



Medium Term Energy Market Outlook

IEEJ Energy Seminar

October 2013

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OIL

Medium-Term Market Report 2013



Market Trends and Projections to 2018

RENEWABLE ENERGY

Medium-Term Market Report 2013



Market Trends and Projections to 2018

GAS

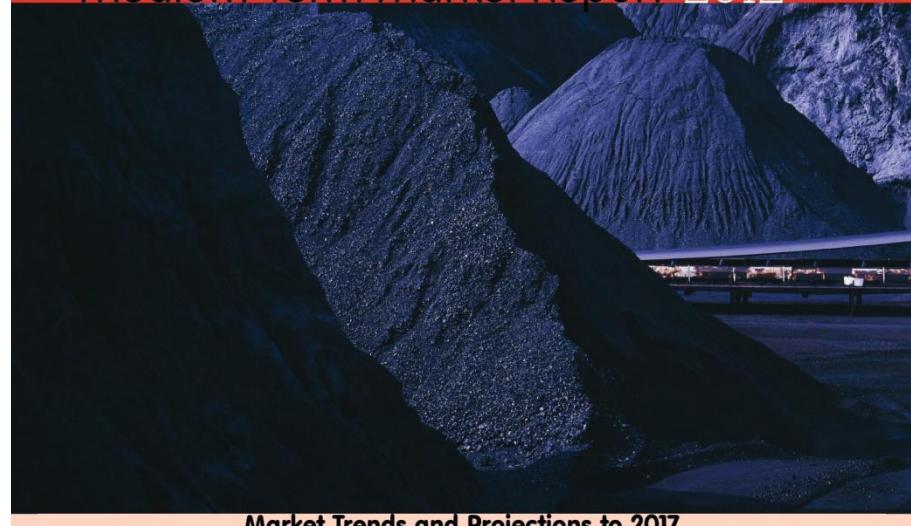
Medium-Term Market Report 2013



Market Trends and Projections to 2018

COAL

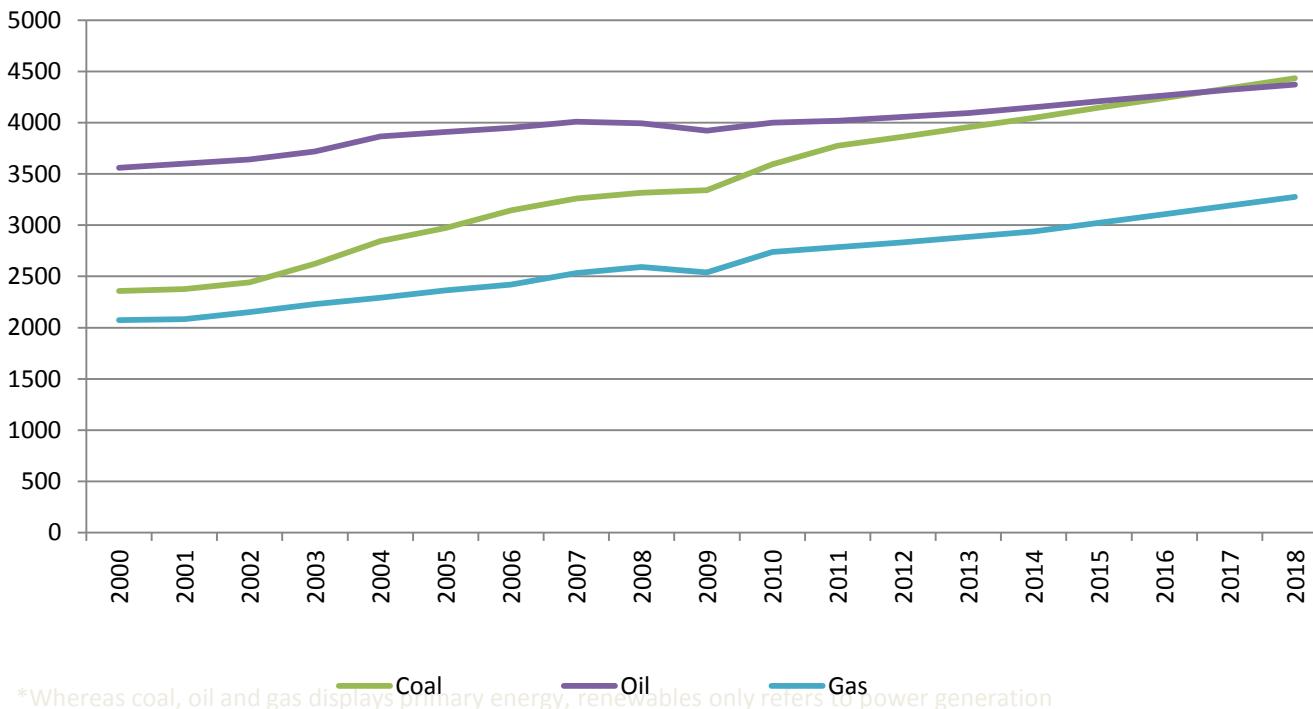
Medium-Term Market Report 2012



Market Trends and Projections to 2017

Primary Energy Supply from Fossil Fuels

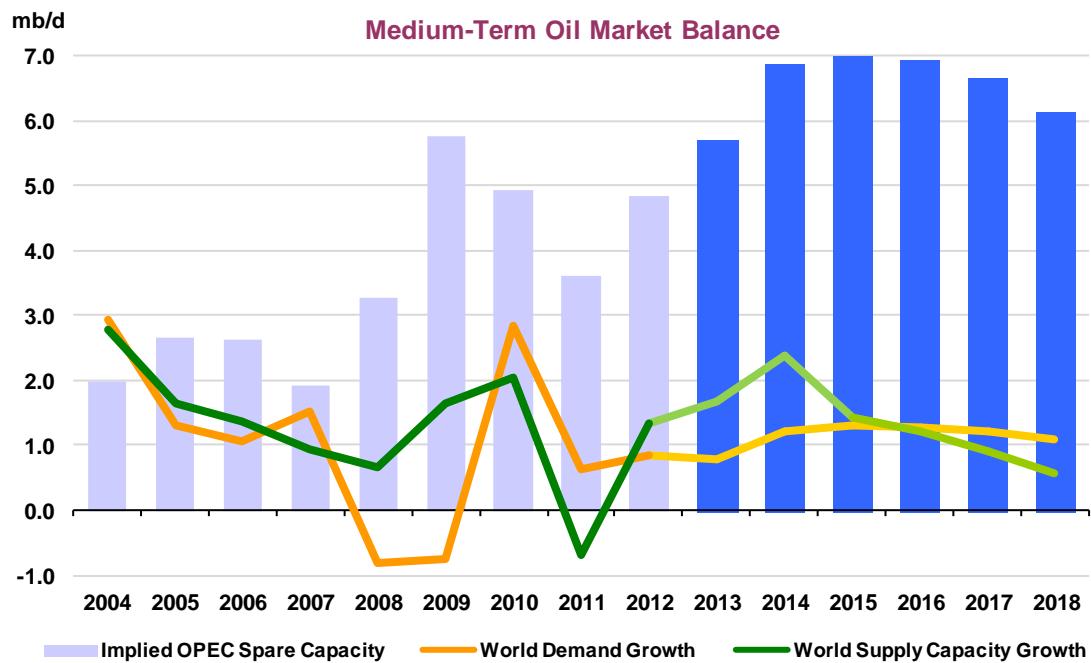
Mtoe



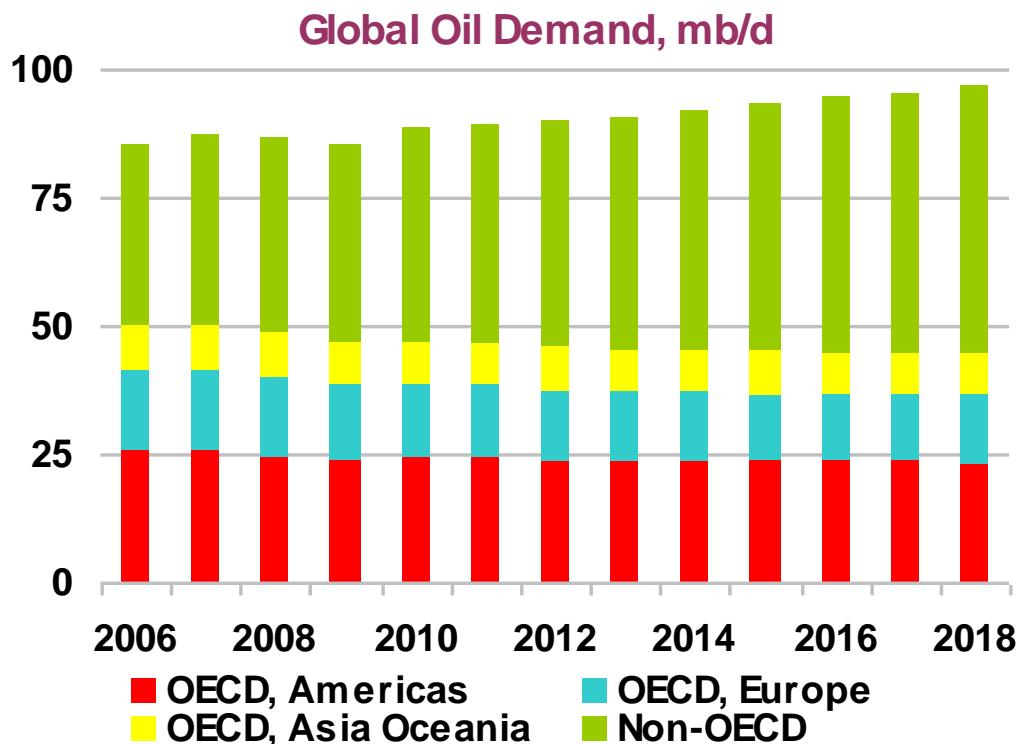
*Whereas coal, oil and gas displays primary energy, renewables only refers to power generation

OIL

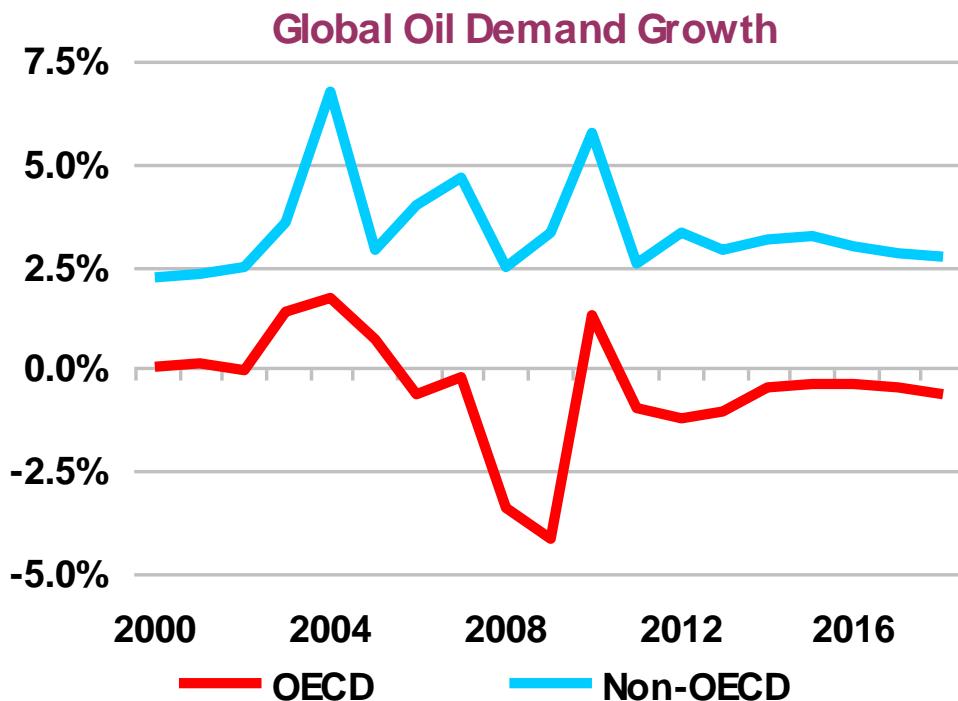
Oil: Comfortable Balance



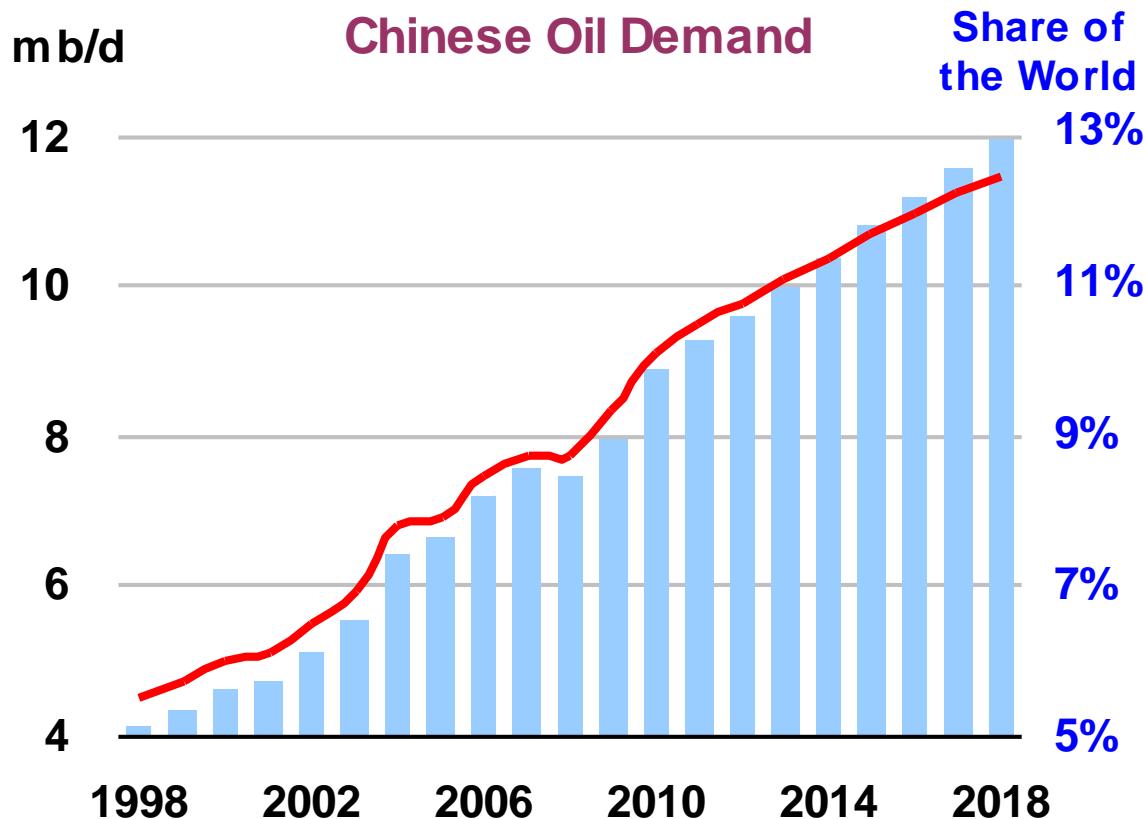
Oil demand: 96.7 mb/d by 2018



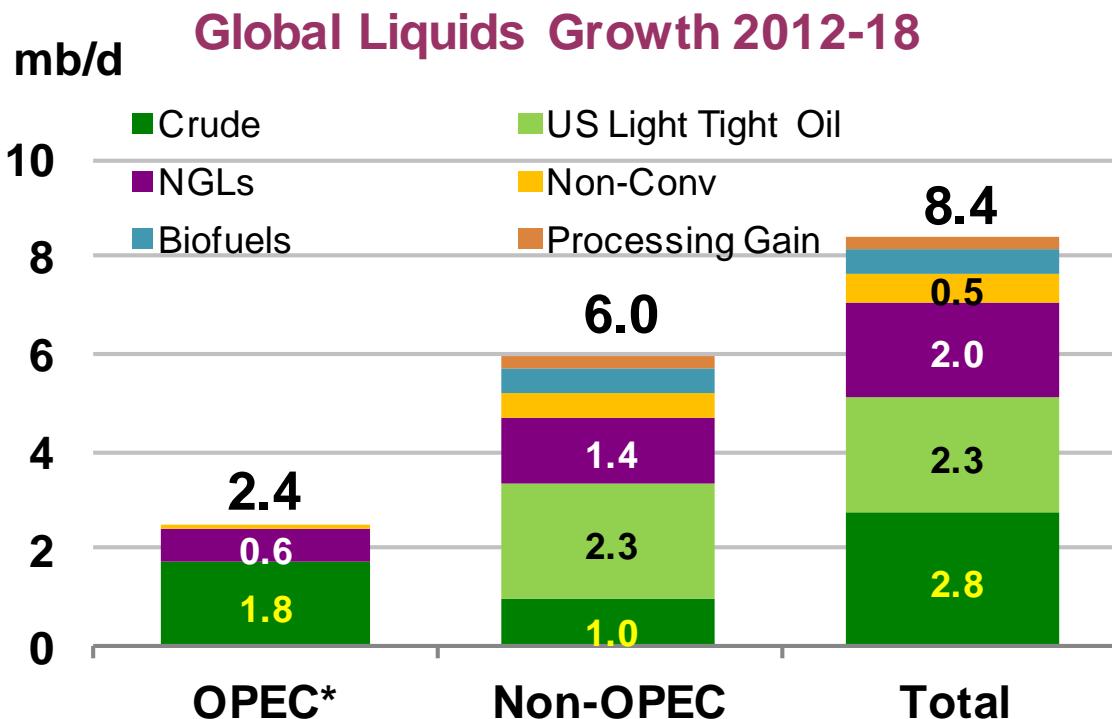
Growth led by non-OECD



China to lead Global Growth



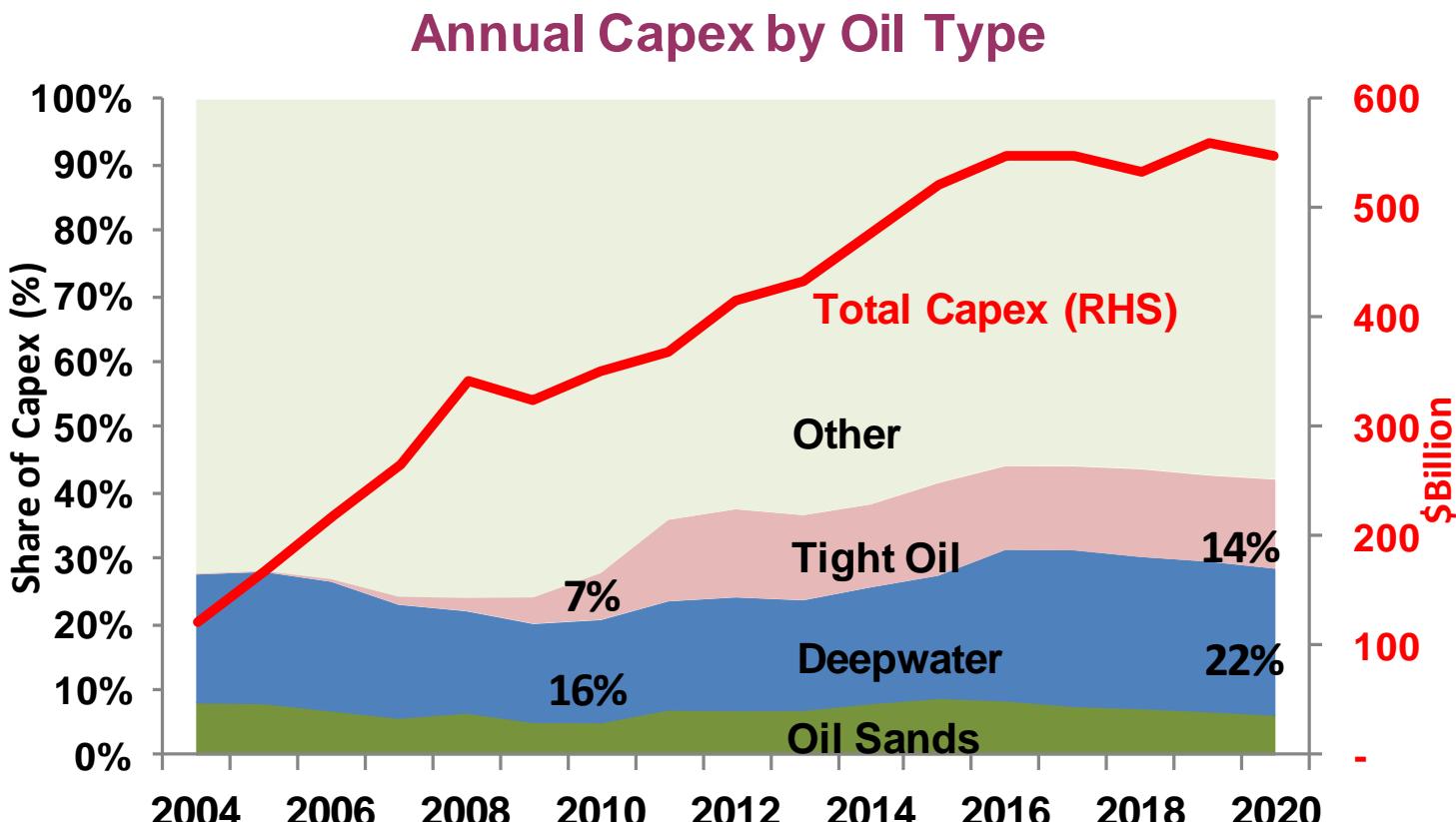
Global Liquid Growth 2012-18



* OPEC crude is capacity additions

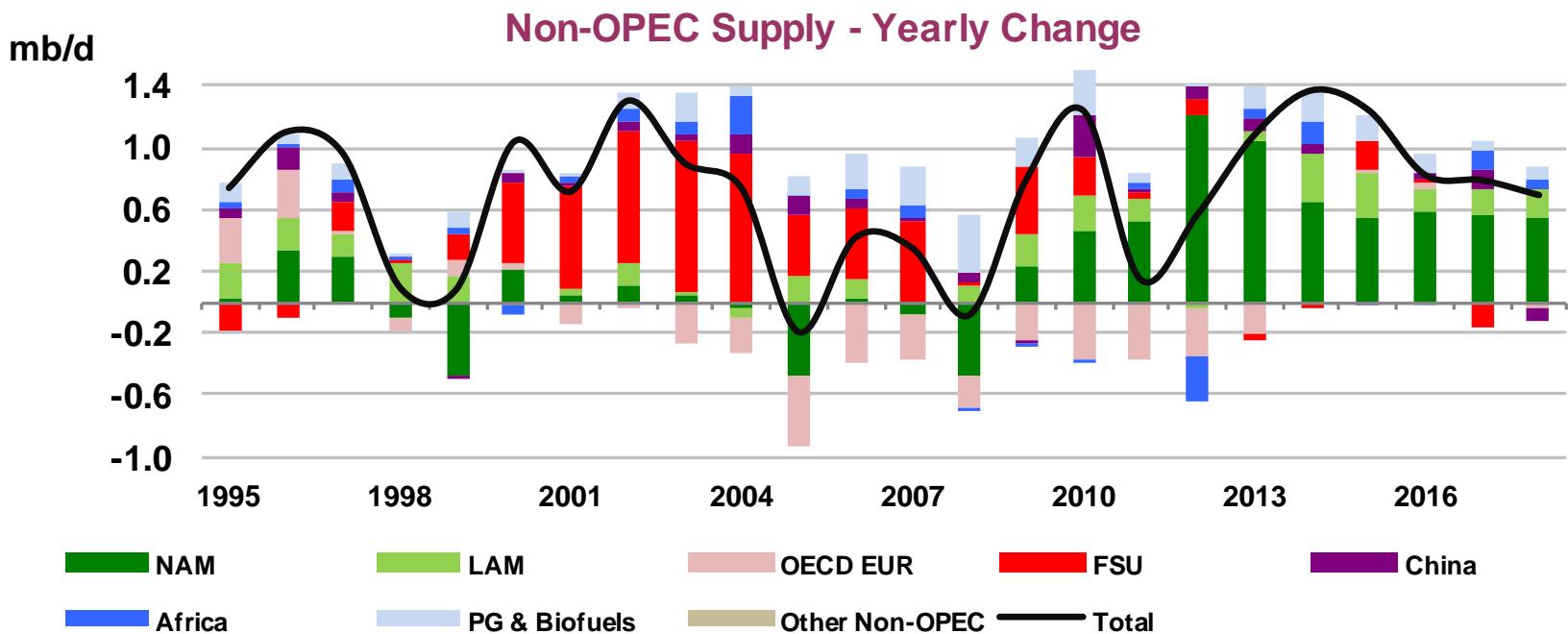
Global Refinery processing gains included in Non-OPEC

Price Rise Drives Increase in Capex

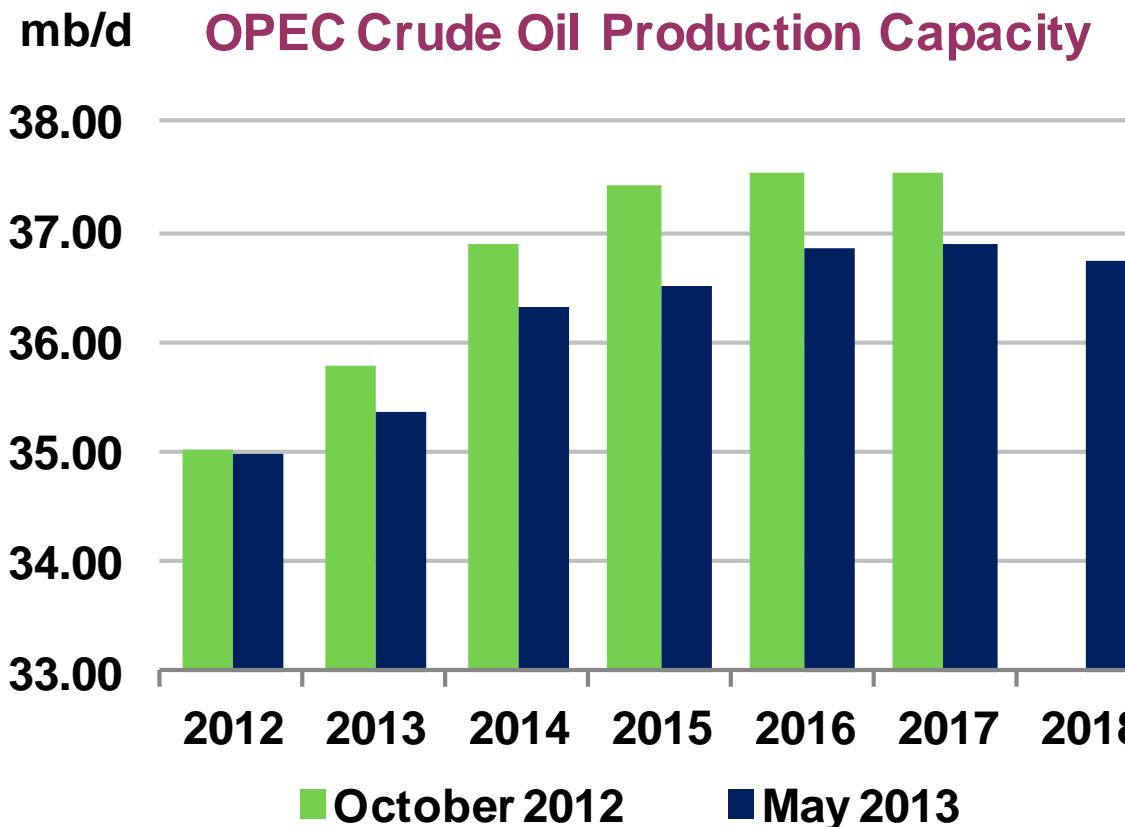


Source: IEA Analysis of Rystad Energy. Oil deposits only.

Supply: West Side Story

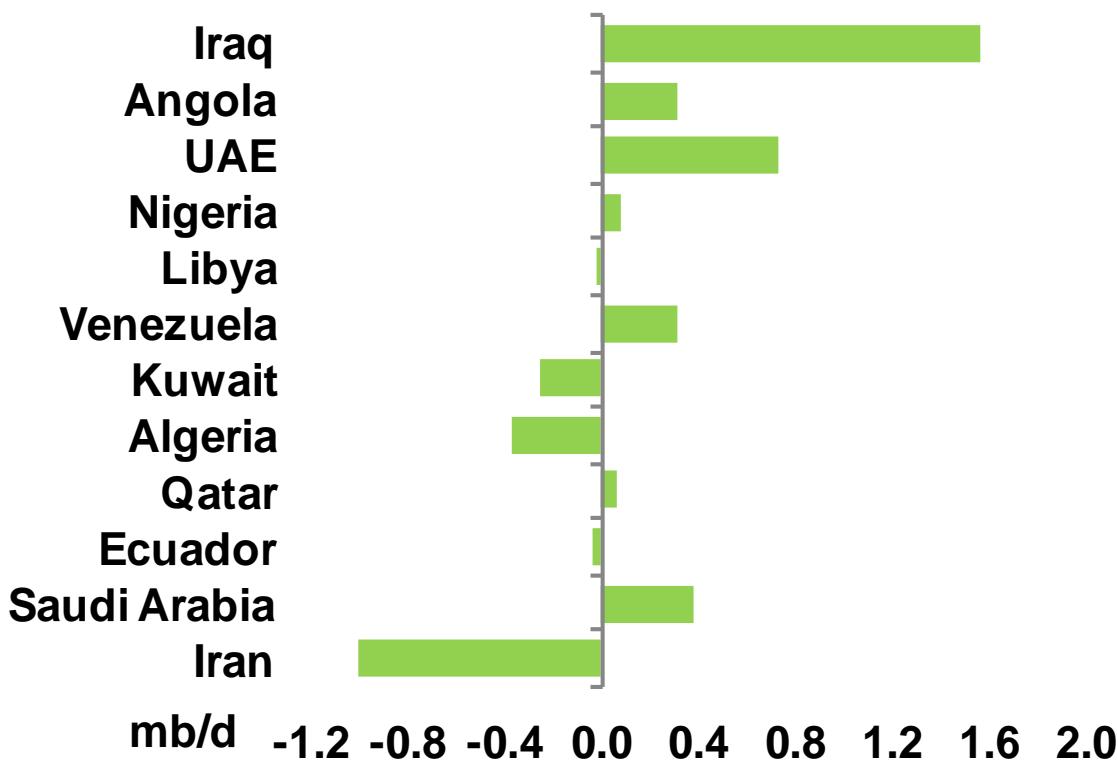


OPEC Capacity

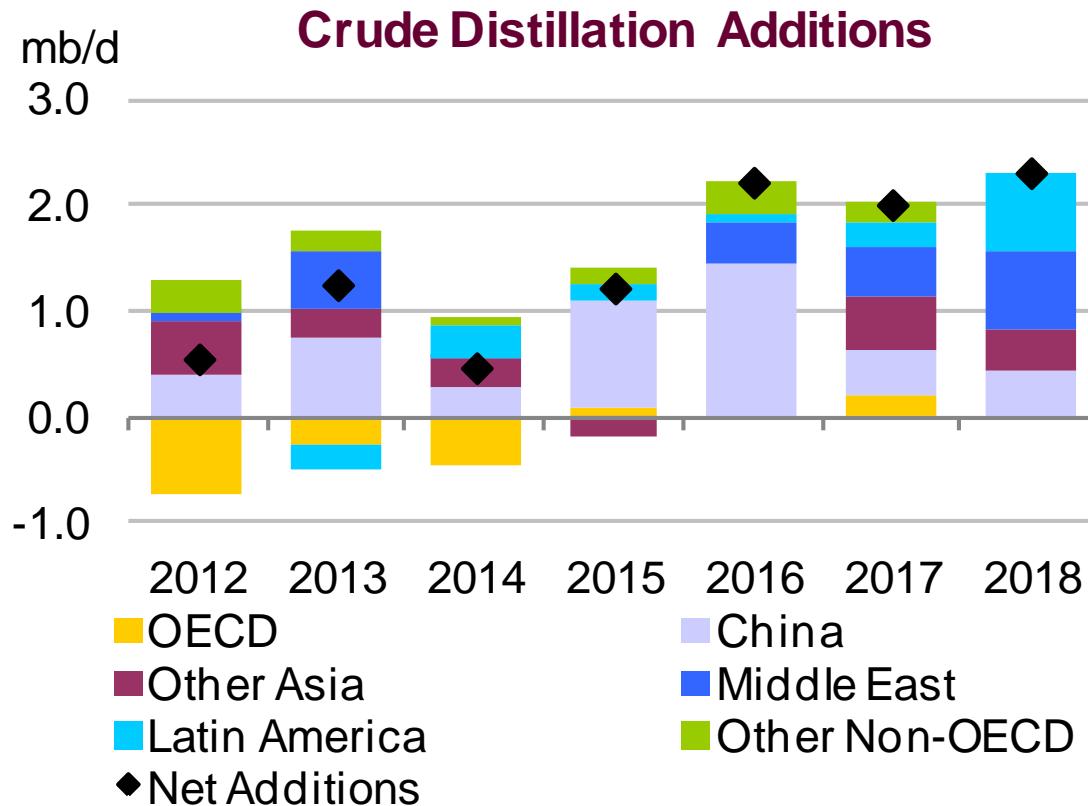


OPEC Capacity Growth

Incremental OPEC Crude Production Capacity 2012-18

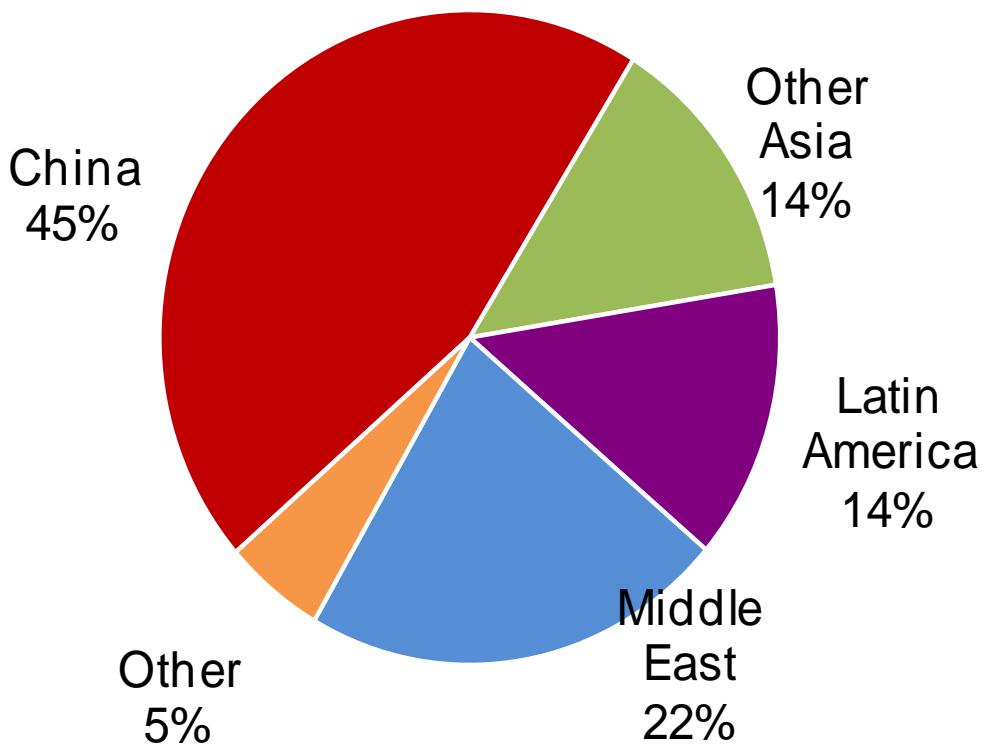


Non-OCED lead CDU additions

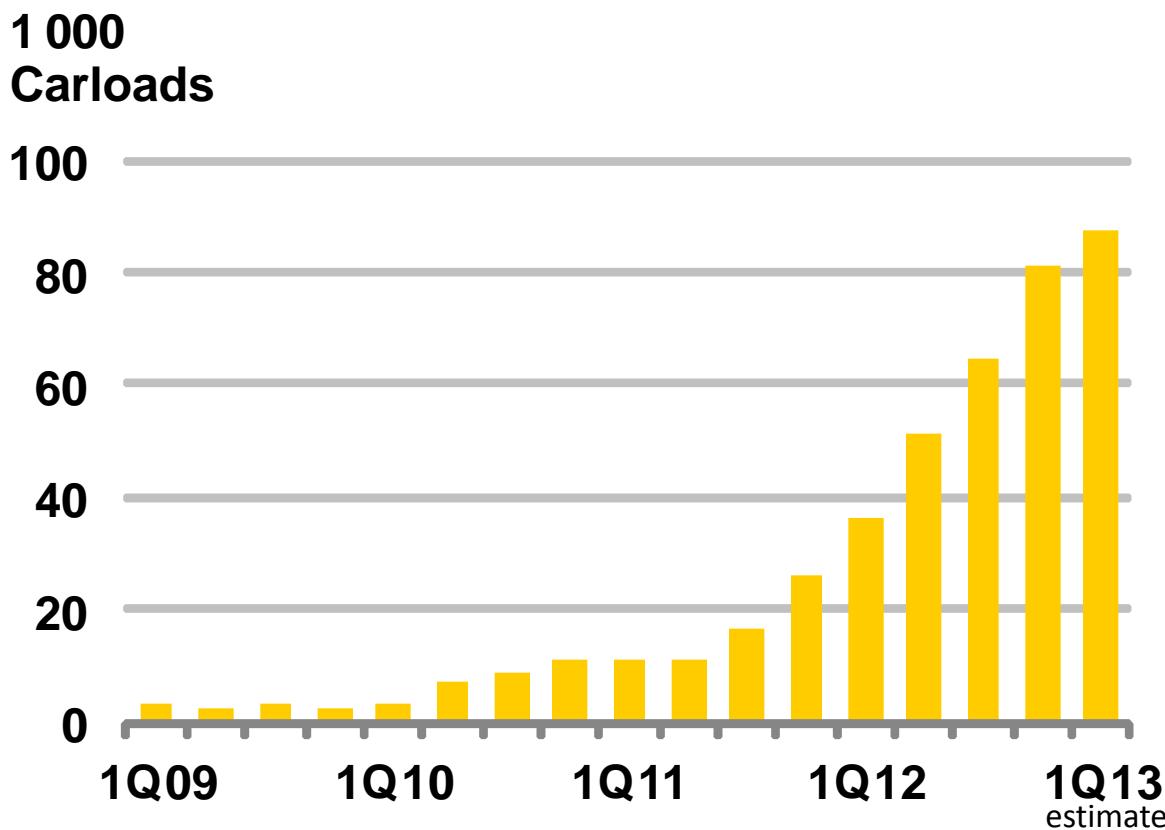


Rise of the non-OECD Refining Titans

Regional Share of CDU Expansions



US Crude Oil Carloads



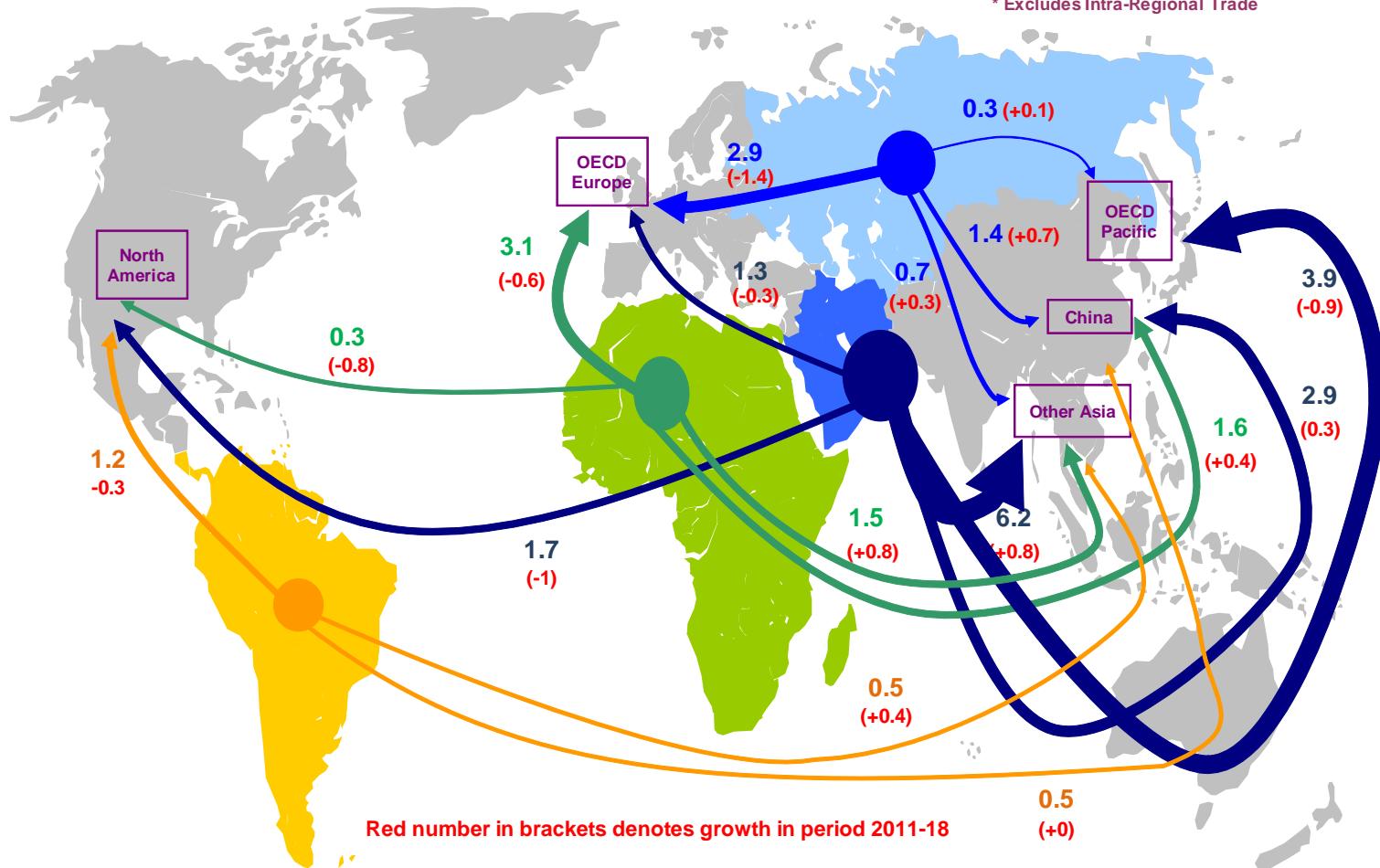
Source: Association of American railroads

New Map, New Challenges

Crude Exports in 2018 and Growth in 2012-18 for Key Trade Routes*

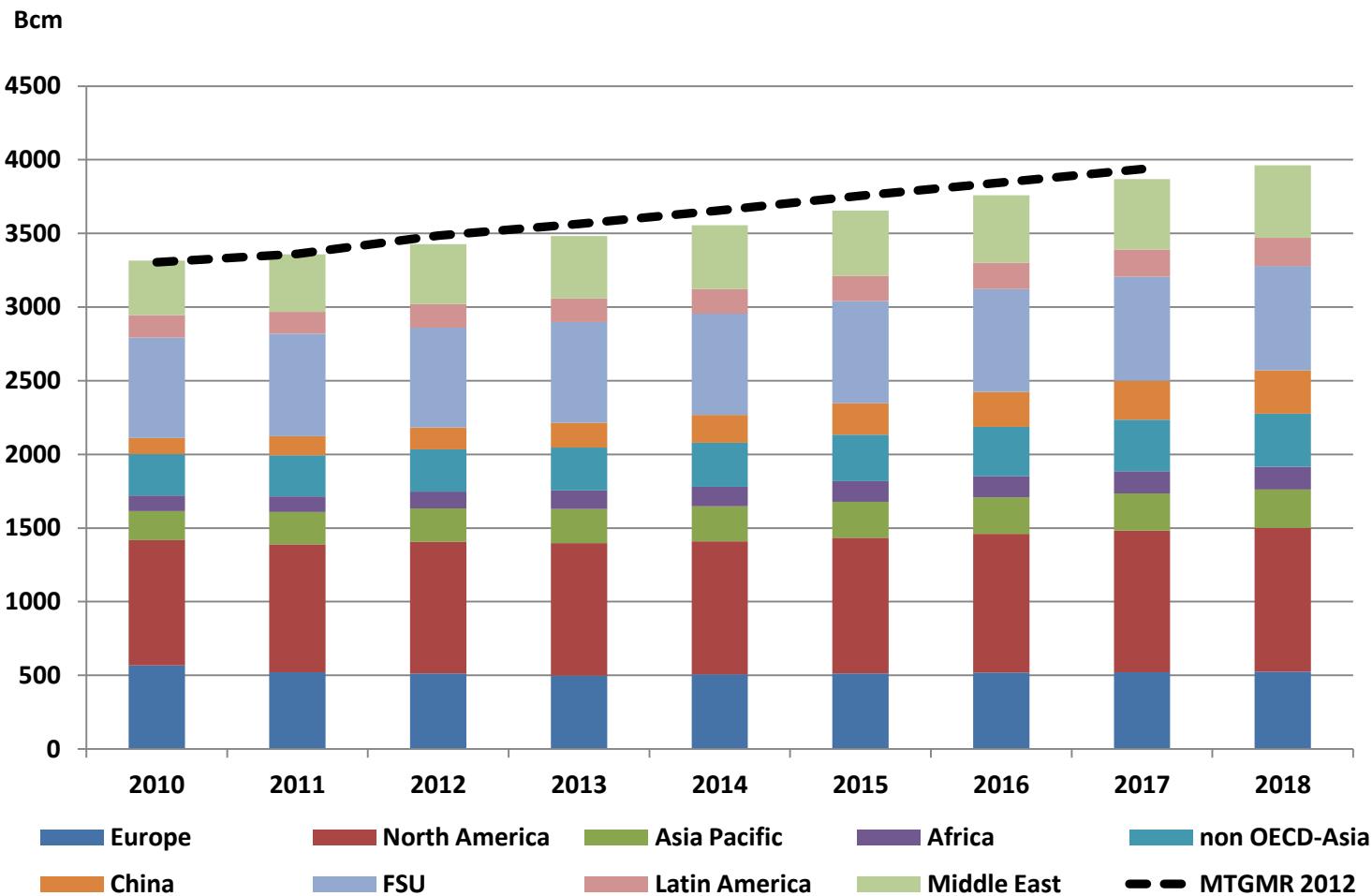
(million barrels per day)

* Excludes Intra-Regional Trade

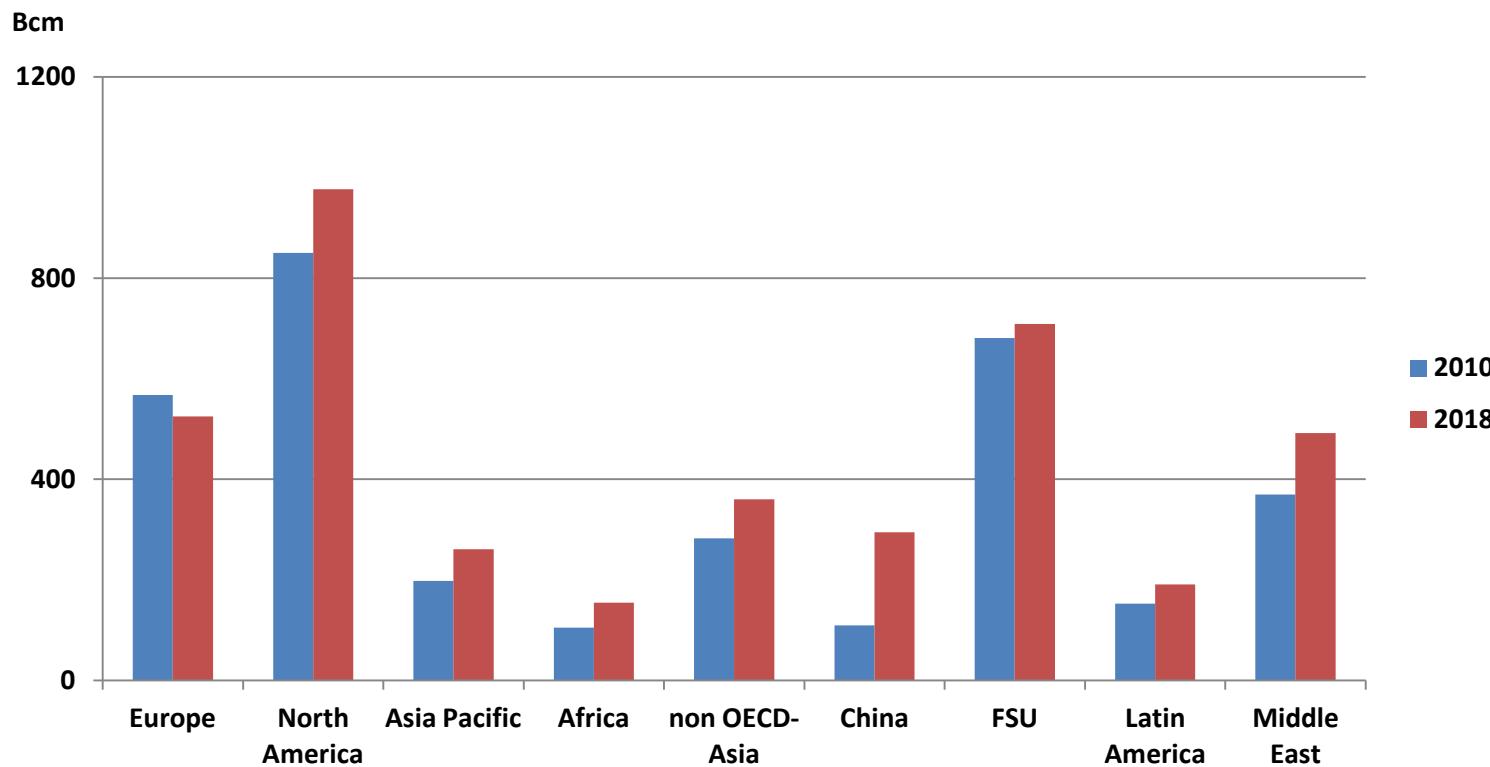


GAS

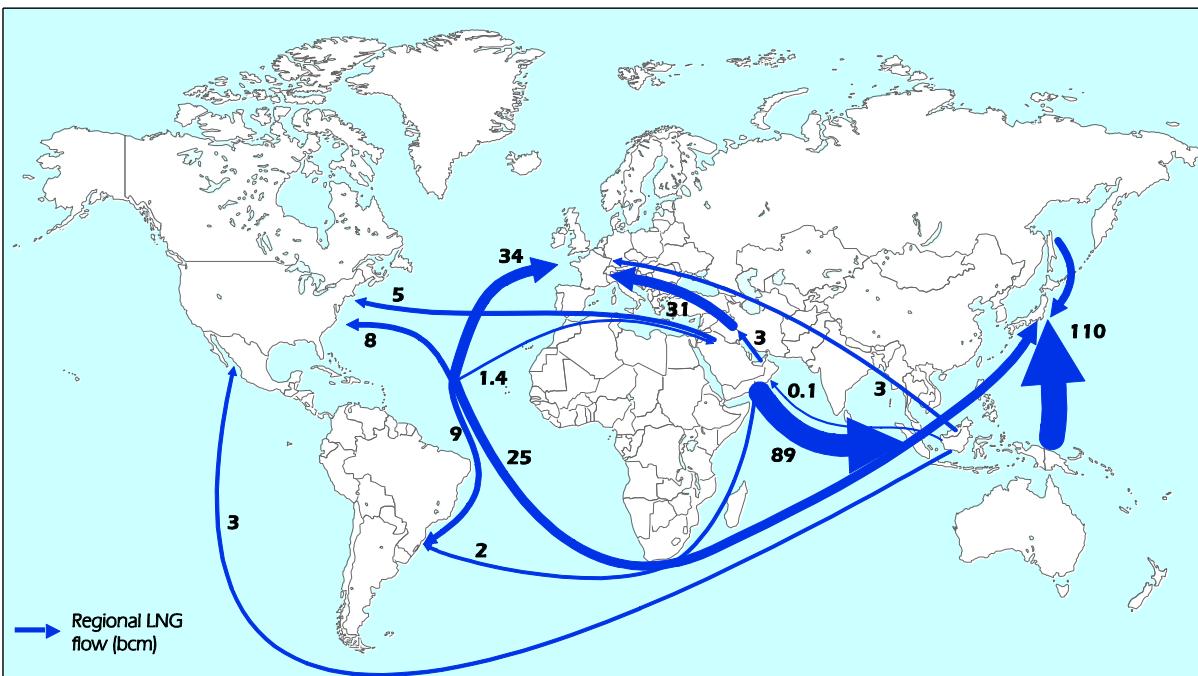
Gas Demand by Region (2010-2018)



Gas Demand Growth by Region (2010-2018)

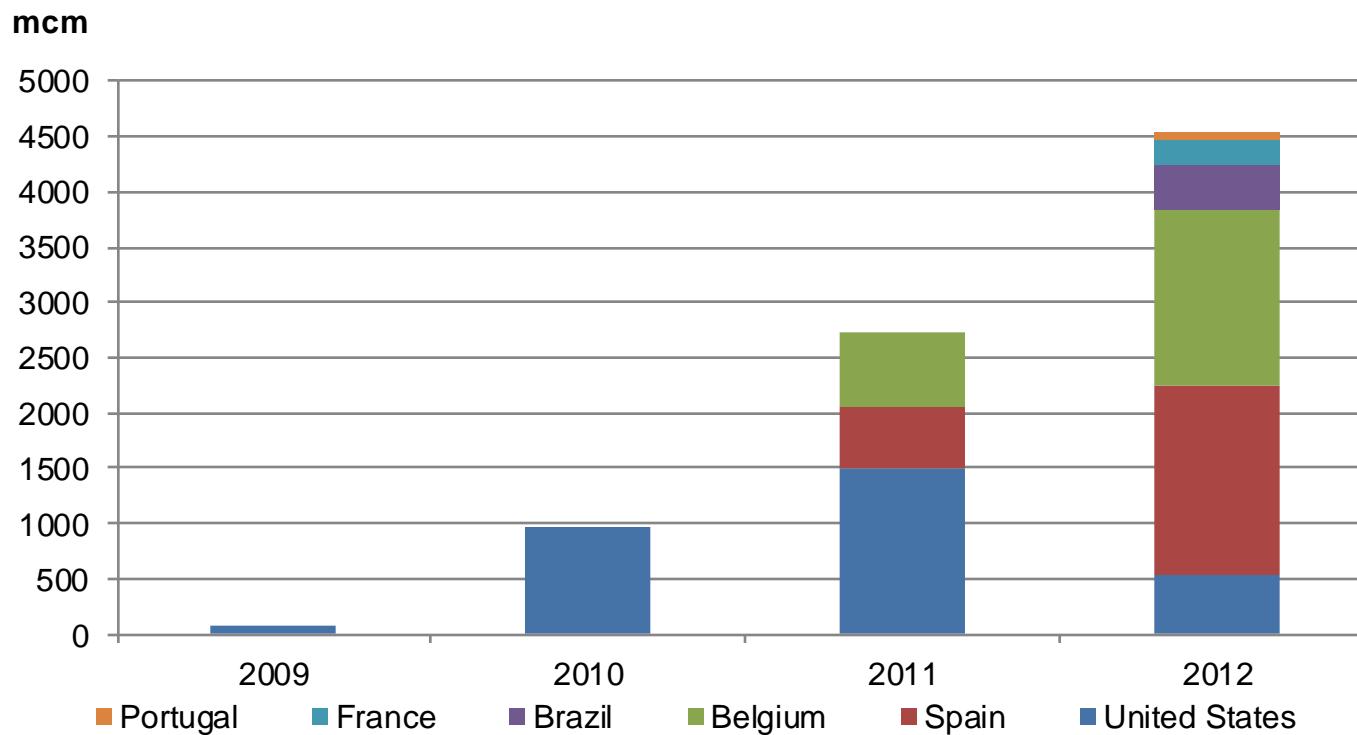


LNG flows in 2012 (bcm)

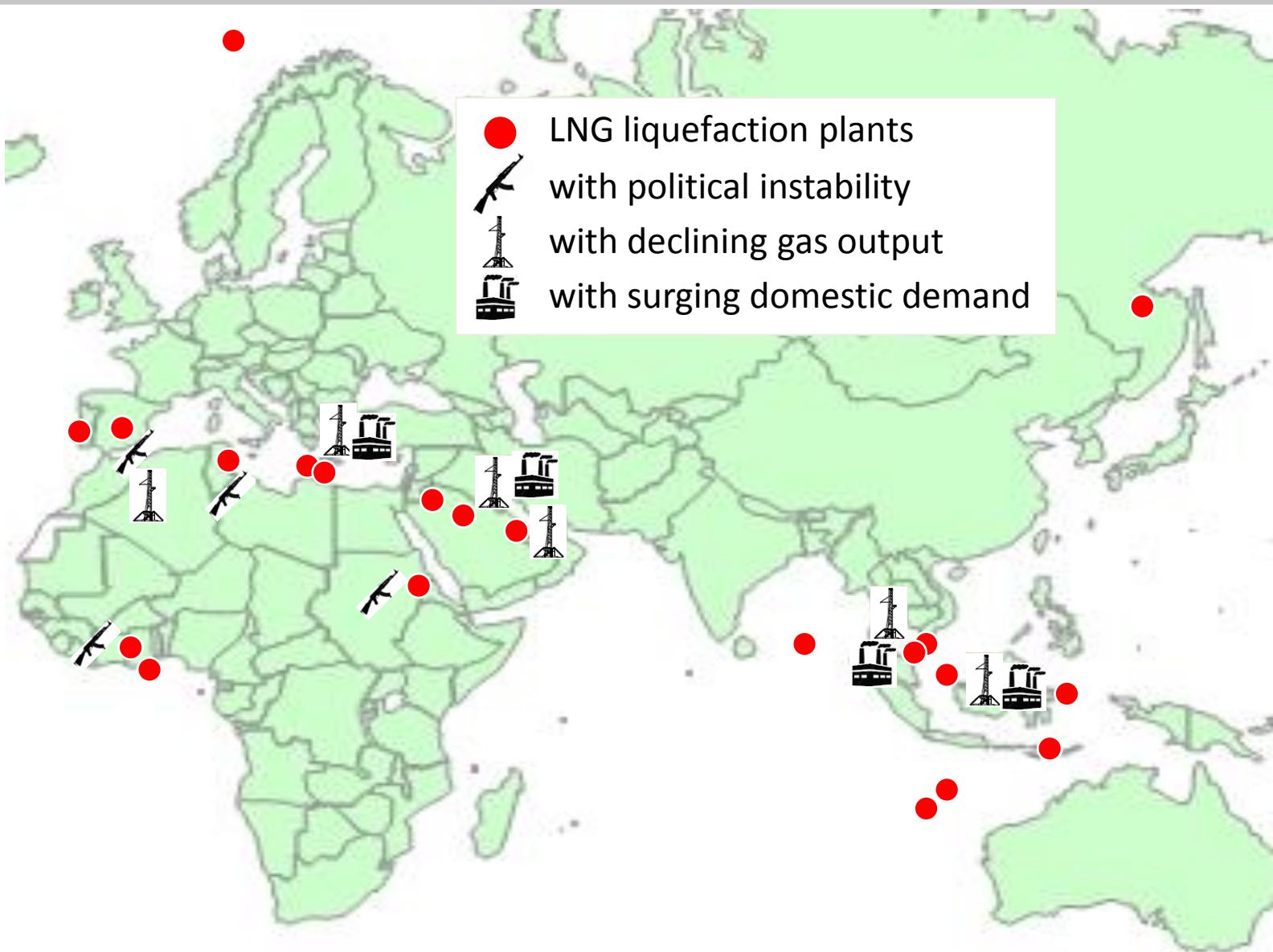


This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

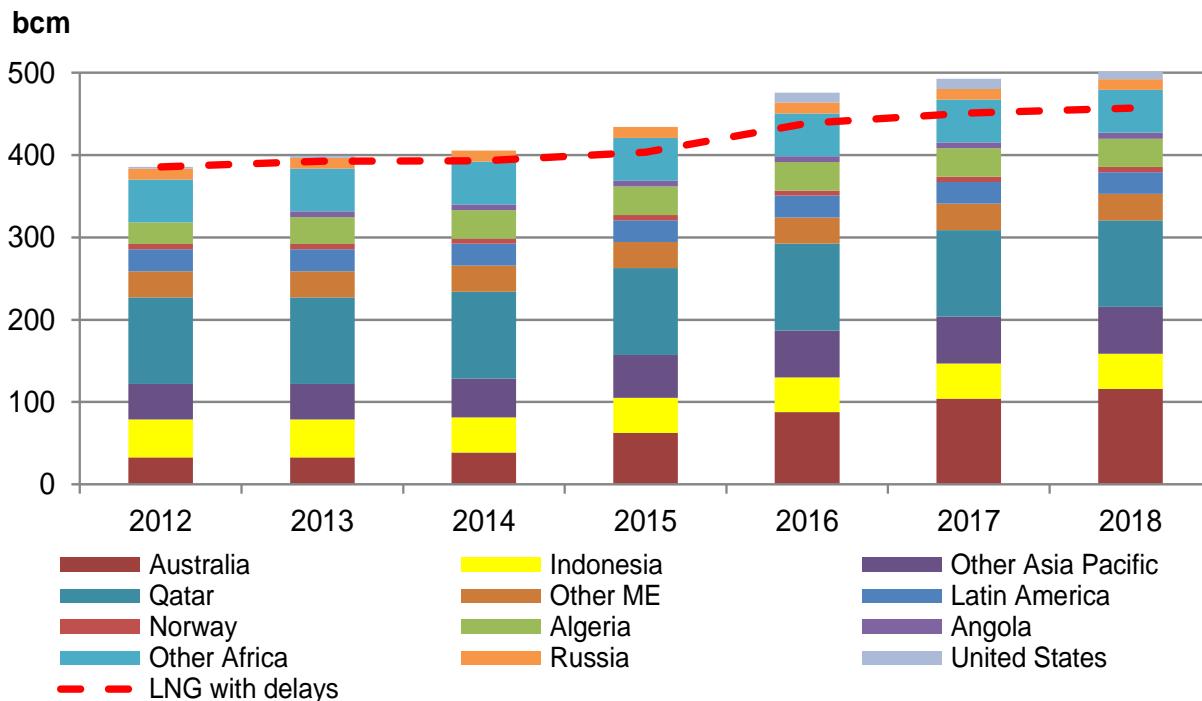
LNG re-exports, 2009-12



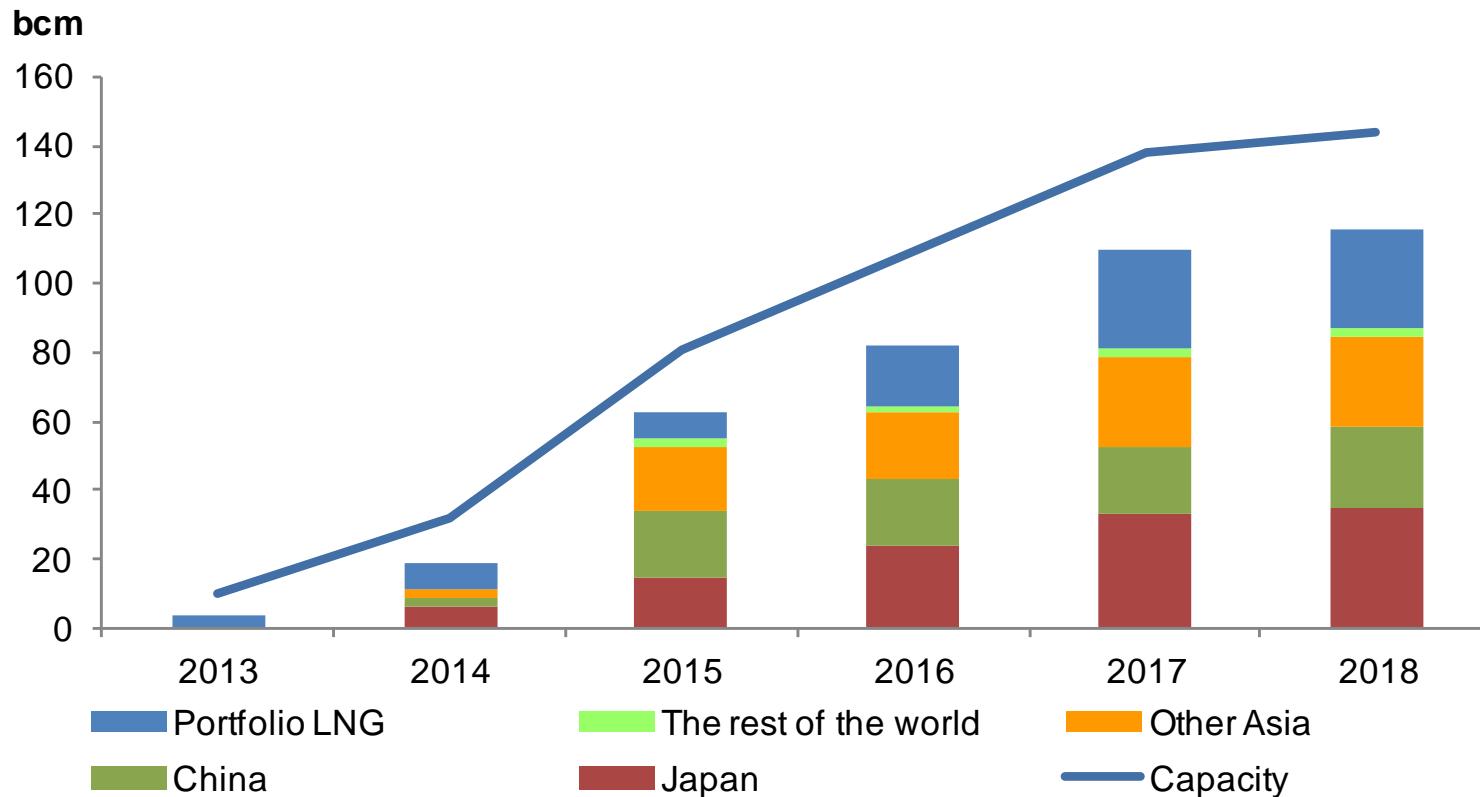
Tight LNG Supply



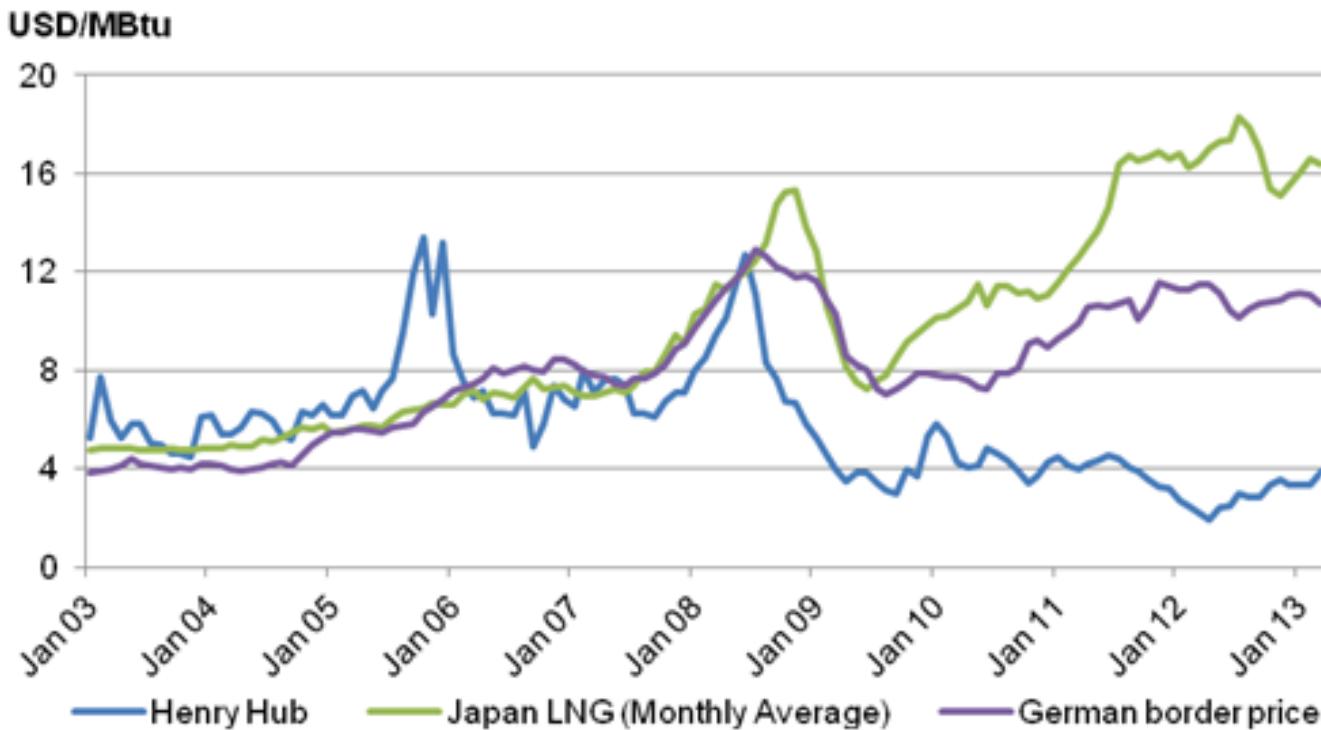
LNG Projects under Construction



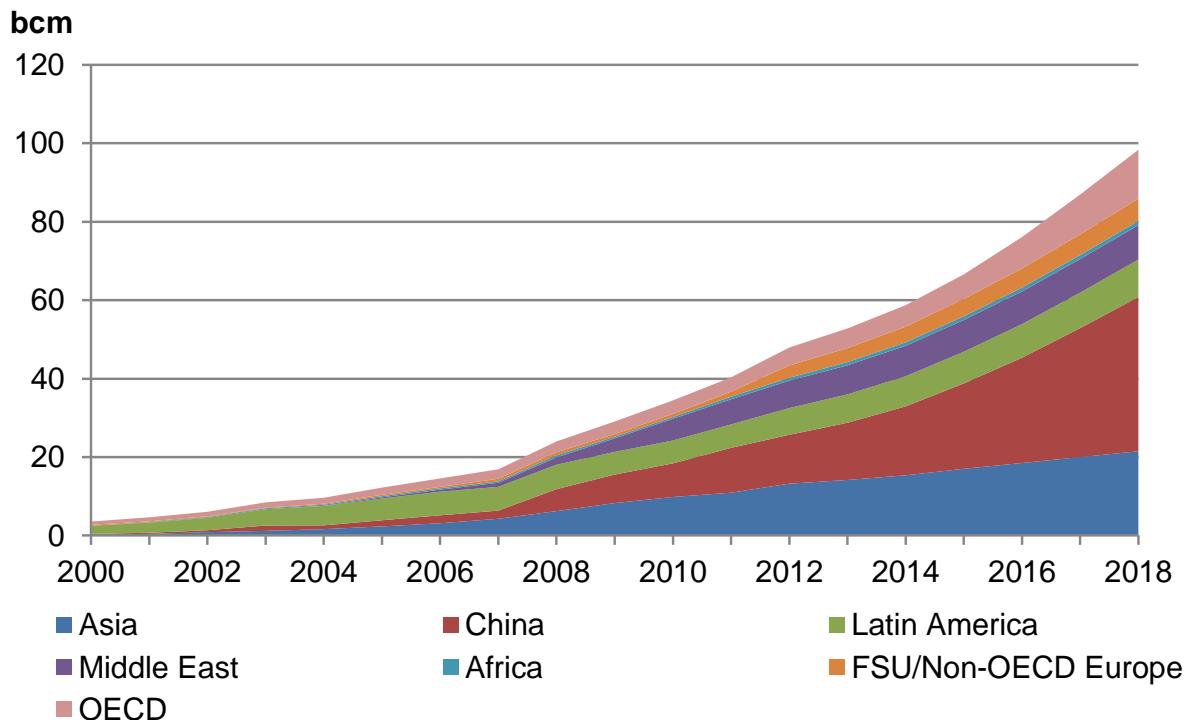
LNG backed by Long-Term Contracts



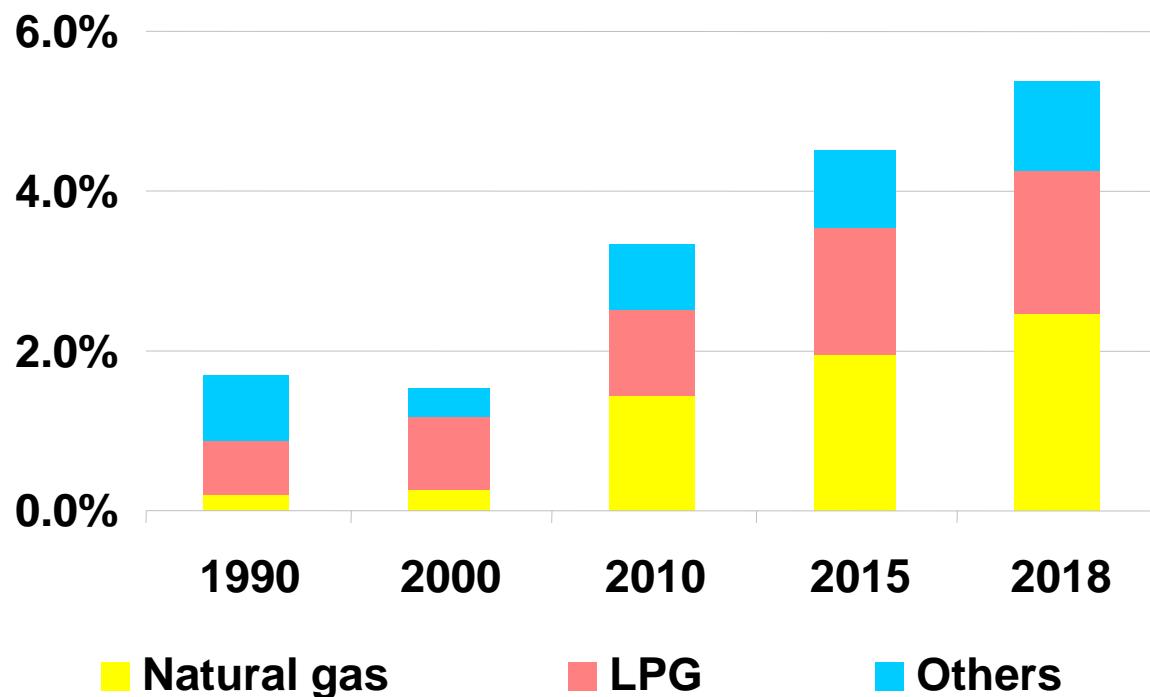
Regional Gas Price Disparity



Gas Demand in the Transport Sector

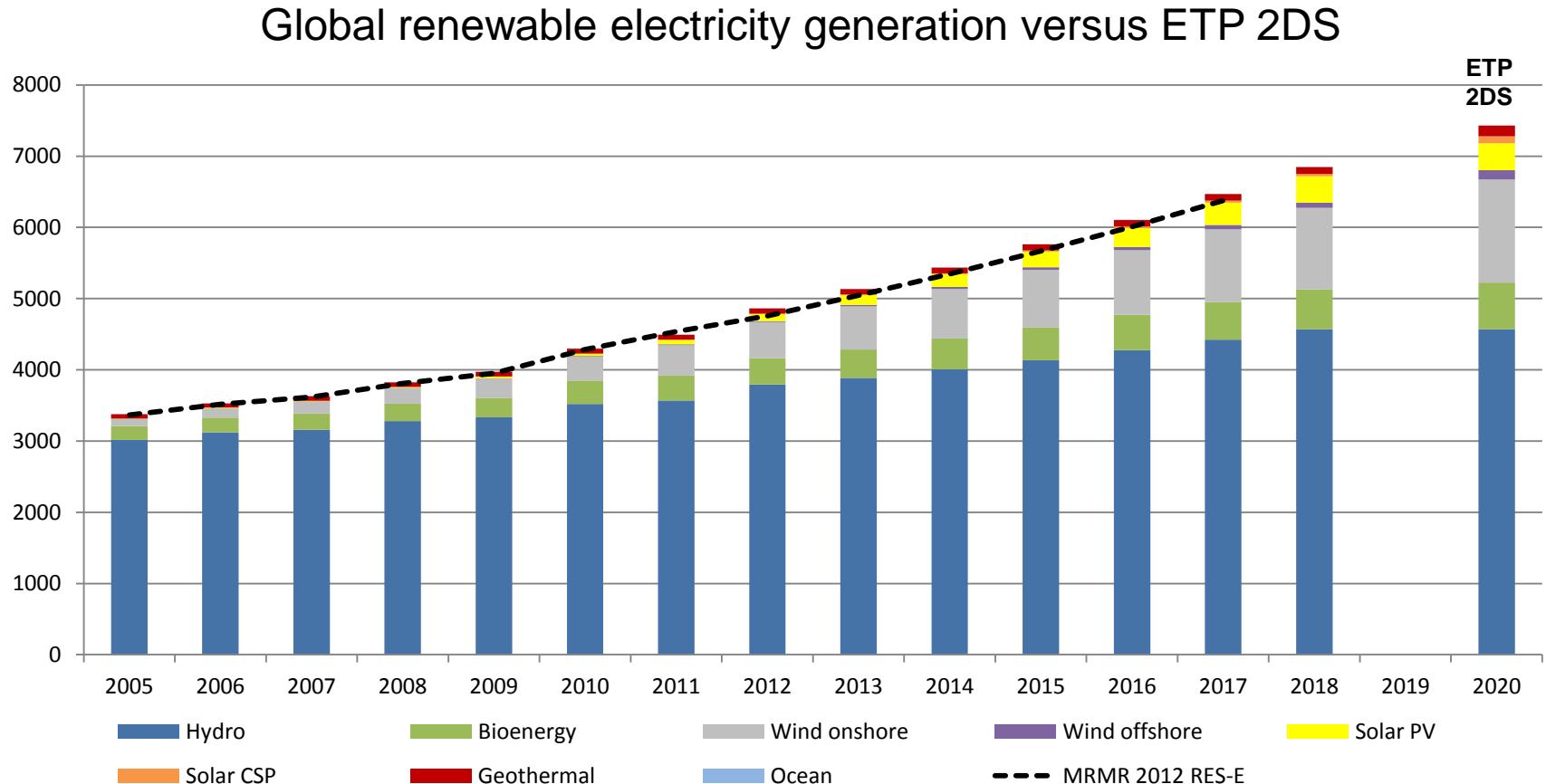


Non-Conventional Road Transport Demand



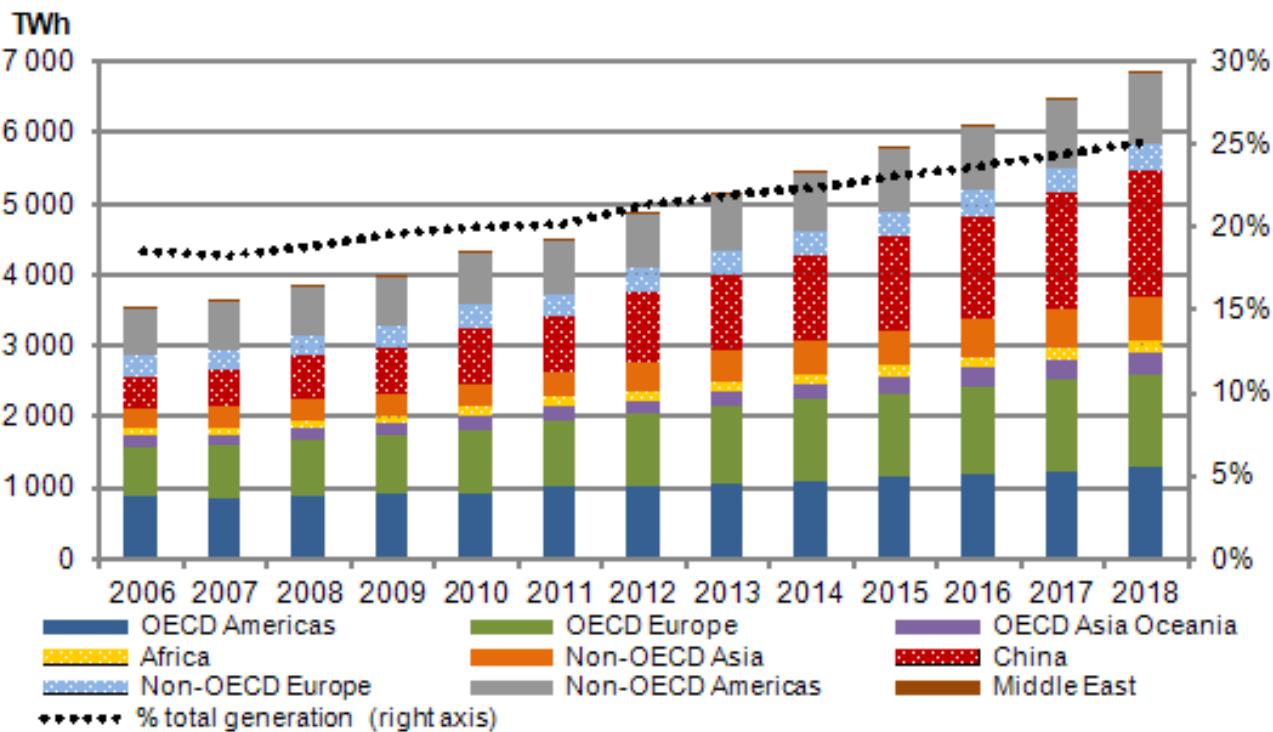
RENEWABLES

Renewables on Track in Clean Energy Scenarios



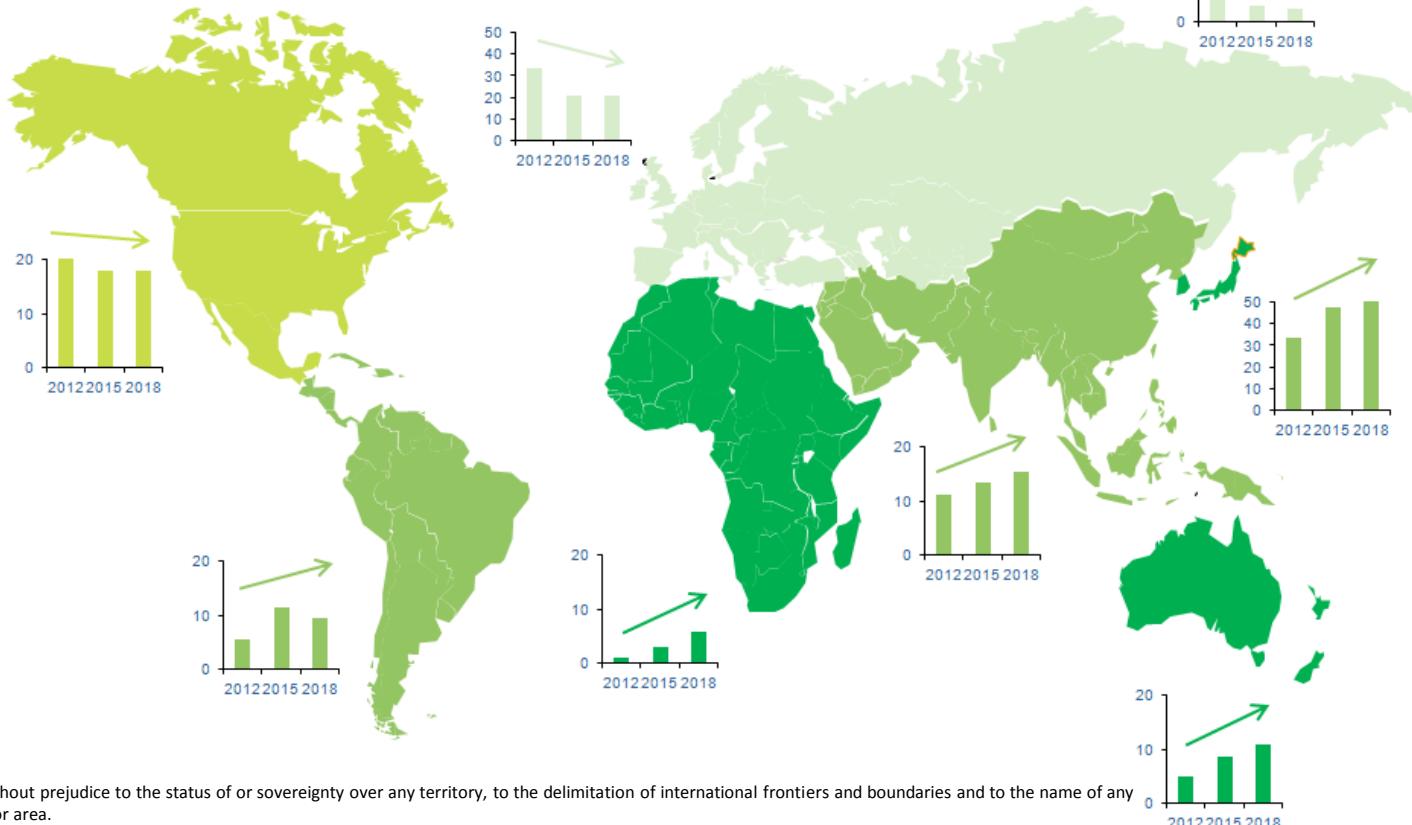
Non-OECD Leading Growth

Global renewable electricity production, by region (TWh)



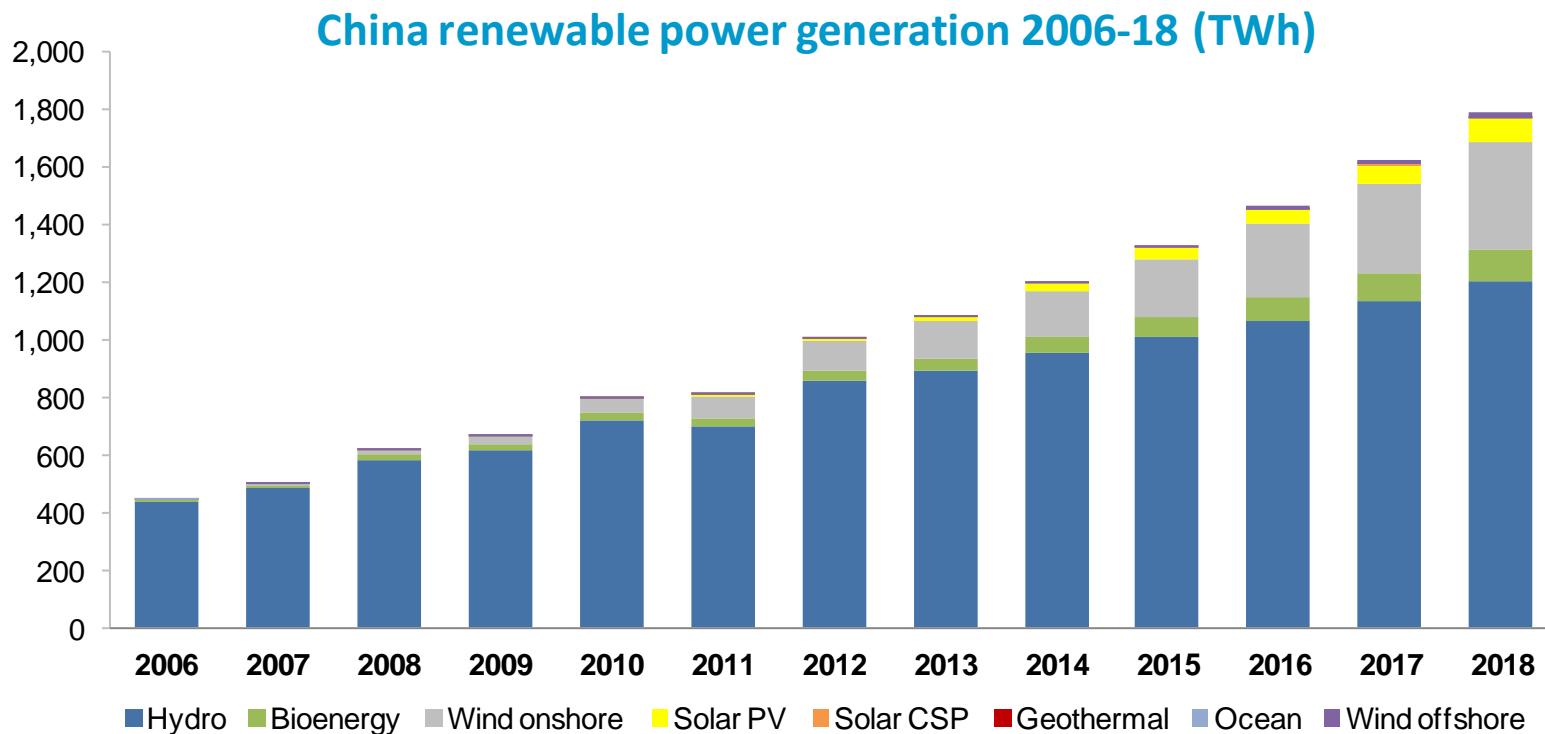
Renewable power spreading out everywhere

Total Renewable Annual Capacity Additions, by region (GW)



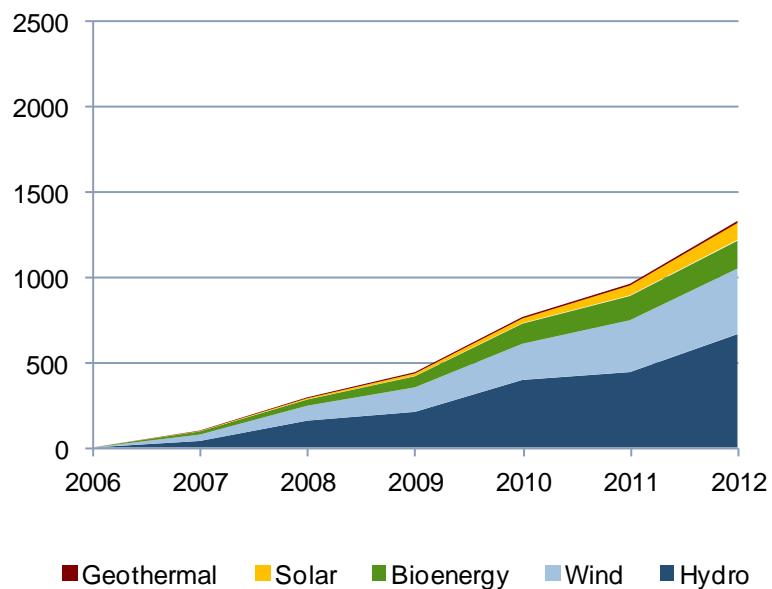
This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

China accounts for 40% of renewable power growth

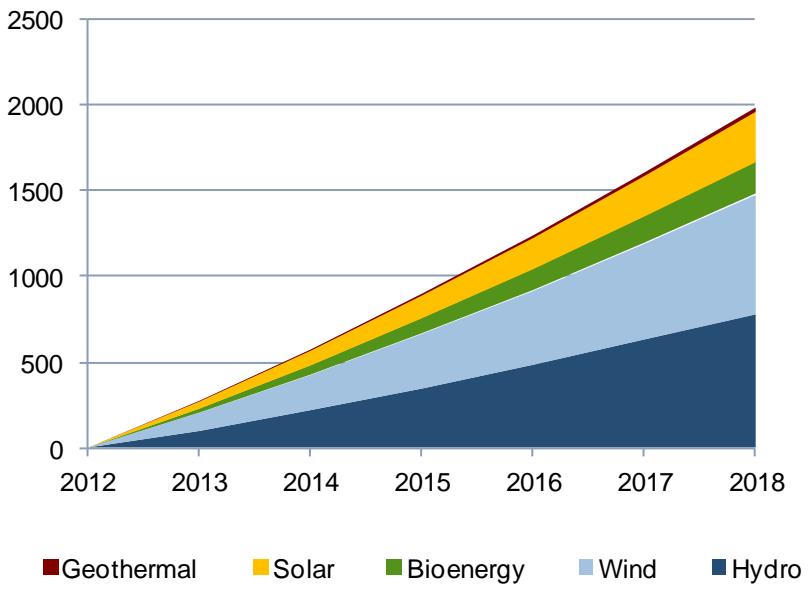


Growth of renewable power accelerating

Historical cumulative additions (TWh)

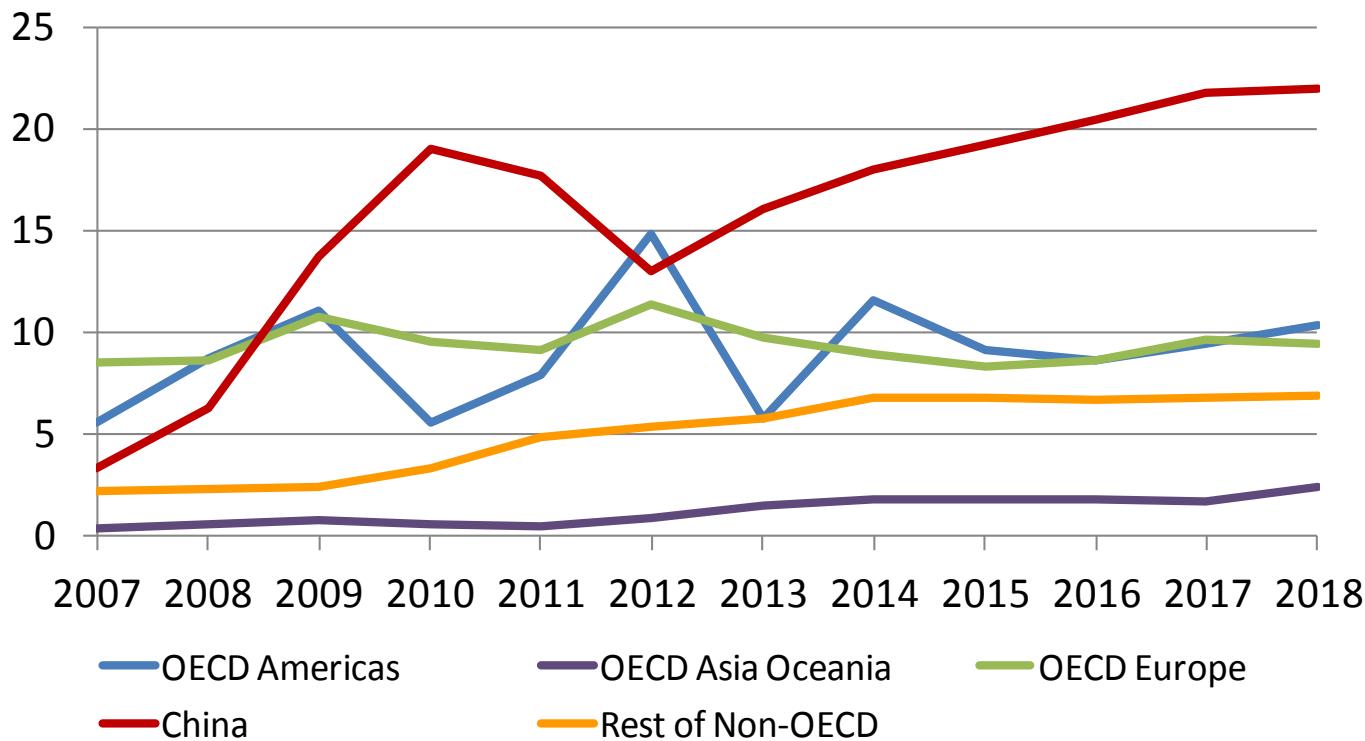


Forecast cumulative additions (TWh)



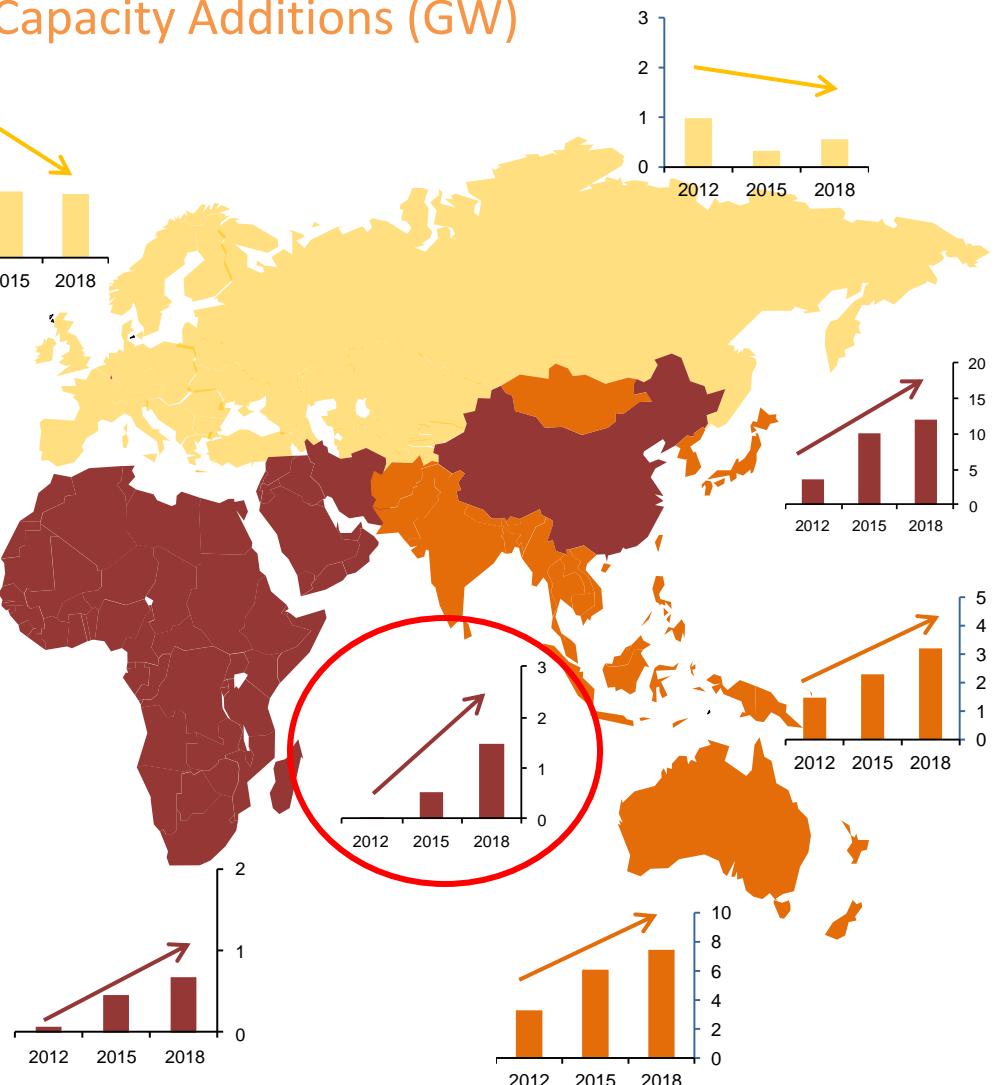
Global RE capacity additions led by wind

Total wind (onshore + offshore) annual capacity additions by region (GW)



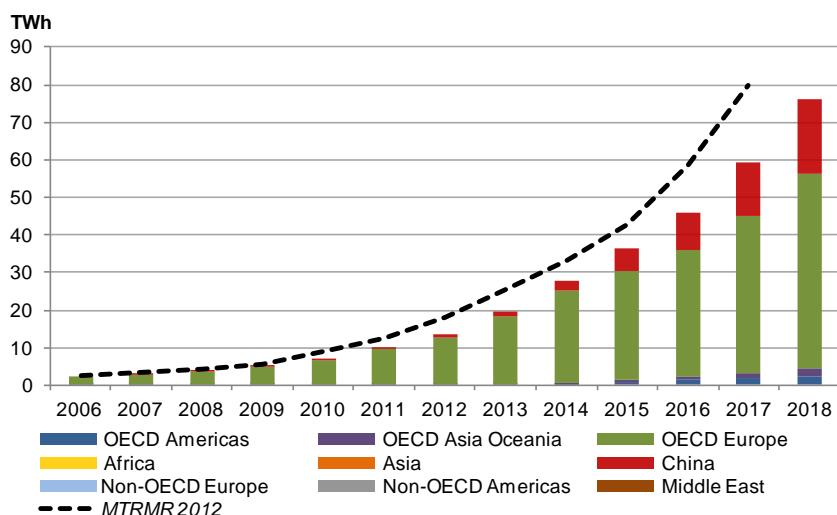
Solar PV growing out of Europe

PV Annual Capacity Additions (GW)

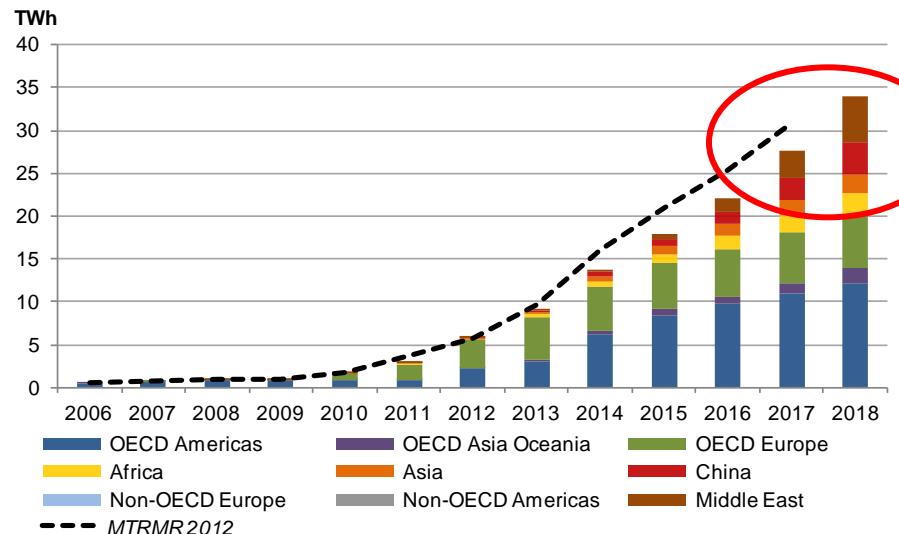


But other technologies lagging behind

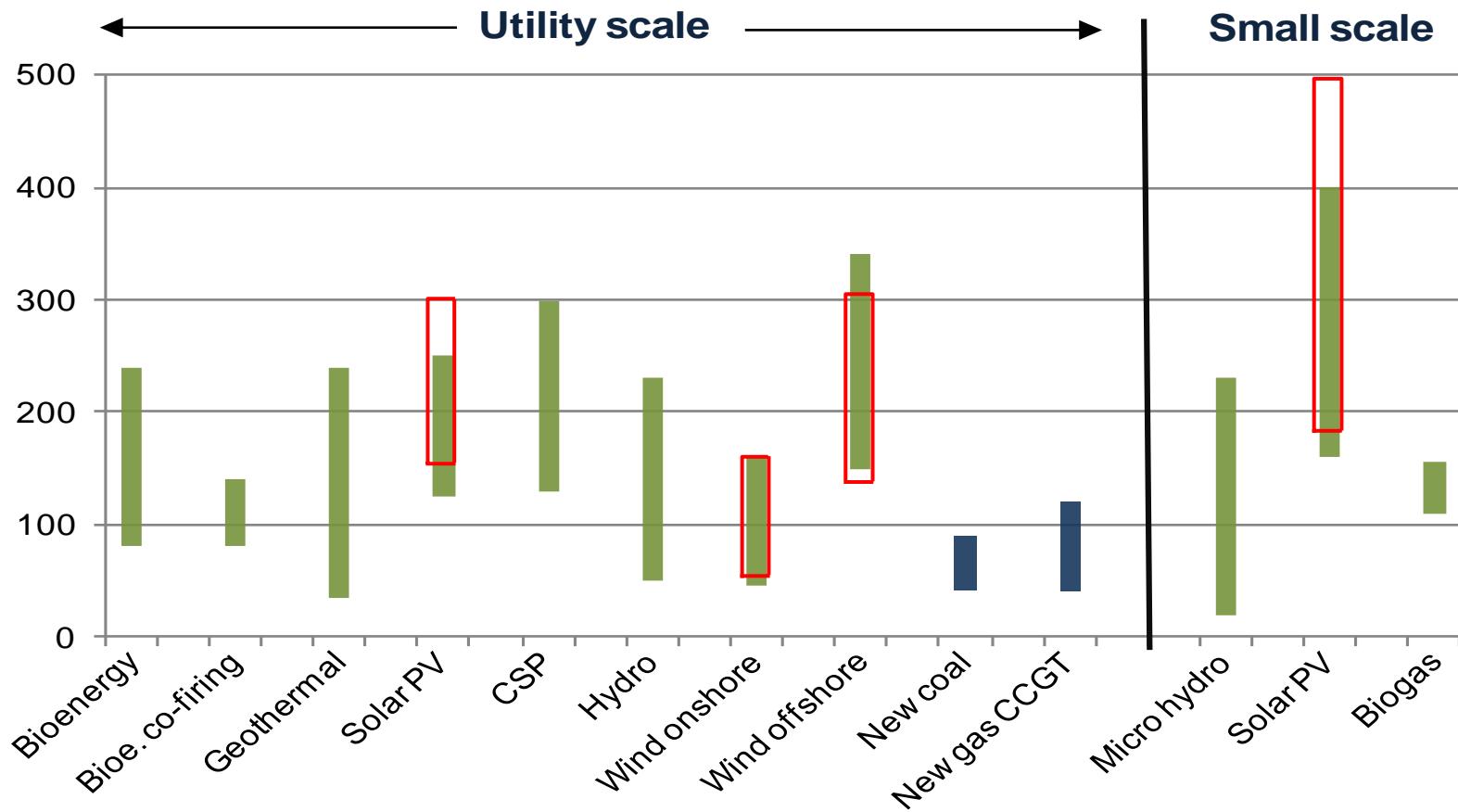
Wind offshore generation projection



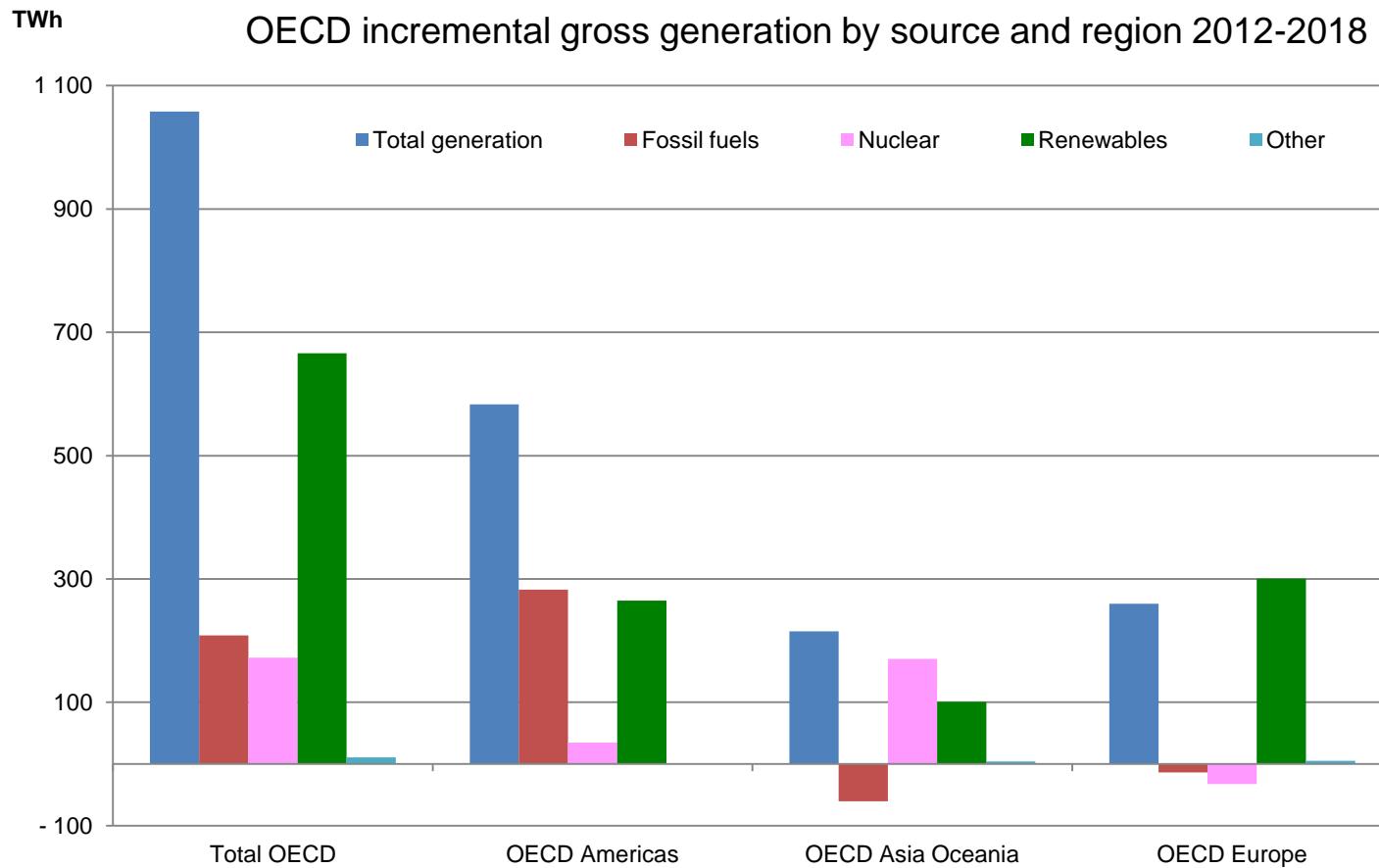
Concentrating solar power generation projection



Improving Competitiveness

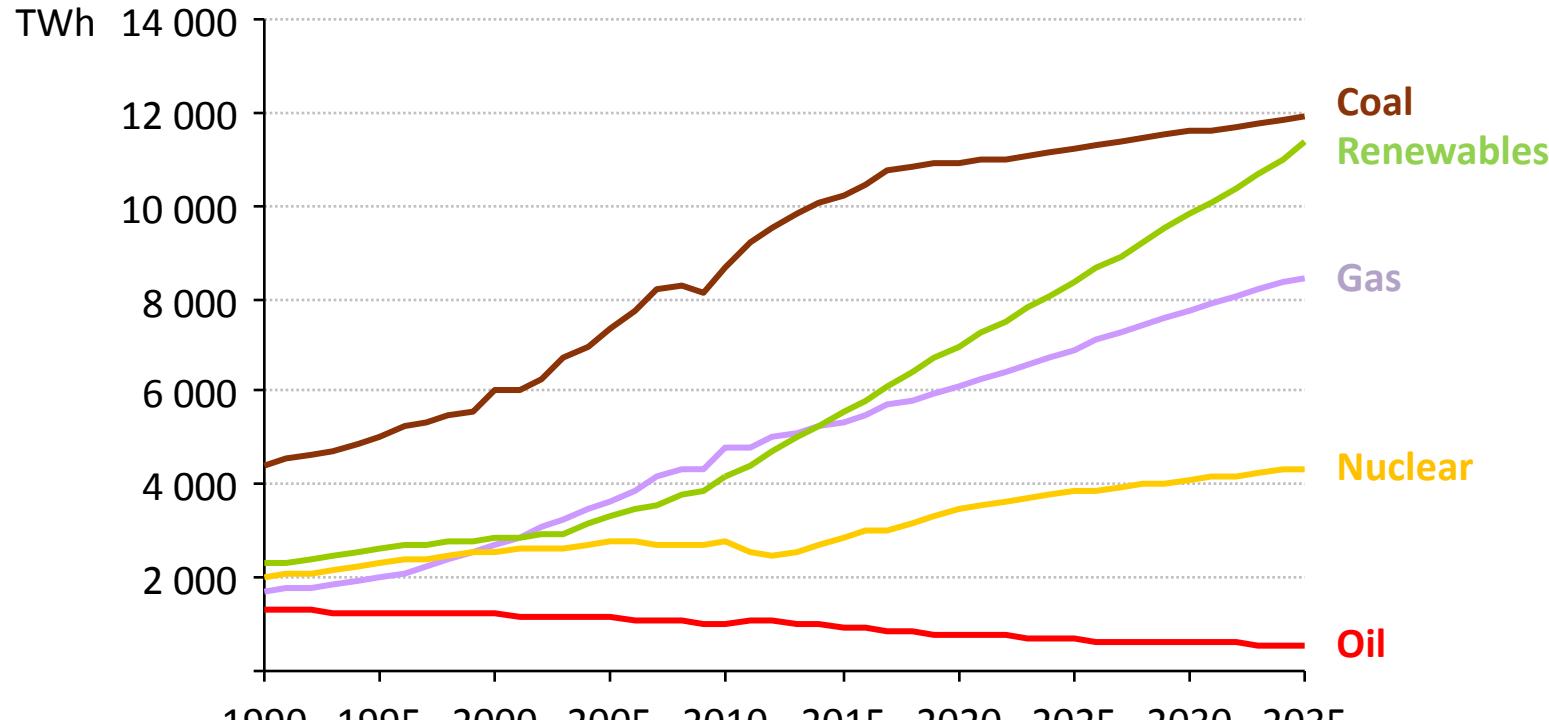


RES-E: 60% of new OECD Generation



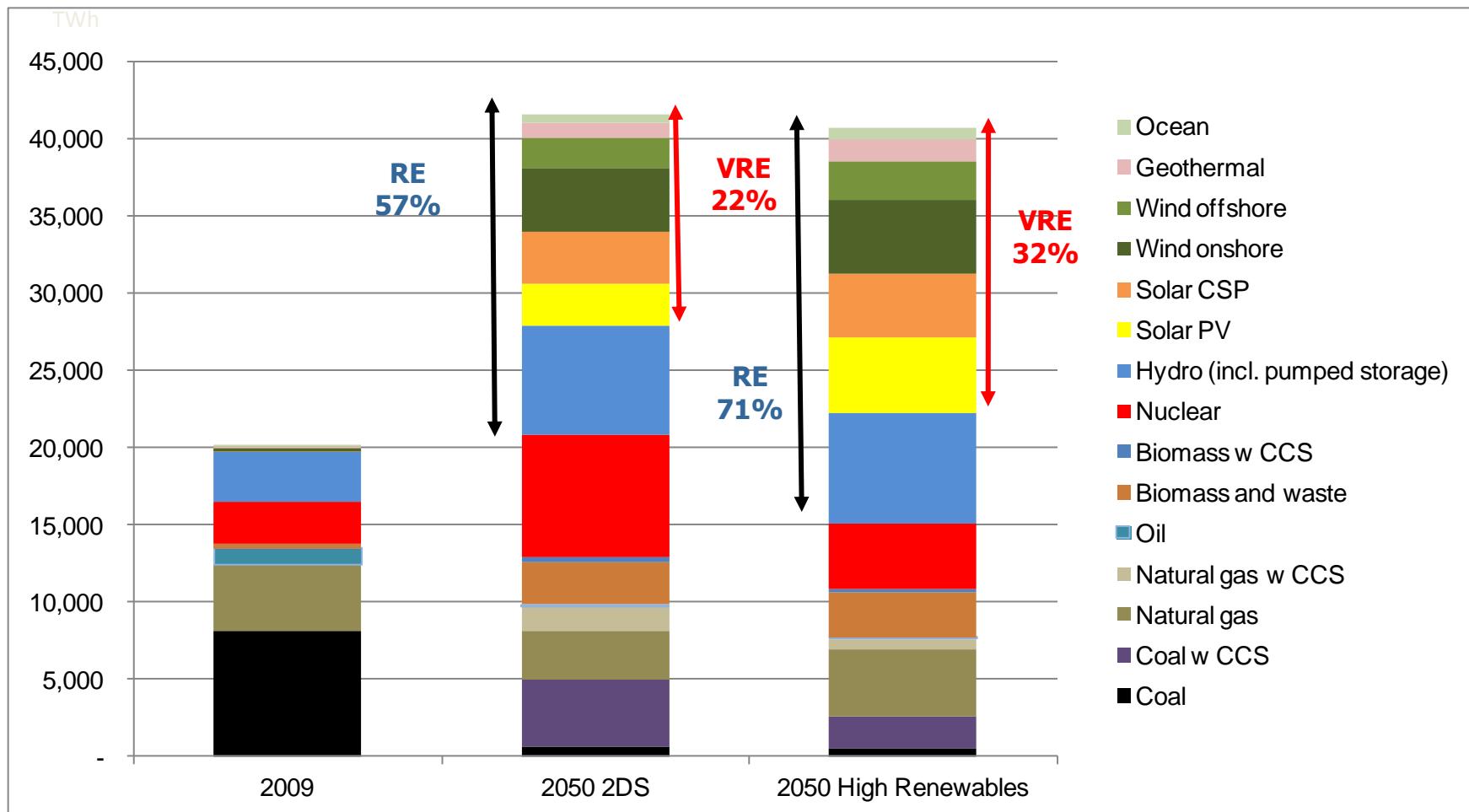
Over the long term, the power generation mix is set to change

Global electricity generation by source, 2010-2035

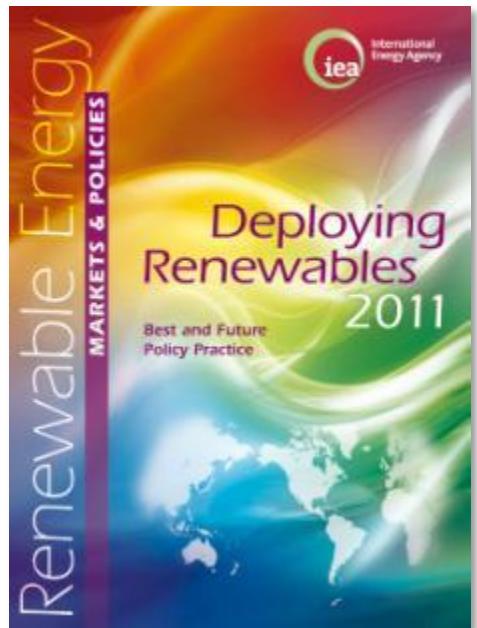


Source: IEA World Energy Outlook 2012

Global climate-friendly electricity mix by 2050



Four Key Policy Ingredients



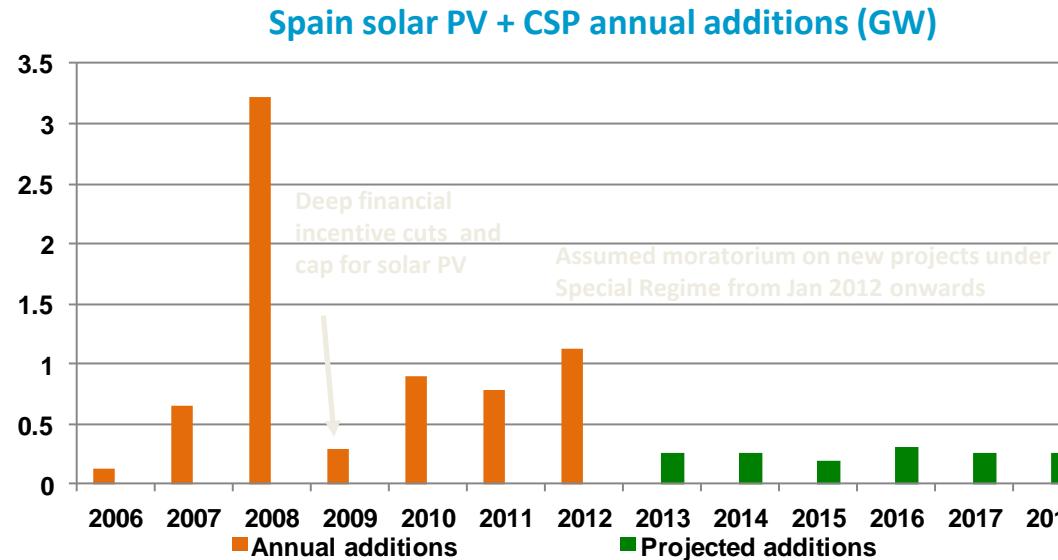
**System
Integration**

Non Economic Barriers

Smart Incentives

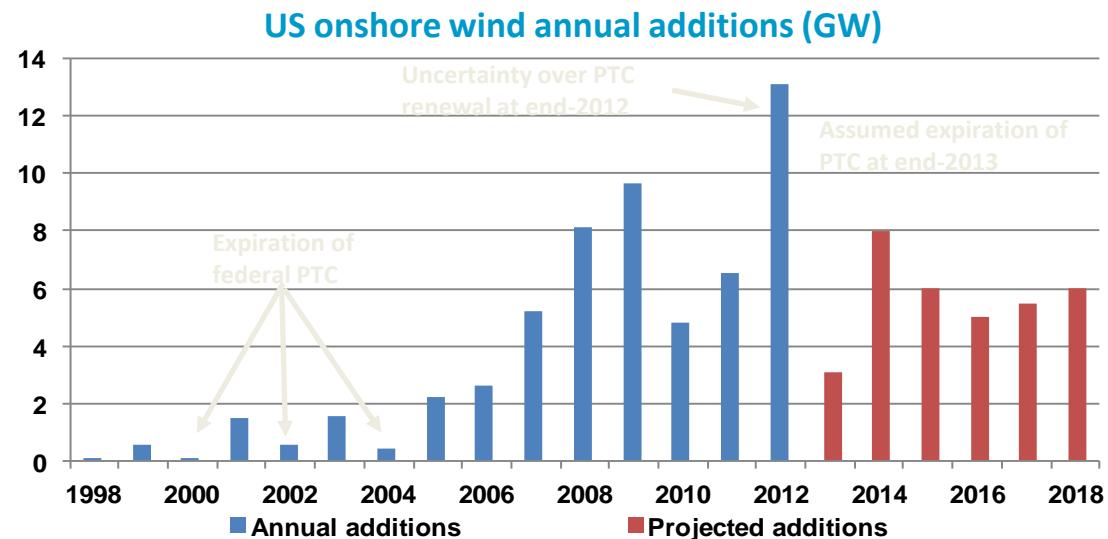
Clear Strategy and Targets

Policy uncertainty is the number one risk to reaching a climate friendly power mix



Abrupt,
retroactive
policy
changes

Stop & go
policies

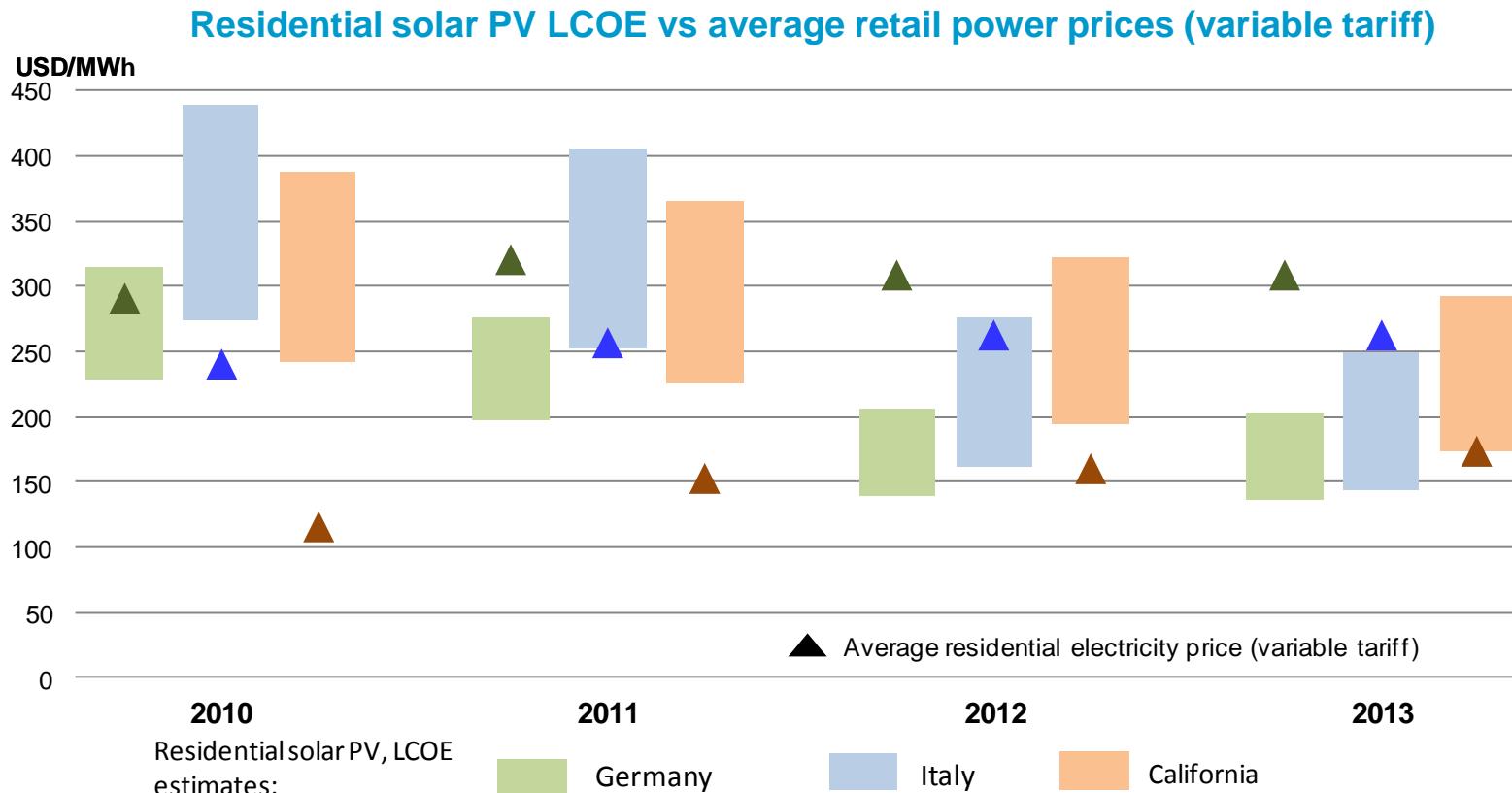


Conclusions for policy-making

- Many renewables no longer require high economic incentives
- But they do need long-term policies that continue to provide a predictable and reliable market and regulatory framework compatible with societal goals
- Consistent policy framework more important than specific RE incentive type
- Competitiveness of renewables depends on market design
 - Fair rules for up-front capital intensive technologies and distributed generation will be key

Grid Parity

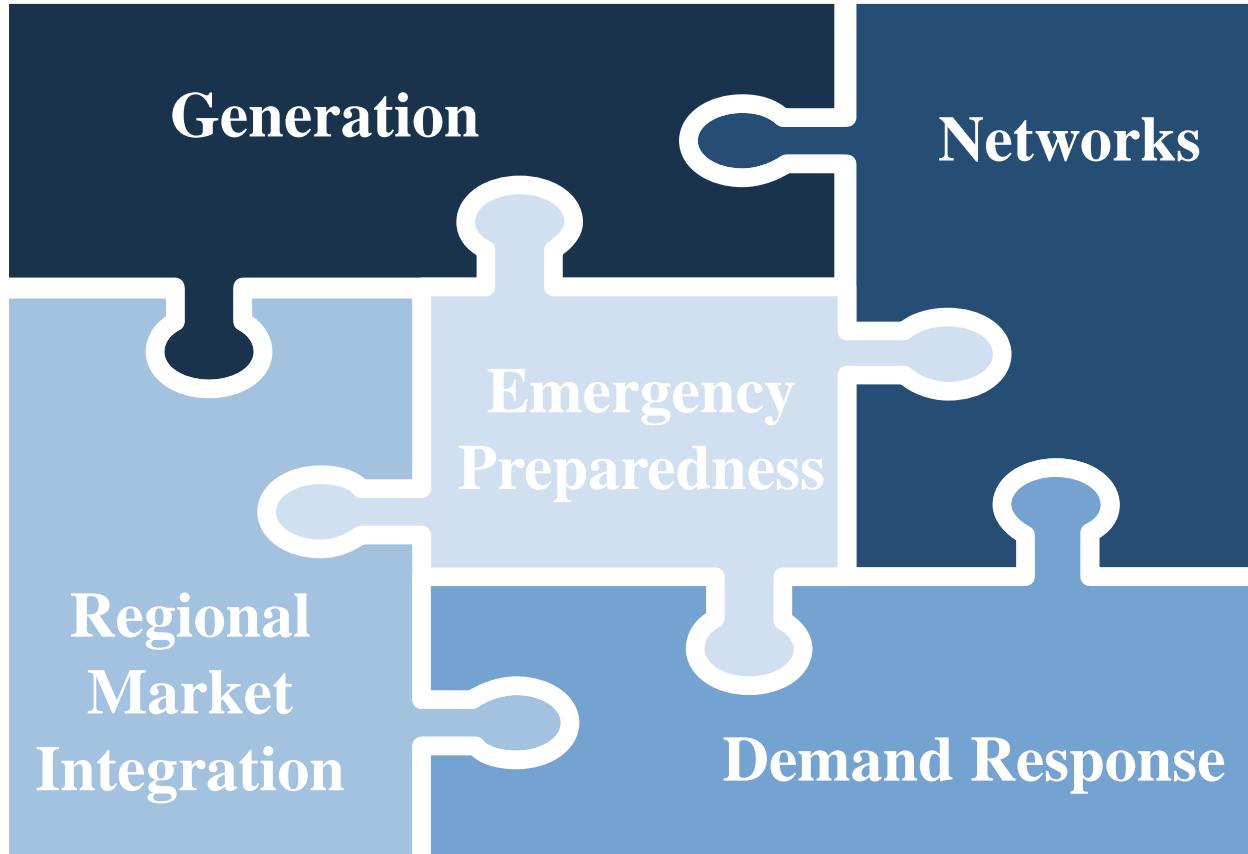
Distributed PV reaching “grid parity” in some markets



Examples correspond to Southern Germany, Southern California and Southern Italy, based on actual average cost of capital, full load hours and variable tariffs

Electricity Security

Electricity Security Action Plan (ESAP): a two-years work programme



Thank you

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