

## COMMENT |

## International Energy Agency (IEA) World Energy Outlook (WEO) 2022

Tim Buckley, Director, Climate Energy Finance, 27 October 2022

- The IEA has identified that under current policy settings global fossil fuel demand <u>peaks this decade</u>, if announced climate pledges are fully implemented the decline is steeper, and on a pathway to net zero by 2050 fossil fuel demand falls even more sharply in coming decades.
- A huge increase in energy investment rising above US\$4 trillion pa is essential to reduce the risks of future price spikes and volatility, and to get on track for net zero emissions (NZE) by 2050.
- The IEA highlights the massive pivot from reliance on Russian fossil gas, and how Australia benefits near to medium term as the world's largest exporter of LNG. But it also warns the global peaking then structural decline in fossil gas is accelerated as a result, driven by demand destruction and the gas-torenewables shift (ground heat pumps, solar). Australia needs to use this windfall wisely – including ensuring fossil fuel multinationals pay a fair share of royalties and corporate tax – and not assume it is permanent.
- The IEA forecasts the ongoing structural decline of coal, modelling 10-45% declines in coal globally by 2030 depending upon the scenario, despite near term positives.
- The IEA highlights the structural lift in demand for key critical minerals copper, nickel, graphite, lithium, cobalt and hence the massive opportunity for Australia to be both a <u>renewable energy and value-added critical minerals</u> <u>superpower</u>.
- Supply chains for some key technologies including batteries, solar and electrolysers are expanding at rates that support higher than modelled global ambition. For solar manufacturing capacity would exceed the deployment levels assumed in the Announced Pledges Scenario (APS) in 2030 by 75%. To CEF, this strong suggests accelerated uptake beyond current IEA projections, and our expectation of a return to ongoing global solar module price deflation as soon as 2023.



#### IEA WEO 2022 key points:

We have unprecedented energy shock and the other overlapping crises.

"There is a mistaken idea that this is somehow a clean energy crisis. That is simply not true. The world is struggling with too little clean energy, not too much. Faster clean energy transitions would have helped to moderate the impact of this crisis, and they represent the best way out of it."

"Another mistaken idea is that today's crisis is a huge setback for efforts to tackle climate change. The analysis in this Outlook shows that, in fact, this can be a historic turning point towards a cleaner and more secure energy system thanks to the unprecedented response from governments around the world, including the Inflation Reduction Act in the United States, the Fit for 55 package and REPowerEU in the European Union, Japan's Green Transformation (GX) programme, Korea's aim to increase the share of nuclear and renewables in its energy mix, and ambitious clean energy targets in China and India." "The crisis has stoked inflationary pressures and created a looming risk of recession, as well as a huge USD 2 trillion windfall for fossil fuel producers above their 2021 net income."

"Today's energy shock is a reminder of the fragility and unsustainability of our current energy system"

"New policies in major energy markets help propel annual clean energy investment to more than US\$2 trillion by 2030 in the STEPS, a rise of more than 50% from today. Clean energy becomes a huge opportunity for growth and jobs, and a major arena for international economic competition. By 2030, thanks in large part to the US Inflation Reduction Act, annual solar and wind capacity additions in the United States grow two-and-a-half-times over today's levels, while electric car sales are seven times larger."

"International energy trade undergoes a profound reorientation in the 2020s as countries adjust to the rupture of Russia-Europe flows, which is assumed to be permanent. Russia will have a much-diminished position."

"Full achievement of all climate pledges would move the world towards safer ground, but there is still a large gap between today's ambitions and a 1.5 °C stabilisation.

"Supply chains for some key technologies – including batteries, solar PV and electrolysers – are expanding at rates that support higher global ambition. For solar manufacturing capacity would exceed the deployment levels assumed in the APS in 2030 by 75%."

"A huge increase in energy investment is essential to reduce the risks of future price spikes and volatility, and to get on track for NZE by 2050, rising above US\$4 trillion pa."

"A new energy security paradigm is needed to maintain reliability and affordability while reducing emissions."

"Coal consumption is projected to fall in all scenarios, declining by 10% to 2030 in the STEPS, by 20% in the APS over the same period, and by 45% in the NZE Scenario. In the near term, coal demand increases as the energy crisis leads to some switching away from natural gas because of concerns about high prices and availability."

"One of the effects of Russia's actions is that the era of rapid growth in natural gas demand draws to a close. The Inflation Reduction Act cuts projected US gas demand in 2030 in the STEPS by 40 bcm pa. So Australia benefits massively medium term as the world's largest exporter of LNG, but the global peaking then structural decline in fossil gas is accelerated."



## **Figure 1.1** > European Union and United Kingdom winter natural gas supply and options to compensate for a cut in Russian pipeline gas

Russian pipeline imports met 20% of gas demand in the European Union in winter 2021-22; managing without this gas requires alternative imports, use of storage and lower demand

Demand destruction and gas-to-renewables shift (ground heat pumps, solar) drive this.





Natural gas demand in this year's STEPS is around 750 bcm lower in 2050 than in the WEO-2021, driven mainly by switching from natural gas to renewables

Even though total investment in new energy capacity has been too low of late, the shift away from over-reliance on fossil fuels has seen clean energy investment accelerate.



But the IEA WEO 2022 highlights the core problem: Clean energy investment has picked up in recent years, but is still well short of the levels required to provide lasting solutions to today's energy crisis. In the absence of accelerated clean energy transitions, spending on traditional fuels is also insufficient to keep the current system operating effectively. Something has to change in order to avoid an energy-starved world characterised by continued price volatility.

But 2021/22 have delivered a lift in absolute investment in fossil fuels near term, in response to fossil fuel hyperinflation.





There are, as yet, few signs that net zero emissions pledges are correlated with lower global spending on fossil fuels





There are multiple imbalances in current investment flows that need to be addressed in order to meet rising demand for energy services while reducing emissions

\* Excludes China.

Note: EMDE = emerging market and developing economies; NZE = NZE Scenario.

Full achievement of all climate pledges would move the world towards safer ground, but there is still a large gap between today's ambitions and a 1.5 °C stabilisation.



# Figure 1.19 ▷ Energy-related and process CO<sub>2</sub> emissions, 2010-2050 and temperature rise in 2100 by scenario

IEA. CC BY 4.0.

Policy and technology advances since 2015 have shaved 1 °C off the temperature rise in 2100 but stated policies still lead to a temperature rise well above the Paris Agreement goals



The IEA confirms the ongoing progressive market share loss of fossil fuels, and peak coal and gas use, but too slowly to anywhere near align the climate science and GFANZ pledges.

The IEA WEO 2022 highlights the structural lift in demand for key critical minerals – copper, nickel, graphite, lithium, cobalt – and hence the massive opportunity for Australia to be both a renewables & value-added critical minerals superpower, CEF has been <u>discussing</u>.





Mineral requirements for clean energy technologies quadruple to 2030 in the NZE Scenario, with particularly high growth for materials for electric vehicles

Notes: Mt = million tonnes; EVs = electric vehicles. Includes most of the minerals used in various clean energy technologies, but does not include steel and aluminium. See IEA (2021b) for a full list of minerals assessed.

Supply chains for some key technologies – including batteries, solar and electrolysers – are expanding at rates that support higher global ambition. For solar manufacturing capacity would exceed the deployment levels assumed in the APS in 2030 by 75%. To CEF, this strongly suggests accelerated uptake beyond current IEA projections, and the expected return to ongoing global solar module price deflation as soon as 2023.



Figure 1.25 > Announced manufacturing capacity for selected energy technologies relative to deployment in the APS, 2021 and 2030

Announced increases in manufacturing capacity for key technologies, including solar PV, electrolysers and batteries, would exceed projected deployment in 2030 in the APS