

GBEP Task Force on Sustainability

Rome, 28 November 2017



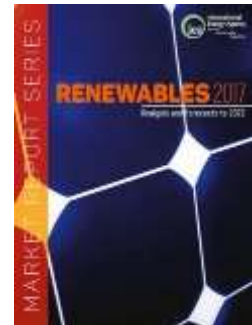
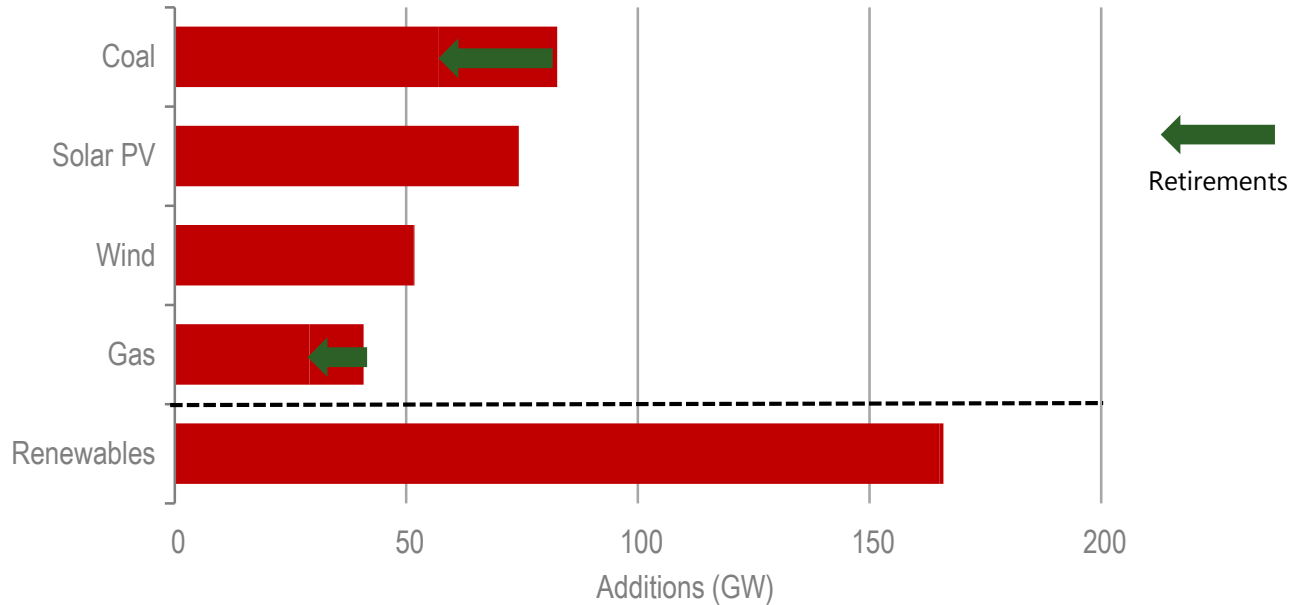
The new IEA Technology Roadmap Delivering Sustainable Bioenergy

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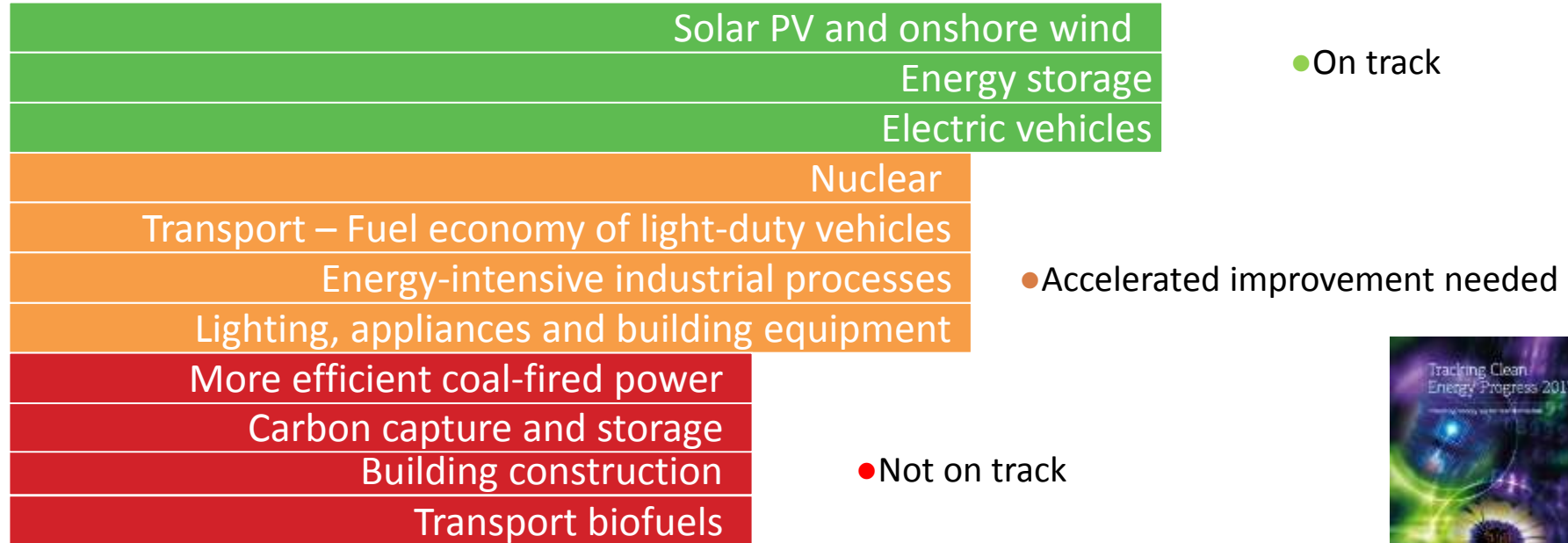
2016 – Renewables hitting new records driven by solar PV

Power capacity additions by fuel 2016



For the first time a single renewable fuel became the largest source of net capacity growth, while all renewables provided an all-time record two thirds of global net capacity additions

The potential of clean energy technology remains under-utilised



● On track

● Accelerated improvement needed

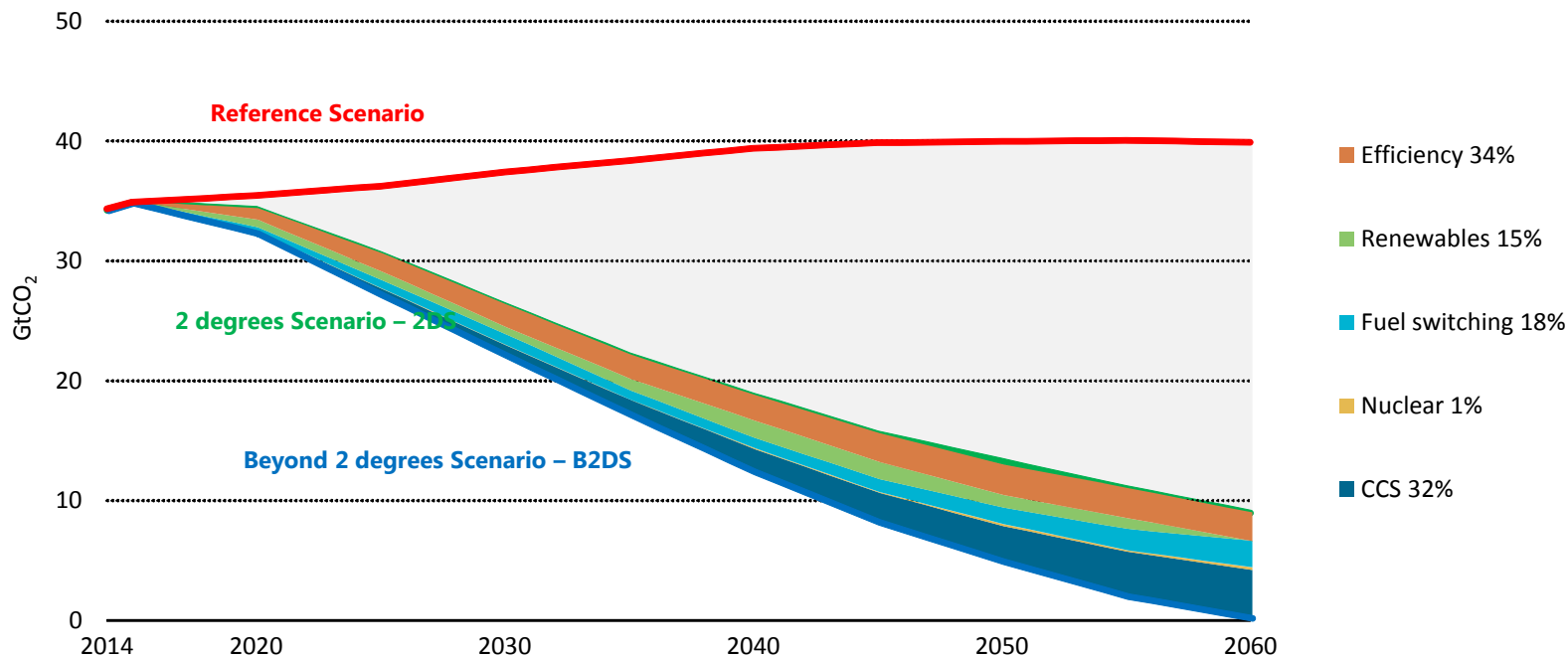
● Not on track



Recent progress in some clean energy areas is promising, but many technologies still need a strong push to achieve their full potential and deliver a sustainable energy future.

Climate goals require early emissions peak and technology innovation

Technology area contribution to global cumulative CO₂ reductions



CO₂ emissions would need to fall to 1960 levels by 2050, with an economy that is over 20 times larger. Bioenergy to provide some 17% of CO₂ savings to 2060. In the B2DS, key contribution from BECCS

IEA Technology Roadmaps

- Long-term vision (2060); near-term action (2020 / 2030)
- Regional relevance and deployment pathways
- Partnerships for implementation (TCPs, MI, **GBEP**, Biofuture Platform,...)

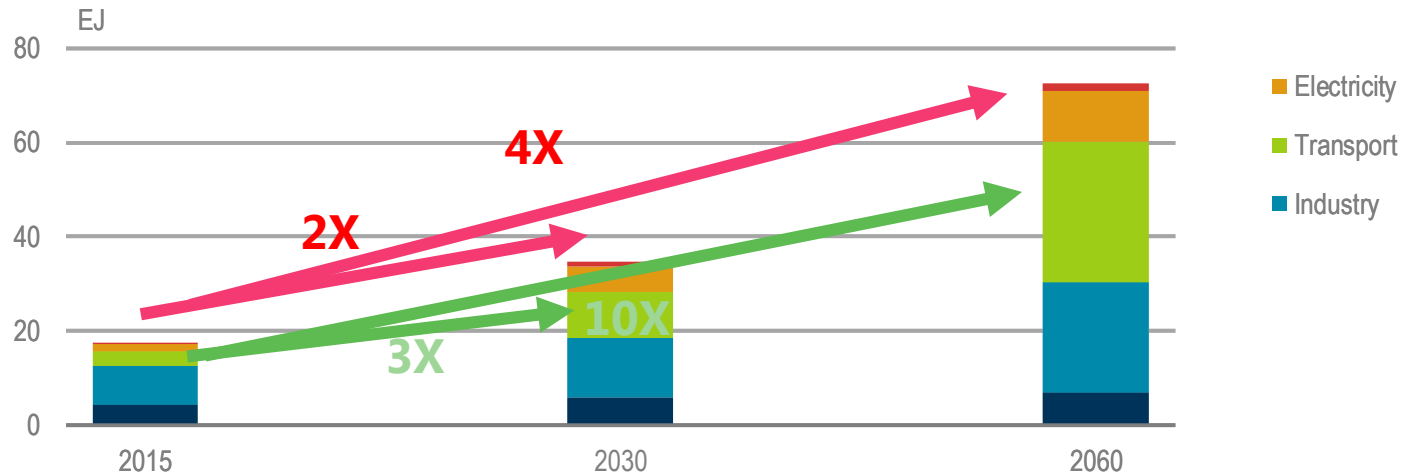
IEA How2Guides

- Provide practical information for policy makers and planners to establish a national or regional technology-specific roadmap
- IEA Roadmaps re-endorsed at G7 Energy Ministerial Meetings in 2016 (Japan) and 2017 (Italy) *“(G7 Ministers) welcomed the progress report on the Second Phase of IEA’s Technology Roadmaps, focused on viable and high impact technologies”*



Strong acceleration needed between now and 2030

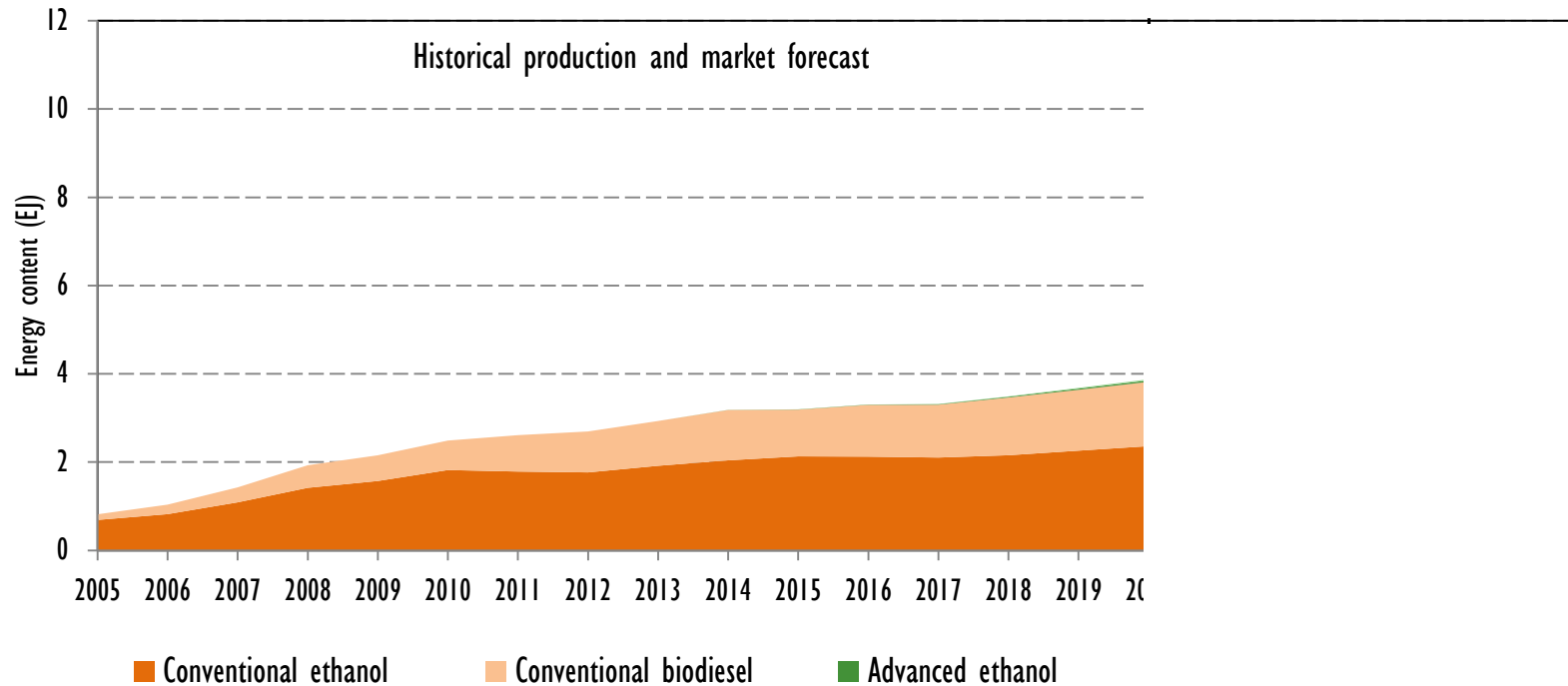
Modern bioenergy in final energy consumption in 2DS



Total final energy consumption of sustainable bioenergy increases four times by 2060 in the 2DS. Use of sustainable biofuels for transport increases tenfold, with a large majority of advanced biofuels

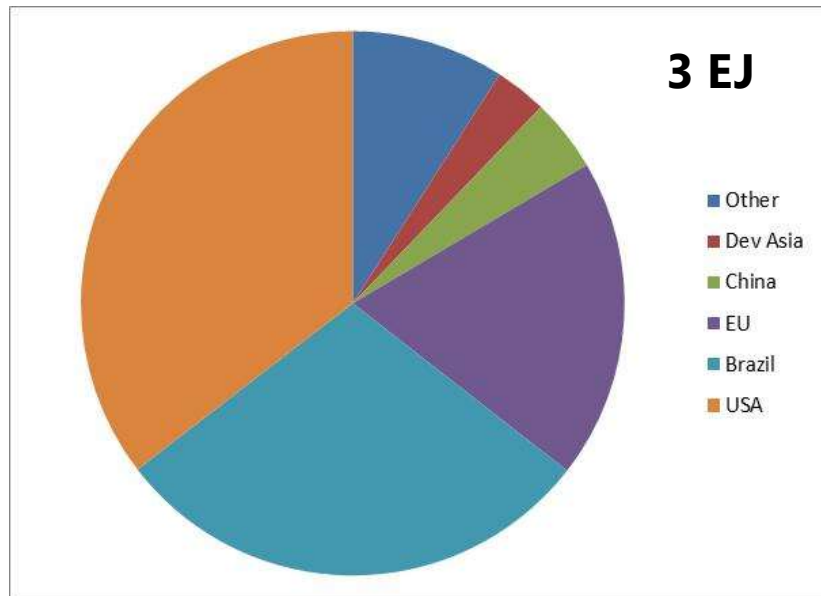
A massive scale up needed for advanced biofuels

Recent trends, market forecasts and 2DS requirements for transport biofuels



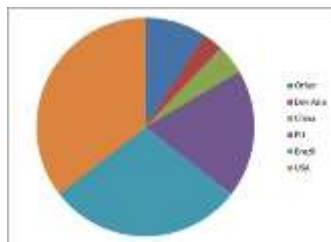
Biofuels can complement EVs and play important roles in heavy freight, shipping and air transport – but a step change is needed in support policies for advanced biofuels

Regional Biofuels Demand 2015

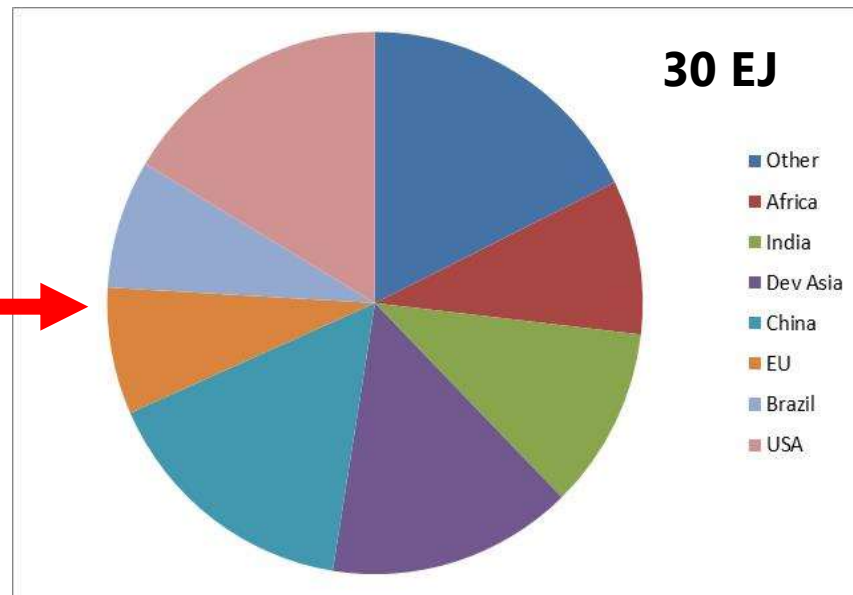


85% of biofuels currently used in US, Brazil and EU

Regional Biofuels Demand 2060 – 2DS

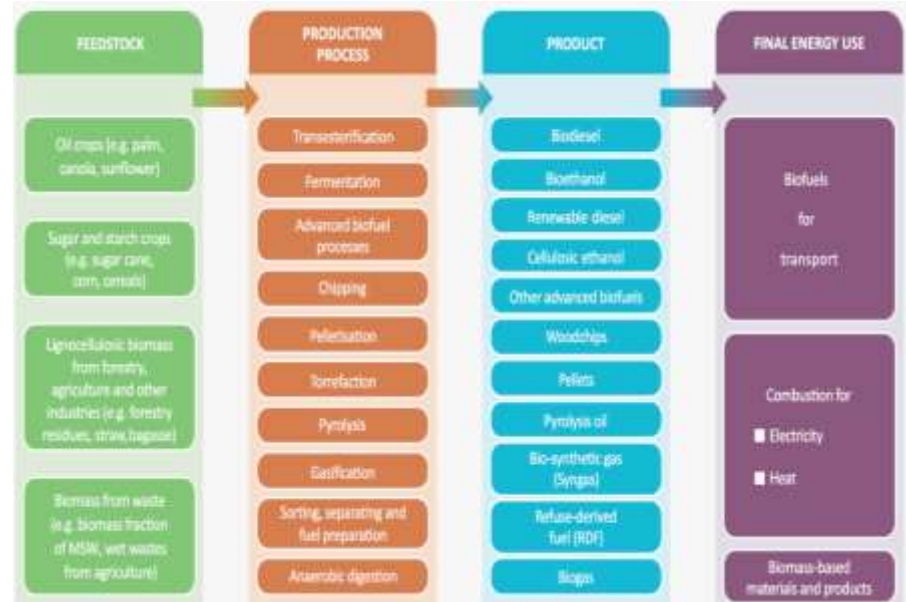


10x



China, Other Asia, India and Africa become major markets

- 2DS needs c. 145EJ of sustainably supplied feedstock.
- Organic residues and waste to play major role, along with sustainable resource management, forestry, and agriculture.
- Bioenergy is complex and sometimes controversial. **General statements and oversimplification are unhelpful.**



Bioenergy now needs a new impetus based on up to date evidence, sound sustainability regime and predictable policies.

- **Sustainable bioenergy is an indispensable component** of the necessary portfolio of low-C technologies in climate-change mitigation scenarios
- Biofuels plays an important role in **de-carbonising transport** especially in aviation, shipping and other long haul transport. A **step-change is needed in support policies for advanced biofuels**. Industry to achieve economies of scale and innovation to deliver necessary cost reductions towards competitiveness
- **GBEP's Sustainability Indicators for Bioenergy** can play a key role to help develop sustainable supply chains and implement appropriate sustainability governance
- Massive opportunities for **technology diversity and innovation** in the context of **advanced bioeconomy**. **Mission Innovation and Biofuture Platform** can play a key role in profile raising and promoting innovation
- IEA's **Technology Roadmap: "Delivering Sustainable Bioenergy"** provides technology milestones and policy actions needed to unlock the potential of bioenergy in a sustainable energy mix



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