Iberdrola-Scottish Power Entrepreneurial Challenge

Overview of high-level trends and challenges

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9th Jan 2018

Today’s drop-in

University of Strathclyde Business School

- So you’re interested in joining the Iberdrola-Scottish Power Entrepreneurial Challenge
- You might already have an exciting idea for a new energy technology, service or business model and want to develop this further, maybe one day taking it to market…
- You’re here to learn more about the competition and any information that will help shape your proposal

Today’s drop-in

Structure:

- Barry Carruthers (Head of Innovation, Sustainability and Quality at ScottishPower) provides a birds-eye-view of the Iberdrola Universities programme and innovation priorities for Iberdrola-Scottish Power
- Quick recap of the competition
- We give an overview of recent and future trends to help:
  - Stimulate new ideas for energy innovations
  - Help you position your ideas in a wider context, to emphasise their value to society
- Opportunity for Q&A

What’s in it for me?

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- Teams can win **up to £13k of seed funding**, with prizes awarded to both competition winners and runners up.
- **Tailored training** across a series of workshops focused on energy business development and commercialisation.
- **Expert advice and mentoring** from leading entrepreneurs, industry directors and investors, as well as expert insight into the viability of business proposals from senior Scottish Power personnel.
- Access to an **international network of innovators** via Strathclyde Entrepreneurial Network and Iberdrola.
- Winners receive an **all-expenses paid trip to Madrid** to take part in Iberdrola's "Innovation Week" in 2018. Opportunity to pitch their business idea to Iberdrola executives and interact with an international network of entrepreneurs from other universities

Who can apply?

- The Challenge is aimed at aspiring entrepreneurs looking to turn innovative and viable business ideas into commercial ventures.
- Ideas must be for a new technology, service or business model linking to the energy sector (further details under “what ideas are accepted” section).
- The Challenge is open to all University of Strathclyde students (undergraduate, MSc, PhD etc.) and alumni who graduated up to one year ago (i.e. since January 2017)

What ideas are accepted?

- Novel and promising energy business ideas.
- Include, but are not limited to new technologies, services, products, processes and business models.
- Complementary technology and management innovations will also be considered, including but not limited to digital technologies and data analytics.
- Ideas must be for the purposes of creating or being integrated within commercially viable businesses.
- All proposals should be relevant to [ScottishPower & Iberdrola's core innovation and technology areas](#).

Programme structure

Date	Iberdrola Challenge Stage	Selection milestone
11.59pm 4th February 2018	Deadline for proposals	1 – Selection of approx. 20 people/5 teams to attend Enterprise Academy
17-18th Feb	Enterprise Academy	
	Buddied up with mentors	
26th Feb	Pitch for Your Pint	
5th March	Video Submission	
7th March	Shortlisting	2 – Selection of best videos to select top 3 teams for final. Seed funding provided at this stage
12 or 13th March (TBC)	Commercialisation workshop	
Early Sept (TBC)	Final presentation to panel	3 – Select winner and runners up. Winner will receive up to £13k, with funding also provided to runners-up
TBC	Expenses paid trip to Madrid to take part in Iberdrola Innovation Week	

Selection milestones

- Will shortlist at 3 stages:
  - Proposals
  - Videos
  - Finalists pitch
- Selection panels made up on 3-5 experts from mixture of backgrounds:
  - ScotPower-Iberdrola
  - Strathclyde Business School
  - Enterprise Hub
  - Strathclyde Energy Engineering
  - Strathclyde energy spin-offs companies

Workshops and training [1]

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Enterprise Academy

- Intensive training weekend that focuses on developing key business skills through the simulation of a business start-up process; from concept through to reality.
- You will learn about building the right team around you, how to generate viable business ideas and better understand entrepreneurial finance and legalities of a business.
- Teams will be buddied with mentors both during and after the weekend, including expert feedback from ScottishPower representatives.

Workshops and training [2]

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Pitch for your pint

- Get the opportunity to learn from entrepreneurs who have effectively used video pitches to convey their business ideas.

Commercialisation workshop

- One day workshop covering issues related to later stage business development
- Topics covered include:
  - Intellectual property
  - Legal issues relating to start up businesses
  - Entrepreneurial finance
  - Product development

Conditions of funding

- Teams must apply for funding via Funding Application Form to outline why funds are required and how they will be spent
- Payments will be made by the University directly to your suppliers
- All funds awarded MUST be drawn down within 6 months of the date shown on the award letter
- Ineligible costs outlined in document
- Funding conditional on reporting back about the status of your business idea and how the programme has helped you progress

Expectations and conduct

- For any questions going forward please contact Heather Brown (heather.brown@strath.ac.uk) in the first instance. She will redirect your query to the relevant people. Please do not contact other programme reps directly.
- You are expected to attend ALL workshops, panels and drop-in sessions. If you cannot attend please contact Heather. Non-attendance may negatively impact upon your team's chances of progression.
- We are here to support the development of your idea, not to deliver it.
- To enjoy yourselves!!! An amazing opportunity that could transform your career.

How to apply

Submission deadline **11.59pm Sunday 4th February**.

- 2 pages max, standard margins, 12 Times New Roman font) should contain the following sections:
- Clear description of the targeted problem and proposed solution
- Clear business case to evidence potential commercial value of proposed solution
- Market analysis, including market drivers/barriers, estimates of market size, competitors etc.
- Project plan and development milestones, i.e. what steps will you take and why?
- Budget plan, i.e. what do you plan to spend the money on and why?.
- Description of the team members, their skills and track record (maximum team size: 5 members)

FAQ

Q1. I submitted a proposal and/or participated last year. Can I take part again this year?

A1. *Yes BUT your proposal must be substantially different from last year.*

Q2. I will have graduated more than a year before the competition begins. Can I still take part?

A2. *No.*

Q3. How large must the teams be?

A3. *At least 2 people.*

Q4. Will preference be given to inter-disciplinary teams?

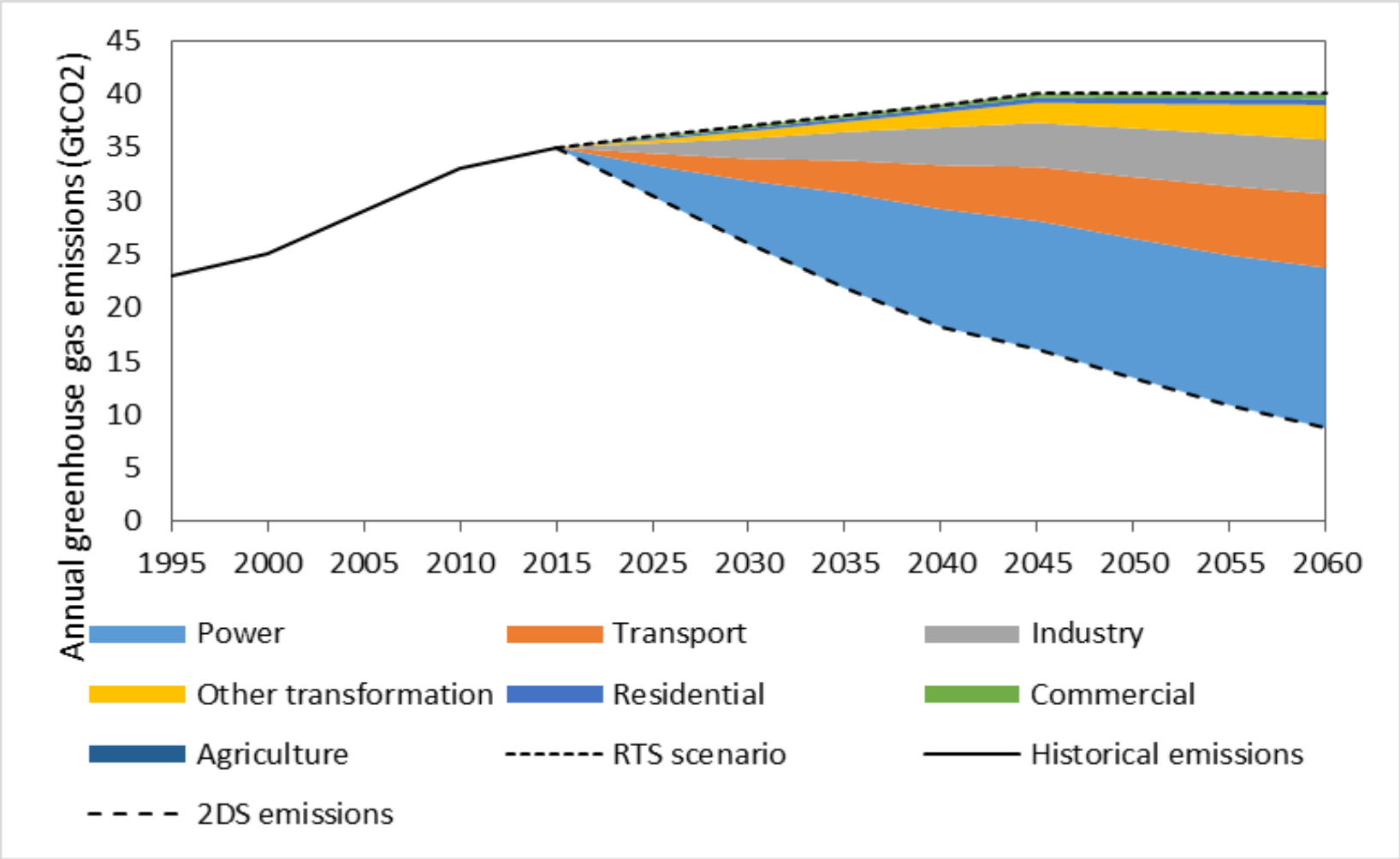
A4. *Yes.*

Recent trends

- Your proposal should state clearly how your idea for a new technology, business model etc. fits within wider energy system trends e.g. growing energy demand, stabilising carbon emissions
- Specifically?
  - **How do recent and emerging trends underpin the need for your proposed idea?**
  - **How might emerging trends threaten the value of your idea and what can you do to address these?**
  - **Is your idea compatible with other emergent technologies and business models? Might these be a threat or an ally?**
  - **Does your idea fit within short or longer term trends? What evidence can be leveraged to support this?**

What is the unique selling point and why?

A low carbon future? [1]



A low carbon future? [2]

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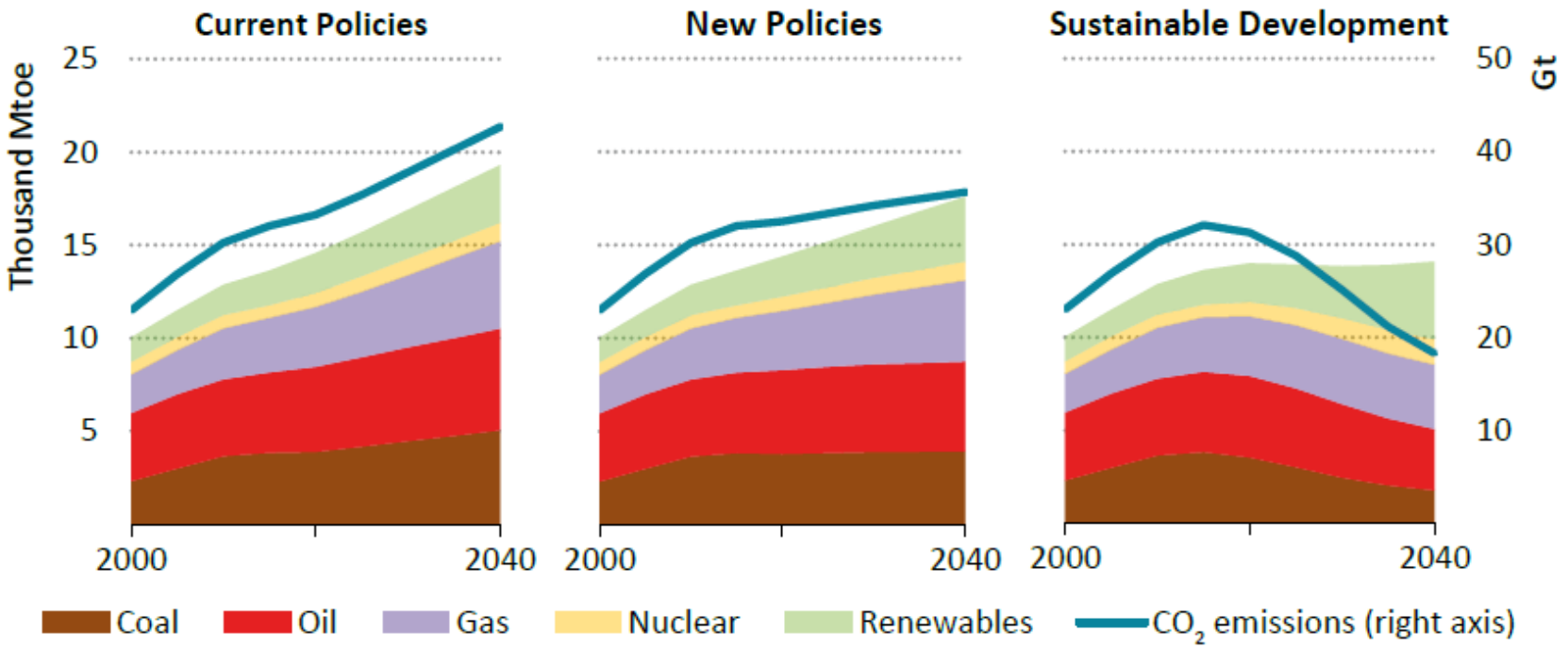
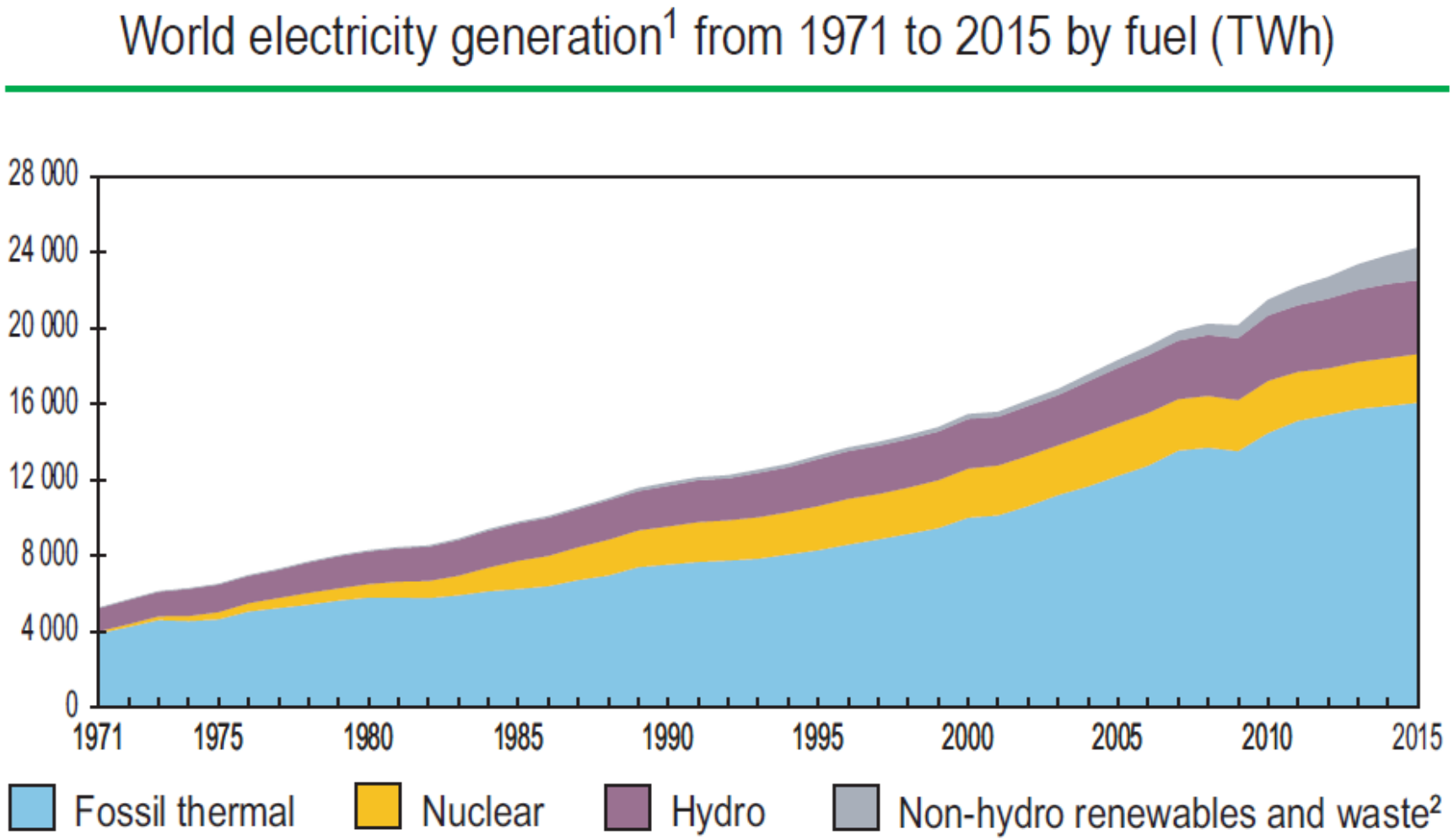
Figure 2.9 ▷ World primary energy demand by fuel and energy-related CO_2 emissions by scenario

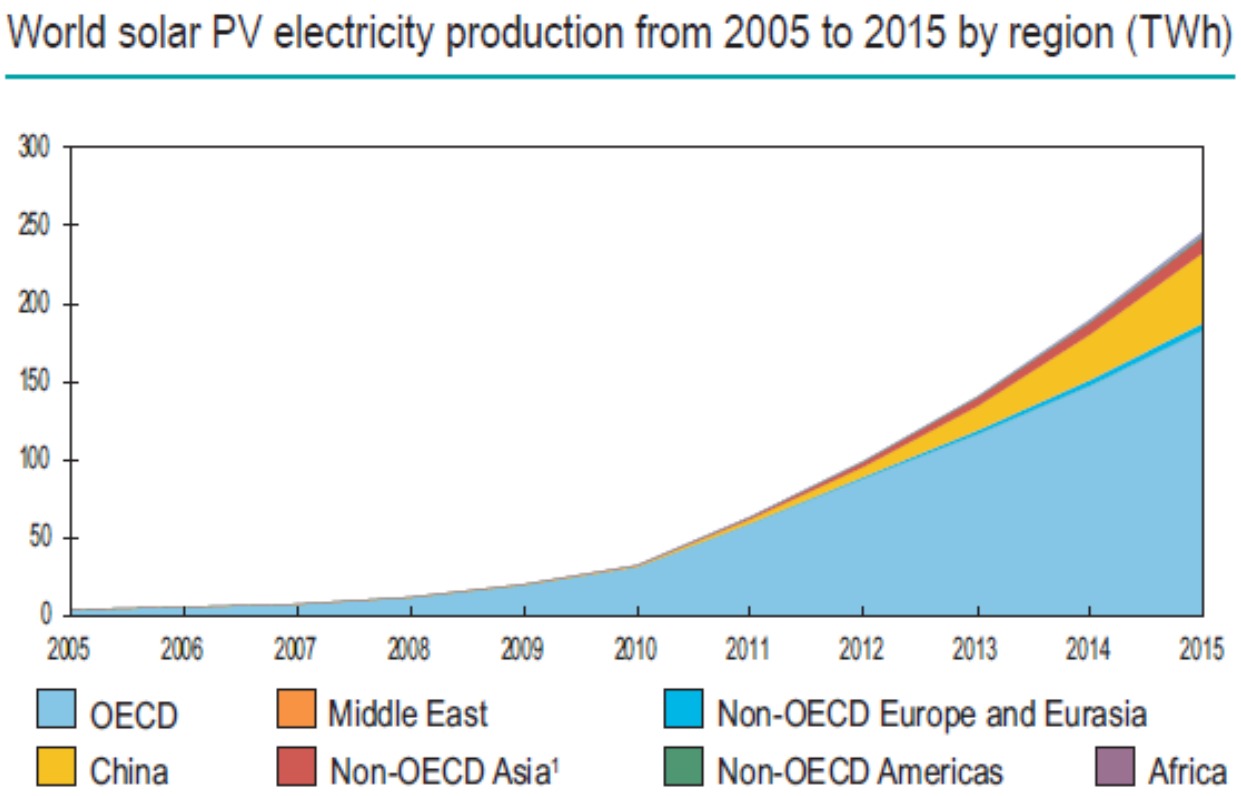


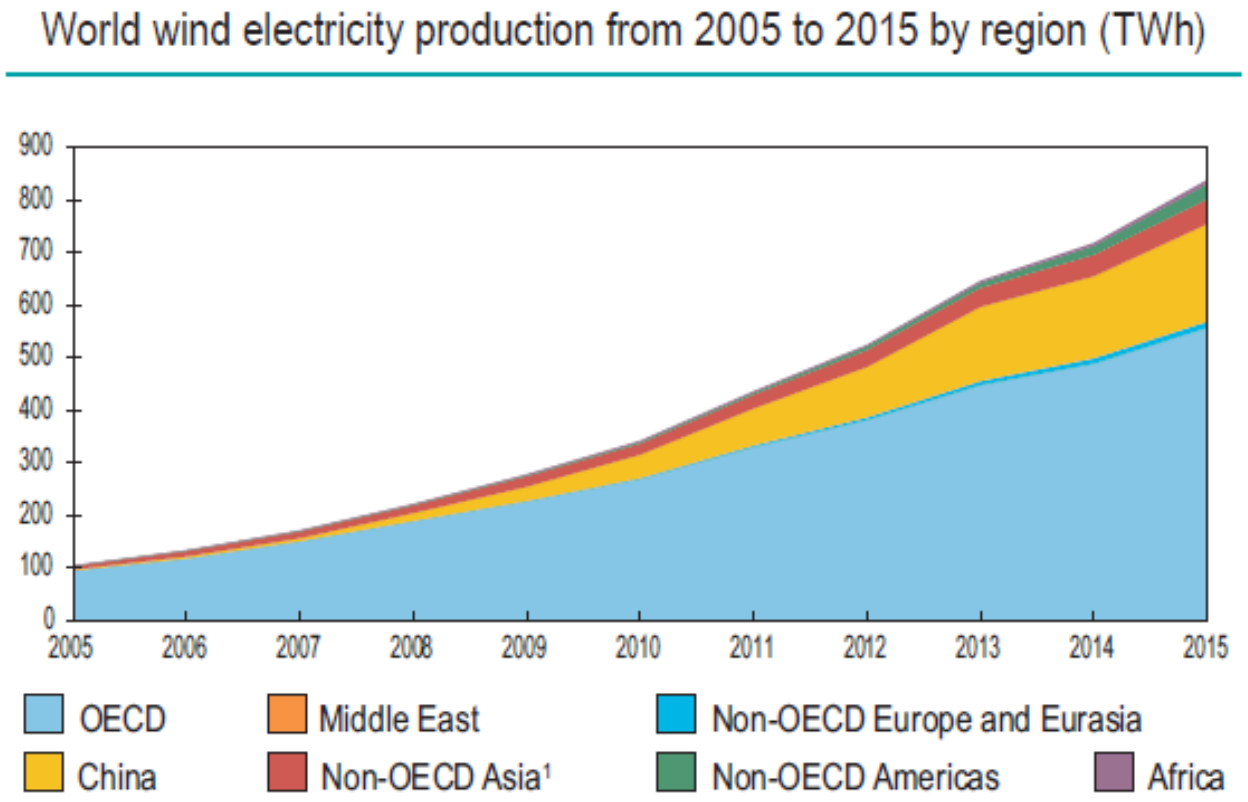
The flattening of emissions in 2014-2016 is a pause in a slower upward journey in the New Policies Scenario, but a turning point in the Sustainable Development Scenario

Impressive increase in renewable electricity generation since 2000s



Driven largely by huge increase in wind and solar since 2000





Lower emissions and reduction on reliance on international imports but greater intermittency

BUT renewables still account for small portion of total supply

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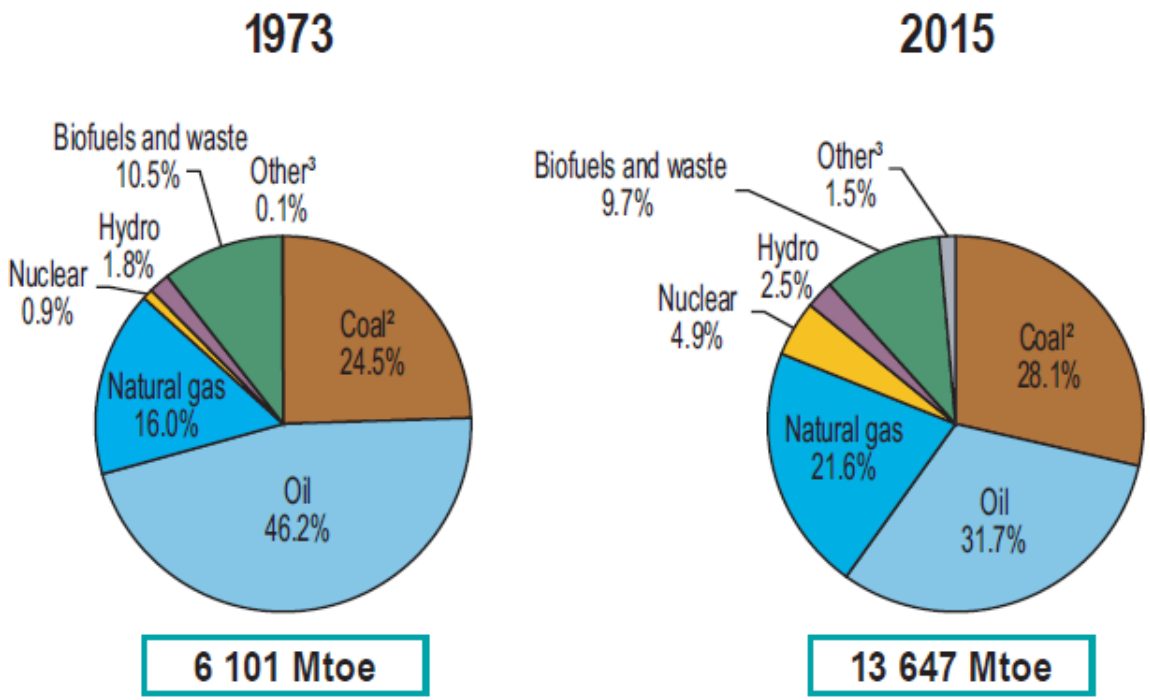
1973 and 2015 fuel shares of TPES



1. World includes international aviation and international marine bunkers.
2. In these graphs, peat and oil shale are aggregated with coal.
3. Includes geothermal, solar, wind, tide/wave/ocean, heat and other.

Oil, gas and coal still key players

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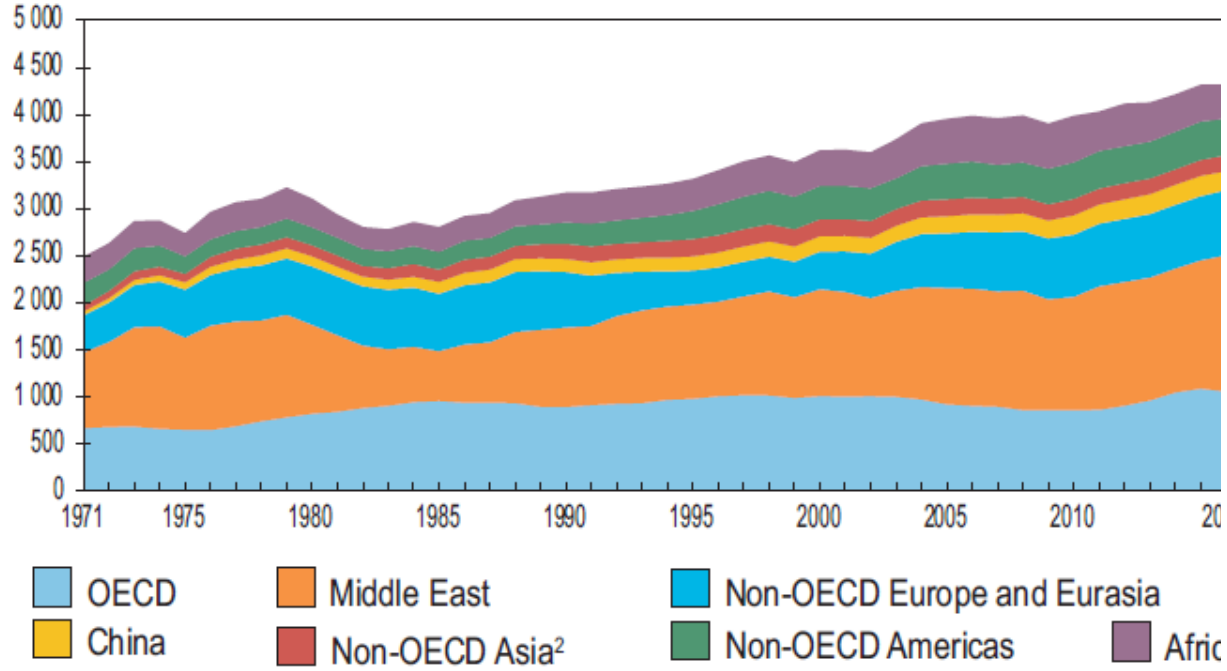
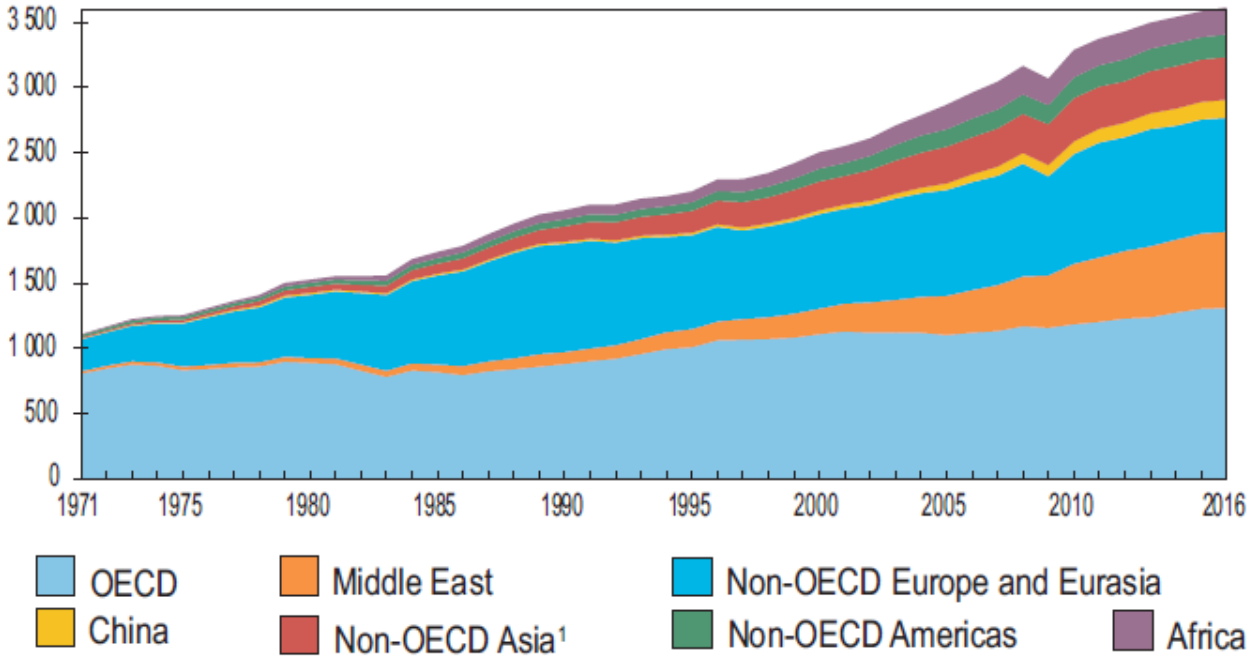
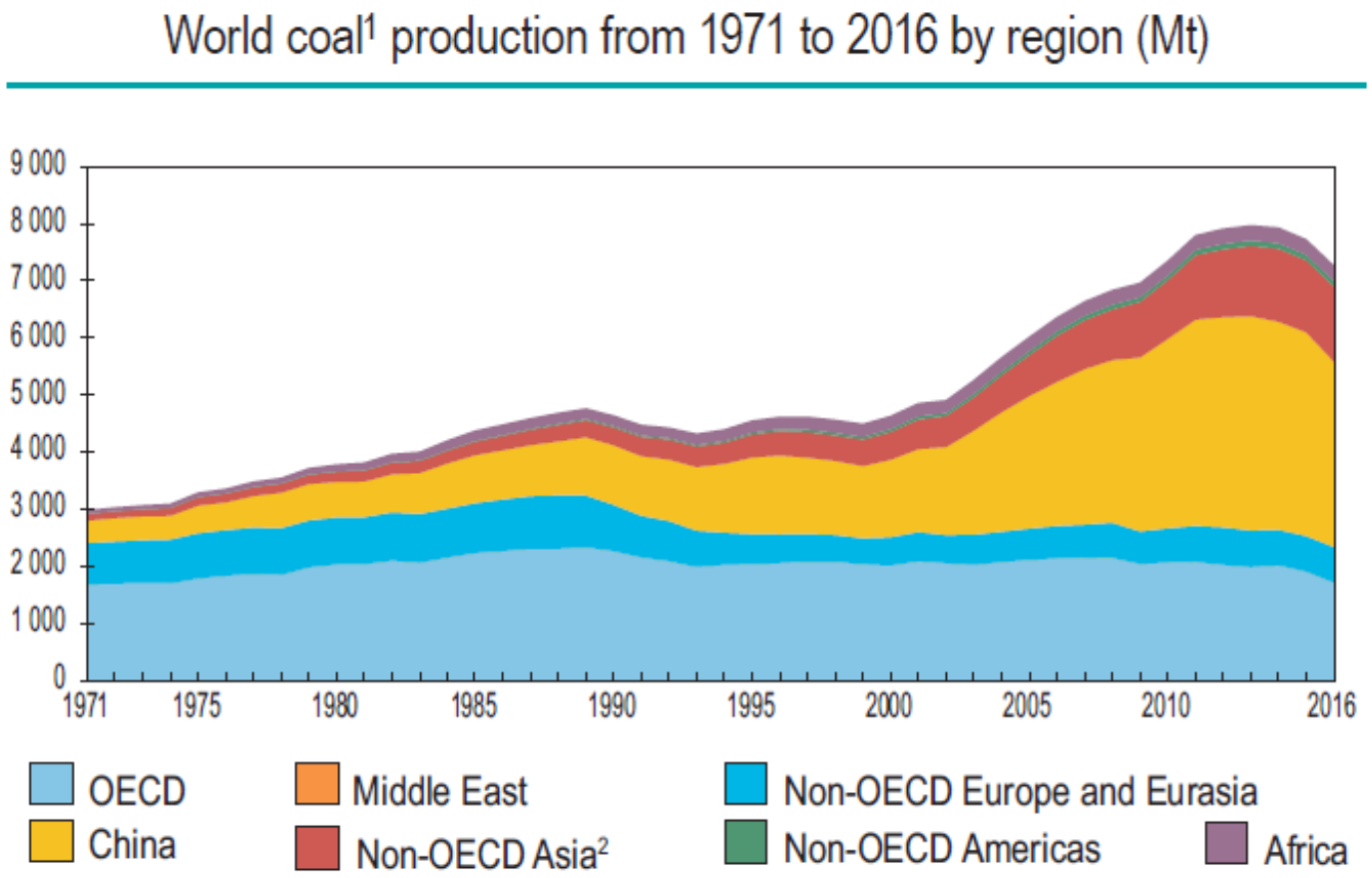
World crude oil[1] production from 1971 to 2016 by region (Mt)



World natural gas production from 1971 to 2016 by region (billion cubic metres, bcm)

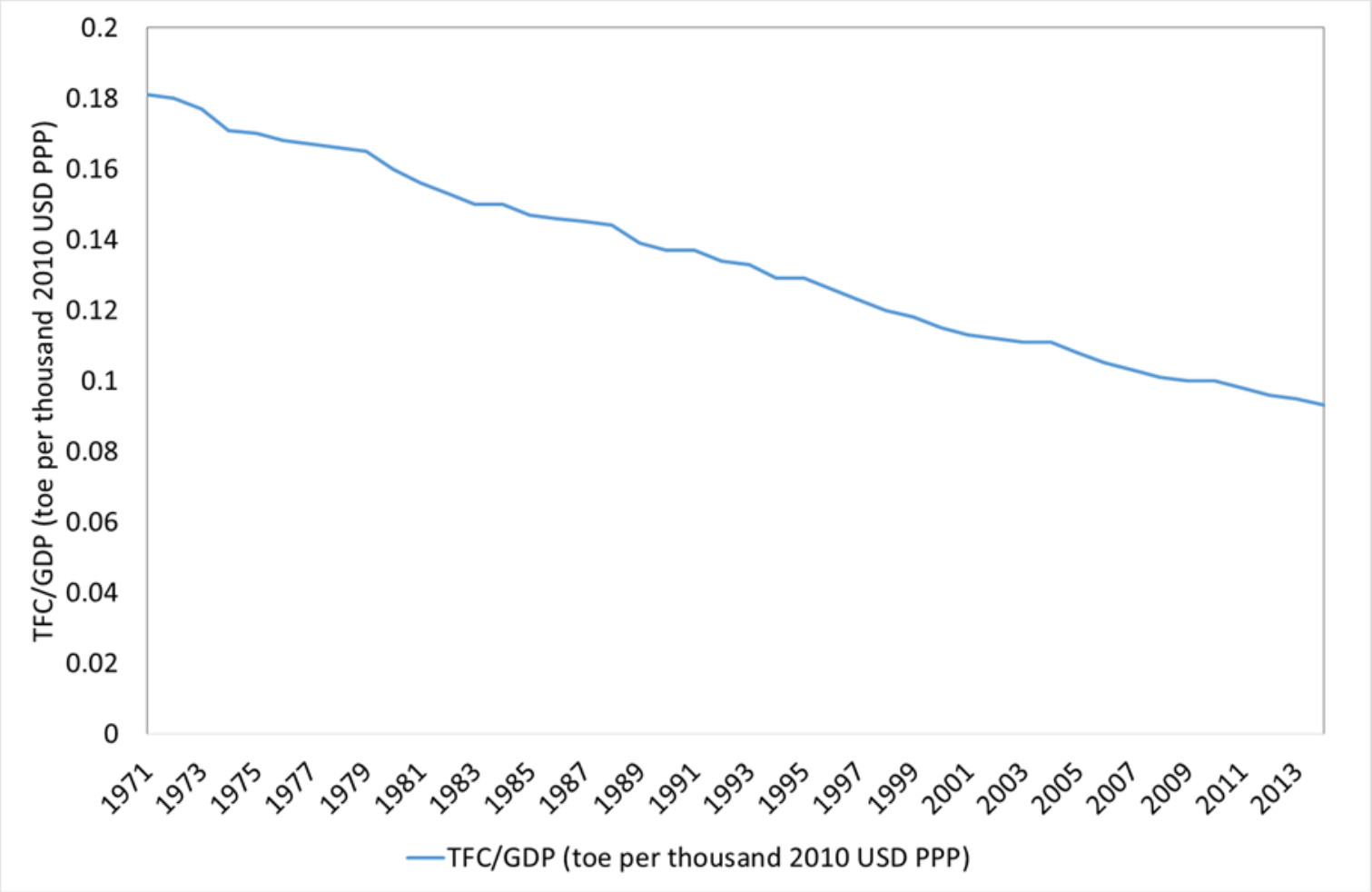


Oil, gas and coal still key players



Still huge potential for reducing reliance on fossil fuels, with emphasis on hard to reach sectors (e.g. transport, heavy industry) and rapidly developing world.

Energy efficiency has consistently improved



Energy efficiency has consistently improved

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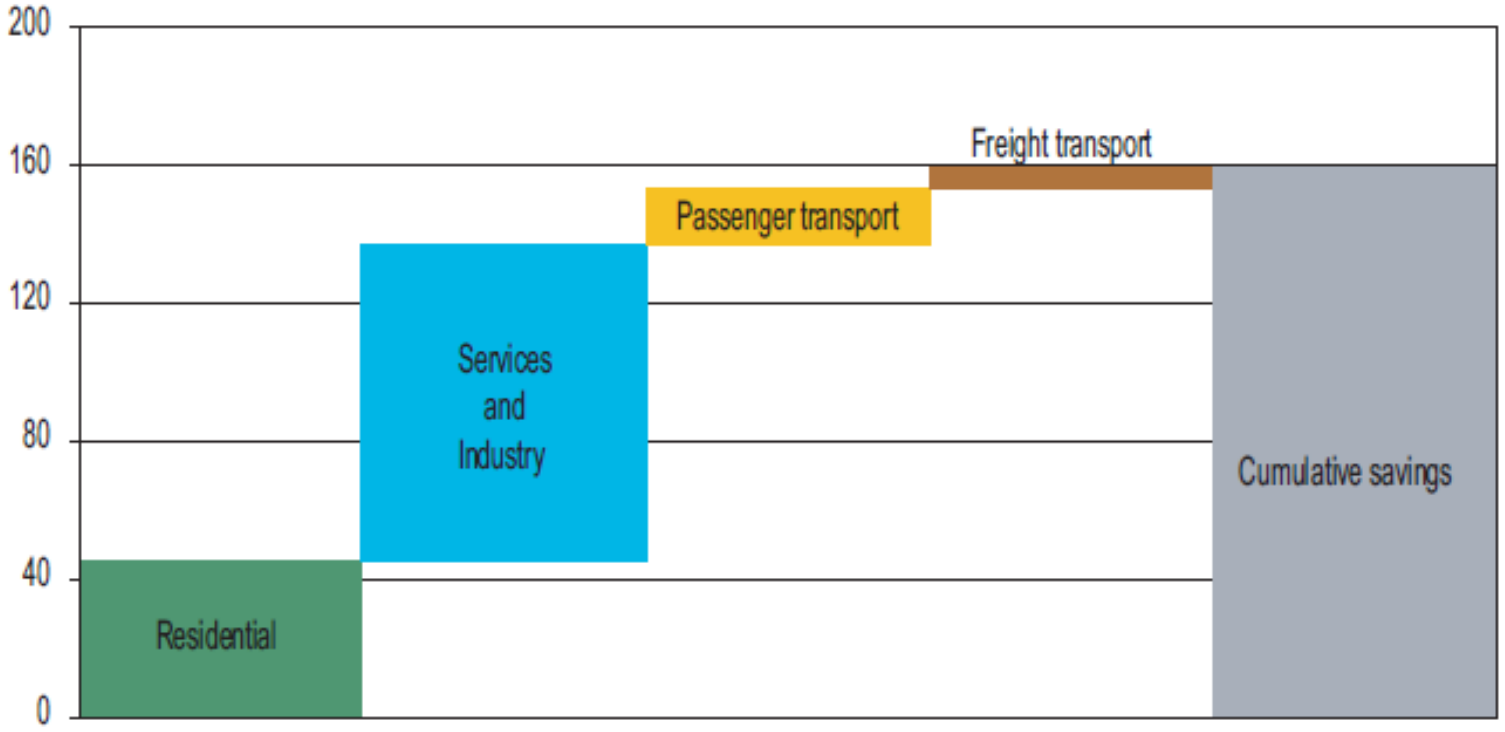
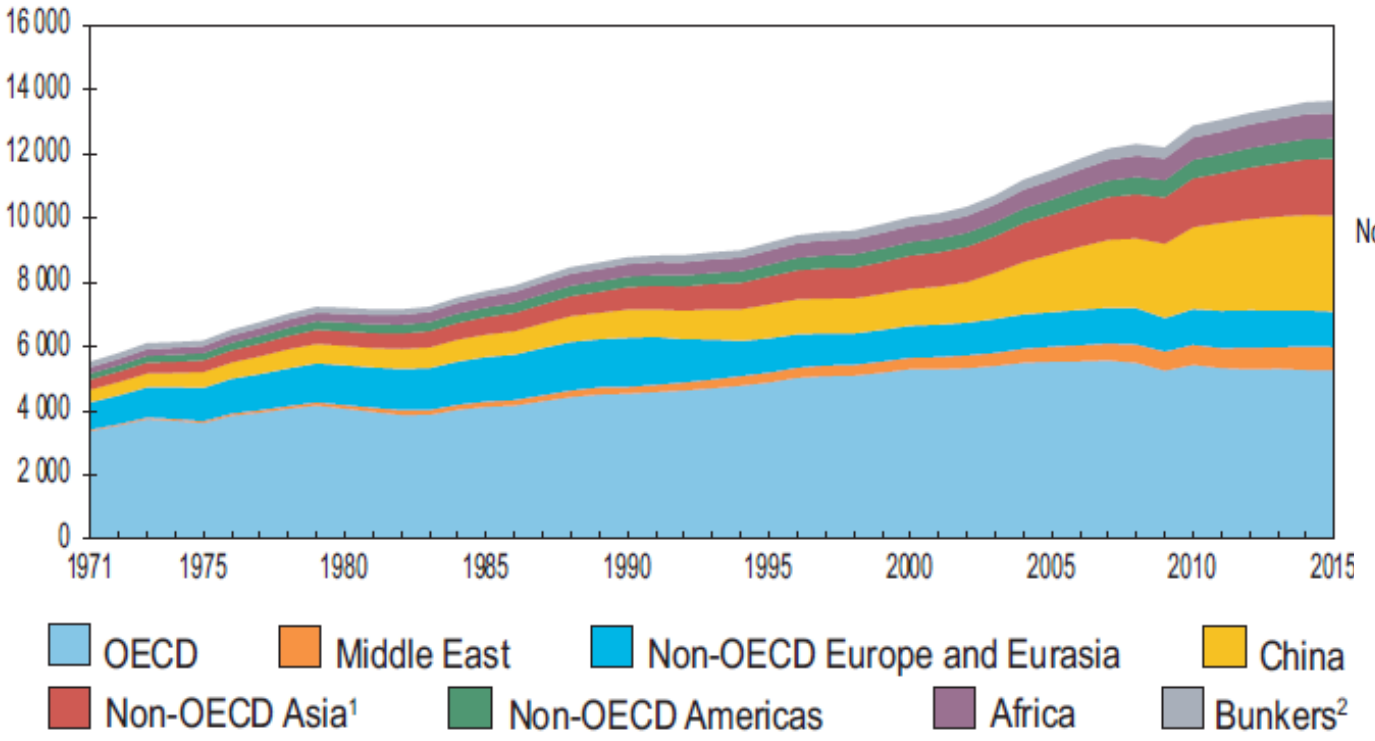
Estimated cumulative energy savings by sector in IEA, 2000-15 (EJ)



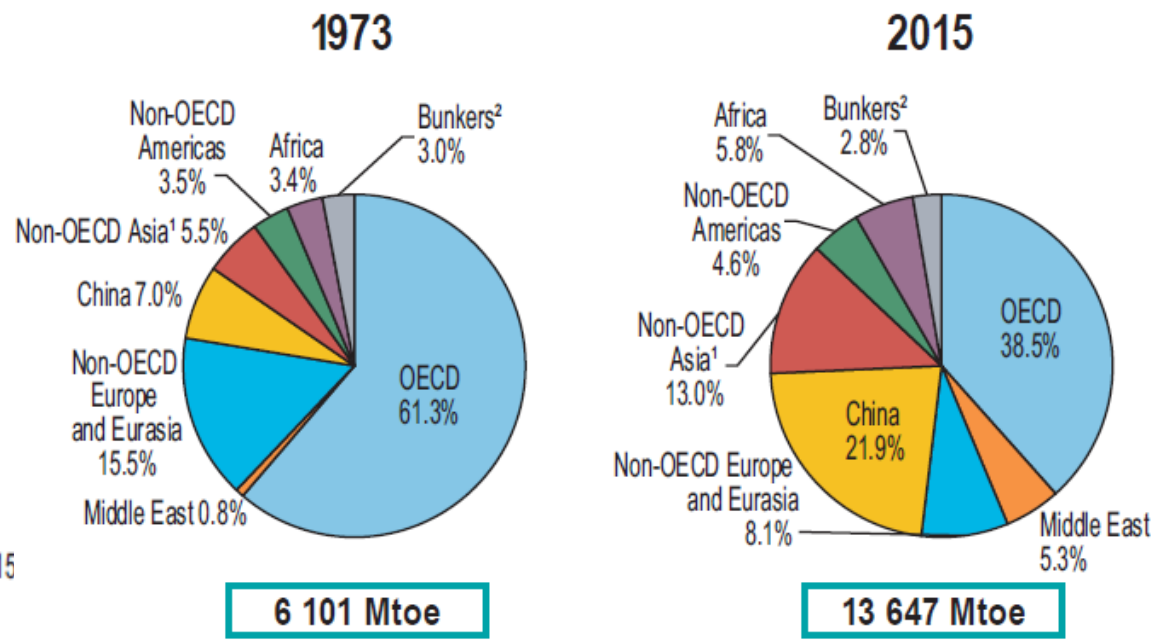
Source: adapted from the *IEA Energy Efficiency Market Report, 2016,* based on *IEA Energy Efficiency Indicators (database), 2016.*

BUT energy demand growing, driven by developing countries

World TPES from 1971 to 2015 by region (Mtoe)



1973 and 2015 regional shares of TPES



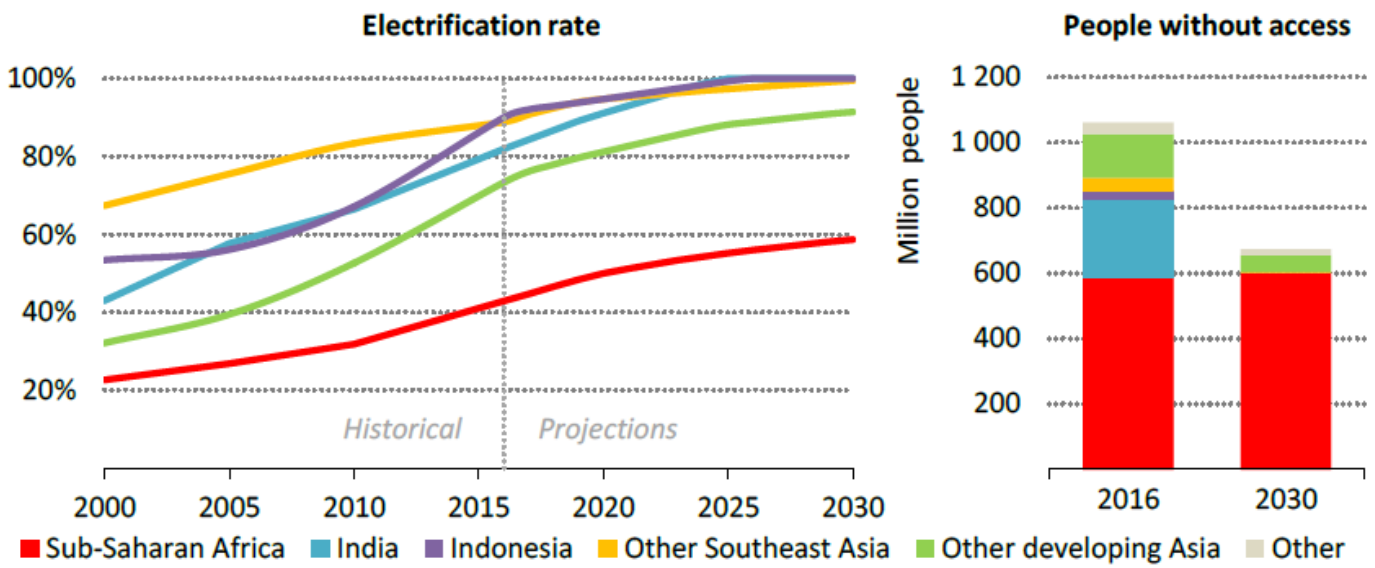
1. Non-OECD Asia excludes China.
2. Includes international aviation and international marine bunkers.

Energy efficiency gains being offset by a growing demand for energy underpinned by population growth and developing countries.

Energy demand set to grow

IEA projects under New Policies Scenario a 30% rise in primary energy demand between today and 2040. Why?

- Population set to grow from 7.4 bil in 2015 to 9.8 billion by 2050 (UN)
- More of the developing world are gaining access to electricity
- Energy intensity (MWh per $ GDP) expected to fall in most developed countries and increase in least developed countries.
- Major shift towards urbanisation



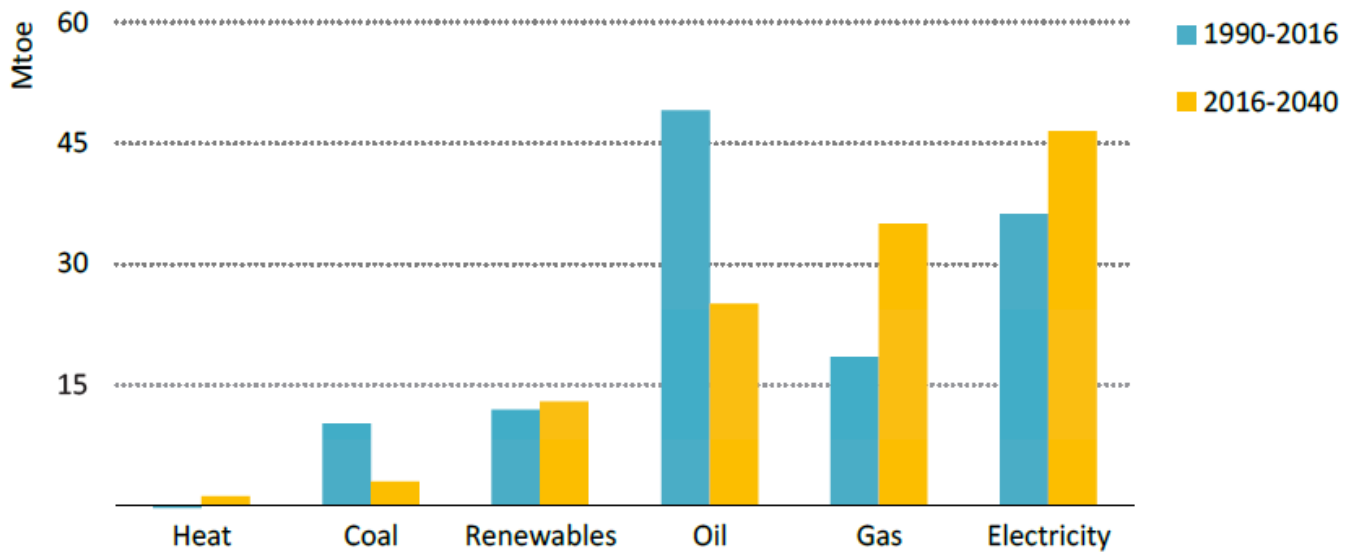
Shift towards electricity

Electricity is becoming the energy of choice in most end-uses. Why?

- Growth in EVs and heat pumps;
- The evolution of industrial production and processes requires more electricity
- Millions of new middle-income families in developing countries install appliances and cooling
- Greater access to electricity

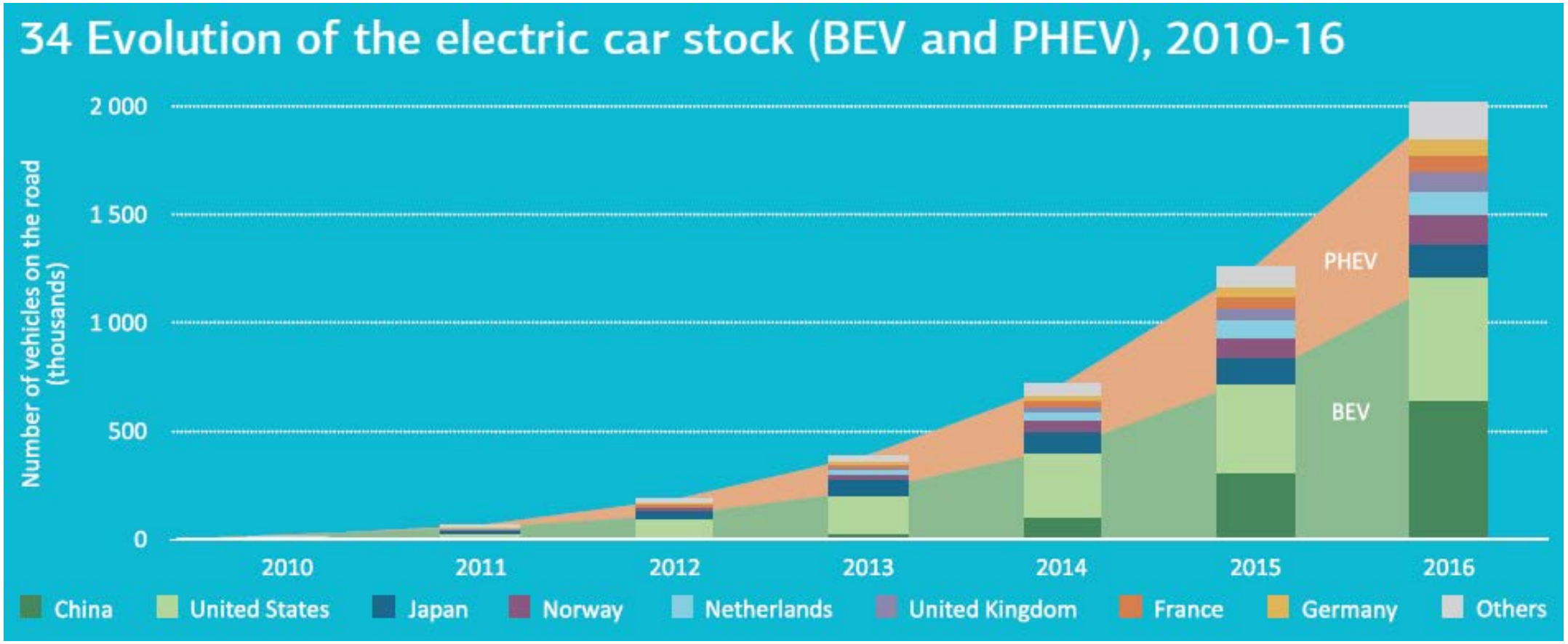
With total electricity demand growing at 2% per year from 2016 to 2040, nearly twice the rate of final energy demand

Figure 6.3 ▷ Annual average growth of final energy demand historically and in the New Policies Scenario



Electricity contributes the largest share to meeting additional energy demand and average growth in volume is more than in the past

Transport is changing



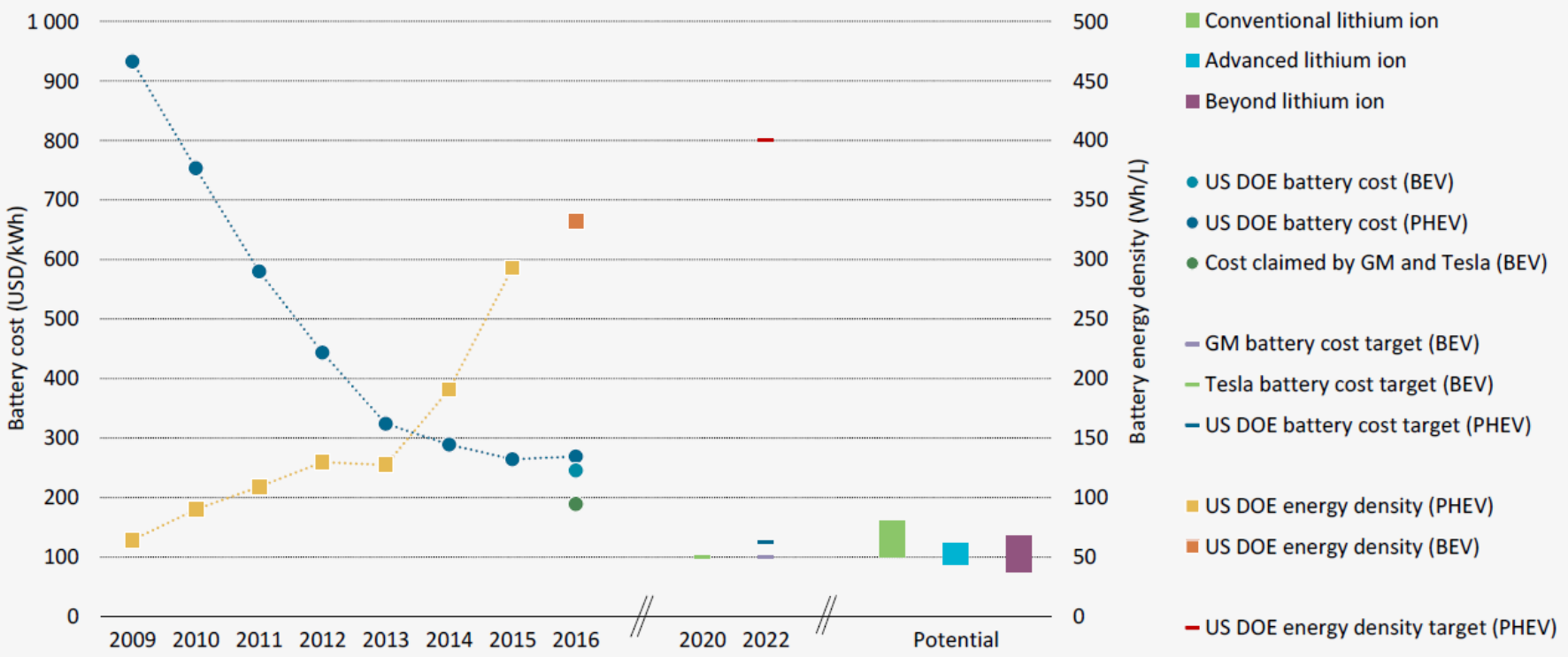
General shift towards electric transportation but difficult for HGVs and shipping

The storage revolution

- **Electrical storage** - Additional 21 GW of capacity is needed by 2025
- **Electric vehicles (EVs)** - Over 2m EVs on the road and over 750k sold worldwide in 2016. IEA New Policies Scenario sees 280 mil EVs by 2040, approx. 15% of car fleet.
- Drivers?
  - Battery costs kept declining between 2015 and 2016, and energy density continued to increase
  - EVs – Growth in charging infrastructure (320k public charging points)

The storage revolution

Figure 5.4. Evolution of battery cost and energy density, 2009-15



Note: US DOE = US Department of Energy.

Source: IEA (2017b), *Global EV Outlook 2017*.

Useful links for trends

- IEA (see Global Energy Outlook, Tracking Clean Energy Progress and Energy Technology Perspectives. Also useful info on energy policy in different countries)
- IRENA (search for dashboard)
- World Bank
- OECD
- Enerdata
- Statista
- UK Data Service (sign up and get useful data downloads from IEA, OECD etc.)
- US E.I.A.
- UK DUKES and ‘Energy in Brief’

Useful links for tech

Want to see if invention already exists? Search patent databases:

- https://www.gov.uk/search-for-patent
- https://patents.google.com/
- https://www.epo.org/searching-for-patents.html
- https://worldwide.espacenet.com/