

Insight: Who will benefit from the energy transition?

David Costello, Portfolio Manager, provides insight into the opportunities we see from the energy transition and companies that may benefit from this transition.

Net-zero is not a new ambition for governments and companies. In fact, over 90 countries have set net-zero emission targets, and many of the companies in our portfolio have also set emission reduction goals and allocated significant capital towards the transition.

Why has the energy transition become more of a focus for equity investors?

The equity market's focus on this issue reflects a growing recognition that the energy transition is likely to exert a significant impact on the business prospects of certain companies. I can't overstate the significance of this transition. For hundreds of years, the global economy has been powered with fossil fuels. Through the Paris Agreement, the world's policy makers have committed to fundamentally rewire the world's energy systems, and to do that in a period of approximately 30 years. For companies whose business model is incompatible with a low carbon economy, the realisation of that vision represents an existential risk. Analysis by the International Renewable Energy Agency (IRENA) suggests that in a scenario where global warming is limited to less than 2 degrees Celsius, there is likely to be nearly US\$12 trillion dollars of assets stranded, with losses expected to be concentrated amongst upstream fossil fuel assets, energy infrastructure, and inefficient building stock. In scenarios involving delayed policy action, IRENA warns that total economic losses could reach nearly US\$20 trillion.

Conversely, for companies whose products and services enable the decarbonisation of the global economy, the energy transition represents an unprecedented opportunity. IRENA estimates that limiting global warming to 1.5 degrees Celsius will require cumulative investments totaling US\$150 trillion over the period to 2050. The most recent analysis by the International Energy Agency suggests that this year, the world is on-track to spend approximately US\$1.7 trillion on clean energy technologies. Yet, to deliver the ~US\$150 trillion of cumulative investments IRENA estimates will be necessary to limit global warming to

1.5 degrees Celsius would require an annualised run rate of investment of more than US\$5 trillion per year until 2050. That represents a nearly threefold acceleration in the current rate of investment.

There is an ambition gap. We're not currently on track to limit global warming to 1.5 degrees, and so we can have a debate as to whether that US\$150 trillion - approximately US\$5 trillion a year - is the right number to size the magnitude of this growth opportunity. I'd suggest that debate risks missing the forest for the trees in some respects. Analysis from IRENA suggests that even funding existing climate commitments would require investments totaling US\$103 trillion over the period to 2050. This still represents an approximate doubling of the prevailing annualised run rate of investment. In all scenarios involving meaningful climate action, this is likely to be a significant growth opportunity.


Why do you think this ambition is going to be realised?

We see three coalescing factors that support the realisation of these growth opportunities providing momentum to the energy transition. Those three factors are:

- the rapidly improving economics of clean energy technologies
- evolving societal standards
- regulatory and fiscal policy tailwinds

Over the last decade we've seen dramatic reductions in technology costs - approaching 90% for solar PV, and nearly 70% for onshore wind - that mean that renewable energy is now the cheapest source of new electric generation in most major international markets. Indeed, these cost declines have been so significant that in a number of markets, the full levelized cost of renewable energy, firmed with gas or battery storage, is now below the marginal operating cost of a fully depreciated thermal power plant (for instance, the coal that fires a coal-fired power plant).

Those technology cost declines haven't been limited to renewable energy. Analysis by Bloomberg NEF, shows that the weighted average cost of lithium-ion battery packs used in energy storage and electric vehicles has declined by approximately 80% over the last decade. Analysis by the Australian Government Agency,



the CSIRO, suggests that the costs for hydrogen will follow a similar trajectory: they project that the cost of a proton exchange membrane electrolyser used to produce green hydrogen will fall by approximately 60% over the period to 2030, and by nearly 90% over the period to 2050. These cost declines are conferring the transition a certain economic or commercial momentum.

Supporting that is our second factor, evolving societal standards. Research from the Net-Zero Tracker, a collaboration between research organisations, climate think tanks, and Oxford University, shows that 89% of the world's population, and 92% of global GDP is now covered by national level net-zero targets. Moreover, 929 of the Forbes 2,000, (the 2,000 largest companies in the world), have now enunciated net-zero targets. Ultimately, those targets are a manifestation of the will of the constituents of these organisations - the electorate in the case of government, and consumers and financial market participants in the case of corporates. All of these constituents are demanding accelerated action on climate change.

That leads to our third factor: governments have responded to this impetus for action by putting in place increasingly powerful regulatory and fiscal policy support mechanisms. This is most prominent in the United States, in the case of the Biden administration's Inflation Reduction Act, which provides unprecedented support for clean energy technologies across a diverse array of vectors and industries. That legislation was initially expected to cost the US Treasury somewhere in the region of US\$400 billion. However, because the legislation was drafted in a manner where the key provisions are uncapped in the total quantum of credits that the government will provide to the private sector, it is now estimated by Goldman Sachs that the total cost to the Treasury will be approximately US\$1.2 trillion, and that the measures will crowd in total investment of more than US\$3 trillion over the next decade.

The European Union has comparable ambitions. The EU Green Deal seeks to mobilise more than \$1 trillion euro of investments for clean energy technologies through the provision of public guarantees, subsidised loans and tax credits. More recently we've seen the passage of the REPowerEU policy package, and the EU Green Deal industrial Plan for the Net-Zero Age, adding even further momentum. We see similar measures in China, India, and Japan.

Together those three factors, the rapidly improving economics of clean energy technologies; evolving societal standards demanding increased action on climate change; and the policy response in reaction to that demand, give increasing momentum to the energy transition and support the realisation of these growth opportunities.

What is an example of an industry or a company that is a real beneficiary from these opportunities?

We're seeing interesting opportunities in the electric vehicle ecosystem and value chain. The electrification of the drive train in a passenger vehicle requires vast increases in semiconductor content, and that's driving the results of one of the companies we invest in in the Magellan Energy Transition strategy, Onsemi.

Onsemi recently pointed out that the value of their semiconductor chips in an internal combustion engine vehicle is approximately US\$50. As we transition to electric vehicles, the value of their content has increased to US\$750; a fourteen-fold increase in the value of their content. This increased

content opportunity is expected to drive nearly 20% per annum compound annual growth in revenues for the company's automotive business over the next five years. At a group level, this supports 10-12% expected revenue growth, mid-teens operating profit growth, and an expected doubling of free cash flows over the next five years. This is a very compelling opportunity and makes Onsemi a clear beneficiary of the energy transition.

What are some other interesting, unexpected examples of companies also taking advantage of the opportunity.

Some of the most interesting examples we've come across exist at the interface between technology and decarbonisation, particularly in the industrial application software space. One company that we're excited about in this space is Ansys. Ansys develops engineering simulation software: they use very complicated physics and a lot of computers to predict how products will behave in the real world, and to optimise their design.

The need to design increasingly innovative products with vastly improved sustainability characteristics is driving increased demand for Ansys's software platform, particularly from companies in the aerospace and defense sector.

There are two recent examples that demonstrate the power of the company's platform to drive these sustainability characteristics in a manner that supports the growth of the company's earnings:

The first example involves a collaboration between French jet engine manufacturer, Safran, a holding in the global fund, and Ansys. Safran has used Ansys's thermal and structural simulation capabilities to design a new generation of jet engines that dispenses with the shroud that surrounds a traditional jet engine, using an open fan architecture, employing novel material science and hybrid electric capabilities to deliver dramatic expected reductions in the carbon dioxide emissions associated with air travel of approximately 20%.

Another recent example involves Ansys customer, Lufthansa Technik, designing a film that is applied to the underbody and fuselage of its aircraft that mimics the aerodynamic properties of shark skin. This aids in reducing drag, enhancing aerodynamics, and reducing carbon dioxide emissions associated with air travel. Again, this represents a powerful example of technology delivering decarbonisation objectives in a manner that supports financial outcomes.

By David Costello CFA, Portfolio Manager

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✉ info@magellangroup.com.au

☎ +61 2 9235 4888