



MAKING WAVES: IEA'S ROADMAP TO NET ZERO BY 2050

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Last week, the International Energy Agency (IEA) released its landmark *Net Zero by 2050: A Roadmap for the Global Energy Sector* report offering the world's first comprehensive roadmap for transitioning the global energy system to net zero carbon by 2050.

"The scale and speed of the efforts demanded by this critical and formidable goal – our best chance of tackling climate change and limiting global warming to 1.5 degrees Celsius – make this perhaps the greatest challenge humankind has ever faced."

The report is sobering and concludes that, to have a fighting chance of reaching net zero by 2050, there will need to be nothing short of a total and rapid transformation of the energy systems that underpin our economies, requiring unprecedented co-operation and drastic action from world leaders. Amongst other findings, the report delivers a stark message that is at odds with oil & gas companies' plans to transition steadily in the coming decades: according to the IEA, development approval of all new oil & gas fields and new unabated coal plants must stop immediately, this year. This is a remarkable change of direction for the influential international body that has traditionally been seen as a defender of the need for fossil fuels. The shift reflects a longer term change driven by the science, activists and more recently governments, pressing for far more urgent climate change action.

The report, which emphasises the sheer scale of investment needed in the energy sector and associated infrastructure to achieve net zero, is also a reminder of the scale of the opportunities open to energy companies and businesses that are willing to play a leading role in the energy transition, and will be ammunition for them to push for governments' commitments to be supported by detailed policies and measures.

The Report's findings

The report, requested by the UK Government to help inform the decisive UN climate negotiations that will take place in Glasgow in November, runs to 224 pages

with over 400 milestones for how business and governments can achieve net zero

The pathway it lays out is one that it acknowledges is narrow and difficult, but necessary to avoid the catastrophic climate change associated with over 1.5°C warming. Despite decarbonisation of energy being "perhaps the greatest challenge humankind has ever faced", the IEA considers that a rapid and successful transition to a net zero energy system is possible, cost-effective in light of falling renewables costs, and could deliver jobs and health benefits to billions – not to mention averting the terrible human and financial costs failure to act will bring.

The report recognises that massive changes to global energy are already underway, but emphasises that braver policy and investment choices are needed to bridge the gap between rhetoric and reality on emissions to put the world on track to net zero. In particular, it calls for:

1. an immediate halt to developing new oil & gas fields and unabated coal power plants worldwide, meaning no investments in new oil, gas or coal supply projects after 2021 (not even gas as 'bridge fuel' to help with the transition);
2. existing assets to be run down over time: by 2050, oil use must have fallen by 75% to 24 million barrels per day, down from 90 million; gas by 55% to 1,750 billion cubic metres; and unabated coal by 90% to less than 1% of total energy usage;
3. all electricity to be net zero by 2040 worldwide, with 90% coming from renewables and 10% from nuclear, meaning that four times the record-setting amount of wind and solar added in 2020 needs to be added each year to 2030;

4. no new internal combustion engines to be sold after 2035, anywhere, with public charging points rising from one million today to 40 million by 2030 and annual production of electronic vehicle batteries to increase by over six fold;
5. total annual energy investment to surge to around \$5 trillion by 2030, which could add around 0.4 percentage points a year to global GDP growth adding up to 4 percentage points by 2030;
6. the majority of emissions reductions to 2030 are to come from shifting from fossil fuels to green alternatives, bolstered by energy efficiency gains. Then, by 2050, half of the remaining reductions are expected to come from technology currently at the prototype or demonstration phase. This will require a rapid increase in R&D to develop the technology to cut carbon further, especially hydrogen electrolyzers, batteries, and direct air carbon capture (DAC) technologies, even though overall they will play a relatively small role.

Aside from averting a climate catastrophe, the IEA emphasises that the transition must be fair to all. To get buy-in, it will need to ensure that developing countries receive the financing and technological know-how they need to build-out their energy systems to meet the needs of their expanding populations and economies in a sustainable way. This means the transformation should deliver \$40 billion a year - around 1% of annual average energy sector investment – towards providing electricity to the 785 million people who do not have it currently, delivering clean cooking solutions to 2.6 billion people, and realising the health benefits of cleaner air which could cut premature deaths by 2.5 million people worldwide per year. It will also be important for governments and businesses to manage effectively the loss of fossil fuel jobs and creation of green jobs to ensure a just transition.

Why the report matters

First, it matters because of who the IEA is. Its forecasts are used by energy companies and governments alike to shape investment decisions and policy, and also by investors. The report is, therefore, not one that can easily be ignored or brushed aside. It is also notable because it is in stark contrast to previous statements issued by the IEA, traditionally

seen as a “fossil-fuel friendly” organisation. For example, in 2016 it [said that](#) “fossil fuels, in particular natural gas and oil, will continue to be a bedrock of the global energy system for many decades to come”.

Secondly, it matters because of the context in which it has been issued. The report comes at a key time to influence and lock-in global climate policy. Around 70% of the world’s governments have now committed to net zero, and decisive climate action is on the agenda for both the make-or-break COP26 conference in November in Glasgow and the G7 next month in Cornwall. Both summits are being headed up by the UK, which has signalled climate as a top priority and which is under pressure to be seen to lead in this global space. The hope is that the general shift in urgency reflected in the report could trigger further policy responses from governments, businesses and investors.

The response (so far)

Unsurprisingly, the report has generated significant amounts of commentary. Words like “bombshell” and “jaw-dropping” abound. Equally unsurprisingly, reaction has been mixed.

The report’s call to action has been welcomed by climate NGOs and activist organisations, who have for some time agitated for the change the IEA now proposes. For some, many of the conclusions in the report, whilst startling, are simply stating the obvious and logical consequences of the net zero targets committed to by governments. As Dave Jones, analyst at the climate think-tank Ember, [has said](#) the IEA “has been very pro-fossil, so to come out with something like this is just amazing. This is truly a knife in the fossil fuel industry.”

However, the report has also attracted skepticism. The World Nuclear Association and World Coal Association have called the report’s pathway “highly impractical” and unrealistic respectively. Critics of the report also argue that the IEA does not adequately consider the risks to energy security that come from not having a backup if green alternatives and new technologies do not deliver at the unprecedented scale required; that the report understates the societal impact on fossil fuel producing countries of its recommendations; and that insufficient detail is provided as to the IEA’s underlying workings which led them to their recommendations. BP’s chief executive Bernard Looney [told an industry conference last week](#) that “it is a scenario on a piece of paper”, adding that the world needs “more action”

and fewer scenarios. A number of IEA member states have already pushed back, including Japan, Australia and Norway, indicating that they will continue fossil fuel investment, and many other members are yet to indicate endorsement one way or the other.

What are the potential wider impacts of the report?

The final impact of the report remains to be seen, but in the meantime it prompts a number of hard truths and potential impacts that are especially relevant in the run up to COP26 and what comes after.

For fossil fuel companies, it is unrealistic that the recommendations will be implemented in full, at least straight away. For example, the UK – which has welcomed the report and sees itself as a world leader in tackling the climate crisis – has already ruled out stopping new exploration in the North Sea as envisaged by the North Sea Transition Deal it agreed with industry in March and consistent with its statutory objective to maximise the UK's economically recoverable petroleum. However, those companies will have to deal with the fire that this report stokes, regardless of how governments respond. In particular:

- **Increased investor pressure on transition plans.** Oil majors Shell and BP have both recently and successfully put their transition plans to shareholders, but have still seen pushback from investors. Legal & General Investment Management, for example, acknowledged the progress Shell has made but [said that they](#) “remain concerned that the strength of interim targets (up to 2035) and disclosed plans for oil & gas production fall short of the level of ambition required for the company to credibly claim alignment with a 1.5C pathway” and voted in favour of a more aggressive resolution. In contrast, the Church of England Pensions Board has given Shell the benefit of the doubt in light of the company's progress in this area, but warns its attitude may harden if sufficient progress does not materialise. The US giants are also coming under significant pressure, with Exxon Mobil appointing at least two climate experts to its board following a campaign lead by [“tiny”](#) hedge fund Engine No. 1 to shift its business strategy more into renewables. Chevron has seen a shareholder resolution pass with 61% voting in favour of setting Scope 3 reductions targets (which would mean emissions from its whole supply chain

would be covered). Similar votes were seen earlier this month at ConocoPhillips and Phillips 66. Clearly, there is still debate about the speed and depth of the carbon majors' transitions, which the IEA's report will only intensify.

- **Potential for increased climate change litigation.** Fossil fuel companies are also facing pressures in the courts. This month, a Dutch judge ordered Shell to cut its carbon emissions by 45% by the end of 2030 against 2019 levels. The court found that the oil giant has a duty of care to reduce emissions, and that its sustainability policy was not “concrete” enough. In a departure from placing climate reducing goals squarely at the feet of governments, this would indicate a move beyond simply agreeing a transition is needed, towards requiring corporations to take responsibility for it in line with society wide targets and countries' Nationally Determined Contributions under the Paris Agreement. The Dutch courts have also tried to hold government to account, ruling in December 2019 that the Dutch government must reduce emissions immediately in line with its human rights obligations in the *Urgenda* case. Litigation in a similar vein has been seen in Germany, and climate litigation is on the rise globally.
- **Further potential for reputational damage for failure to act.** Boards face the risk of greater reputational damage if they do not respond effectively to the report, and this might put pressure on them to take further action proactively. The IEA's message is not especially new, but the source is. With the publication of this report, fossil fuel companies are now more exposed to the risk of being seen as embracing climate denial through delay.
- **Impact on banks and investors.** The report could further decrease the appetite of banks, institutional investors and ESG product providers for the fossil fuel sector. Almost all the big banks have made a net zero pledge, but now the IEA has told them and everyone else what it means – if all new oil & gas exploration and development needs to stop, all financing of it must stop too, as financing for any new development would be inconsistent with net zero and the Paris Agreement. The same issue applies to ESG investment products that still have a place for

fossil fuel businesses (often on the back of the belief in their transition plans).

With the need to accelerate the transition further on the table, a big question is how might business do this? The impacts will be wide ranging and often complex. Asset allocation will be affected, as will balance sheets and project funding. M&A is also likely to be affected, for example, by accelerating disposals of hard-to-abate / high carbon assets and the acquisition of renewables and 'green' companies and technologies.

Finally, any businesses that are subject to reporting requirements in line the Taskforce on Climate-related Financial Disclosures (TCFD) framework, such as premium listed companies, will want to take into account the report's authoritative impact on the credibility of any scenario planning they have done.

Conclusion

It remains to be seen whether the IEA's report will feed into the momentum to secure ambitious climate pledges at COP26 in November. It is clear, however, that high-level ambition needs to be followed by

concrete action, policies and measures to support those pledges. The devil is always in the detail and, in most areas, little granular detail has been provided by governments as to how their commitments will be met. Whilst acknowledging that enormous strides have been taken with the development of renewables, governments need to finalise the creation of the regulatory and policy frameworks required to attract private capital to green pathways and technologies like new nuclear, CCUS and hydrogen, which need to be developed quickly and at enormous scale.

It does appear unlikely – as evidenced by the reactions of several governments to the report - that governments will act together to enact policies to stop further fossil fuel development in its tracks overnight. However, whatever governments' responses to the report, fossil fuel companies will be unable to ignore it given its authorship, the wider trends it represents and the potential knock-on effects.



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