Zombie Energy:

Why ending subsidies to fossil fuel production should be part of climate action

Ivetta Gerasimchuk, PhD
Global Subsidies Initiative, International Institute for Sustainable Development

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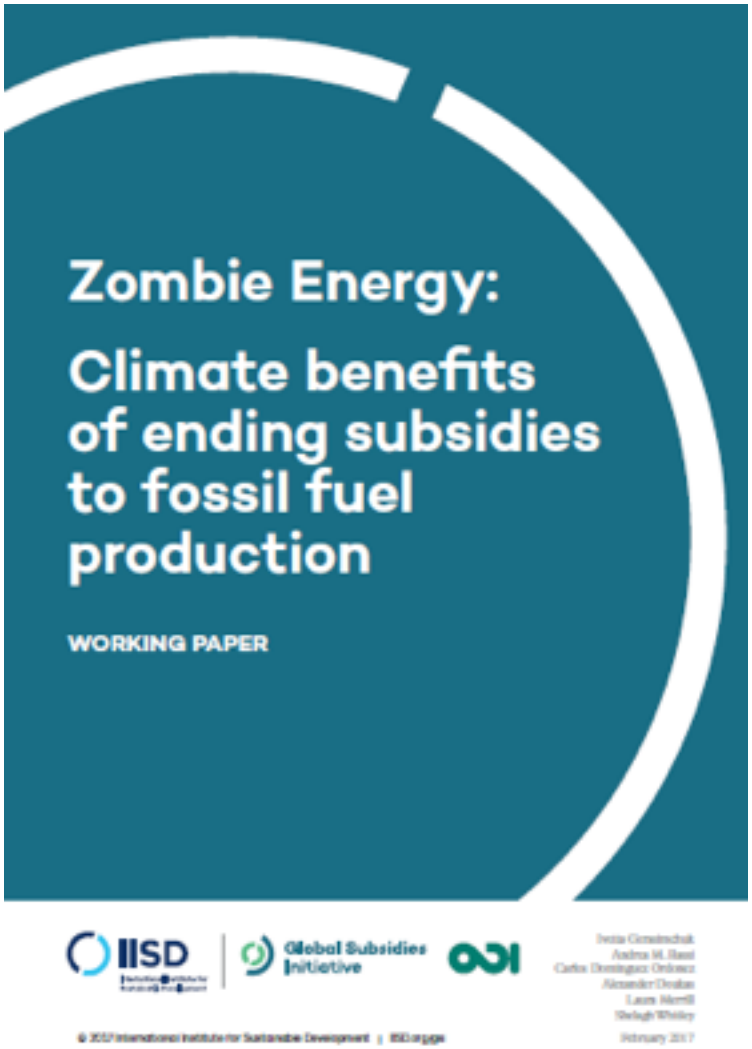

Ivetta Gerasimchuk, PhD

Andrea Bassi, PhD

Carlos Dominguez Ordonez

Alex Doukas

Laura Merrill

Shelagh Whitley

What is zombie energy?

Fossil fuels that are only able to be produced as a result of subsidies. Their extraction would not be economically viable without government support.

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BAD USE OF PUBLIC MONEY

G20 governments support the production of zombie energy from fossil fuels each year with:

* at least USD 70 billion in subsidies
* at least USD 88 billion in public finance
* at least USD 286 billion in state-owned enterprise investment

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The Nesting Doll of Subsidy Definitions

Fossil-fuel Consumption Subsidies	Production Fossil-Fuel Production Subsidies
Fossil fuels exempt from social cost of externalities (non-internalized externalities).	
Fossil fuels sold below regional or international tax levels.	Government tax and regulation levels below regional or international levels.
Fossil fuels exempt from VAT, GST and carbon taxes	Government revenue forgone (reduced and exempt tax rates).
	Government provided or purchased goods and services (above or below market rates).
Fossil fuels sold below the cost of production, imports and international benchmark price to consumers	Direct transfers or potential direct transfers of funds to producers.
	Income or price support (above market rate prices for producers).

Explanation: '… 'the term "subsidy" can be visualized as a matryoshka nesting doll—at the centre of the definition are ideas that everyone agrees on, but as the definition expands to incl ude other layers, it becomes more complicated and more controversial (see Figure 1).' (Gerasimchuk et al, 2012). For more information on definitions of subsides and support to fossil fuels see IEA, WB, OECD, IMF and GSI, 2014 'Comparison of Fossil-fuel Subsidy Support Estimates'. ***Source:*** GSI-IISD, October 2014, based on: Gerasimchuk, I.; Bridle, R.; Beaton, C.; and Charles, C. (2012) 'State of Play on Biofuel Subsidies: Are Policies ready to shift?' IISD-GSI, and GSI (2010) 'A How-to Guide: Measuring Subsidies to Fossil-fuel Producers'.

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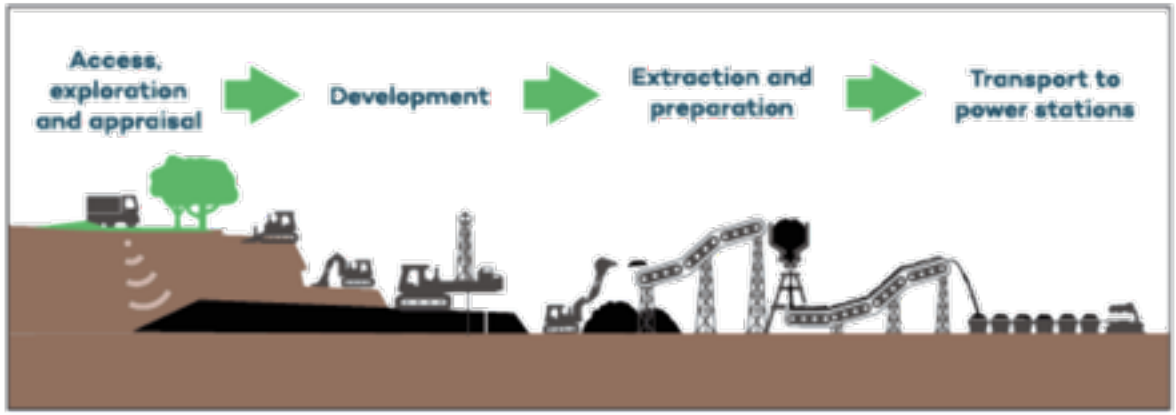
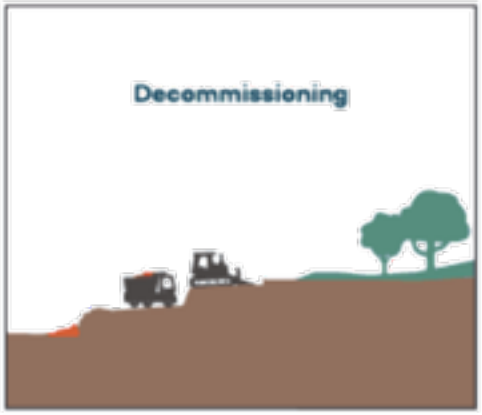
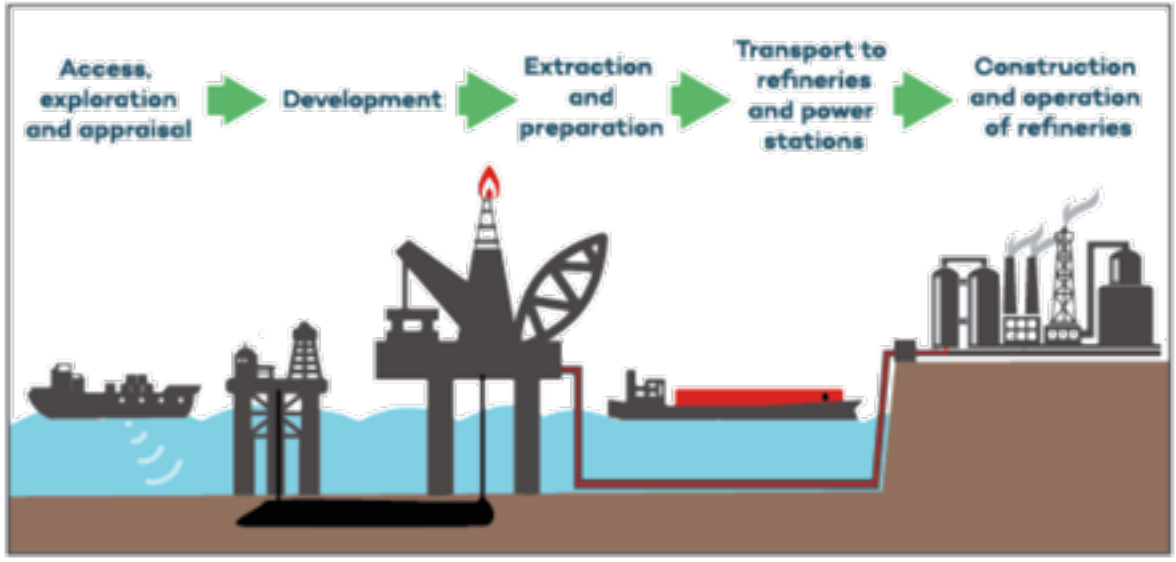
Governments subsidize all stages of fossil fuel production

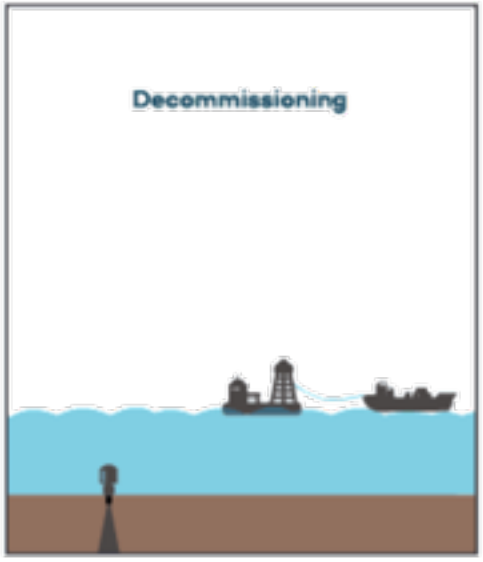
Coal





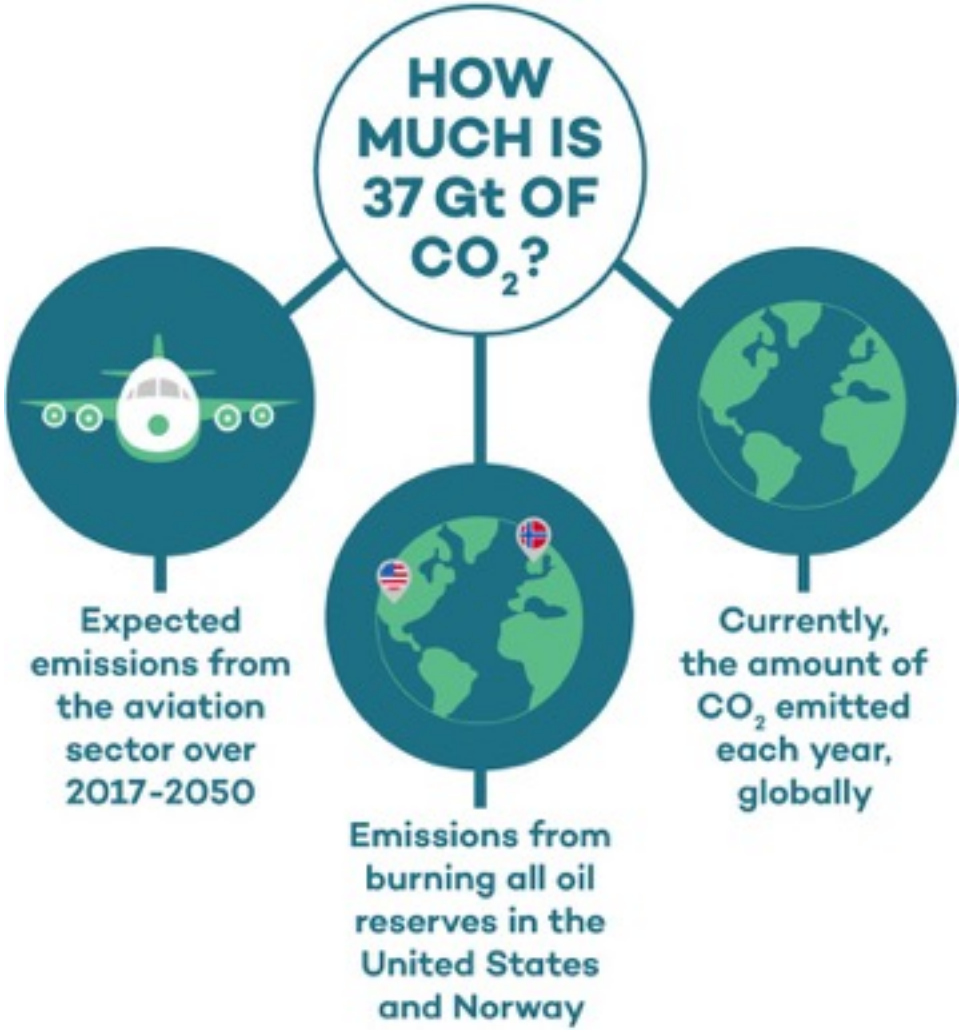
Oil and gas





Net effect on emissions from a global removal of quantified fossil fuel production subsidies in 2017-2050 using conservative assumptions and IEA Current Policies Scenario as a baseline (oil price up to $145 in 2050, 5 C path long-term): 37 Gt or 1.1 Gt per year

The lower the energy prices, the more emissions avoided.



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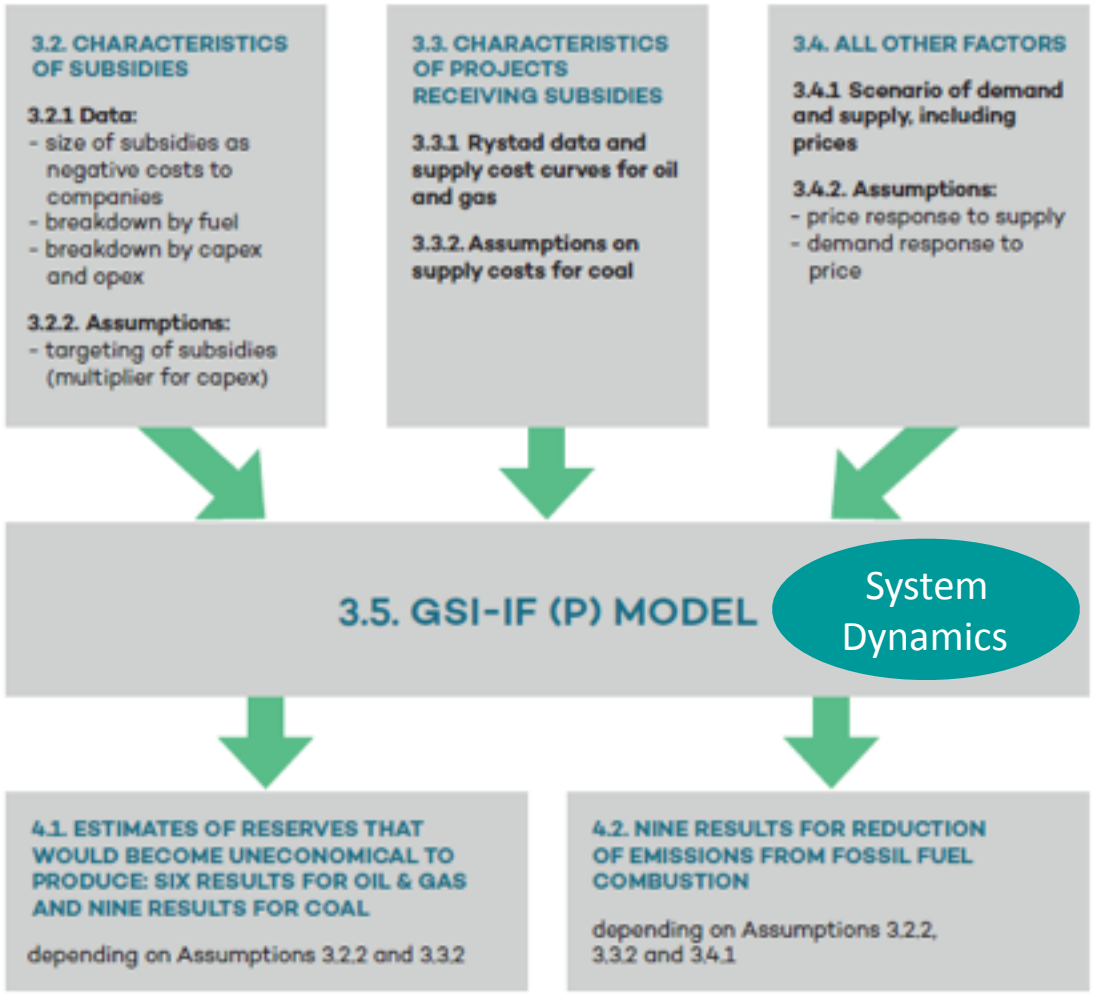
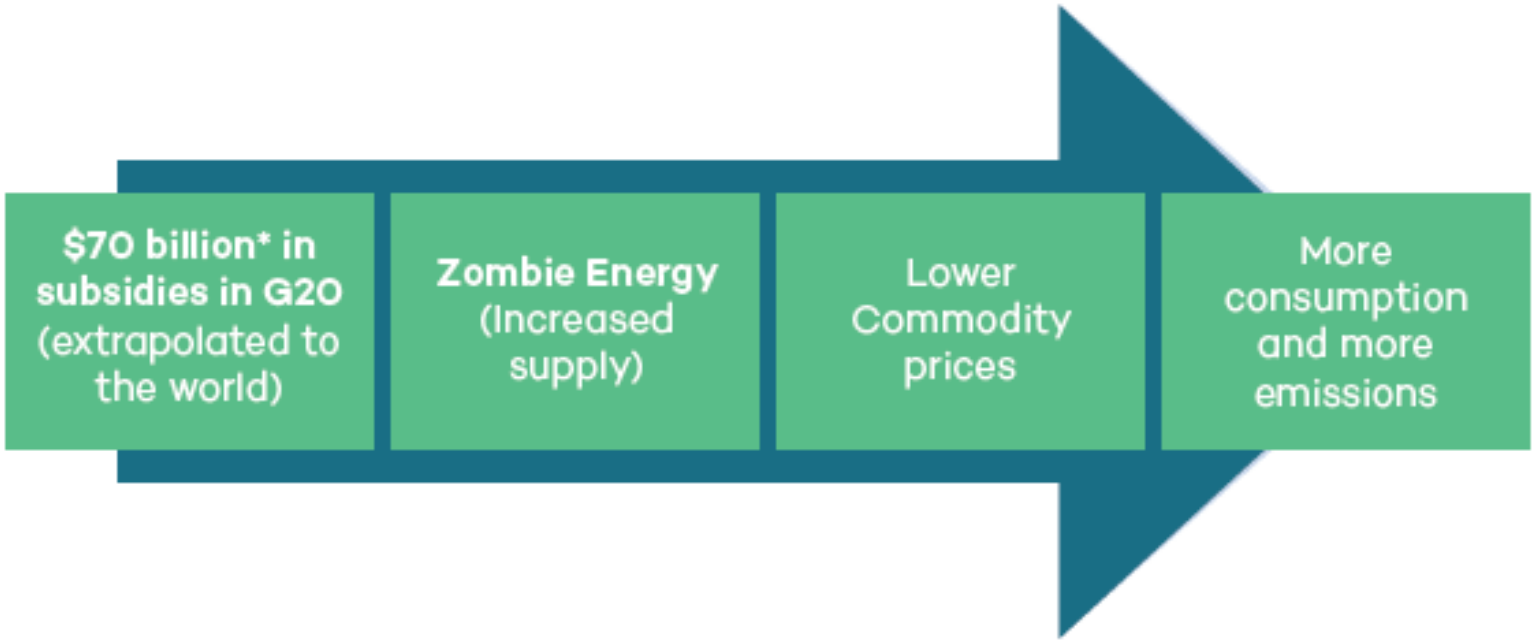
Algorithm for modelling a global removal of fossil fuel production subsidies



Zombie Energy: unlocked by production subsidies



* Incomplete, but best available dataset (Bast et. al., 2015) for direct spending and tax breaks to fossil fuel production by G20 countries on average in 2013 and 2014, also excluding estimated:

- ✓ USD 286 billion in SOE investment
- ✓ USD 88 billion in public finance

Figure ES1. How fossil fuel production subsidies lead to more emissions (first-order impacts)

Source: Authors' diagram.

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But there is a catch: second-order impacts

Figure ES2. **Change in GHG emissions as a result of production subsidy removal: First- and second-order impacts**

Source: Authors' diagram.

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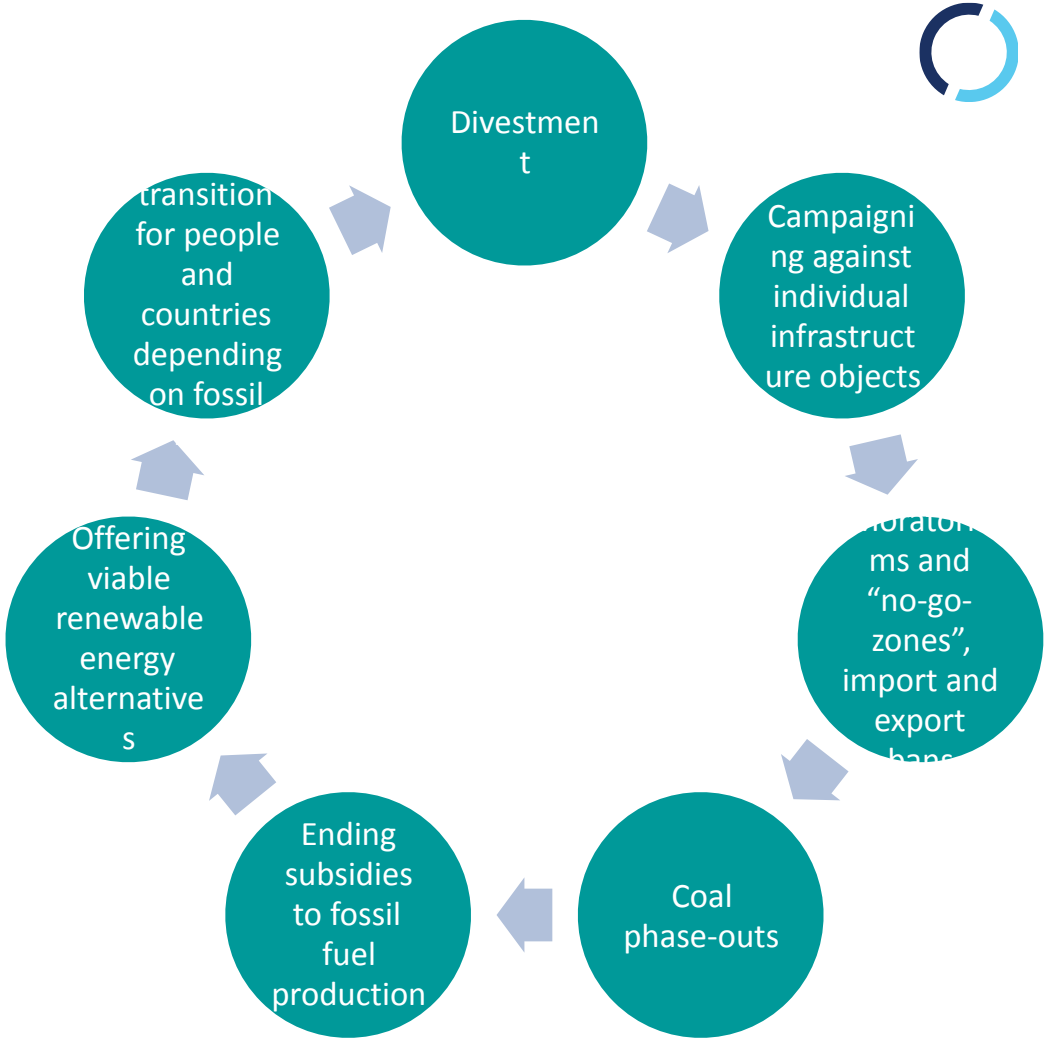
What we need:

- Better inventory data on production subsidies
- Better data to support assumptions
- Production subsidy removal as part of a comprehensive climate action package, where production subsidy numbers can be used to support calls for other supply-side measures



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