IRENA insights
WEBINAR SERIES

Energy Sector Subsidies - A look at the first estimate of their total value

Presenter:

- **Michael Taylor, Head of Renewable Cost Status and Outlook, IRENA**

WEDNESDAY, 2 SEPTEMBER 2020 • 15:00-15:30 CEST

IRENA
International Renewable Energy Agency

IRENA insights
WEBINAR SERIES

SPEAKER

Michael Taylor
Head of Renewable Cost
Status and Outlook
IRENA

IRENA
International Renewable Energy Agency

IRENA insights
WEBINAR SERIES

The **slides** and a **recording** at https://irena.org/events/2020/Jun/IRENA-Insights & in the handouts section

You are all currently **muted** and will remain so throughout the webinar

If you have **Questions** to the speaker please use the **Q&A**

IRENA
International Renewable Energy Agency

IRENA insights
WEBINAR SERIES

Use the **Chat** feature to introduce yourself and talk to other attendees

Tell us how we did in the **survey** to help us improve

If you encounter any technical issues, please connect via **phone** or contact the **Help Desk**: 888.259.3826 or https://support.goto.com/webinar

IRENA
International Renewable Energy Agency

IRENA insights
WEBINAR SERIES

ENERGY SUBSIDIES
Evolution in the Global Energy Transformation to 2050

IRENA
International Renewable Energy Agency

Energy sector subsidies

IRENA insights WEBINAR SERIES

Energy sector subsidies are ubiquitous and have been for decades, yet…

Analysis of subsidies, aside from some notable exceptions, have rarely taken a global view

Definitions, boundaries and accounting methodologies are rarely aligned

IRENA
International Renewable Energy Agency

What are energy sector subsidies?

IRENA insights WEBINAR SERIES

Subsidies can arise from deliberate government actions, unintended consequences of policy, or market failures.

Energy sector subsidies are not bad per se, but depend on how and why they are implemented

In the context of the Paris Agreement and ecosystems in general, it's important to distinguish between environmentally harmful subsidies and friendly subsidies

What are energy sector subsidies?

IRENA insights WEBINAR SERIES

Economists frown on subsidies in competitive markets due to their inefficiency

However, they can be a second best solution to correct for market failures

In the energy sector, the two most prevalent failures where subsidies are deployed to improve economic efficiency are:

1) Negative externalities (e.g., GHG emissions)

2) The presence of "dynamic economies-of-scale"

Definitions & calculation methodologies

IRENA insights WEBINAR SERIES

There is no standardized, systemat definition of energy subsidies

Calculation methodologies differ depending on the organisation

The IMF definition is the only one unprecedented, the OECD has a focus on tax transfers, etc.

Table 3: An overview of the common methods of subsidy calculation and their relative merits

APPROACH	STRENGTHS	LIMITATIONS
INVENTORY • Quantifies value of specific government programmes to particular industries and then aggregates programmes into overall level of support. • Transfers include reductions in mandatory payments (*e. g.*, tax breaks and shifting of operating risks to the public sector, not just cash. Mandated purchase requirements are often captured, at least qualitively).	• Captures transfers whether or not they affect market prices. • Can incorporate the value of risk transfers (*e. g.* via lending or insurance subsidies) rather than just the direct government costs. • Can feed into a variety of evaluative frameworks and support detailed policy reviews needed for reform efforts	• Does not address quiestions of ultimate incidence of subsidies or pricing distortions. • Sensitive to decisions on what programmes to include. • Requires detailed, programme-level data. • Differential baselines across political jurisdictions (particularly regarding taxes) can complicate aggregations and cross-country comparisons.
PRICE GAP • Evaluates positive or negative "gaps" between the domestic price of energy and the delivered price of comparable products from abroad.	• Can be estimated with relatively little data; very useful for multi-country studies even if there is limited access to government documents. • Good indicator of pricing and trade distortions.	• Sensitive to assumptions regarding "free market" reference prices and transport prices and to frequency and geographical dispersion of key data inputs. • Understates full value of support as it ignores transfers that do not affect end-market prices and may miss important supports such as purchase vouchers or cross-subsidies. • Estimates for non-traded goods (*e. g.*, electricity) require much more detailed analysis to generate reference prices.
TOTAL SUPPORT ESTIMATE • Systematic method to aggregate transfer plus market support to particular industries.	• Integrates transfers with market supports into holistic measurement of support. • Separates effects on producer and consumer markets.	• Limited empirical PSE/CSE data for fossil fuel markets, although this is improving for OECD countries and a handful of others • Data intensive.

Source: Based on Koplow, 2018.

Current subsidy estimates

IRENA insights WEBINAR SERIES

- Relatively few estimates of global fossil fuel subsidy levels (IEA/OECD and IMF); only IEA till now for RE
- Much more regional/country-specific analysis (IISD, EC, ODI, Greenpeace, ADB, etc.)
- A range of definitions used
- Onerous in terms of data collection
- Range of forms subsidies can take complicates process
- Gaps are the norm, not exception

Table 6: Comparison of the level and scope of comprehensive multi-country fossil-fuel subsidy estimates

	IEA	OECD	IMF	IEA/OECD
PRE-TAX SUBSIDY (USD BILLIONS/YEAR)	319	143	302	347
POST-TAX SUBSIDY (USD BILLIONS/YEAR)			5 039	
COUNTRIES COVERED	42 (predominantly non-OECD)	36 OECD countries plus Argentina, Brazil, Colombia, China, India, Indonesia, The Russian Federation & South Africa	191	67
FUELS COVERED	Coal, oil, gas and electricity support	Coal, oil and gas	Coal, oil, gas and electricity support	Coal, oil and gas
YEAR FOR SUBSIDY ESTIMATE	2017	2017	2017	2017

Source: Based on IEA, 2019; OECD, 2019; and Coady, , 2019

Germany: Transparency is good, no?

IRENA insights WEBINAR SERIES

What's a reasonable spread in subsidy estimates, highest to lowest?

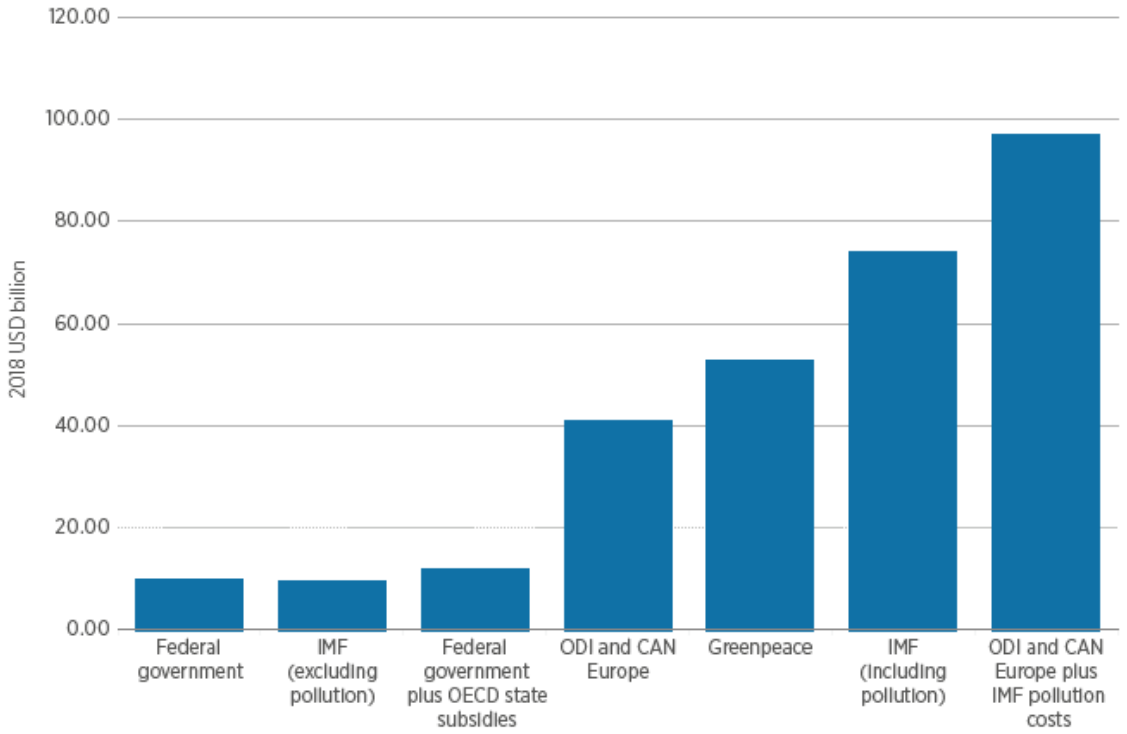
A. 1 : 1.5

B. 1 : 4

C. 1 : 5.5

D. 1 : 9

Figure 7: Subsidies to fossil fuels in Germany from different sources, 2014/2016



Based on: Bundesministeriums der Finanzen, 2017; Coady, *et al.*, 2019; Gençsû and Zerzawy, 2017; OECD, 2019; Zerzawy, 2017.

IRENA International Renewable Energy Agency

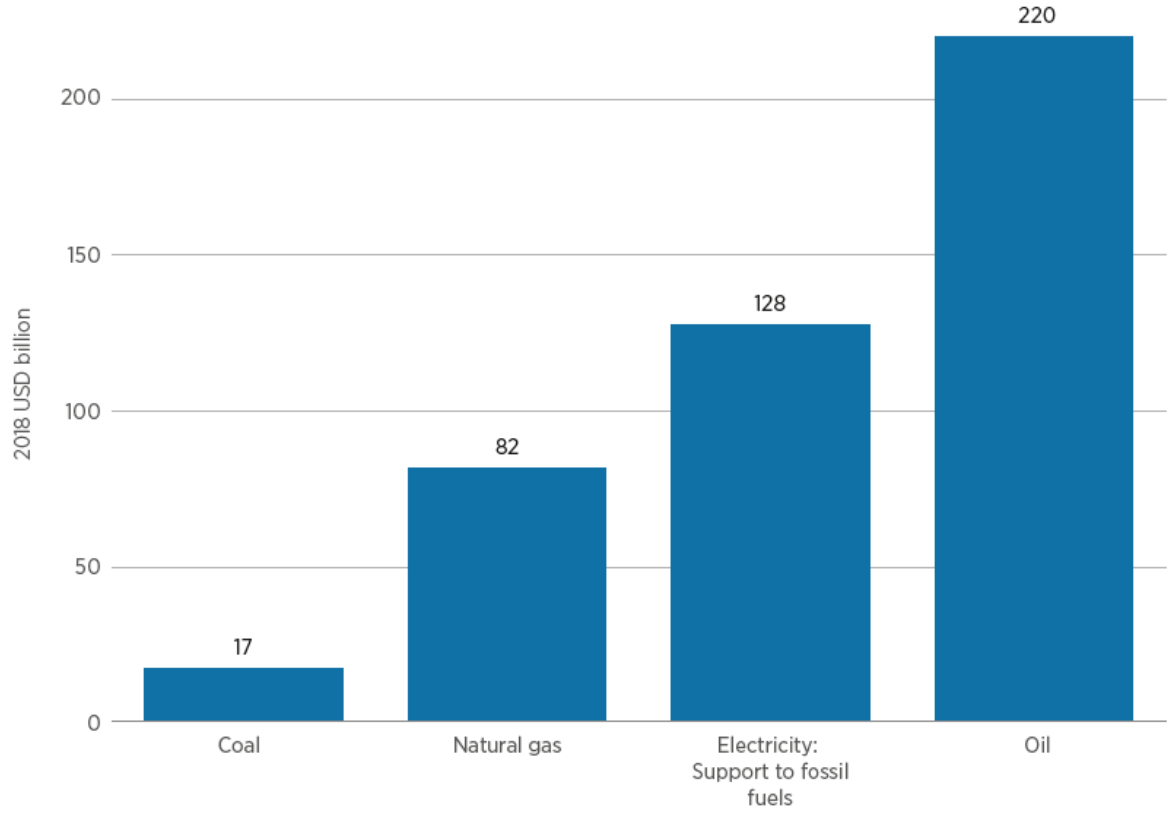
IRENA's estimates of fossil fuel subsidies, 2017

IRENA insights WEBINAR SERIES

Draws on IEA/OECD data and country-level sources

Higher than any one individual source

Gaps remain, but totaled USD 447 billion in 2017



Source: IRENA, based on OECD, 2019 and IEA/OECD, 2019.

IRENA International Renewable Energy Agency

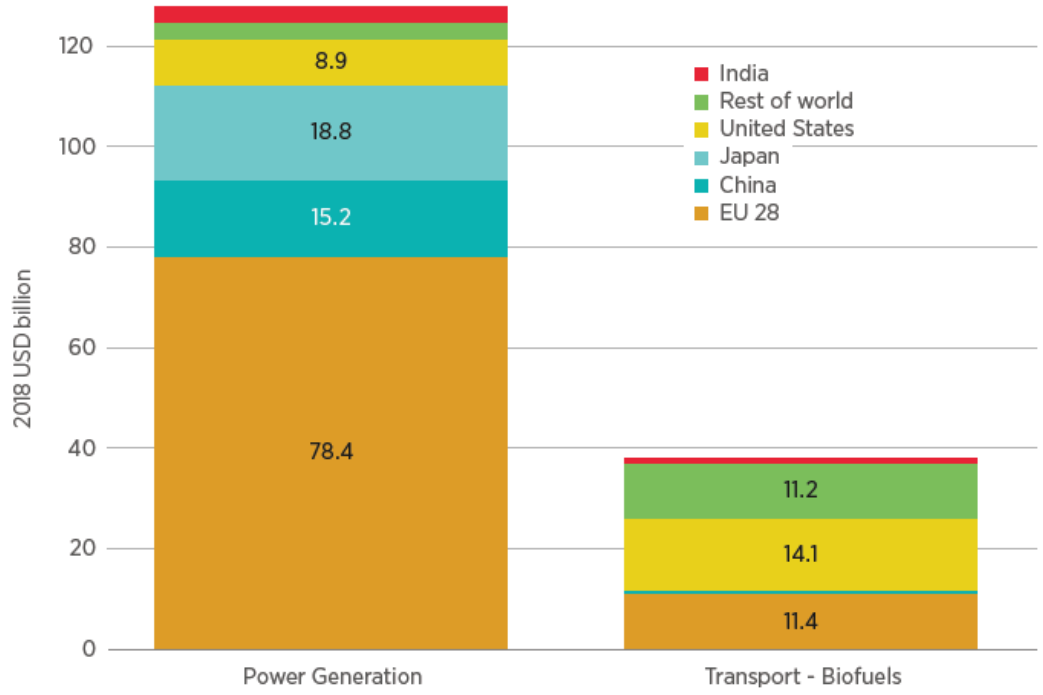
IRENA's estimates of Renewables subsidies, 2017

IRENA insights WEBINAR SERIES

Draws on various national and regional sources

At USD 166 billion, they are at least USD 18 billion lower than IEA

Not clear the drivers for this difference



IRENA
International Renewable Energy Agency

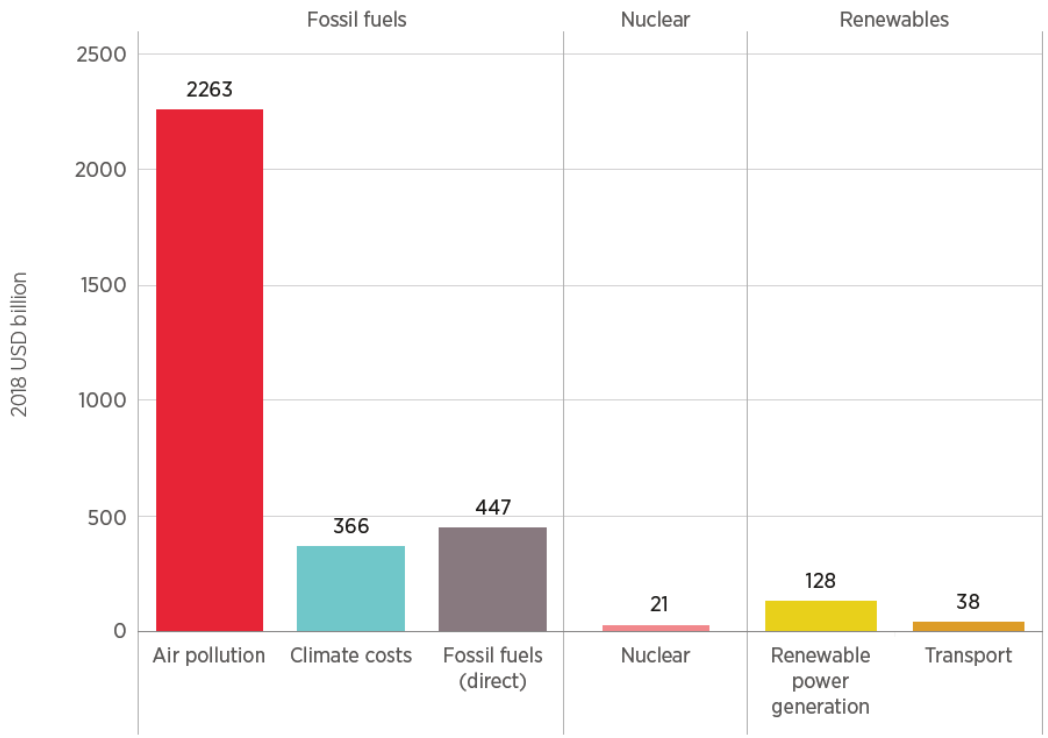
Direct and Indirect Subsidies in the Energy Sector in 2017

IRENA insights WEBINAR SERIES

Direct subsidies to the energy sector were at least USD 634 billion in 2017

Indirect subsidies to FF are significantly larger than direct

Placeholder for value of subsidies to nuclear



Direct & indirect subsidies to fossil fuels are 19 times higher than to RE

IRENA International Renewable Energy Agency

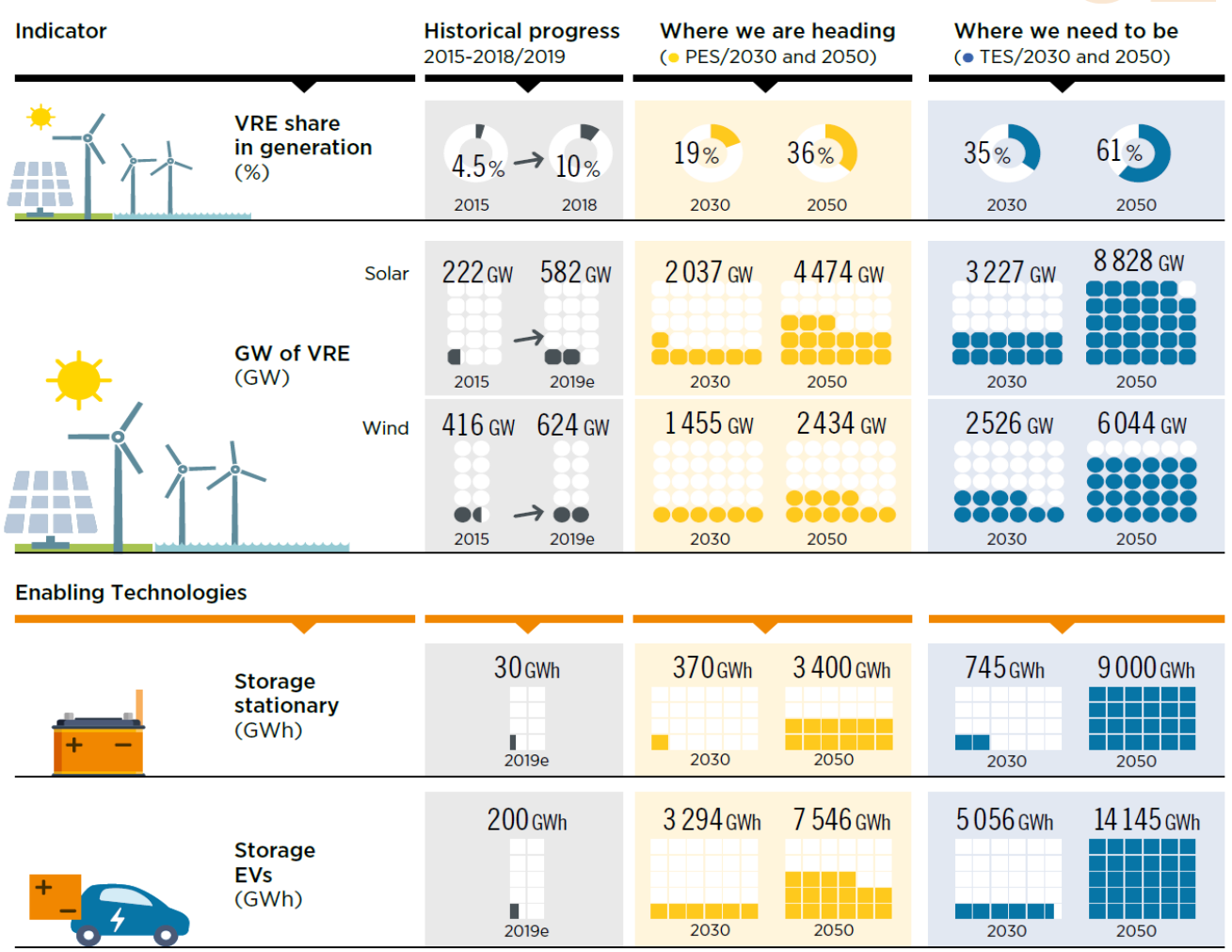
Energy sector subsidies in the energy transition to 2050

IRENA insights WEBINAR SERIES

Transition requires the "rebuilding" of the energy sector

Subsides tied to GRO deployment pathways & costs

Methodology: shift from country estimates to price-gap approach



Subsidy calculation exclude some infrastructure investments

IRENA International Renewable Energy Agency

Direct Subsidies in the energy sector: 2017- 2050

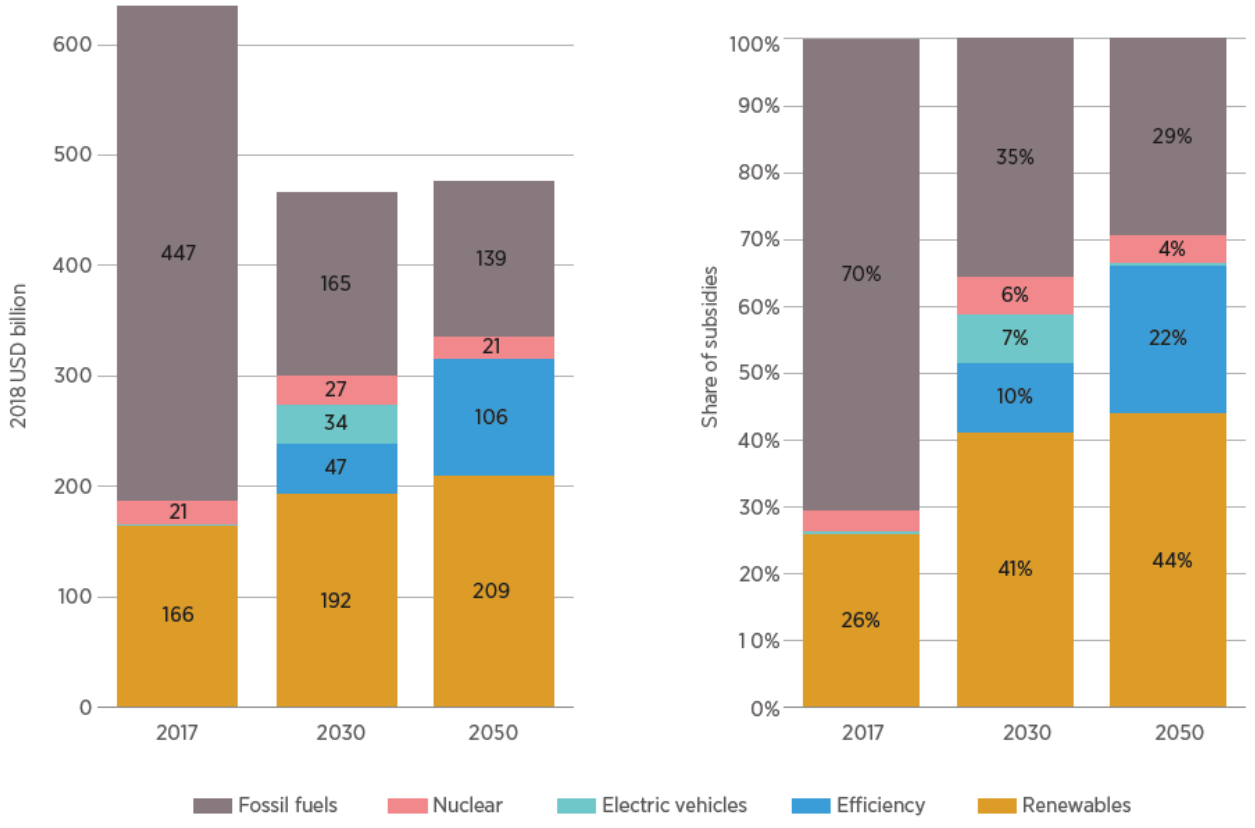
IRENA insights WEBINAR SERIES

Direct subsidies to the energy sector could fall to USD 475 billion in 2050

Total subsidies 25% lower than in 2017 and 45%(USD 390 bn) lower than Ref. Case

Rebalancing away from FF to renewables energy efficiency

Direct subsidies to fossil fuels dominated by CCS in industrial processes by 2050



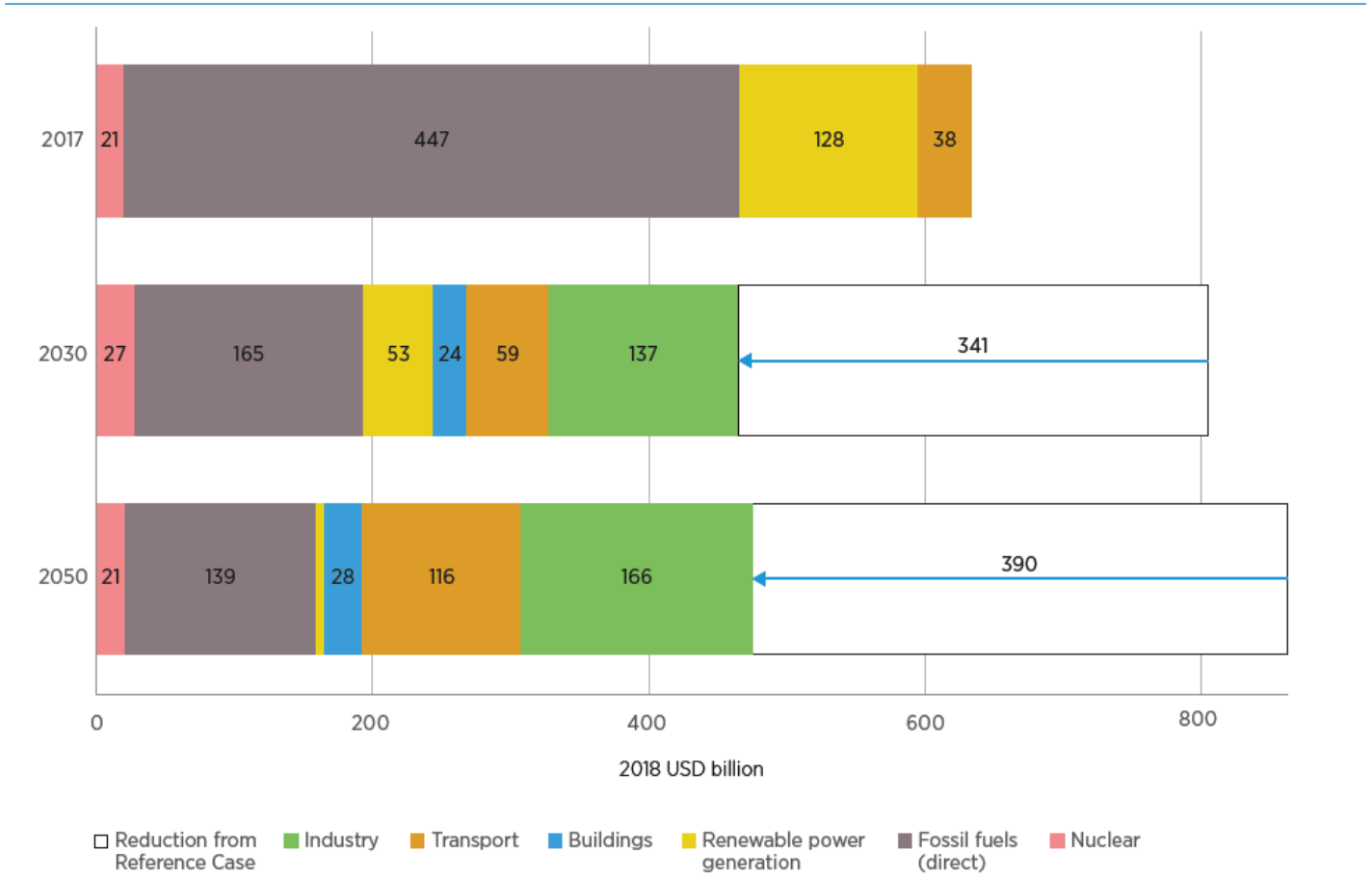
IRENA International Renewable Energy Agency

The energy transition in the end-use sectors needs accelerating

IRENA insights WEBINAR SERIES

Financial support for sustainable solutions in industry, transport & buildings needs to scale

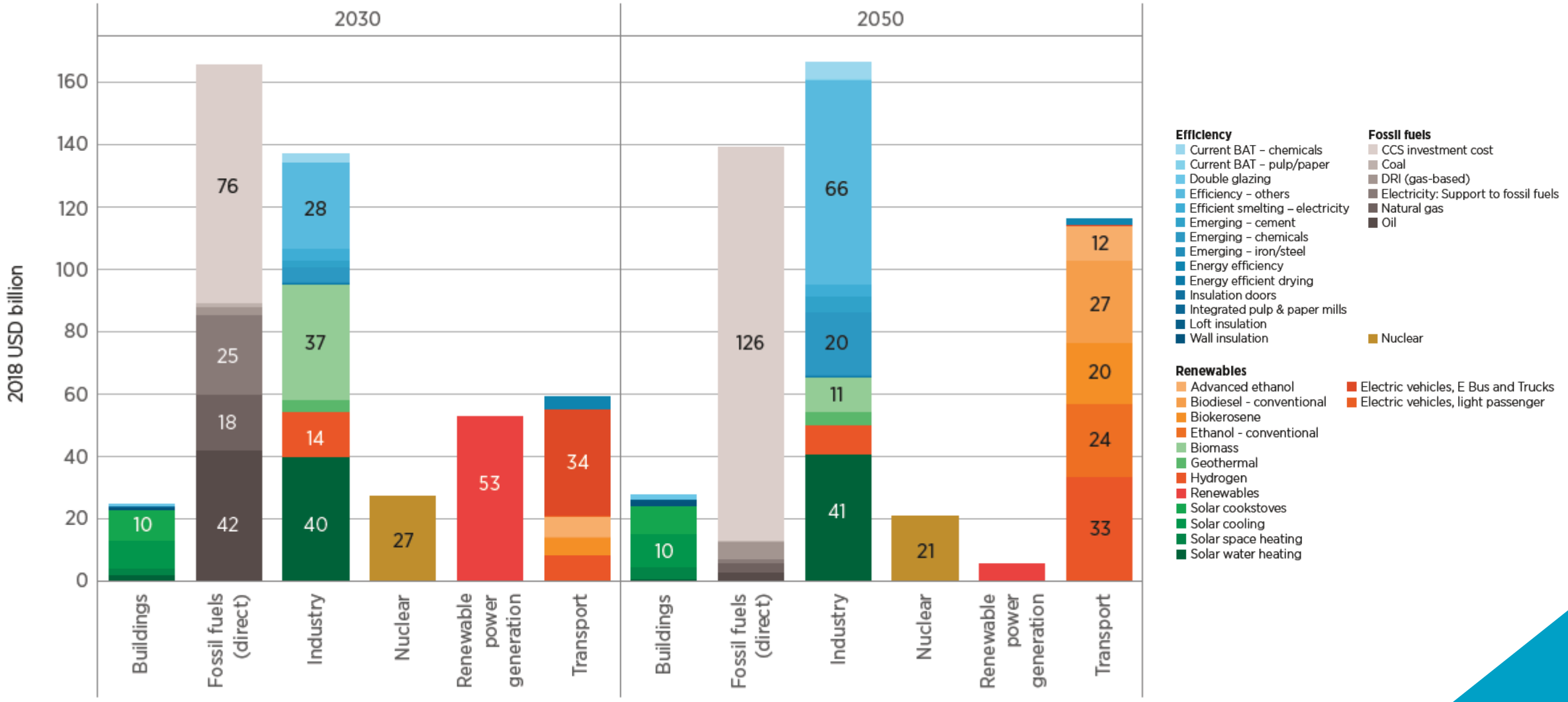
Decarbonising long distance transport will also require support



Note: The subsidy totals in this figure to Industry, Transport and Buildings include subsidies from the deployment of renewable and energy efficiency measures in those sectors.

The energy transition in the end-use sectors needs accelerating

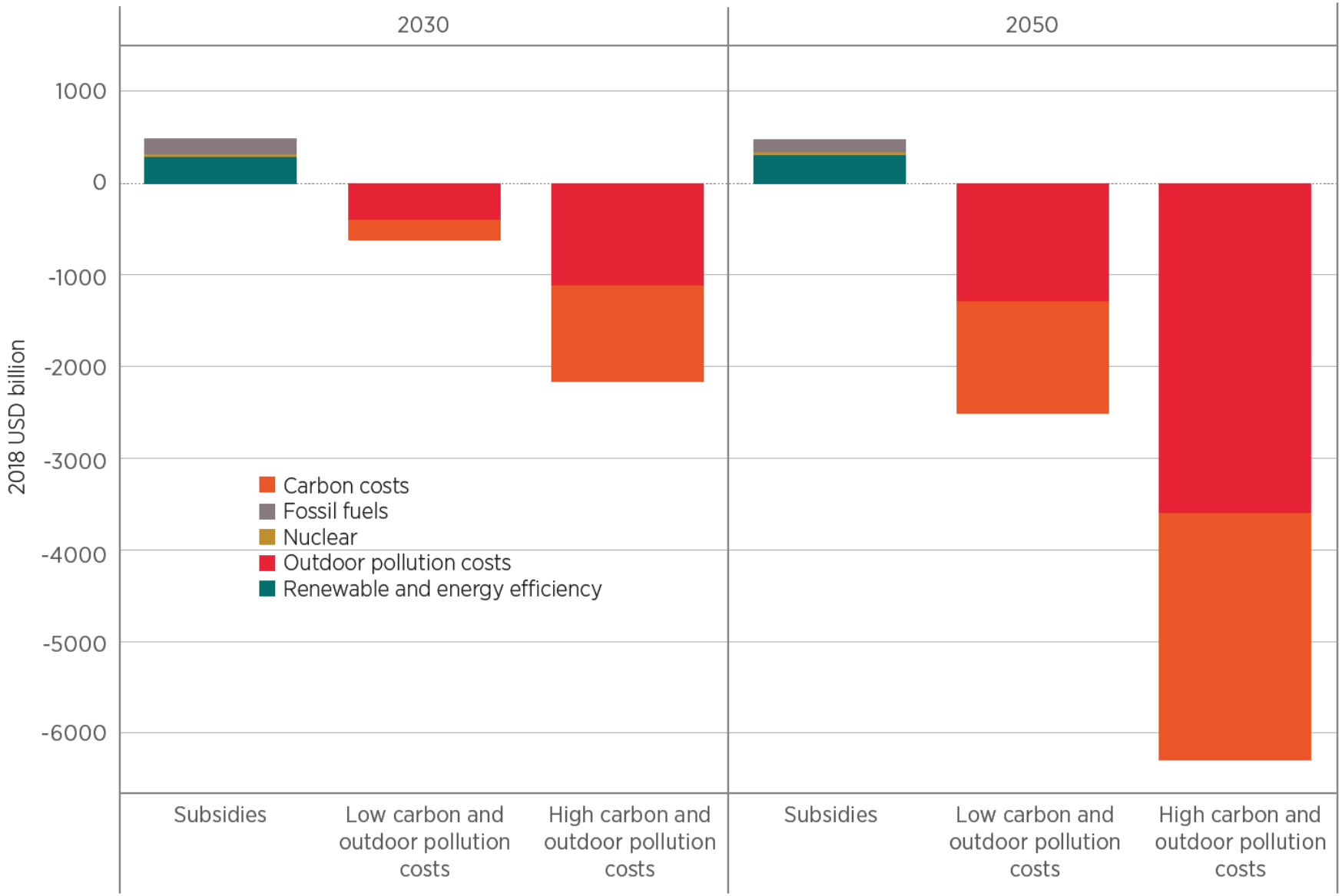
IRENA insights WEBINAR SERIES



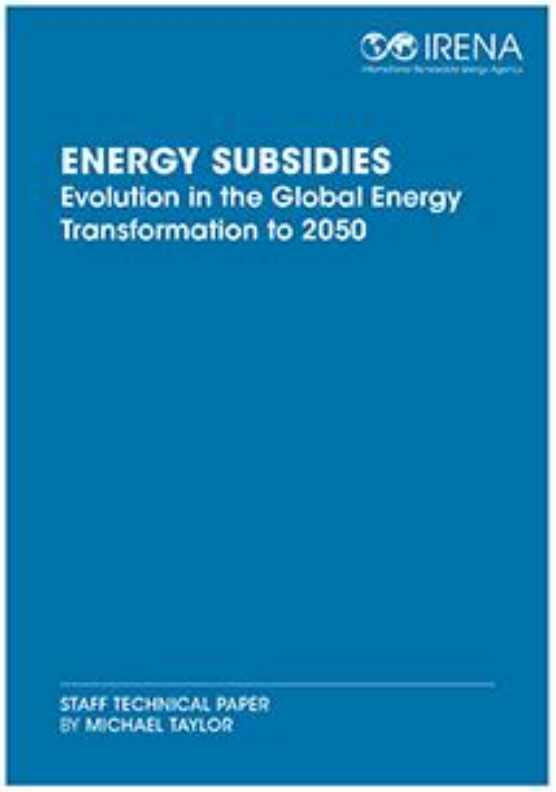
IRENA
International Renewable Energy Agency

The energy transition makes economic sense

IRENA insights WEBINAR SERIES



IRENA
International Renewable Energy Agency



IRENA
International Renewable Energy Agency

Thanks for your attention.

Michael Taylor

MTaylor@irena.org

www.irena.org

www.twitter.com/irena

www.facebook.com/irena.org

www.instagram.com/irenaimages

www.flickr.com/photos/irenaimages

www.youtube.com/user/irenaorg

IRENA insights
WEBINAR SERIES

Q & A
10 min

IRENA
International Renewable Energy Agency

IRENA VIRTUAL EDITION INNOVATION WEEK 2020

5th – 8th October 2020

REGISTRATION WILL OPEN ON FRIDAY, 4 SEPTEMBER

innovationweek.irena.org

- Builds on IRENA Innovation Weeks in 2016 & 2018 and regional Innovation Days in 2019. Key insights are available online at **www.irena.org/innovation**
- Focus: **The use of renewables in the energy-end-use sectors of transport & industry**
- **High level opening and closing sessions** with ministers, senior officials and senior executives from innovative companies and organisations
- **IRENA Youth session** on innovation and enterpreneurship
- **5 technical sessions:**
  - 3 on energy carriers (electricity, hydrogen & synthetic fuels, bioenergy)
  - 2 on the use of energy carriers in industry and transport
- Any questions: **innovationweek@irena.org**

INNOVATION WEEK 2018
solutions for a renewable-powered future

2018 event included over 80 expert speakers & 350 participants from over 70 countries.

IRENA
International Renewable Energy Agency

IRENA insights
WEBINAR SERIES

THANK YOU FOR JOINING US!

SEE YOU AT THE IRENA VIRTUAL INNOVATION WEEK 2020

innovationweek.irena.org

IRENA
International Renewable Energy Agency