Energy Technology Trends and Targets

Bo Diczfalusy
Director of Sustainable Energy Policy and Technology
International Energy Agency

Nordic-China Energy & Climate Day

June 2010

International Energy Agency

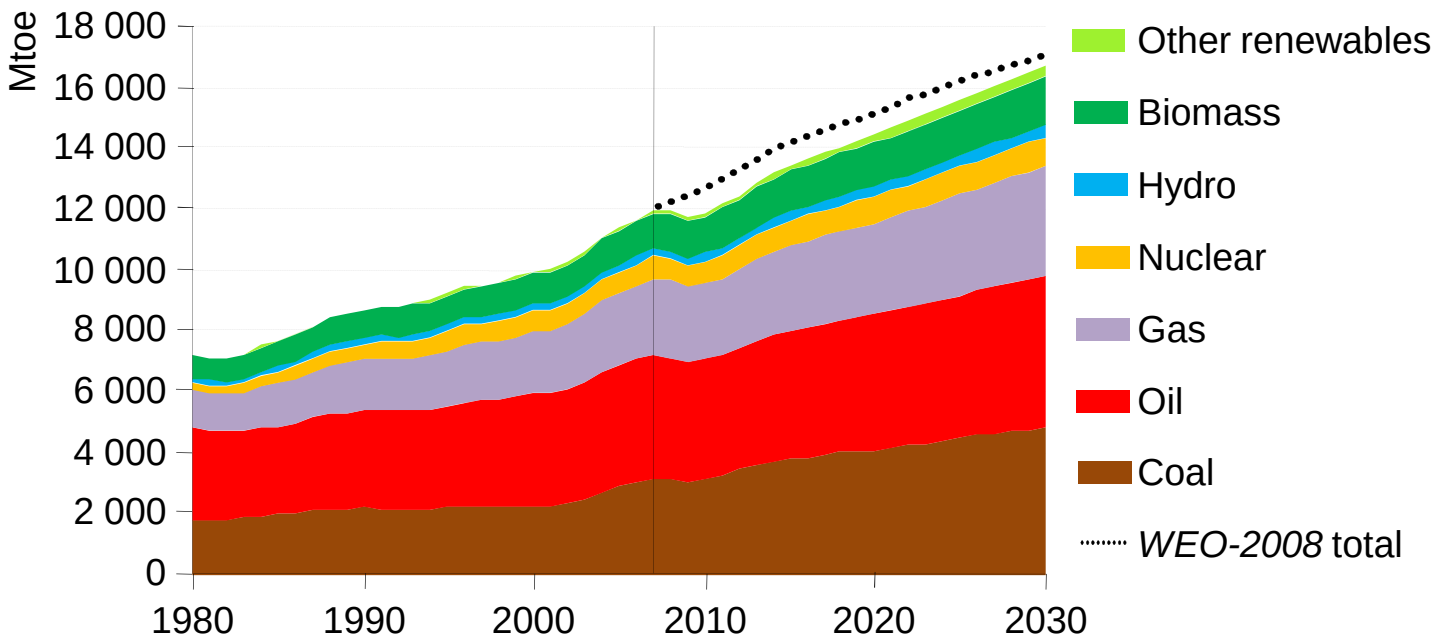
- IEA Member Countries

Australia
Austria
Belgium
Canada
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Japan
Korea (Republic of)
Luxembourg
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

The European Commission also participates in the work of the IEA.

© OECD/IEA - 2010

World primary energy demand in the Reference Scenario

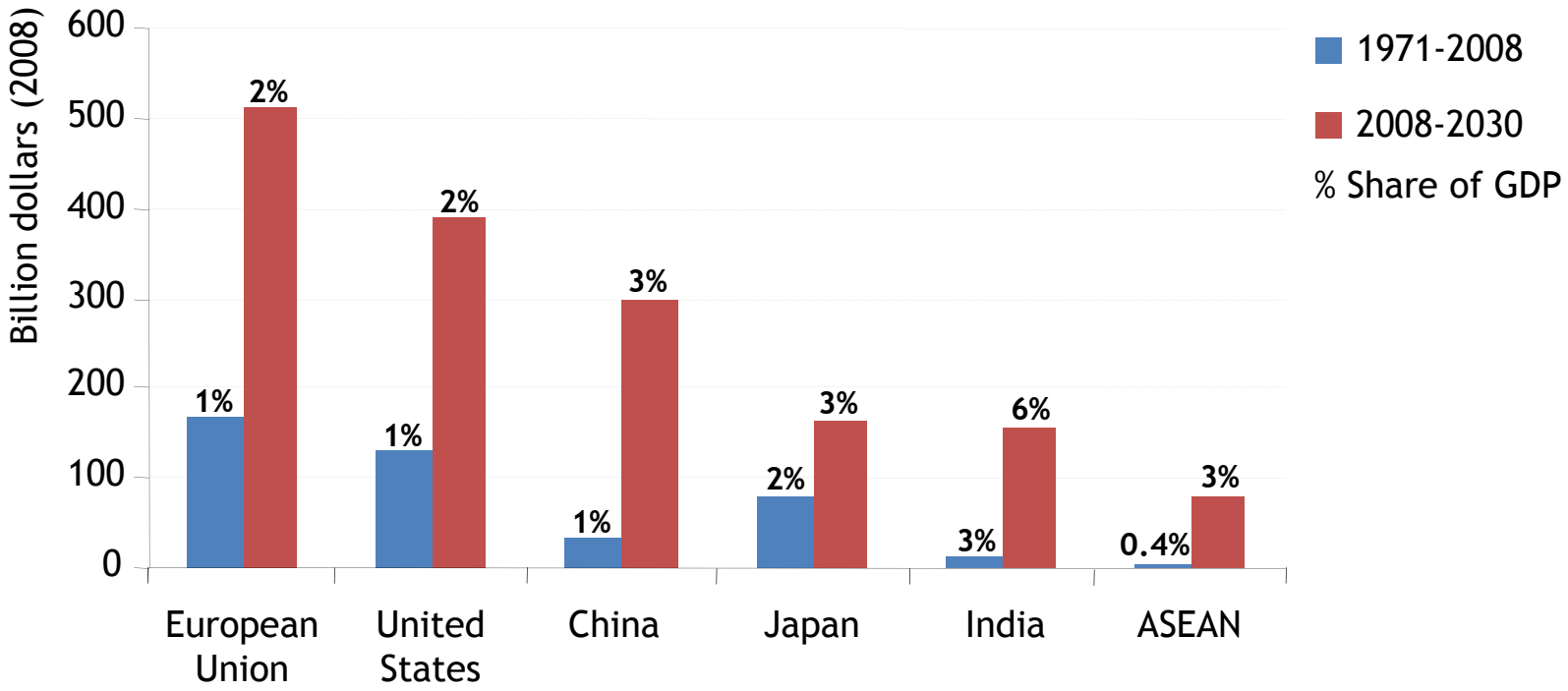


Source: *World Energy Outlook 2009*

Global energy demand grows by average 1.5% p.a. to 2030; 22% more oil, 42% more gas, 53% more coal than today

© OECD/IEA 2010

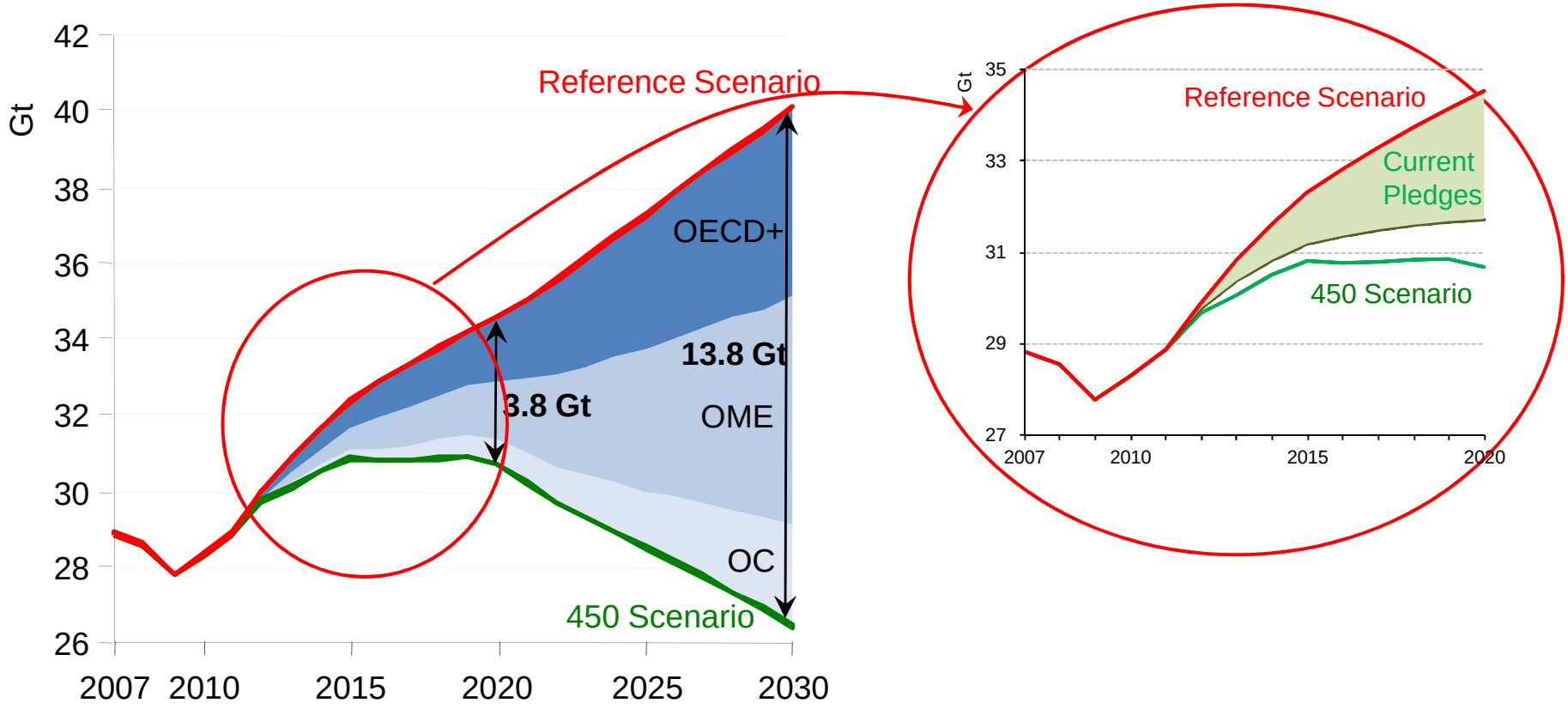
Average annual expenditures on net imports of oil & gas, Reference Scenario



The Reference Scenario implies persistently high spending on oil & gas imports, with China overtaking the United States by around 2025 to become the world's biggest spender

© OECD/IEA 2010

World emissions abatement in the 450 Scenario



Current pledges point in the right direction but further efforts would be needed to close the gap and reach the 450 Scenario

© OECD/IEA 2009

Source: **IEA analysis based on pledges as of 11 December 2009**, and World Energy Outlook 2009

How do we get there from here?
Energy technology roadmaps

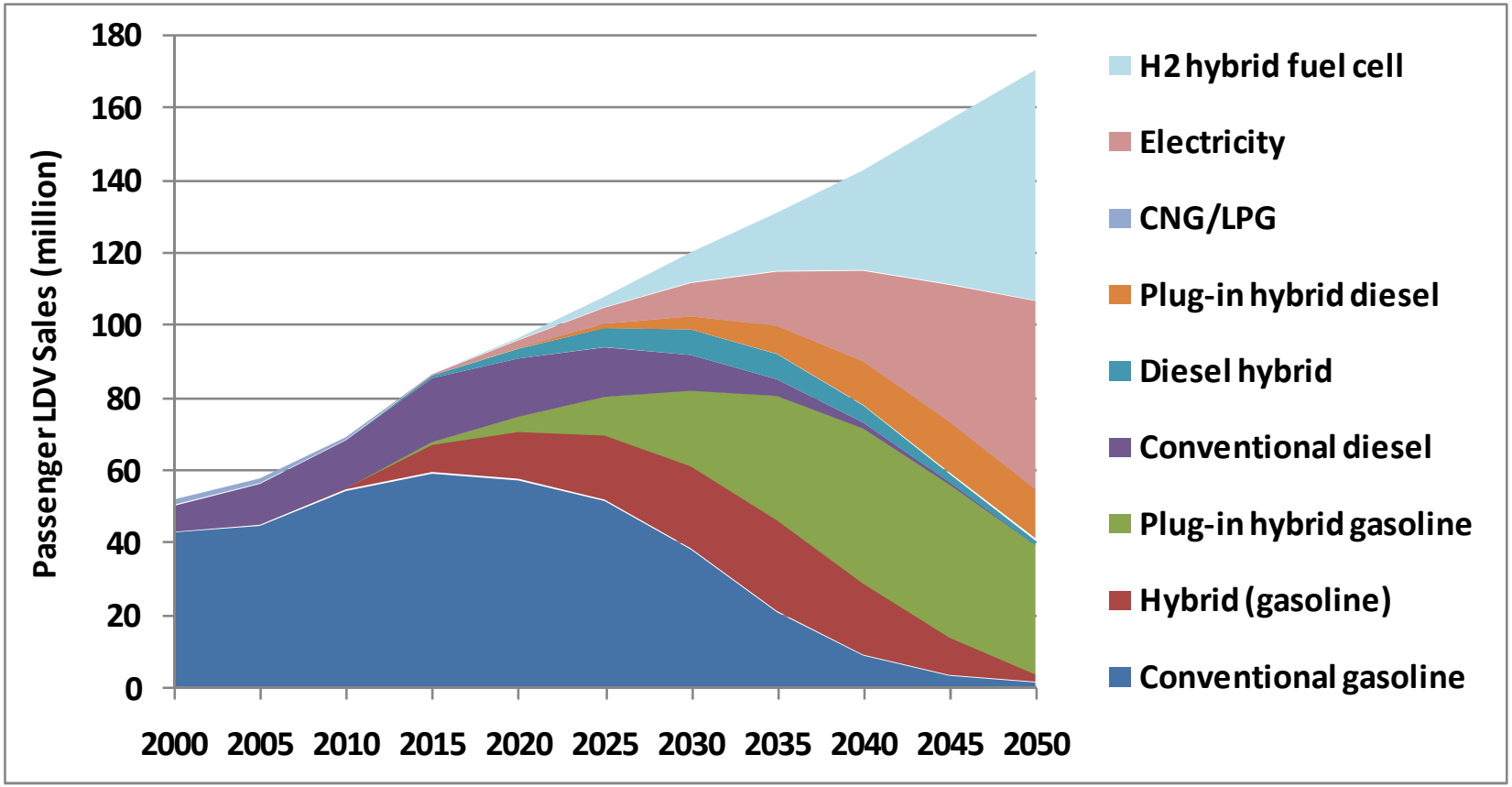
- Based on scenario to halve CO2 emissions by 2050
- Establish a baseline of technology status today
- Create technical, policy, legal, financial, and public acceptance milestones and priority near-term actions
- Create a process for stakeholder collaboration
  - Special developing country focus on engagement, national roadmaps
- Identify partners for implementation
- Roadmaps developed: CCS, electric vehicles, wind, cement sector, solar PV and solar CSP
- Roadmaps for 2010: smart grids, biofuels, nuclear power, EE buildings

© OECD/IEA 2009

© OECD/IEA 2010

Electric vehicles: A roadmap to 2050

Light-duty vehicle sales by technology type to 2050, ETP BLUE Map Scenario

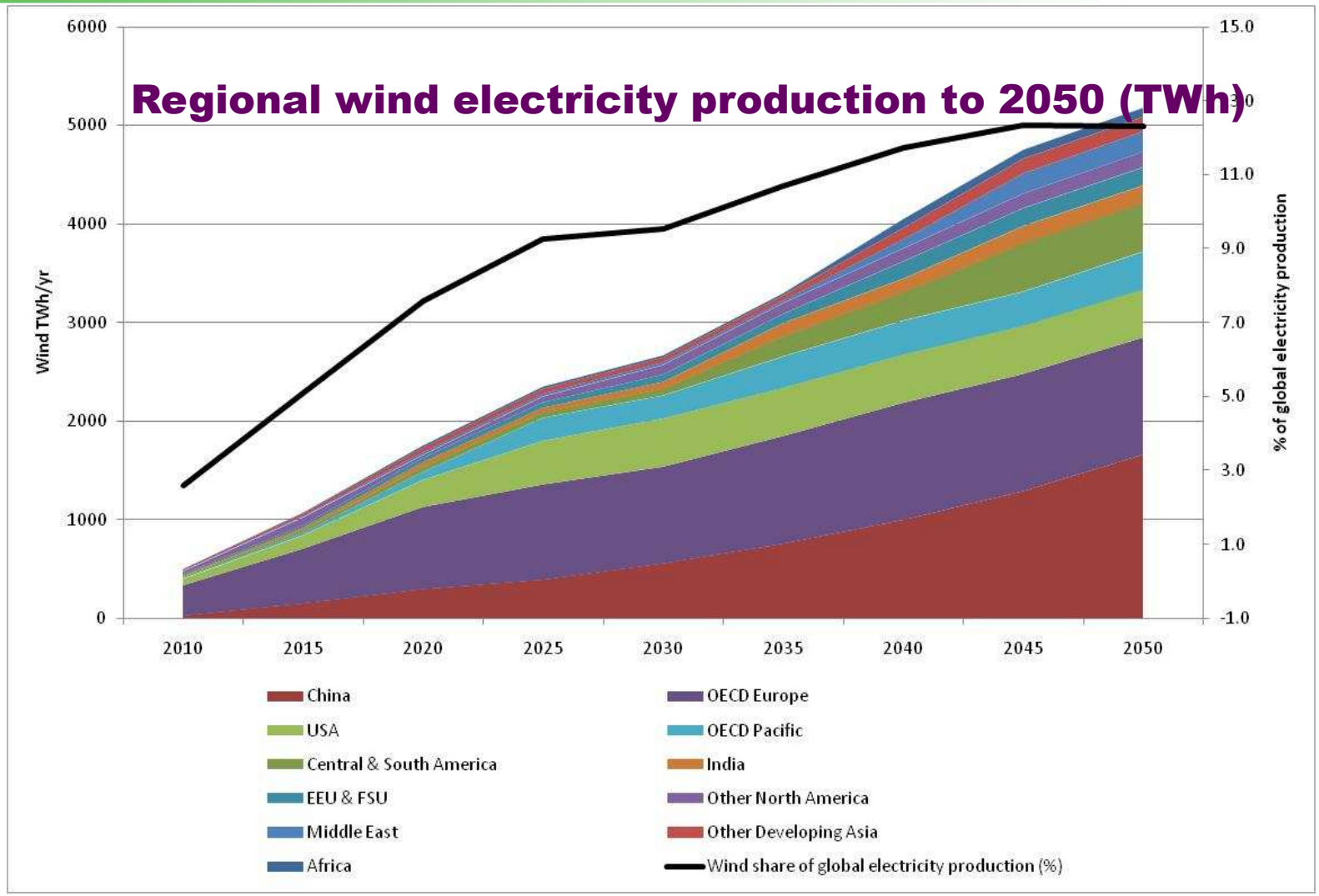


Source: IEA, *EV Roadmap*

Unprecedented rates of change in market penetration of advanced technologies

© OECD/IEA 2010

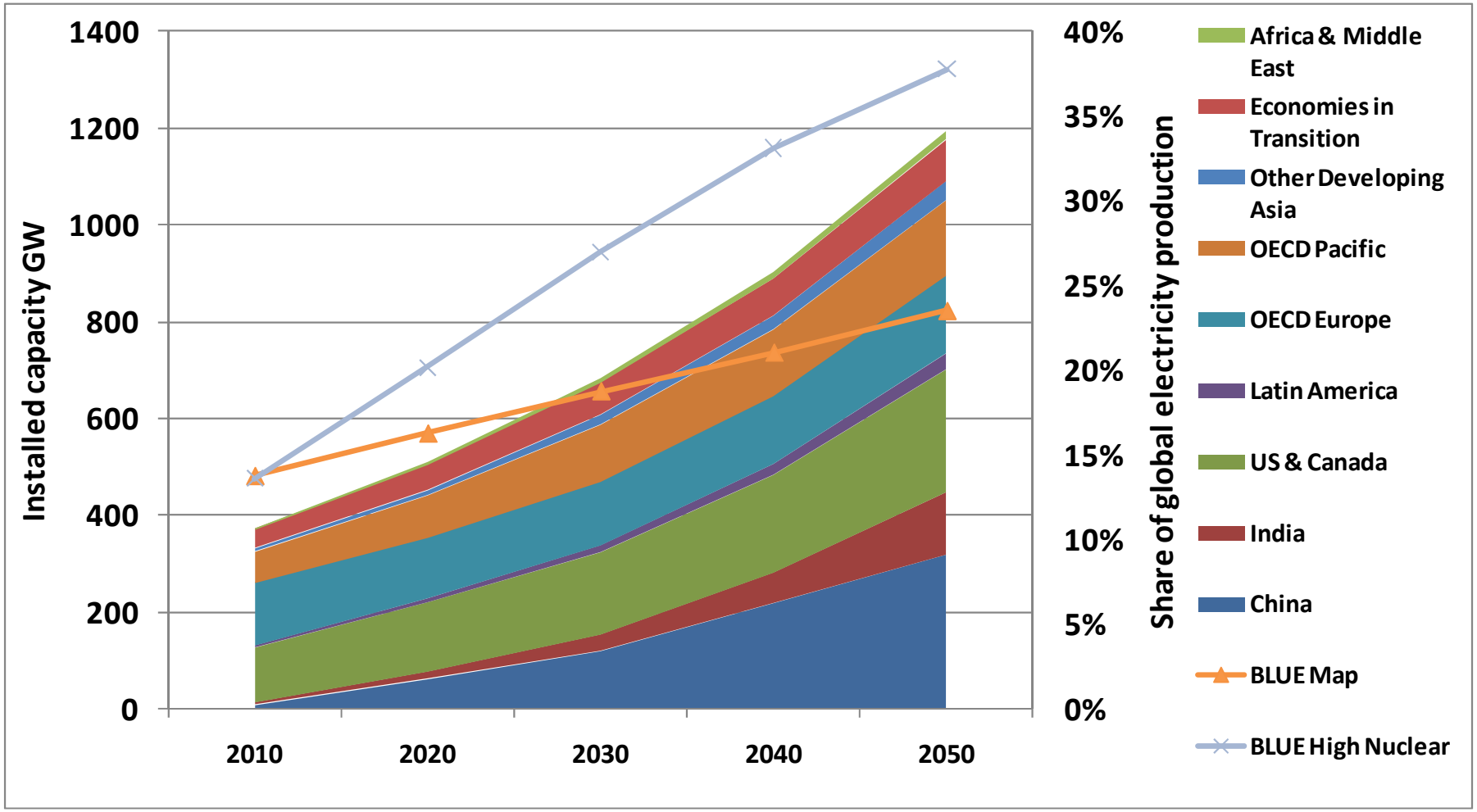
Wind roadmap targets



Wind has the potential to provide 12% of global electricity production in 2050

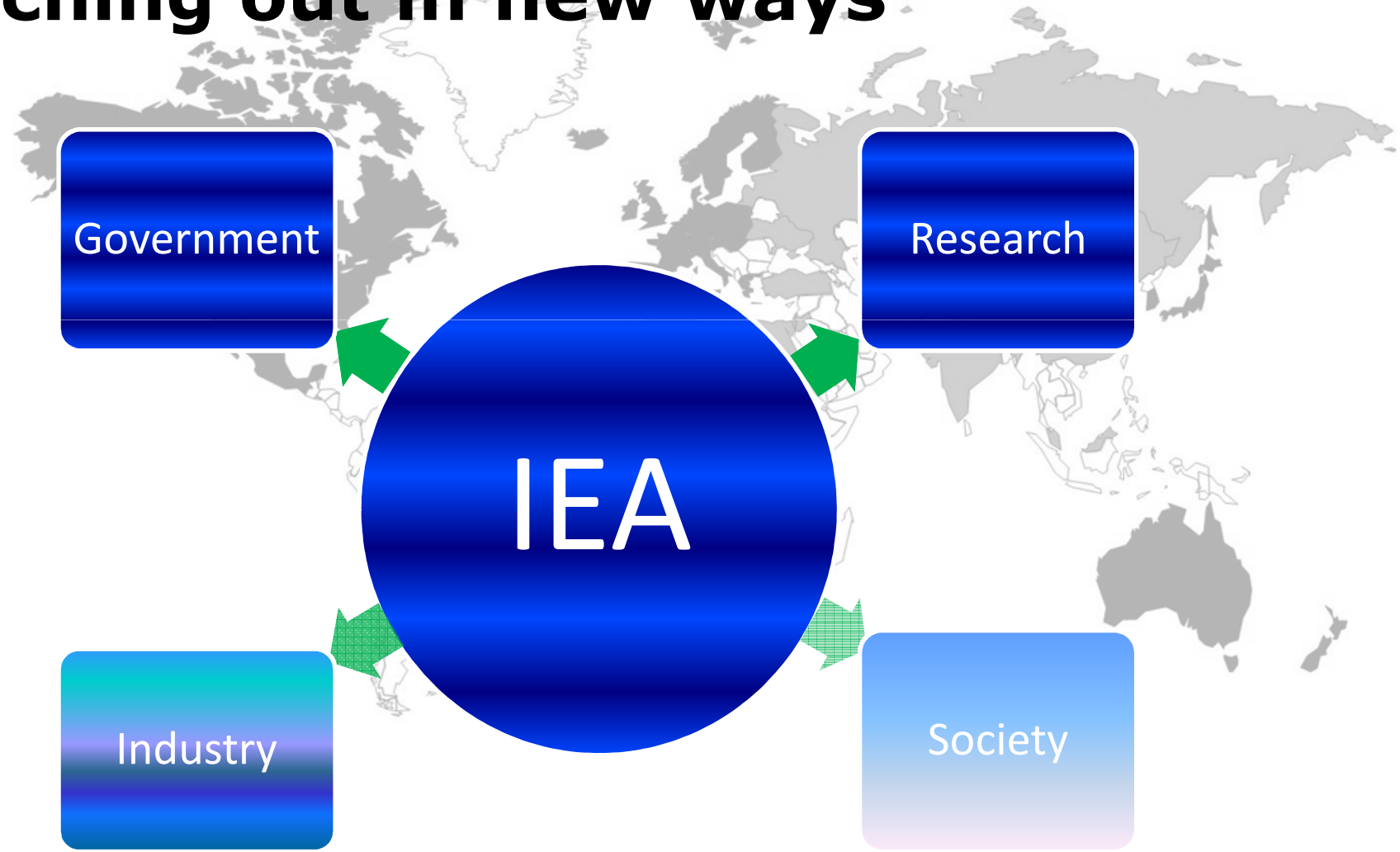
© OECD/IEA 2010

Nuclear roadmap targets



© OECD/IEA 2010

Reaching out in new ways



© OECD/IEA 2010

International collaboration

Low-Carbon Energy Technology Platform

Fora where experts, policymakers and business can discuss how best to design policies to encourage the transition of their countries' energy systems to the most appropriate combination of emerging technologies

Partnership Meeting on Energy and Sustainability

An initiative from IEA Ministers that responds to the urgent need to strengthen cooperative approaches to improving energy security and environmental performance

© OECD/IEA 2010

Enhance Nordic–Chinese Collaboration

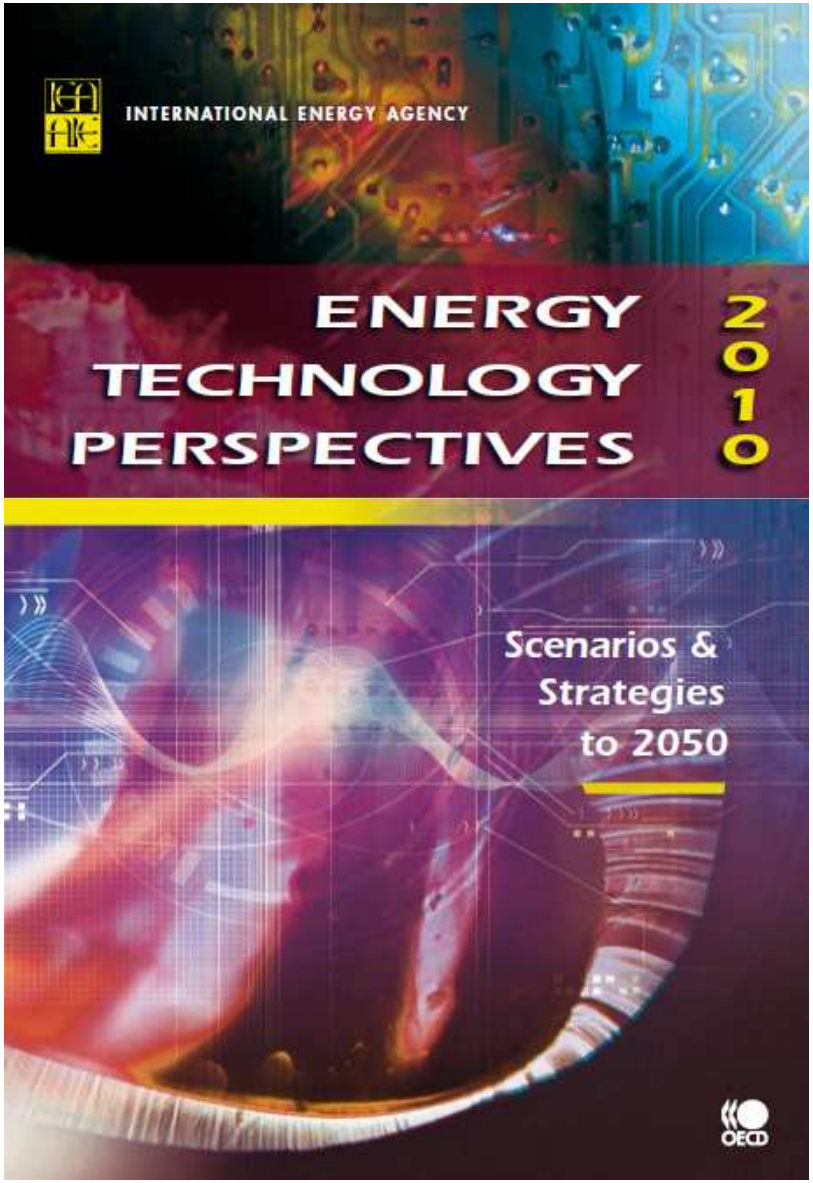
- Offshore wind
- Hydro
- Biomass
- Energy efficiency in Buildings

IEA can support greater collaboration via:

- Technology network of 42 Implementing Agreements
- Technology Roadmaps & Technology Platform
- Partnership on Energy and Sustainability

© OECD/IEA 2010

Release on 1 July



© OECD/IEA 2010