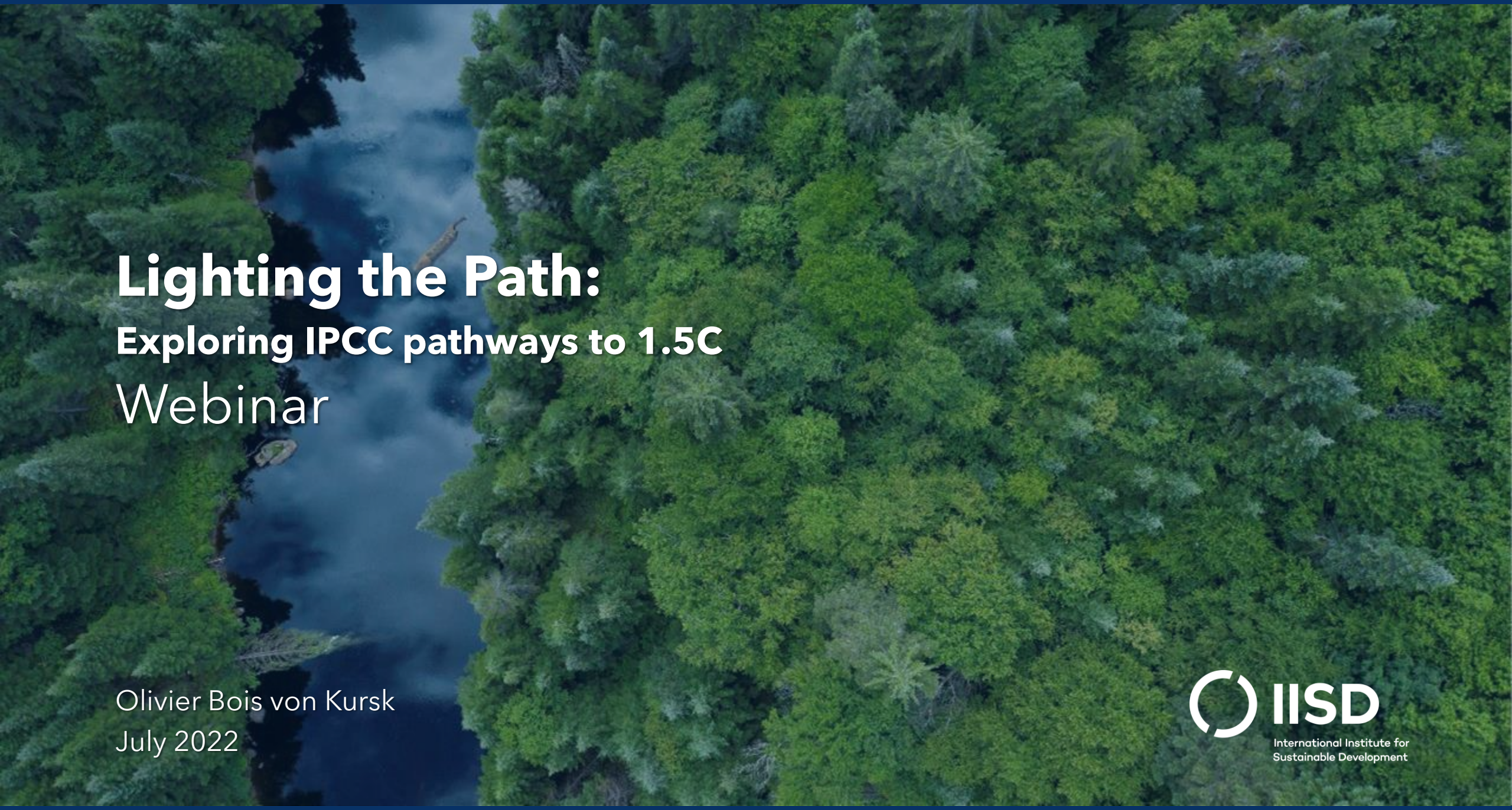


Lighting the Path:

Exploring IPCC pathways to 1.5C

Webinar

Olivier Bois von Kursk

July 2022

IISD
International Institute for Sustainable Development

How to decarbonize energy systems in line with 1.5°C pathways?

IPCC 6th Assessment Report Working Group 3

Key conclusion:

- Limiting warming to 1.5°C with no or limited overshoot required a 50% reduction of CO2 by 2030, then the world needs to reach net-zero CO2 emissions by 2050.

IPCC scenario analysis:

- More than 1200 pathways were considered by IPCC WG3
- Scenarios based on Integrated Assessment Models (IAMs)
- 100 pathways limiting warming to 1.5C scenarios with no or low overshoot

Objective

- Ensure adequate scenario selections to inform policymakers and financial institutions to promote GHG mitigation strategies aligned with 1.5C
- Present the policy implications of selected IPCC 1.5°C scenarios and IEA Net Zero Emissions scenarios for oil and gas phaseout pathways
- Present the required wind and solar capacity additions and related investment needs to deliver the energy transition consistent with IPCC 1.5C pathways.

Content

1. Scenario filtering methodology
2. Global oil & gas production and consumption
3. Gas power generation
4. Wind and solar capacity
5. Investment needs
6. Key recommendations

Scenario filtering methodology

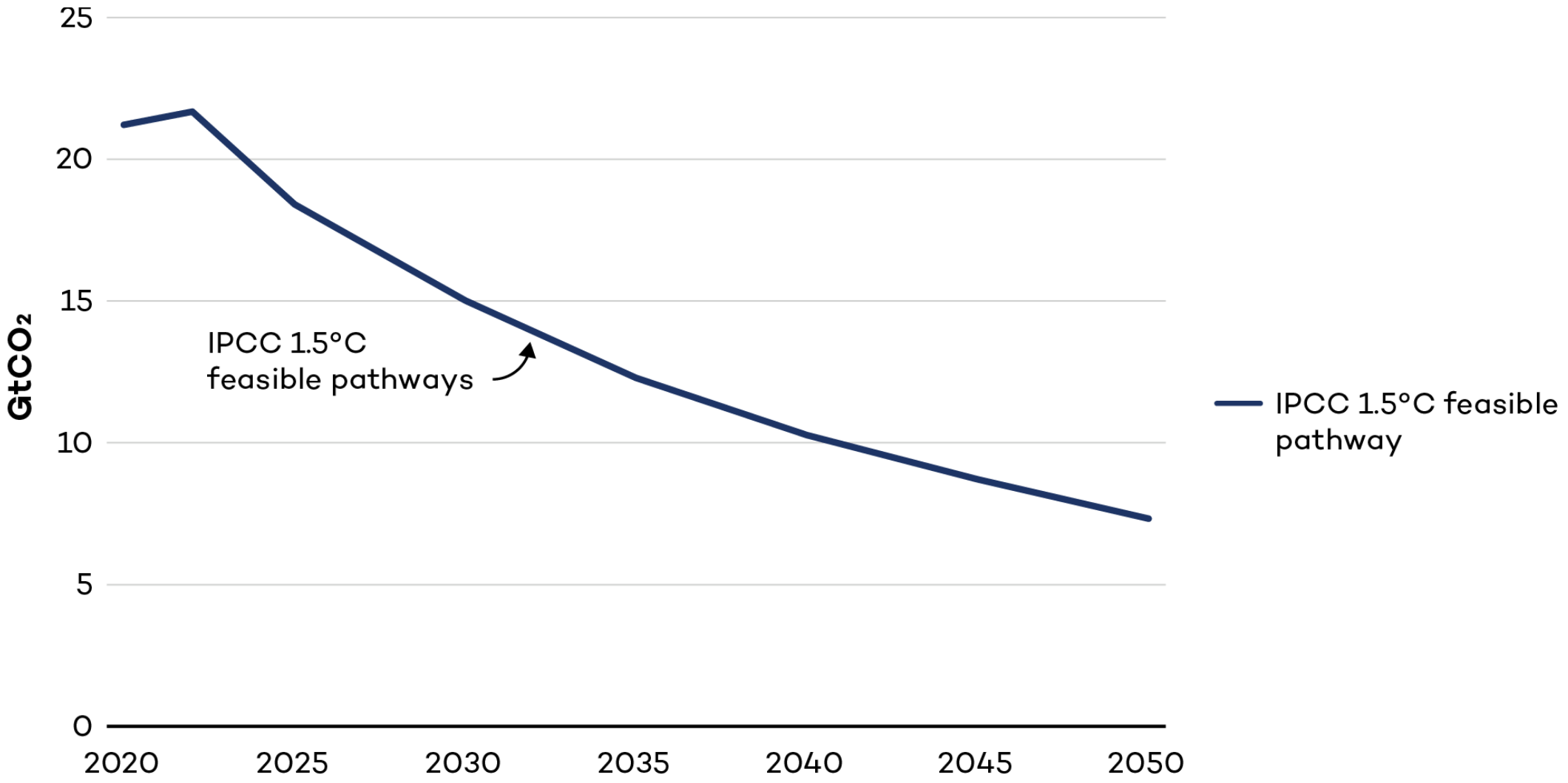
- **Challenge**: Reliance on unproven technologies to remove CO2 from the atmosphere or from fossil fuel combustion processes constitutes a major risk to the achievability of the Paris goals.

Table 1: IPCC feasibility and sustainability assessment for CCS and CDR:

Carbon sequestration method	Feasibility/sustainability dimension	Sequestration thresholds by 2050
Fossil Carbon Capture and Storage (CCS)	New Technology	3 GtCO2/year
Bioenergy with Carbon Capture and Storage (BECCS)	New Technology	3.8 GtCO2/year
Afforestation and Reforestation (AR)	Sustainable potential	3.6 GtCO2/year

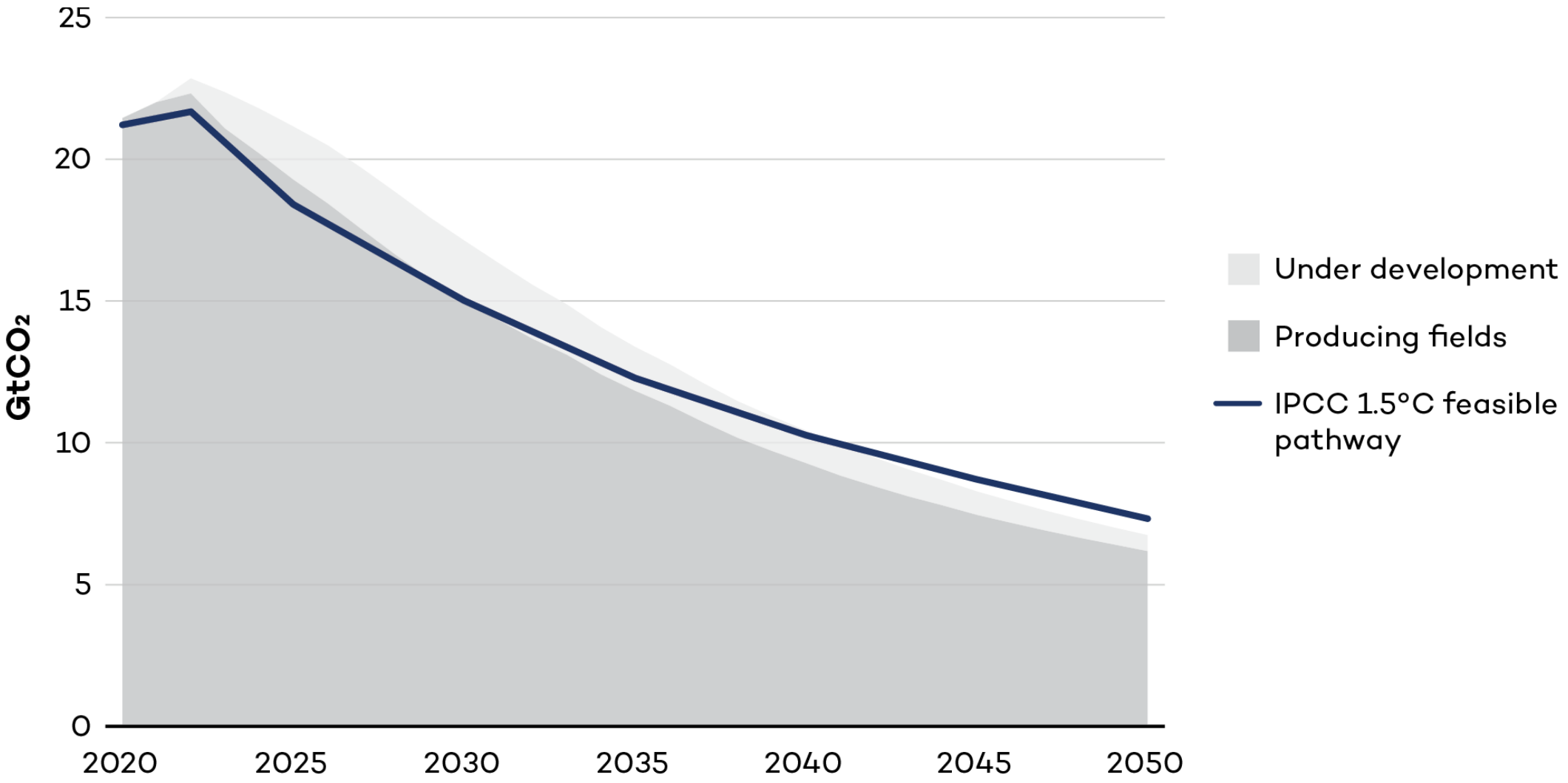
- **Focus on analysis:** 1.5C pathways that are consistent with the feasibility limits and sustainable potential for the use of these technologies, as reported by the IPCC

No room for new oil and gas development



Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; Rystad Energy)

No room for new oil and gas development



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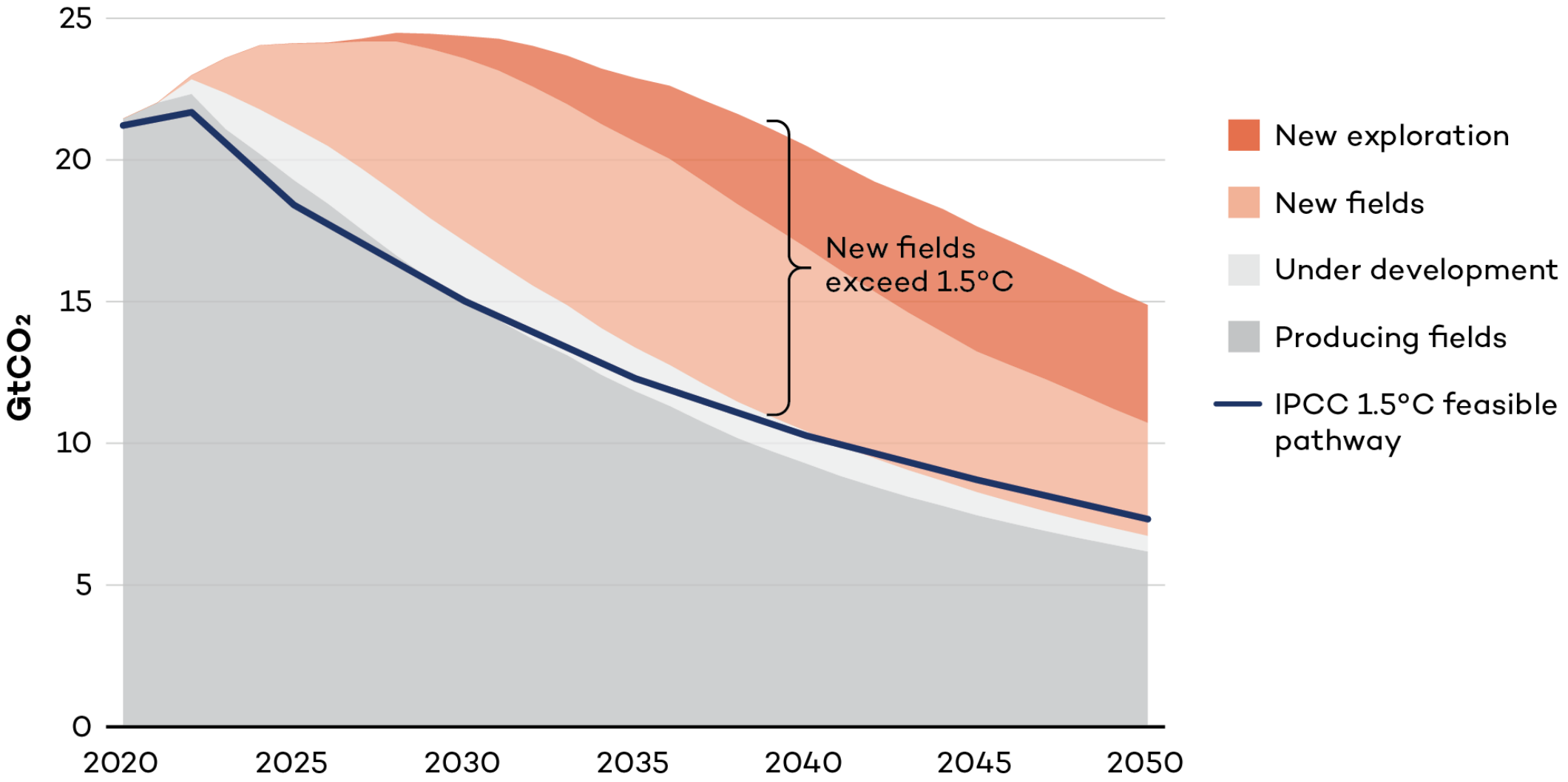
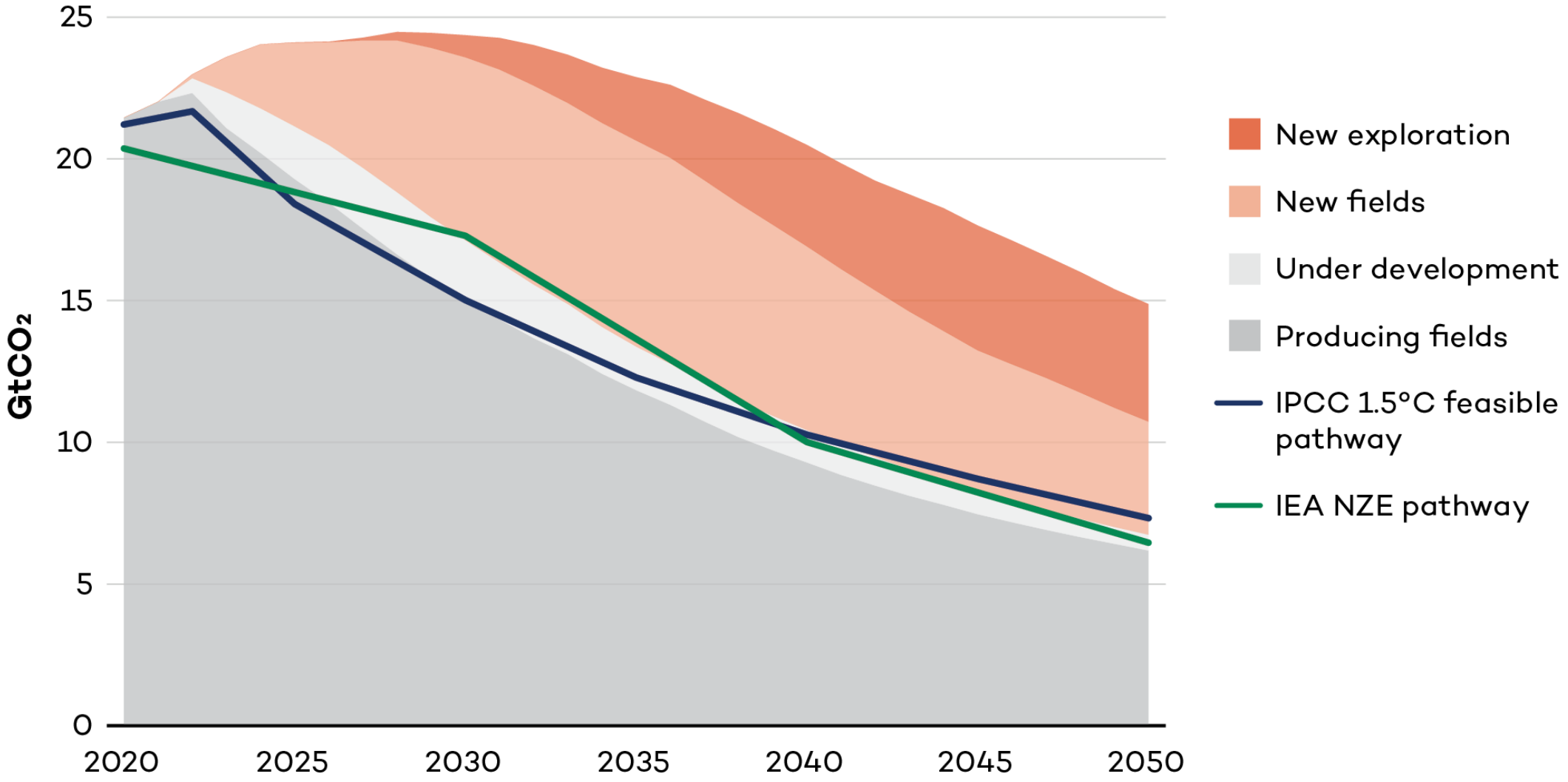


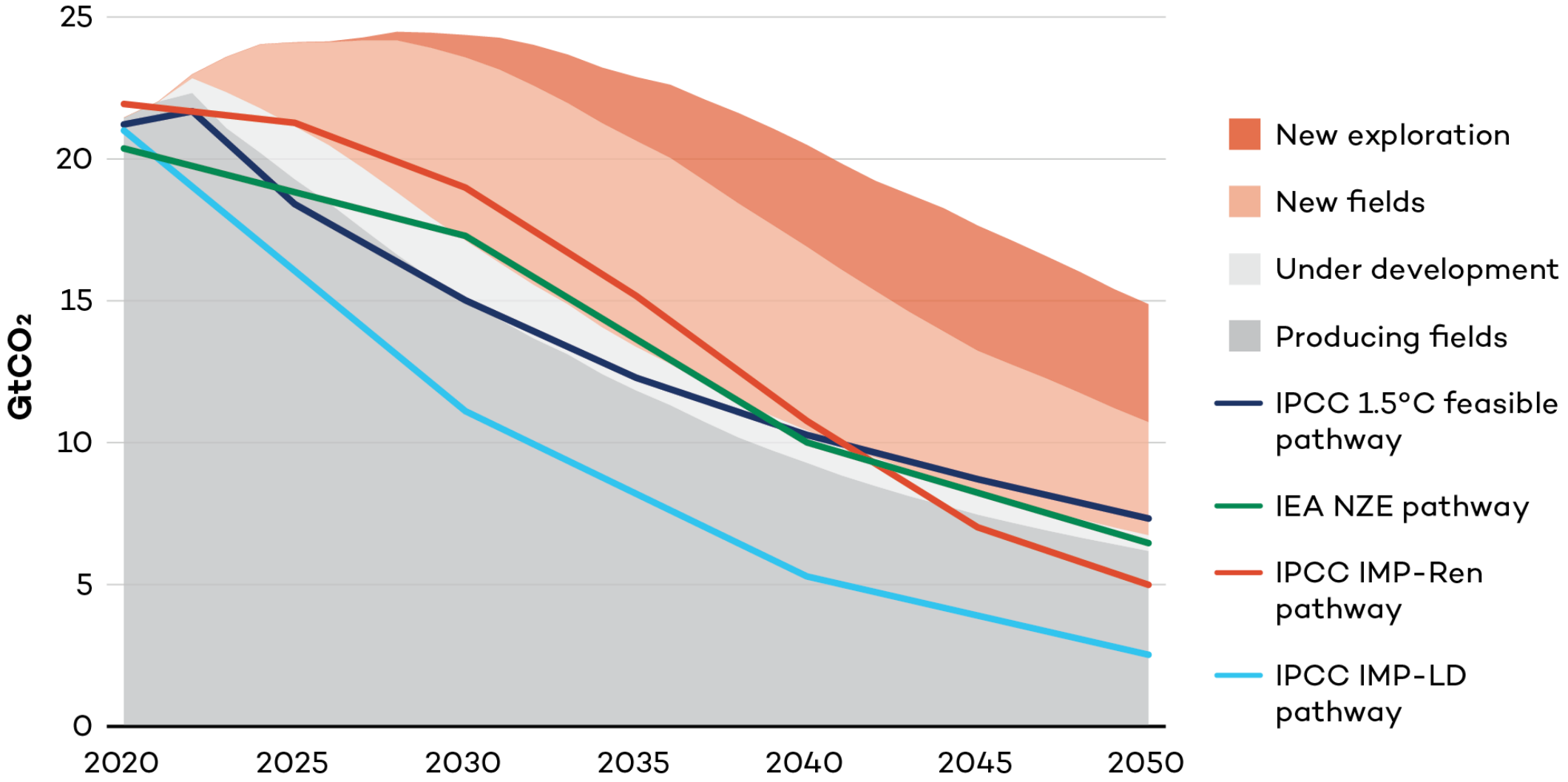
Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; Rystad Energy)

IEA Net Zero scenario supports same conclusion



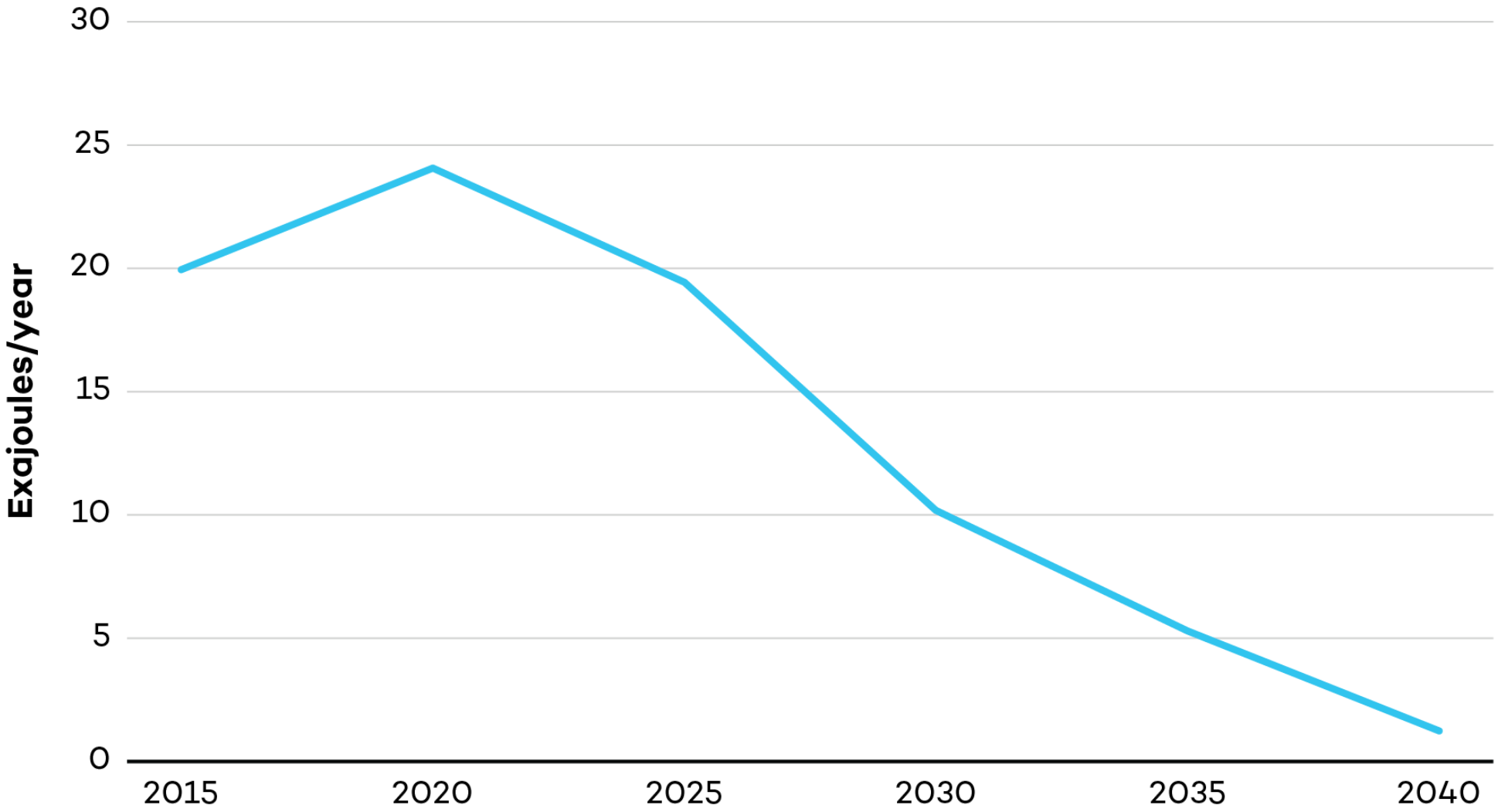
Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; Rystad Energy)

Sensitivity analysis: IEA NZE scenario and IPCC Illustrative Mitigation Pathways



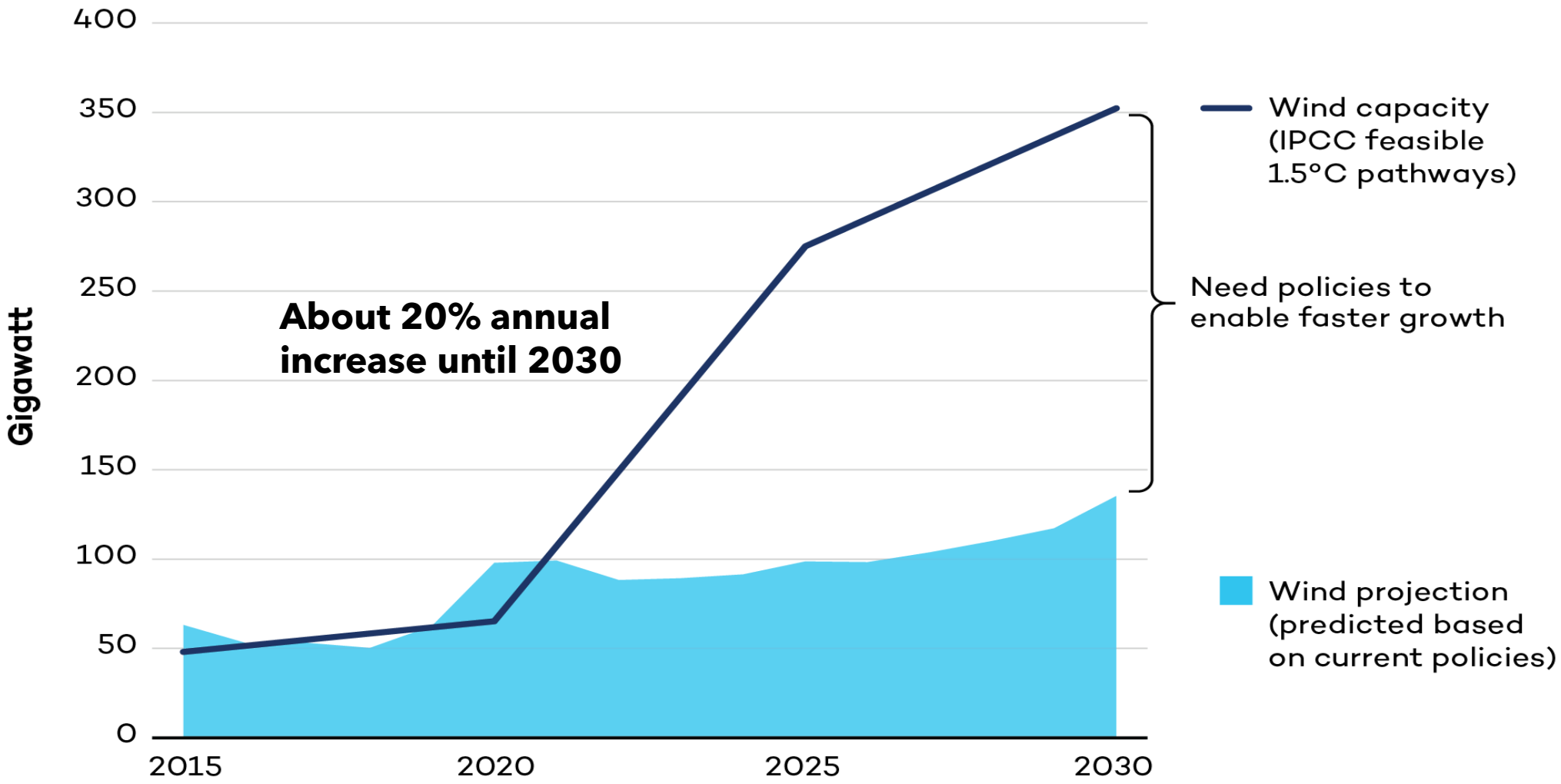
Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; Rystad Energy)

Global unabated gas power generation reaches near-zero by 2040 in feasible 1.5°C pathways



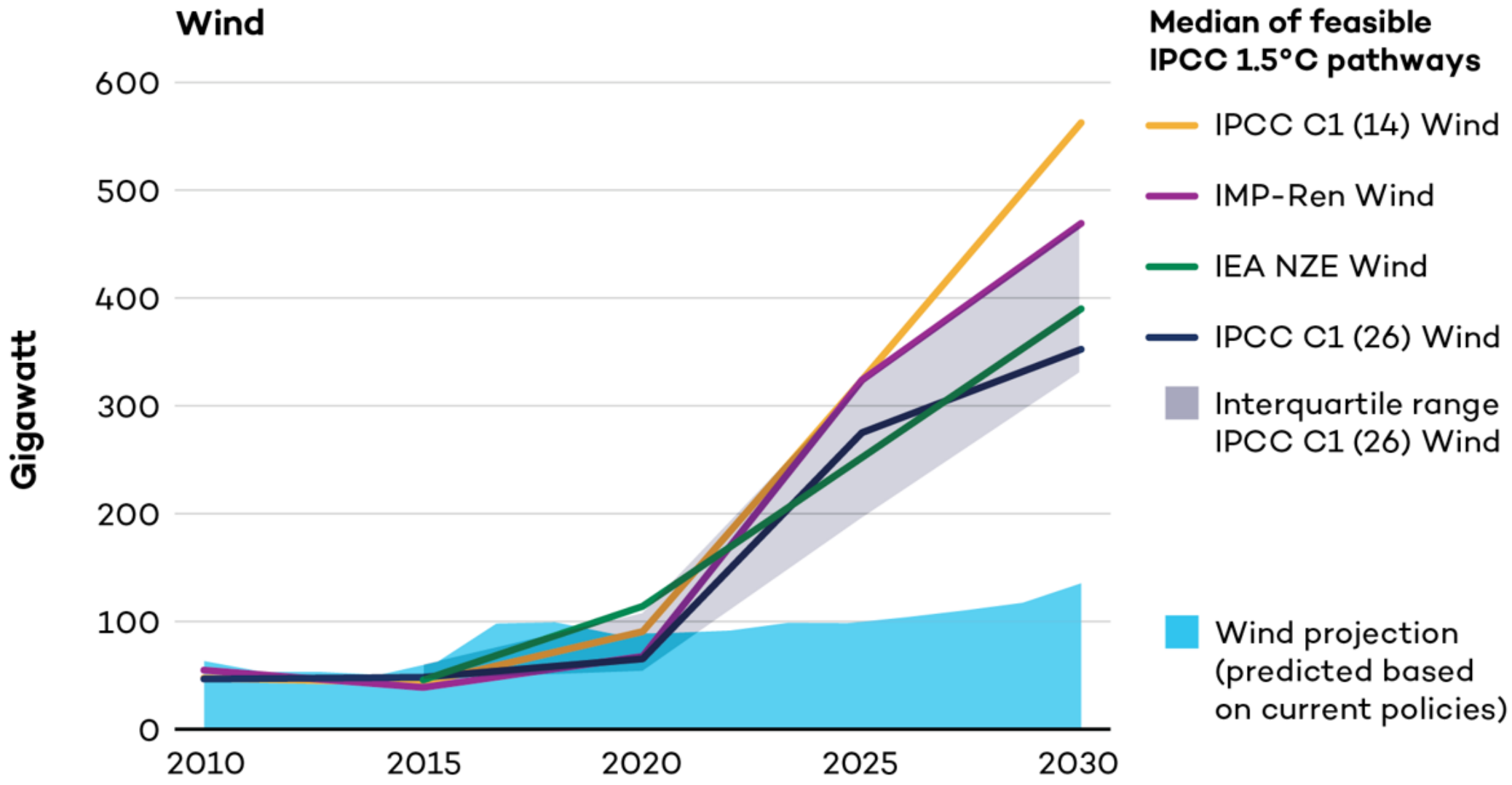
Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer)

Renewable energy capacity deployment is off track



Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; BNEF)

Renewable energy capacity deployment is off track



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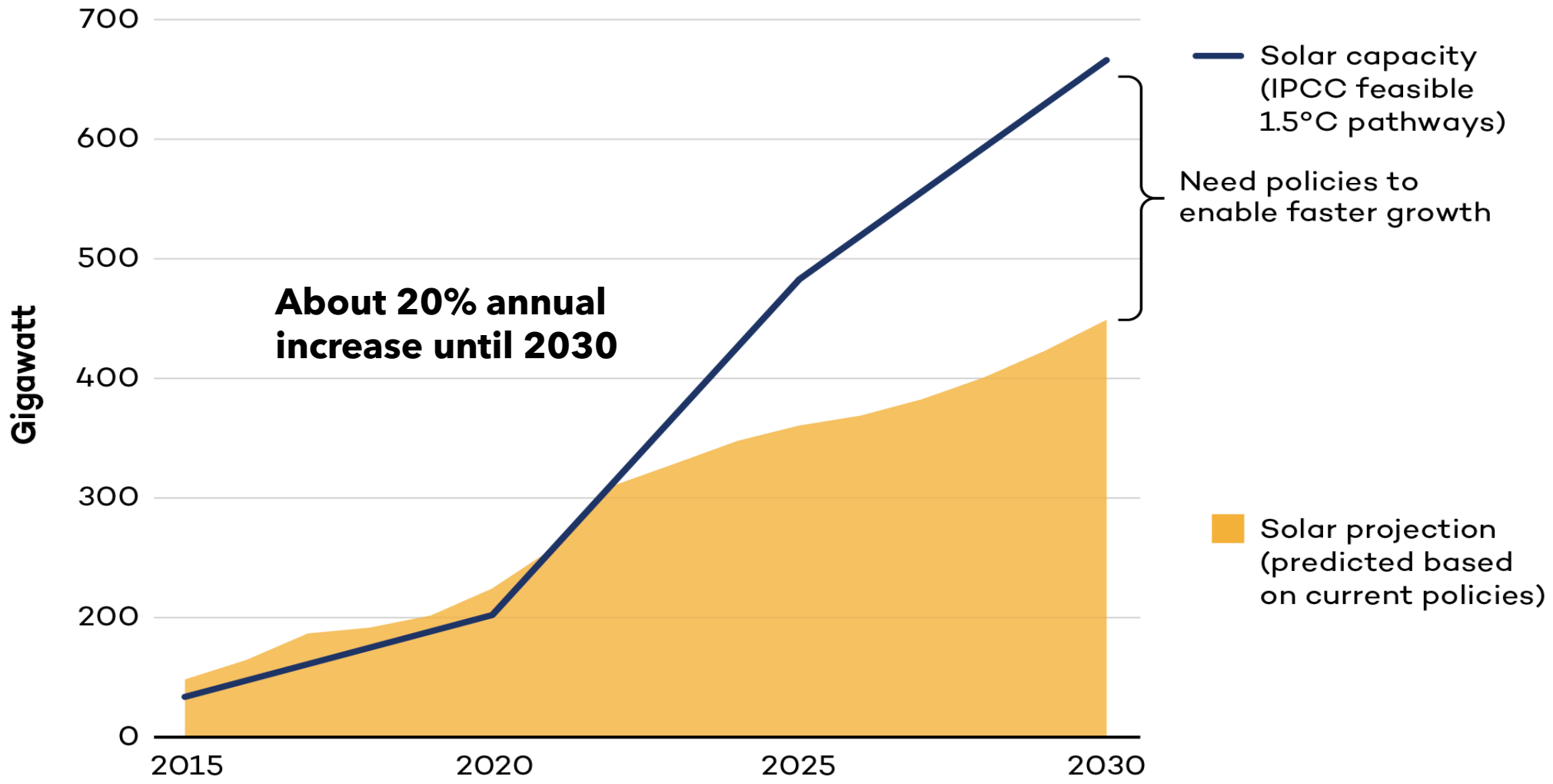

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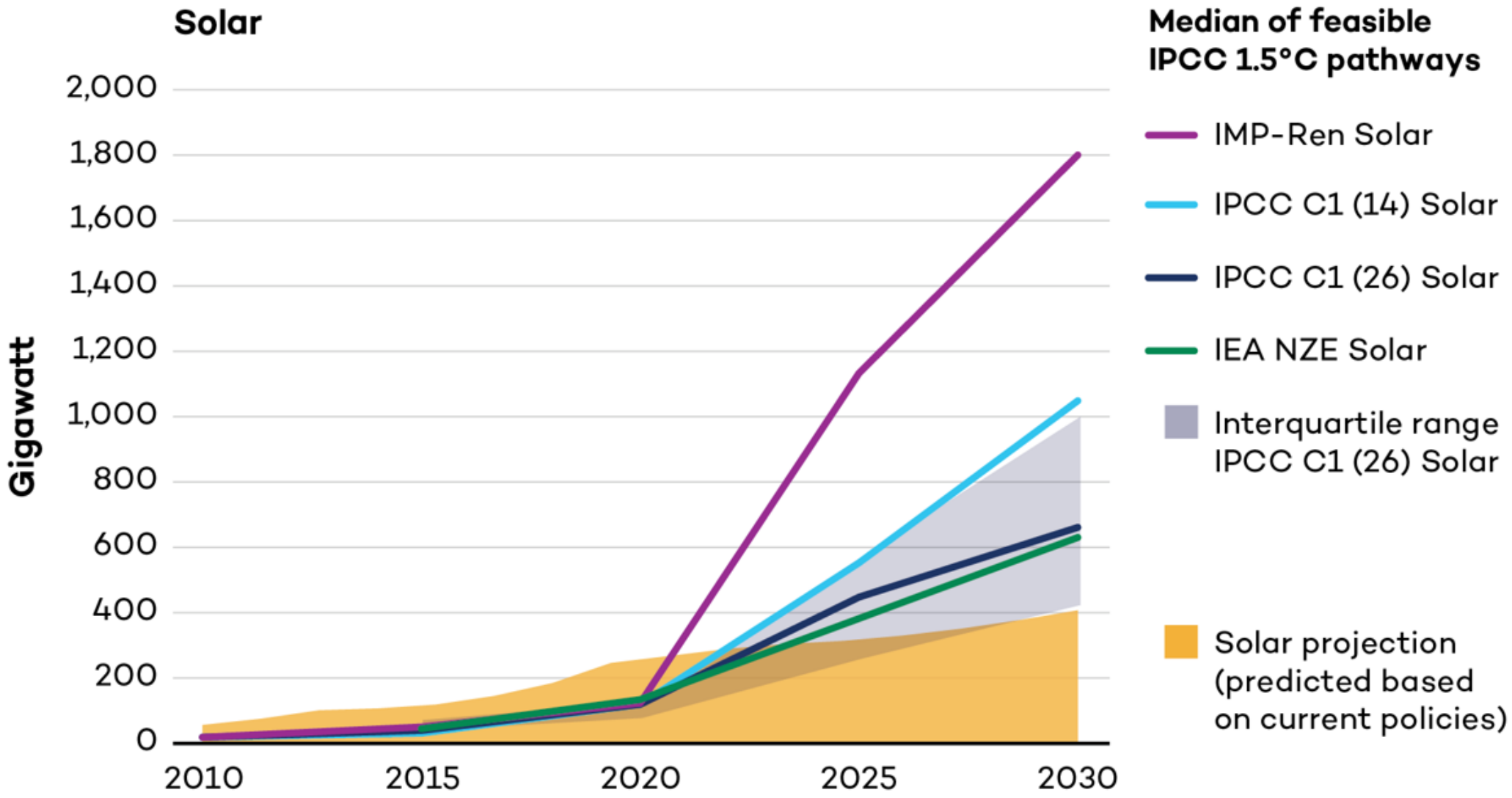
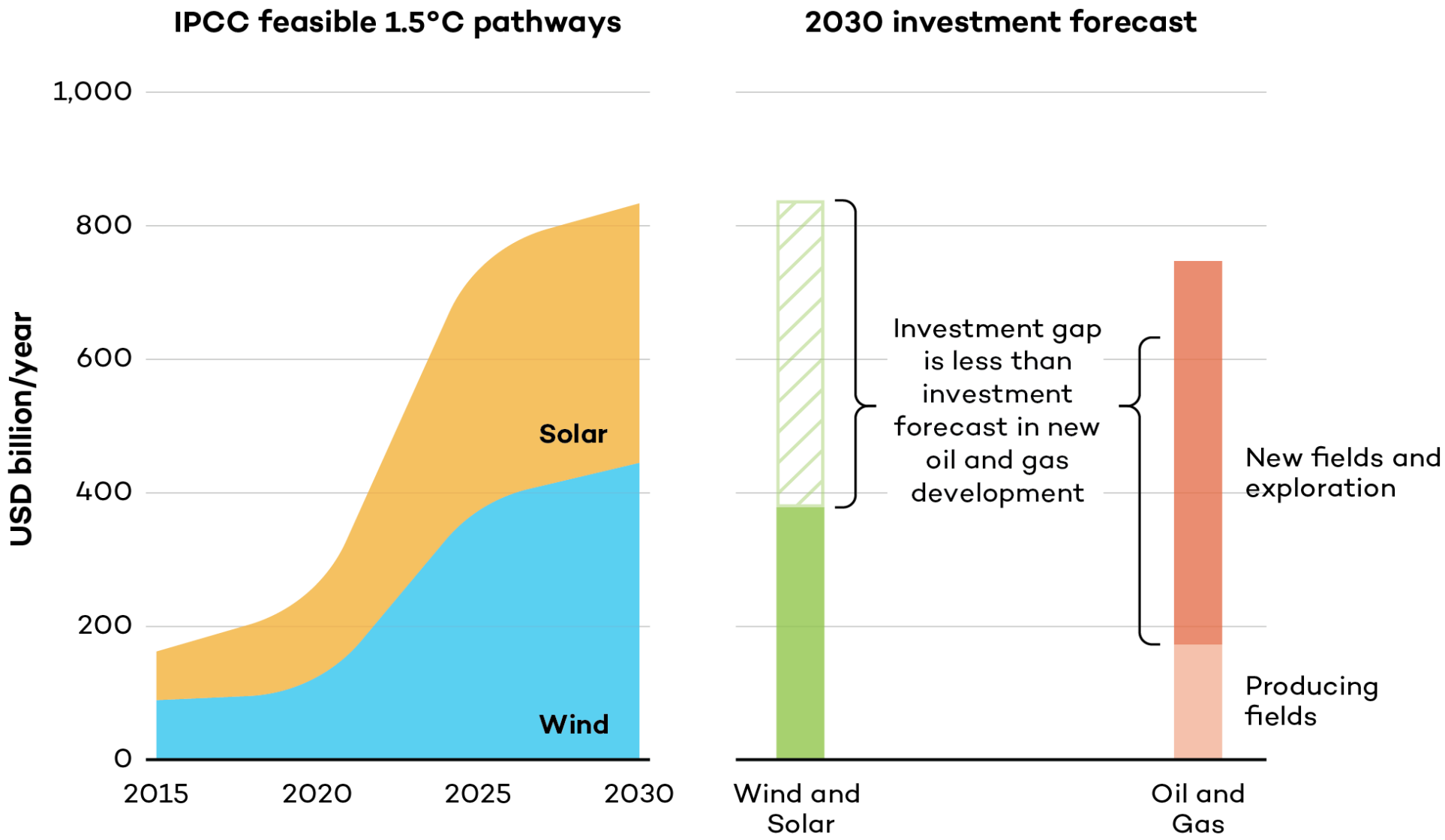
Renewable energy capacity deployment is off track



Investment gap for wind and solar energy



Source: IISD, *Lighting the Path* (data from IIASA/IPCC Scenario Explorer; BNEF; IRENA)

Key messages

Developing any new oil and gas fields is incompatible with limiting warming to 1.5°C.

- Global oil and gas production and consumption must decrease by 30% by 2030 and 65% by 2050.

No new unabated gas-fired power plants should be built in 1.5°C pathways. Alternatives to gas in the power section are available and highly cost-competitive

- Unabated gas power generation must be almost entirely phased out by 2040 globally.

The energy transition consistent with the Paris Agreement requires doubling the rate of deployment of wind and solar energy globally

- Doubling the rate of capacity deployment will require bridging an expected annual investment gap of USD 450 billion by 2030.

Thank You!

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Our research

Lighting the Path

This report outlines key implications for governments and investors aiming to align their policies and investments with the 1.5°C target of the Paris Agreement, based on different energy pathways published by the Intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report, published in April 2022.

https://www.iisd.org/publications/report/ipcc-pathways-paris-aligned-policies

By Olivier Bois von Kursk, Greg Muttitt on June 7, 2022