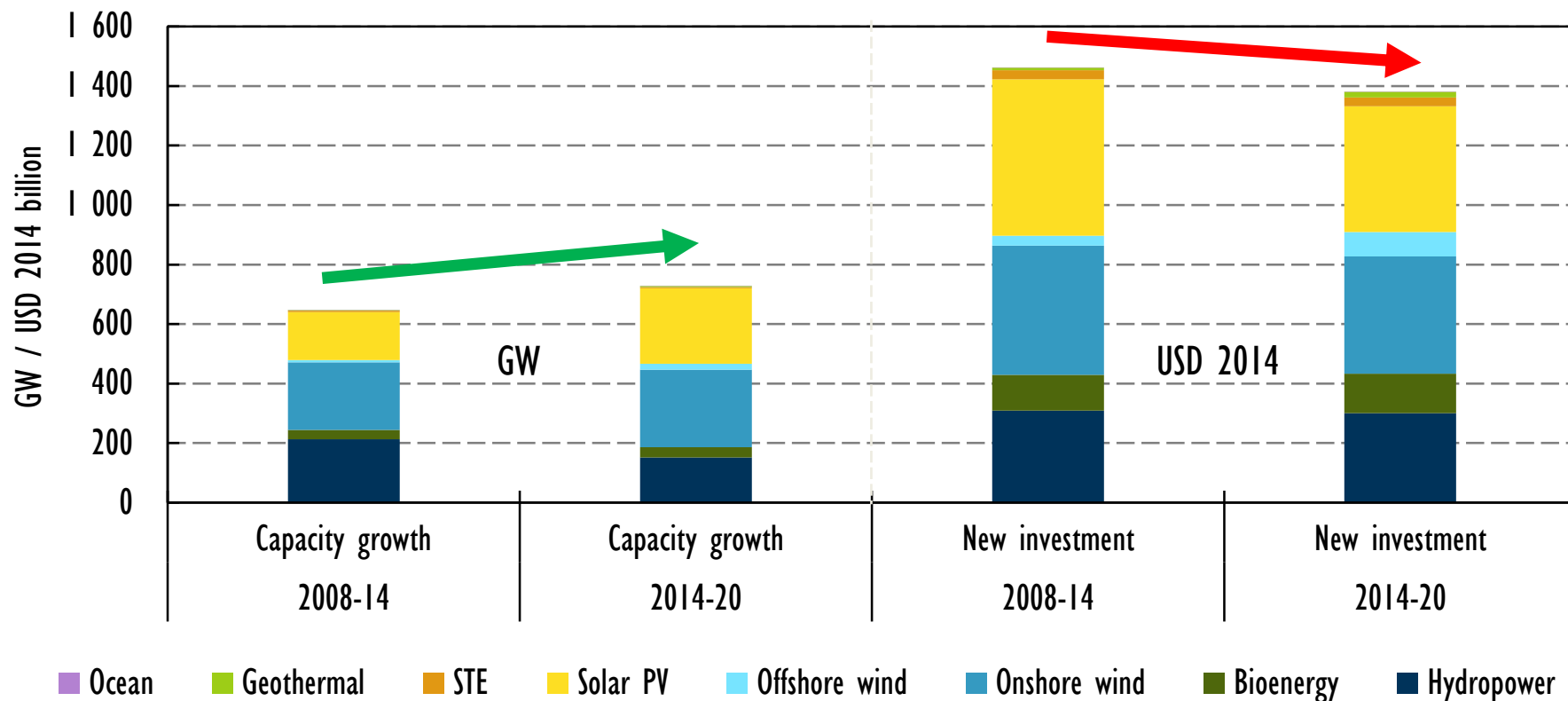
Medium-Term Benchmark cost
60-80\$/MWh

Great difference in generation costs persist due to different system prices and cost of financing

More renewables for less money

But how much is needed?

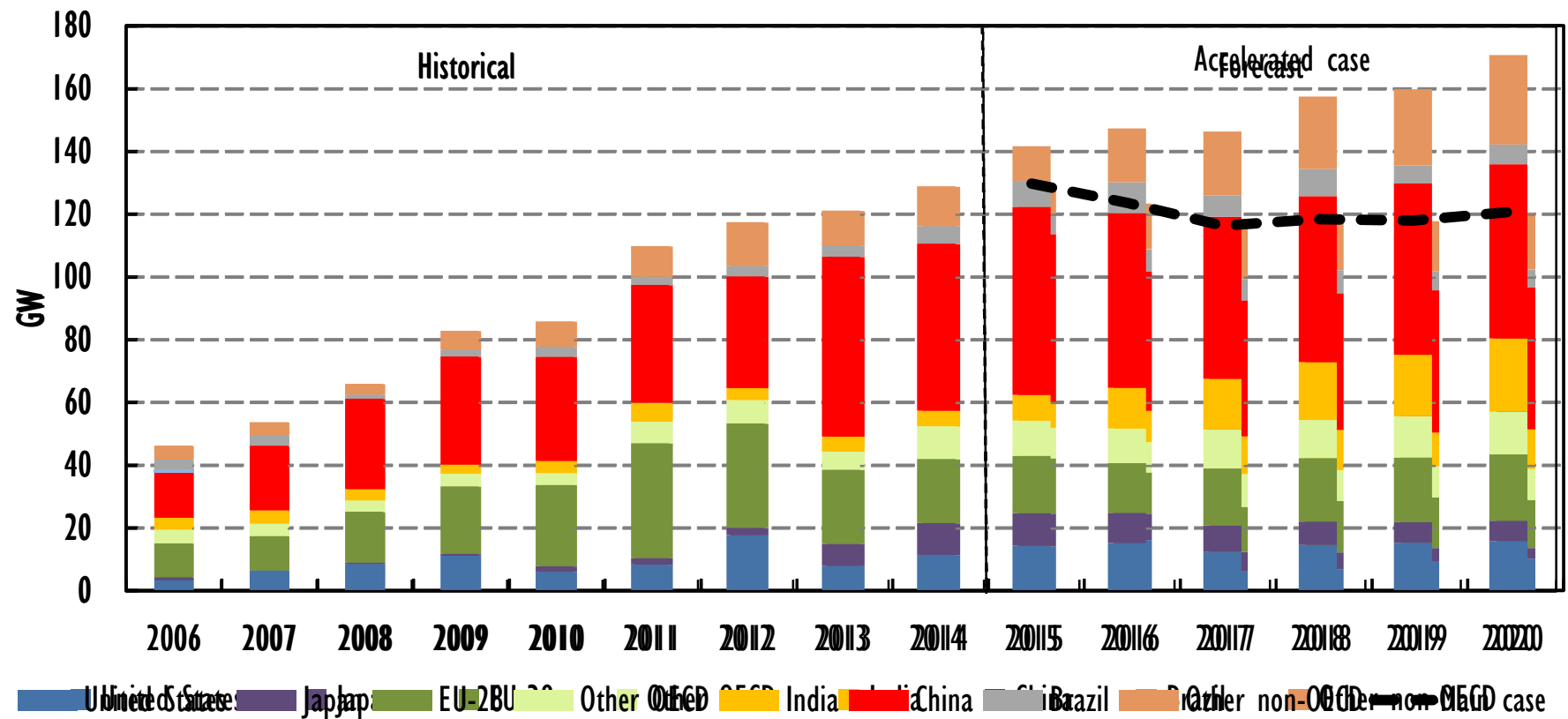
Renewable power capacity – net additions versus new investment



Wind and solar PV comprise two thirds, or USD 900 billion, of new investment needs to 2020 and capacity increases are being made at lower cost than in the past

Enhanced policies can get RE growth back on track to meet climate goals

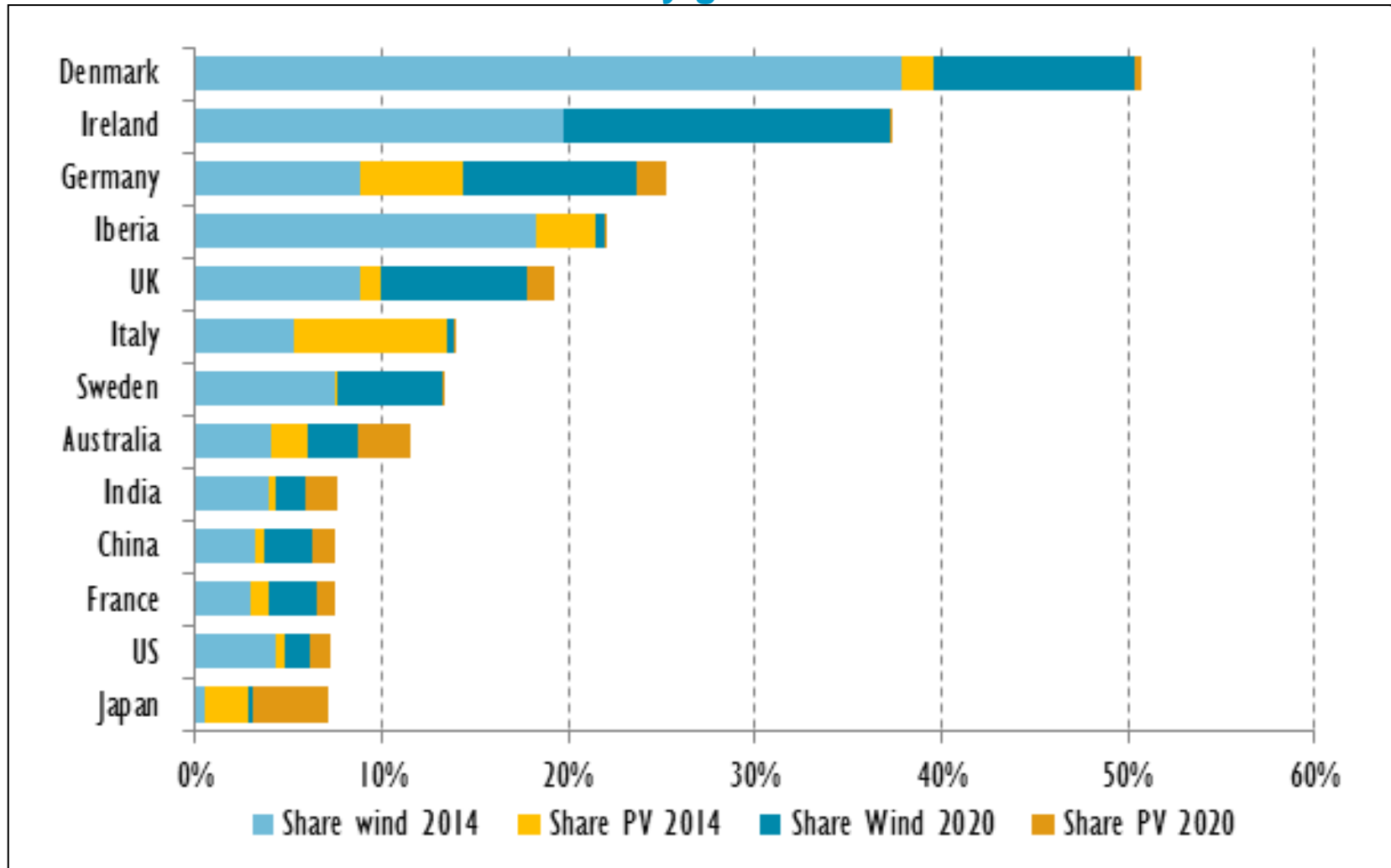
World renewable power annual capacity additions, *main vs. accelerated case*



Policy enhancements can accelerate renewables growth by 25% vs. the main case and increase annual investment to over USD 315 billion by 2020

Towards high shares of variable renewables

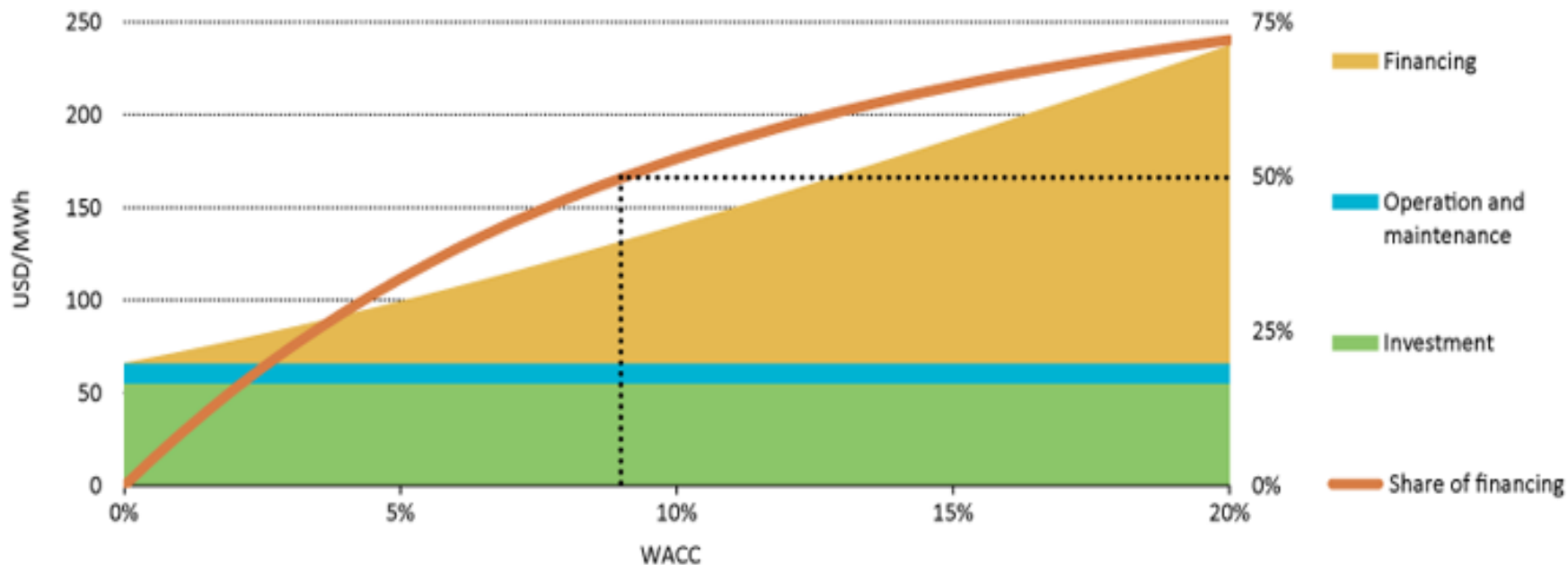
Share of variable electricity generation in 2014 and 2020



Source: IEA estimates derived in part from IEA Medium-Term Renewable Energy Market Report 2015.

High Capex: Cost of Capital matters

Impact of weighted average cost of capital on the levelised cost of solar PV



Market and regulatory risks can increase weighted average cost of capital and undermine competitiveness of PV and Wind power

Policy implications: Enabling environment is crucial

before 2013

Providing financial support

Cost reduction through

- Technology development
- Scale up
- Learning



Main Policy

Cost reduction

Key Characteristics

2014-2020

Enabling policy and market framework which allows low cost financing and generation

Cost reduction through

- Technology **innovation**
- Financial **innovation**
- New markets with best resources

- **Competition**
- **Predictable long-term income streams**
- **Short-term market value signals**
- **Portfolio development**
- **System Integration**

A decisive moment for the future of renewables

- Increasingly affordable renewables are set to dominate the growing power systems of the world.
- The effect of the lower oil price environment on global renewable growth is more perception than reality, though biofuels and heat sectors are exceptions in some circumstances.
- Yet, wavering policy commitments risk undermining investor confidence and are dampening growth
- Further policy action is needed for heat and biofuel sectors, in the face of structural challenges.
- While variability of renewables is a challenge energy systems can learn to adapt to, variability of policies poses a far greater risk.