Climate & Peace Webinar

Rotary Clubs of Sydney

Asia: Lagging or Leading on Climate Action? Will Australia Follow?

Tim Buckley (tbuckley@ieefa.org)
Director Energy Finance Studies,
South Asia/Australia

4th May 2021

Institute for Energy Economics and Financial Analysis
IEEFA.org

Energy: The Future is Renewable – and the speed of disruption is staggering!

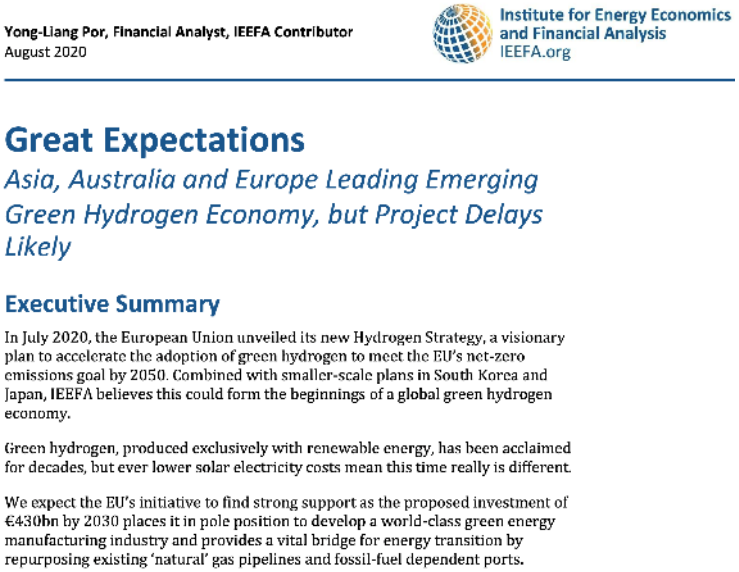
Agenda

1. Who is IEEFA? A public interest thinktank
2. Rampant Renewable Cost Deflation
3. Asian Policy Acceleration to Net Zero Emissions
4. Global Finance is Moving
5. The Pivot from Fossil Fuels to RE / EV / Batteries
6. Green Hydrogen – US$1.50/kg by 2025

* Like Lily D'Ambrosio, Victorian Energy Minister dynamo
** Hence why we need Independents who represent their communities, not Party Factions.

IEEFA is a global, public interest think-tank focused on the energy-finance-climate nexus.

- IEEFA has 40 energy finance analysts across HK, Vietnam, Indonesia, Philippines, Australia, India, England, Croatia, Puerto Rica and the US.
- We are funded by philanthropy (who have no material input into our work strategy). We take no paid mandates from govt. or corporates.
- I was at Citigroup for 17 years, an MD, Head of Equity Research.



Yong-Liang Por, Financial Analyst, IEEFA Contributor
August 2020

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Great Expectations

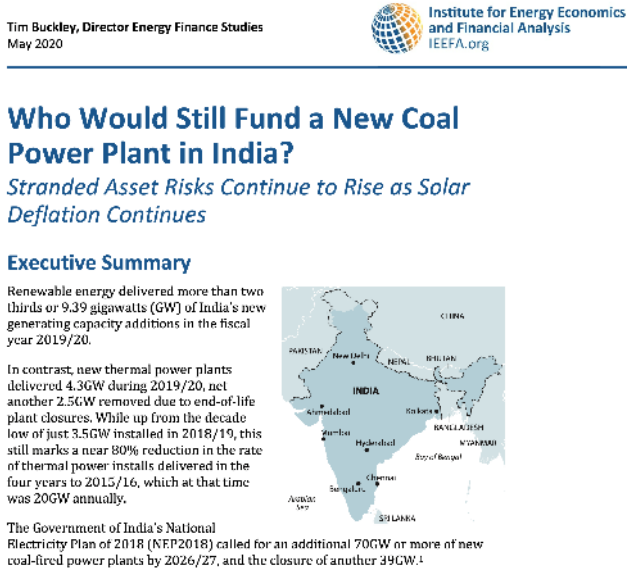
Asia, Australia and Europe Leading Emerging Green Hydrogen Economy, but Project Delays Likely

Executive Summary

In July 2020, the European Union unveiled its new Hydrogen Strategy, a visionary plan to accelerate the adoption of green hydrogen to meet the EU's net-zero emissions goal by 2050. Combined with smaller-scale plans in South Korea and Japan, IEEFA believes this could form the beginnings of a global green hydrogen economy.

Green hydrogen, produced exclusively with renewable energy, has been acclaimed for decades, but ever lower solar electricity costs mean this time really is different.

We expect the EU's initiative to find strong support as the proposed investment of €430bn by 2030 places it in pole position to develop a world-class green energy manufacturing industry and provides a vital bridge for energy transition by repurposing existing 'natural' gas pipelines and fossil-fuel dependent ports.



Tim Buckley, Director Energy Finance Studies
May 2020

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Who Would Still Fund a New Coal Power Plant in India?

Stranded Asset Risks Continue to Rise as Solar Deflation Continues

Executive Summary

Renewable energy delivered more than two thirds or 9.39 gigawatts (GW) of India's new generating capacity additions in the fiscal year 2019/20.

In contrast, new thermal power plants delivered 4.3GW during 2019/20, net another 2.5GW removed due to end-of-life plant closures. While up from the decade low of just 3.5GW installed in 2018/19, this still marks a near 80% reduction in the rate of thermal power installs delivered in the four years to 2015/16, which at that time was 20GW annually.

The Government of India's National Electricity Plan of 2018 (NEP2018) called for an additional 70GW or more of new coal-fired power plants by 2026/27, and the closure of another 39GW.[1]

https://ieefa.org/wp-content/uploads/2020/08/Asia_Australia_Europe-Lead-Green-Hydrogen-Economy_August-2020.pdf

https://ieefa.org

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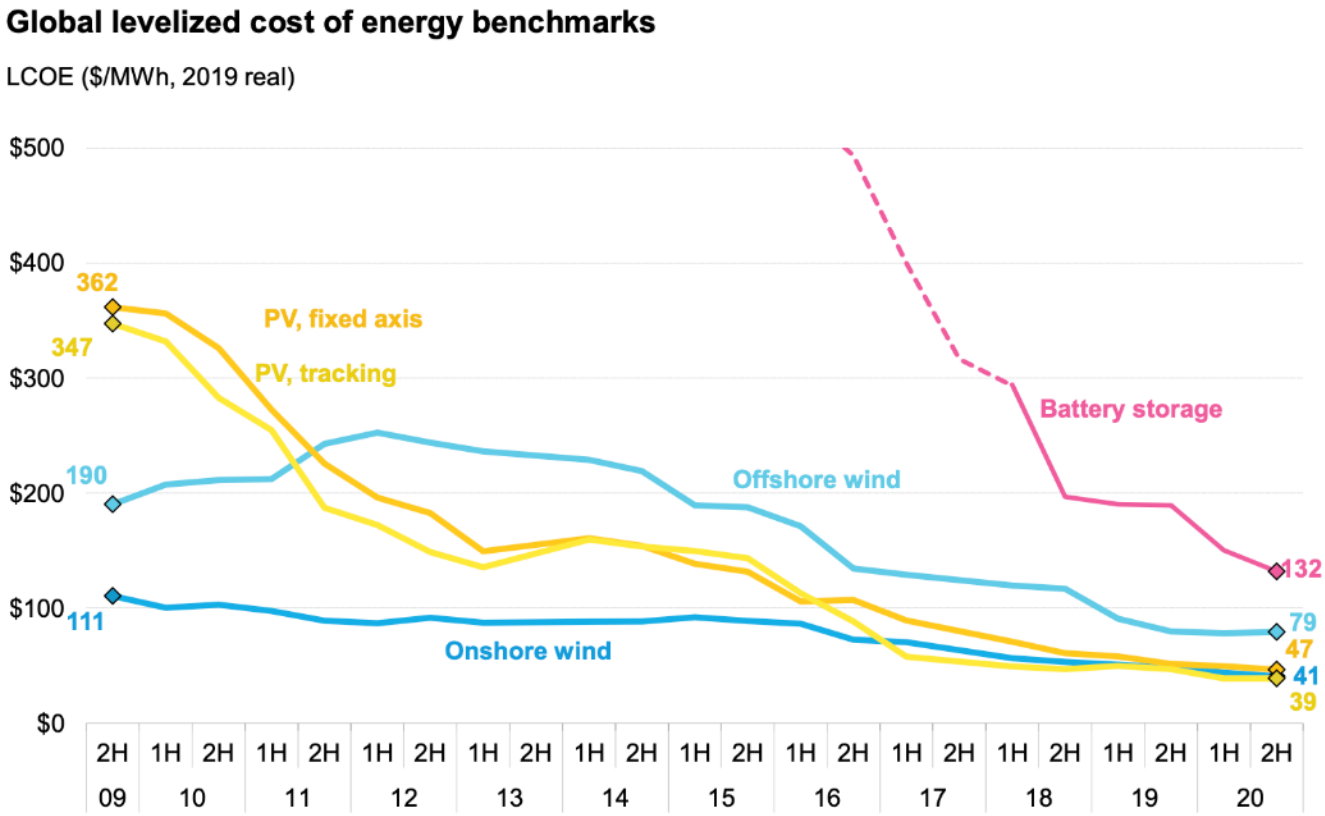
Renewable Energy, Battery, EV & Green Hydrogen Deflation

Ongoing Massive Renewables & Batteries Deflation



April 2021 saw a 600MW solar tender awarded in Saudi Arabia at US$10.40/MWh (down 23% since April 2020).

November 2020 saw a 1,070MW solar tender awarded in India at just Rs2.00/kWh (an LCOE <US$20/MWh) down 18% yoy.

August 2020 saw a 700MW solar tender awarded in Portugal at US$13.15/MWh (down 24% yoy).

Source: BloombergNEF

Asia's Policy Acceleration to Net Zero Emissions (NZE)

Australia's major Asian trading partners are now all pivoting, rapidly.

China: Peak Emissions by 2030, Net Zero by 2060

Net zero by 2060: China's bold new carbon emissions goal

Chinese and US leaders attack each other's environmental records, as Trump blames China for 'rampant pollution'.

China is the world's biggest carbon emitter but also leads the world in the deployment of clean-energy technologies [File: Thomas Peter/Reuters]

23 Sep 2020

In a jaw-dropping announcement, Chinese President Xi Jinping said his government plans to boost China's Paris climate accord target and called for a green revolution, just minutes after US President Donald Trump blasted Beijing for "rampant pollution".

Addressing the United Nations General Assembly, Xi reiterated China's goal of achieving a peak in carbon dioxide emissions before 2030.

Source: https://www.aljazeera.com/economy/2020/9/23/net-zero-by-2060-thats-chinas-bold-new-carbon-emissions-goal

China capacity details (GW)

	2020	2060 base case	2060 Carbon neutral
Coal	1,098	-710	-890
Gas turbine	106	+210	+40
CCS	0	+85	+260
Alternative fuel (H_2, NH_3)	0	+150	+670
Nuclear	49	+280	+620
Hydro	349	+70	+250
Wind	234	+1,300	+2,020
Solar	195	+1,650	+4,530
Storage	38	+970	+3,100

Source: Wood MacKenzie November 2020

"Third, the speed of new energy development will exceed imagination. Fourth, a large number of coal power projects that have been approved but not yet started may be cancelled."

Source: Weixin, 29 January 2021

Japan: Net Zero by 2050

Japan to reduce greenhouse-gas emissions to net zero by 2050

Suga to make pledge in first general policy speech as industry faces pressure

Prime Minister Yoshihide Suga will soon pledge to reduce Japan's greenhouse-gas emissions to net zero by 2050, as the European Union has already done. (Source photo by Uichiro Kasai)

Nikkei staff writers
October 21, 2020 18:51 JST

TOKYO -- The Japanese government will soon pledge to reduce greenhouse-gas emissions to net zero by 2050, Nikkei has learned.

The new target, set to be unveiled in a speech to lawmakers next week by Prime Minister Yoshihide Suga, means Japan will finally catch up to the European Union, which set the same goal last year. Companies in industries like electric power, automobiles, and steel will be expected to take strict measures to meet the international promise.

Japan's METI has committed to close 100 of 144 subcritical & SC coal plants in Japan by 2030.

April 2021: Japan announced a 46% emissions cut by 2030 target vs 2013 levels (vs 26% currently).

April 2021: Japan's Kansai / Marubeni canceled its last 1.3GW coal plant proposal.
https://www.straitstimes.com/asia/east-asia/japan-cancels-its-last-coal-power-plant-project

Japan public financier to stop approving loans for coal projects

Walter Sim Japan Correspondent In Tokyo

PUBLISHED APR 26, 2020, 5:00 AM SGT

A top Japanese public financier of foreign development projects has said it will stop accepting loan applications for coal power plants, as global pressure ramps up on the world's third largest economy to do more to fight climate change.

The Japan Bank for International Cooperation (JBIC) has been called names like "coal peddler" and "coal store" by environmentalists taking aim at the ongoing Vung Ang 2 coal power plant in Vietnam.

JERA Planning to Shift Coal Power Fleet to 100% Ammonia

Japanese firm JERA, a joint venture between TEPCO and Chubu Electric, on Oct. 13 issued a roadmap to achieve zero carbon emissions by 2050. The move is notable for the company whose business includes a sizable global liquefied natural gas (LNG) portfolio of five upstream projects, 20 fleet carriers, an LNG tank capacity that is equivalent to 30% of Japan's tank capacity, and 11 LNG terminals in Japan. It also owns 27 thermal power stations in Japan, which have a total capacity of 70 GW, and another 30 power projects, including renewables, in more than 10 countries, which amount to about 9 GW.

Under its roadmap, JERA plans to shutter its entire 2.2 GW supercritical coal power generation fleet in Japan by 2030, and then gradually increase the ratio of mixed combustion of fossil fuels to ammonia and hydrogen at ultrasupercritical plants.

1. JERA's 4.1-GW Hekinan Thermal Power Station is one of the world's biggest coal plants. The plant houses five units. Units 1, 2, and 3 are 700-MW units that opened between 1991 and 1993, and Units 4 and 5, 1 GW each, opened in 2001 and 2002. Courtesy: JERA

Co-Firing Planned at a 4.1-GW Coal Plant

Source: https://asia.nikkei.com/Spotlight/Environment/Japan-to-reduce-greenhouse-gas-emissions-to-net-zero-by-2050

Source: https://www.powermag.com/jera-planning-to-shift-coal-power-fleet-to-100-ammonia/

Korea: Net Zero by 2050

South Korea declares climate emergency, sets net zero target for 2050

Just two days after China pledged to become carbon neutral by 2060, South Korea has declared a climate crisis and established a goal to go net zero by mid-century. The target, however, is non-binding and may yet turn out to be hollow.

In defining climate change as an "emergency situation", South Korea joins the ranks of more than a dozen other countries that have made similar declarations. Image: Pixabay

South Korea declared a climate crisis on Thursday and established a non-binding goal of reaching net-zero emissions by 2050, making it the second East Asian nation to set a tougher climate target this week.

Source: https://www.straitstimes.com/business/companies-markets/s-korea-in-hot-seat-as-calls-to-exit-viet-coal-project-grow

> **Transitioning away from coal is essential if the world is to have any chance of keeping below 1.5 degrees of warming. South Korea's decision to end overseas coal finance is therefore an important step and fits in with plans to achieve net zero emissions by 2050 or earlier."**

Yang Seung-jo
Governor of South Chungcheong
South Korea

Leaders Climate Summit #PoweringPastCoal

PPCA Powering PastCoal Alliance

22 April 2021 – President Moon Jae-In

Korea's Shinhan Financial Group declares net zero ambition

The Seoul-headquartered bank is the first in the East Asian country to commit to net zero carbon emissions, and says it will go further than competitors that have quit coal.

Shinhan Financial Group has committed to measure the carbon emissions of the group's assets, set reduction targets, and reduce its net carbon footprint to zero by expanding investment loans in renewable energy.

By Robin Hicks Oct. 20, 2020 Eco-Business

Shinhan Financial Group, one of South Korea's largest banks, has committed to a zero-carbon future with a plan to decarbonise its business activities.

Source: https://www.eco-business.com/news/koreas-shinhan-financial-group-declares-net-zero-ambition/

The World after the U.S. Climate Summit

- U.S. will reduce its emissions by **50-52 %** by 2030 (Former Pledge:26-28%)
- Brazil will end illegal deforestation by 2030 and achieve net-zero by 2050
- Japan will pledge to curb emissions by **46%** by 2030 (Former pledge : 26%)
- South Korea will end public financing of coal-fired power plants overseas
- Russia pledged to "significantly" reduce its emissions until mid-century
- Canada will slash emissions **40-45%** by 2030 (Former Pledge: 30%)
- China will peak steel emissions by 2025, and then cut emissions by **30%** from peak by 2030; China has also committed to peak thermal coal in power generation by 2025.
- Victoria announced a 45-50% emissions reduction by 2030 (vs 2005) – In Australia, State Government's lead!

Source CNBC.
Link: https://www.cnbc.com/2021/04/22/biden-climate-summit-2021-what-brazil-japan-canada-others-pledged.html

Global Finance is Moving

Global Capital Is Shifting, Rapidly

Refinitiv, An LSE Business, April 2021

A Tectonic Shift Accelerates

In January of last year, I wrote that climate risk is investment risk. I said then that as markets started to price climate risk into the value of securities, it would spark a fundamental reallocation of capital. Then the pandemic took hold – and in March, the conventional wisdom was the crisis would divert attention from climate. **But just the opposite took place, and the reallocation of capital accelerated even faster than I anticipated.**

From January through November 2020, investors in mutual funds and ETFs invested $288 billion globally in sustainable assets, a 96% increase over the whole of 2019.[1] I believe that this is the beginning of a **long but rapidly accelerating transition** – one that will unfold over many years and reshape asset prices of every type. **We know that climate risk is investment risk. But we also believe the climate transition presents a historic investment opportunity.**

BlackRock (AuM US$8.7 trillion)
Larry Fink 2021 CEO Letter

Bank of America Increases Environmental Business Initiative Target to $1 Trillion by 2030

Significant Increase from $300 Billion Target by 2030 set in 2019

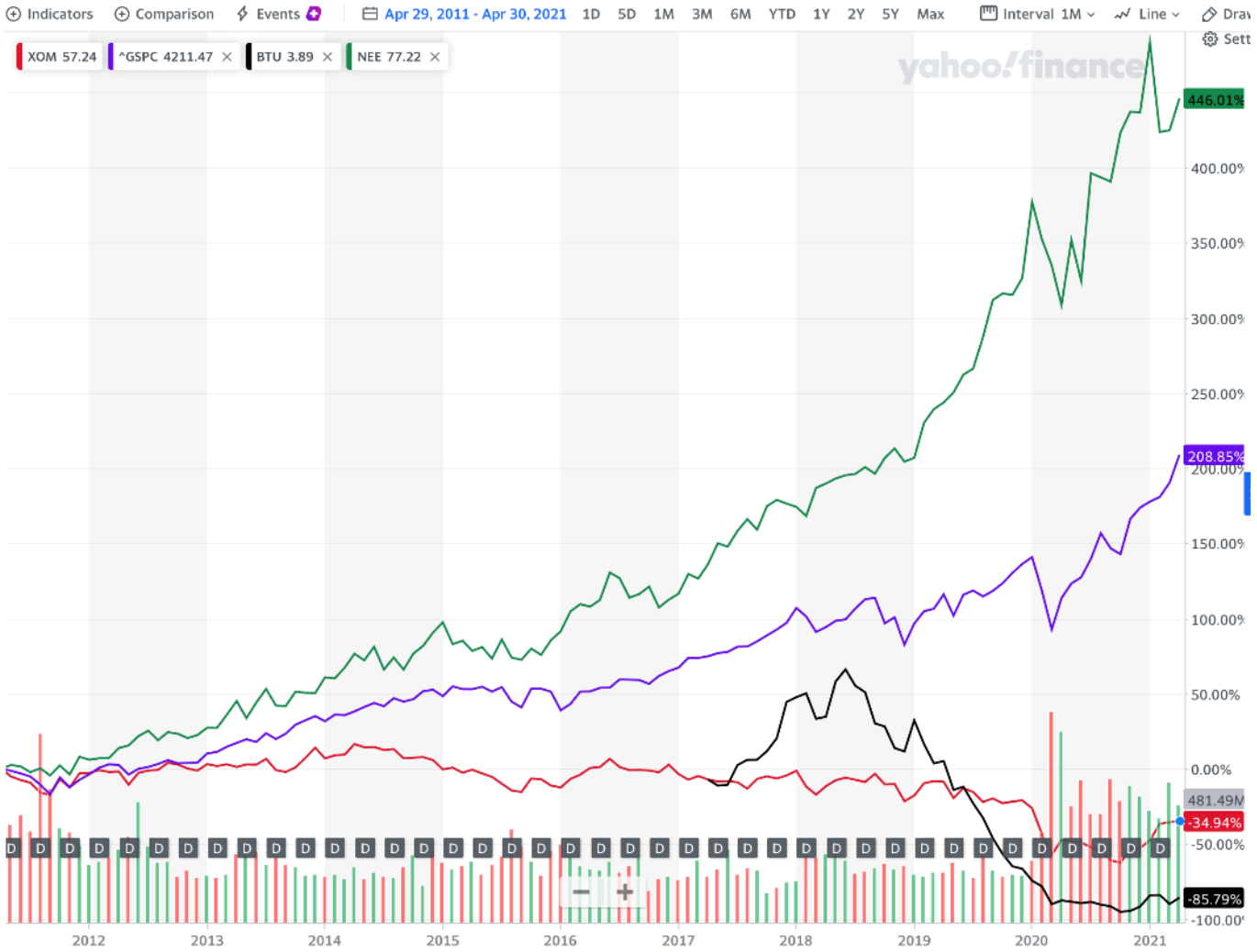
Company Also Sets Broader SDG-Focused Sustainable Finance Target of $1.5 Trillion by 2030

CHARLOTTE, N.C.--(BUSINESS WIRE)— April 08, 2021

Bank of America today announced a goal of deploying and mobilizing $1 trillion by 2030 in its Environmental Business Initiative in order to accelerate the transition to a low-carbon, sustainable economy. This commitment will anchor a broader $1.5 trillion sustainable finance goal by both environmental transition and social inclusive development purposes, spanning business activities across the globe.

Energy Firms Need to Transition

Ten-year performance: Exxon (Red, -35%), Peabody Coal (Black, -86%) vs S&P500 US (Purple, +209%) vs NextEra Energy (Green, +446%) – Fossil Fuel Firms are proving a Wealth Hazard!



Source: Yahoo Finance (30 April 2021)

The Pivot from Fossil Fuels to RE / EV

Neither Fossil Gas nor 'Blue' Hydrogen are a viable low emissions technology, despite the PR spin

Proposed EU taxonomy is a killer of fossil gas

Press Release and Bruce Robertson | March 5, 2020

IEEFA: Volkswagen lied about emissions from their vehicles, and the gas industry is also lying about their emissions

5 March 2020 (IEEFA Australia): The gas industry is misleading government, investors, customers and the broader population about the amount of carbon dioxide and methane emissions being released during production, supply and distribution of both conventional or 'natural' gas and its product for export – liquefied natural gas (LNG), finds a new report out today by the Institute for Energy Economics and Financial Analysis (IEEFA).

Fines and settlement payouts for vehicle manufacturer Volkswagen are likely to reach up to $2 billion this year following being caught out with cheating on reporting of actual emissions released from its diesel fleet in 2015.

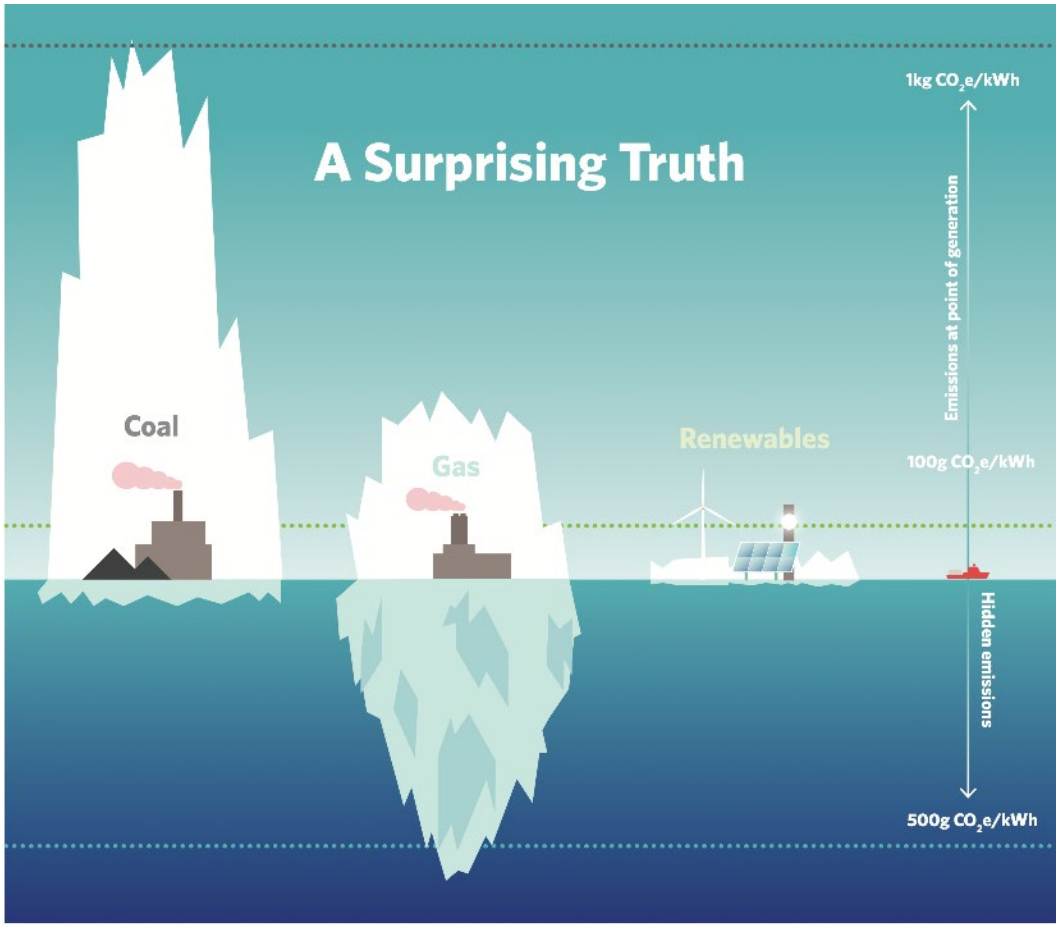
Bruce Robertson, gas/LNG energy analyst with IEEFA notes like Volkswagen, the gas industry is also walking a thin tightrope due to the under-reporting of actual emissions released from both gas and LNG across the supply chain.

> The gas industry is also walking a thin tightrope due to the under-reporting of actual emissions

"The industry claims burning fossil fuels such as 'natural' gas is cleaner than burning coal, a commodity on its way out as the world transitions to cleaner more sustainable energy sources," says Robertson.

"This is simply not the case.

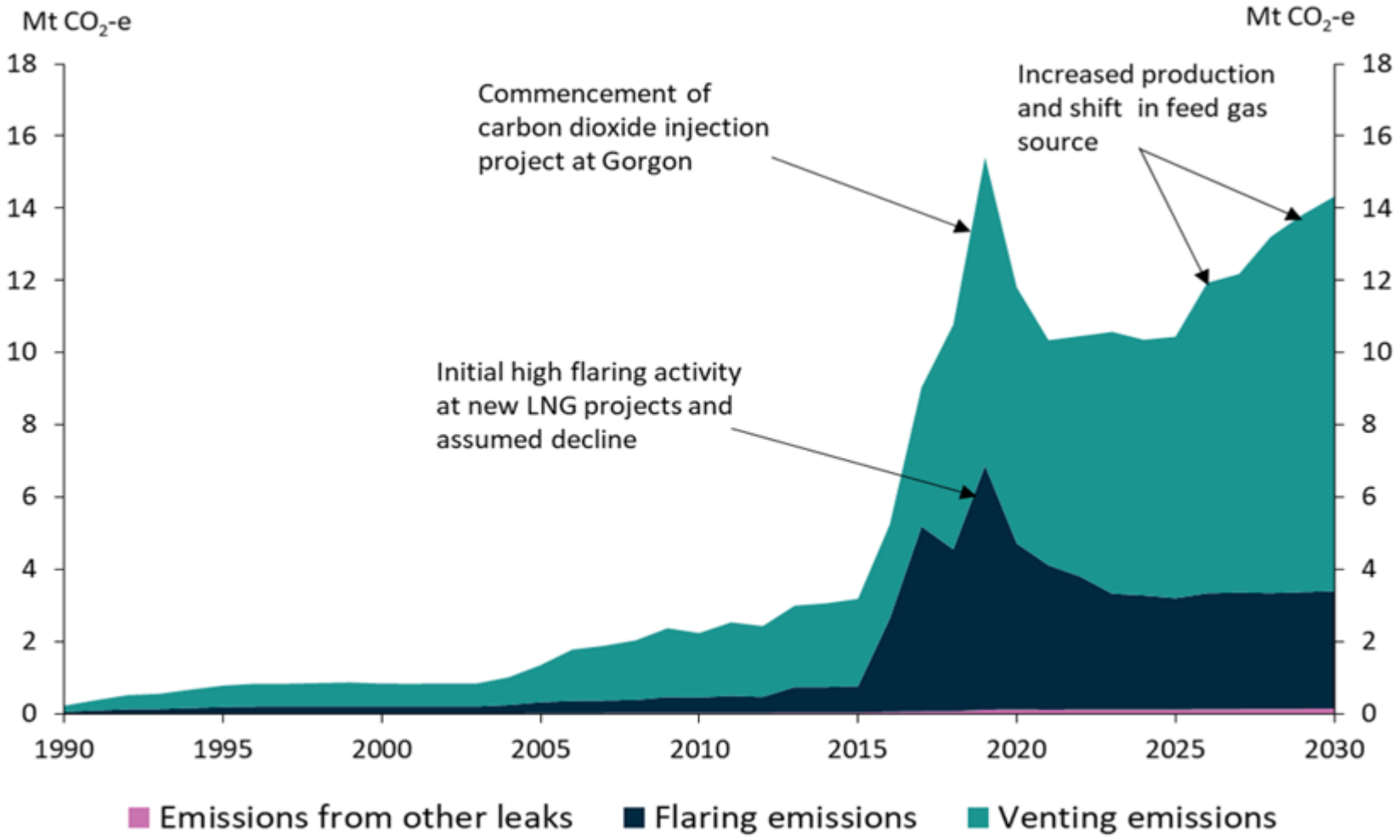
Source: https://ieefa.org/ieefa-volkswagen-lied-about-emissions-from-their-vehicles-and-the-gas-industry-is-also-lying-about-their-emissions/



Climate Bonds Initiative. February 2021. www.climatebonds.net. Thanks to: Bruce Robertson, Energy Finance Analyst, Gas/LNG, IEEFA

Official Oz LNG Venting, Flaring & Leakages Figures

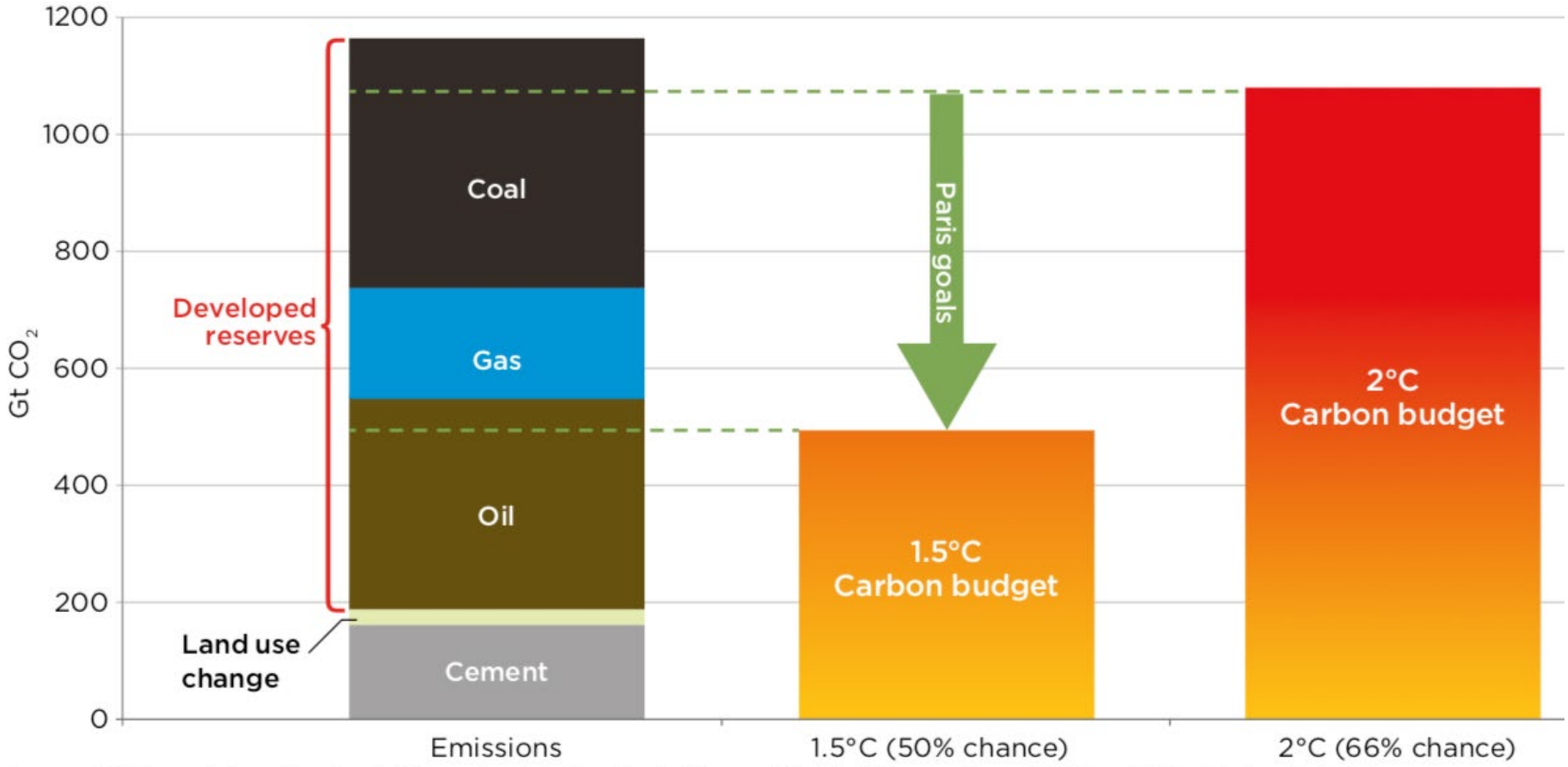
Angus Taylor – The Minister of Rising Emissions & Energy Policy Chaos



Https://www.industry.gov.au/data-and-publications/australias-emissions-projections-2020
Official figures assume that there are no other leaks apart from Flaring and Venting of gas.
An heroic assumption that does not stand up to scrutiny

Institute for Energy Economics and Financial Analysis
IEEFA.org

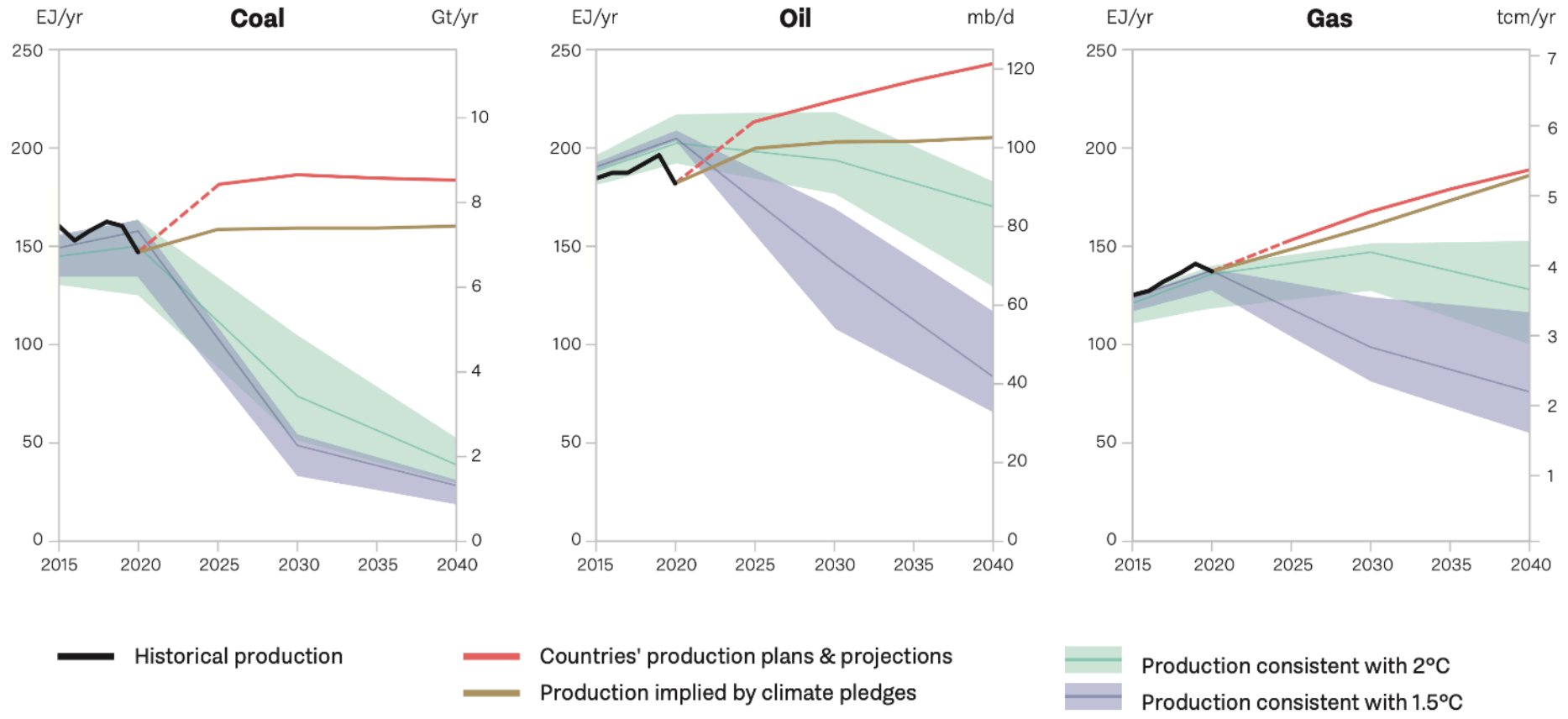
A 1.5°C Target is Dramatically Different to 2.0°C



Sources: Oil Change International analysis based on data from Rystad Energy, IEA, World Energy Council, IPCC and Global Carbon Project.[2] Remaining carbon budgets shown are as of 1 January 2020.

The Gap between Commitments and Reality

To follow a 1.5°C-consistent pathway, the world will need to decrease fossil fuel production by roughly 6% per year between 2020 and 2030. Countries are instead planning and projecting an average annual increase of 2%, which by 2030 would result in more than double the production consistent with the 1.5°C limit



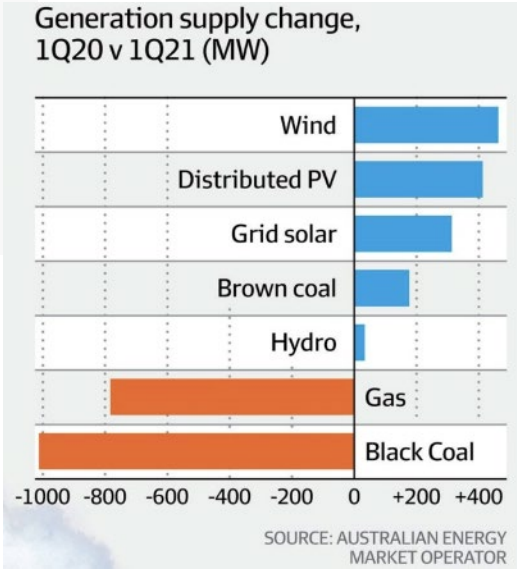
Source: The Production Gap http://productiongap.org/wp-content/uploads/2020/12/PGR2020_FullRprt_web.pdf

Institute for Energy Economics and Financial Analysis
IEEFA.org

Globally RE is Overwhelming Fossil Fuel and Nuclear

Rate of Change is the key driving global finance

"A Gaslit Recovery"
PR spin of Zero Substance



Source: Embers' Global Electricity Review, March 2021 https://ember-climate.org/global-electricity-review-2021/global-trends/

Fossil Gas – Leaners, not Lifters!

The Rorting of the Federal PRRT was brought in by Martin Ferguson (ALP), and continued by the LNP. Both sides are bought by the fossil fuel industry.

Shell expects to pay Australia no resource tax on gas drawn from Gorgon project

12 April 2021

Fossil fuel giant's petroleum resource rent tax projection for country's biggest gas project is contained in its latest annual report

▲ Shell's projection that it will never pay any PRRT is revealed in a note dealing with what are called 'unrecognised losses' due to tax. Photograph: Kirsty Wigglesworth/AP

Fossil fuel multinational Shell does not believe it will ever pay the Australian government a cent in resource taxes for the gas it draws from the country's biggest gas project, Gorgon.

Shell's projection that it will never pay any PRRT is revealed in a note dealing with what are called "unrecognised losses" due to tax.

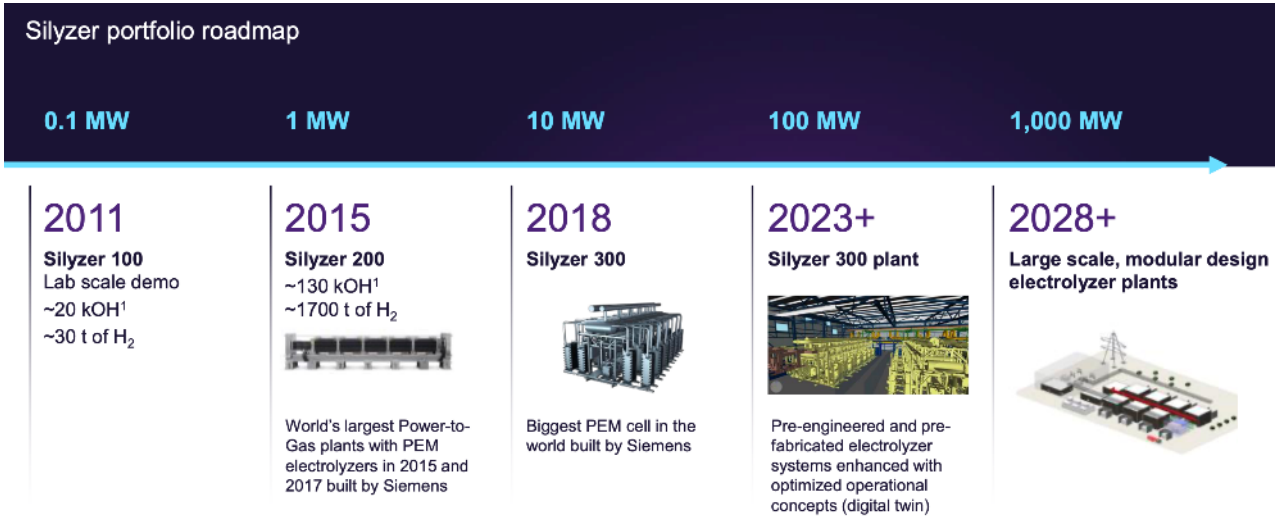
The company said it had US$39.4bn ($51.7bn) in "unrecognised losses for Petroleum Resource Rent Tax (PRRT) in Australia" - tax that it expects it will not have to pay.

Source: Shell expects to pay Australia no resource tax on gas drawn from Gorgon project, 12 April 2021
https://www.theguardian.com/business/2021/apr/12/shell-expects-to-pay-australia-no-resource-tax-on-gas-drawn-from-gorgon-project

Green Hydrogen – US$1.50/kg by 2025 *

* Siemens, March 2021

Green Hydrogen: US$1.50/kg by 2025



Siemens Energy: March 2021 https://www.siemens-energy.com/global/en/news/magazine/2021/financing-hydrogen-economy.html