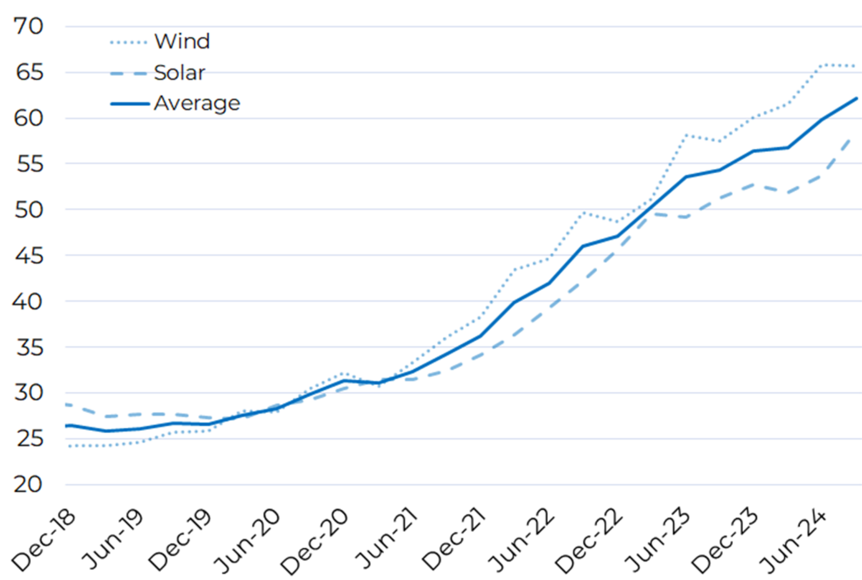
Chart of the Month: Rising North American PPA Prices

North American renewable power purchase agreement (PPA) prices rose to over $62 per megawatt hour in Q3 2024, up over 14% year on year. According to LevelTen Energy, wind and solar PPA prices have risen at an average rate of 19% and 12% per annum respectively since 2018.

North American PPA Prices ($/MWh)



Source: LevelTen, Guinness Atkinson Funds. Data as of October 2024.

News

- October saw a continuation in the recent trend of mergers and acquisitions (M&A) activity in the sustainable energy space. Global miner, Rio Tinto acquired Arcadium Lithium for a 90% premium, in a deal worth $6.7bn. The size of this premium is notable, reflecting both the sector's long-term growth potential and depressed valuations. In the same month, KKR announced intentions to purchase a 25% stake in Eni's biofuel unit, Enilive, at a valuation of ~$13bn, well above market expectations. We also saw Equinor purchase a ~10% stake in offshore wind developer Orsted, for ~$2.5bn. These deals follow previously announced take overs in the sustainable energy space this year, including KKR's bid for Encavis, EQT acquiring OX2, and Brookfield's recent offer for Neoen.
- October was seismic month for nuclear power generation as both governments and the private sector threw their support behind the technology in order to meet rising energy needs. We saw news of hyperscalers such as Amazon and Microsoft signing long term agreements with nuclear energy companies, supporting the development of small modular reactors and the recommissioning of existing power plants. This trend has also been seen at the national level, with additional support for nuclear announced in Japan, Italy, and the US as governments look to add more carbon-free energy to the grid.
- Last month saw news of additional support for Europe's wind sector with France announcing that it would be launching tenders for 9.2GW (gigawatts) of offshore wind projects as part of the country's target to achieve 45GW of installed capacity by 2050. Similarly, in October, the German government announced a package of measures designed to support the domestic

wind industry from the threat of heavily subsidized Chinese competition. The package included state guarantees for wind energy production and a roadmap for reducing dependence on China for critical components.

- Off the back of September's stimulus announcements, China's clean technology industry enjoyed a further boost after the government announced a series of initiatives to bolster domestic production and support profitability. Solar manufacturing names rose following rumors of potential government intervention to reduce oversupply and reverse the trend of declining prices. This echoes the country's prior intervention in coal and steel markets in 2015, in which the government launched policies to reduce capacity as part of wider supply-side structural reform. This followed recent pledges from China's photovoltaic and wind-turbine original equipment manufacturers to halt a vicious price war that has roiled the sector and held back profitability.
- Global electric vehicle (EV) sales recorded another impressive month of growth in September, with Rho Motion reporting a record-breaking 1.7 million units sold, up 31% year on year. Year to date EV sales are now up 22%. China continues to see the fastest rate of adoption, with plug-ins once again accounting for the majority (53%) of sales in the month according to Cleantechnica. In the same month the ACEA (European Automobile Manufacturers Association) also reported positive momentum in Europe, with hybrid sales overtaking traditional internal combustion engine (ICE) vehicles for the first time, growing their market share to ~33%, up ~22% from last year.

A Trump / Republican Victory

Donald Trump will be the next President of the United States of America, and the Republicans have taken control of the Senate. This month, we assess the implications for sustainable energy, and energy more broadly, considering his recent pre-election rhetoric and the potential actions of his senators. We conclude that, with respect to the Inflation Reduction Act, Trump will struggle to make significant reforms. We see his executive powers allowing him to promote fossil fuels more so than significantly slow the growth of a lower carbon energy system.

President-elect Trump's stance on Energy

We expect a shift in US energy policy as President-elect Trump targets reduced energy costs, "*energy dominance*," and improved competitiveness for US industry via the removal of environmental regulations. He is against the Inflation Reduction Act (IRA), the key legislation providing $369bn of tax credits for clean energy investment, on the basis that it is "*industry-killing, jobs-killing, pro-China and anti-American*."

Nearly $450bn in private investment has come into the US clean energy sector since the IRA's passage, according to the Clean Investment Monitor. By our analysis, more than three-quarters of all IRA-related manufacturing projects announced has been channeled into Republican states. Earlier this year, the World Economic Forum assessed that over 170,000 jobs had been created thanks to the passage of the IRA and that over 9 million jobs would be created over the next decade, with the legislation catalyzing as much as $3 trillion of further investment. Importantly from a political standpoint, the new energy transition jobs are not coming at the expense of fossil fuel jobs. The number of coal mining employees in the US, for example, is actually up slightly since the IRA was announced. With this in mind, many observers disagree with Trump's views, instead suggesting that the IRA's focus on building a new domestic supply chain for lower carbon energy is building a new industry with new jobs, while being pro-America and anti-China.

What next for the IRA (Inflation Reduction Act)?

Even with control of the senate, we believe that Trump is unlikely to be able to repeal the IRA. To initiate a repeal, a proposed law must first be sponsored by a senator or representative and then pass through the House of Representatives with a majority and, in most cases, through the Senate with a 60% majority. A 60% threshold (rather than simple majority) is typically required in the Senate to overcome the threat of the minority party filibustering or delaying the bill indefinitely. Trump does not have this size of majority.

Moreover, many Republican senators appear to be in favor of the IRA because it is bringing a disproportionate share of investment and new jobs to Republican states. In August 2024, 18 Republican senators wrote to the Speaker of the US House of Representatives asking him to preserve the IRA's energy tax credits (the letter is available below[1]). Quote from the letter:

"Today, many U.S. companies are already using sector-wide energy tax credits – many of which have enjoyed bipartisan support historically - to make major investments in new U.S. energy infrastructure. We hear from industry and our constituents who fear the energy tax regime will once again be turned on its head due to Republican repeal efforts. Prematurely repealing energy tax credits, particularly those which were used to justify investments that already broke ground, would undermine private investments and stop development that is already ongoing. A full repeal would create a worst-case scenario where we would have spent billions of taxpayer dollars and received next to nothing in return.

"Energy tax credits have spurred innovation, incentivized investment, and created good jobs in many parts of the country - including many districts represented by members of our conference… As Republicans, we support an all-of-the-above approach to energy development and tax credits that incentivize domestic production, innovation, and delivery from all sources."

What can we learn from Obamacare in 2017?

It is clear that repealing the IRA is not supported widely across the Republican party and, in our view, the support for it appears less than the support that existed for Trump's proposed repeal of Obamacare in 2017. Indeed, it is worth considering Trump's efforts around Obamacare to illustrate the difficulties of repealing existing legislation.

Repealing Obamacare was a central tenet of the Trump presidential campaign in 2016. When Trump took office in early 2017 (with control of both Houses), legislative attempts began immediately to effect a repeal. Despite having 52% of the Senate *and* using a budget reconciliation bill, the replacement "Better Care and Reconciliation Act" failed 43-57 as various Republicans dissented. Subsequent changes to Obamacare were very modest, including adjustments such as i) reducing the amount of time one has to register for a health exchange from 90 to 45 days and ii) reducing payments to insurance companies for co-payments/deductibles.

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[1] https://garbarino.house.gov/sites/evo-subsites/garbarino.house.gov/files/evo-media-document/FINAL%20Credits%20Letter%202024.08.06.pdf

Given that Republican support for repealing the IRA is fractured, we do not expect that Trump has the ability legislatively to repeal the IRA. Without repeal, many of his proposed changes to the IRA, including the following, are unlikely to be enforced:

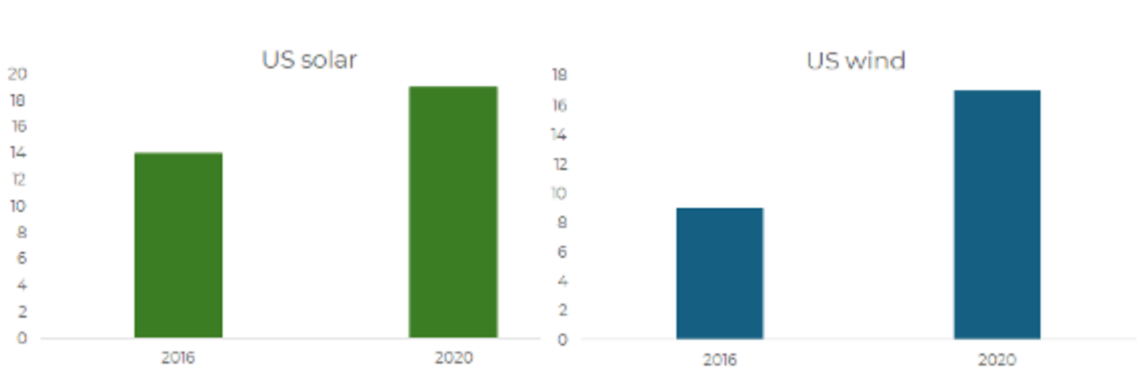
- Removing the $7,500 subsidy for new electric cars and trucks
- Setting a firm phase-out date for IRA tax credits (versus the current structure of some tax credits phasing out at "the later of 2032 or when emission targets are met")
- Abolishing energy efficiency standards

Without a full repeal of the IRA, some options for reform are available

Absent a repeal of the IRA, a Trump administration could slow-walk or weaken the implementation of existing aspects of the IRA to better achieve its political ends. There are some small parts of unfinished IRA guidance (from the Treasury) that could be changed or scrapped altogether, in areas such as the following:

- Enhancements of domestic content requirements, bringing stricter eligibility requirements for both the 45X (domestic manufacturing tax credit) and the domestic content ITC adders for developers.
- Broadening the reach of Foreign Entity of Concern (FEOC) designation beyond electric vehicle components into area such as wind, solar, critical minerals and battery supply chains. We note that bipartisan legislation has already been introduced[2] in the Senate with this aim and hence this is a likely outcome.
- Directing federal agencies to slow down the awards of new offshore wind permits. Offshore wind is more vulnerable because, unlike solar and onshore wind, it requires federal permits to proceed. Interestingly, despite his long held negative views on wind, installed US wind capacity grew by 45% during Trump's last presidency.

US Solar & Wind Annual Installations (GW per annum) during President Trump's first term



Source: Guinness Atkinson, BNE. Data as of November 2024.

[2] https://www.brown.senate.gov/imo/media/doc/45x_full_text.pdf

Executive Orders provide some options to prioritize fossil fuel

President Trump could also use Executive Orders to pursue some or all of the following in reasonably short order:

- Exiting the Paris Agreement thereby overturning Biden's Executive Order to rejoin in 2021 (which overturned Trump's Executive Order to exit in 2017). Whilst uncertain, there is a risk that Trump might withdraw the US from the United Nations Framework Convention on Climate Change, a move that would remove the United States from participation in global climate negotiations and make it more difficult for a future administration to rejoin the Paris Agreement
- Appointing new FERC and EPA chairpersons and freezing all new rulemaking by such federal agencies until effective
- Lifting the liquified natural gas (LNG) export pause and rolling back EPA rules
- Imposing new tariffs on new energy imports, particularly from China

Areas of Agreement between the Democrats and Republicans

There are significant aspects of energy policy that both parties agree on. These include:

- Domestic manufacturing tax credits for clean energy equipment within the IRA, due to the bipartisan support of onshoring manufacturing. Trump railed against these types of tax credits while last in office but ultimately kept them, as he did with the Blenders Tax Credit used in alternative fuel production. History shows Trump's unwillingness to overturn tax credits which are, ultimately, bringing new investment and jobs to America.
- Fossil fuels in general as Trump's campaign has proposed increasing domestic oil and gas production (especially by freeing up federal lands for development), refilling the strategic petroleum reserve, speeding up the approval of natural gas pipelines and prioritizing blue hydrogen (carbon capture-enabled). These policies are more aligned with the Democrats that one might think, with oil and gas production from federal lands increasing under Biden's tenure, despite initial opposition. In practice though, there has been little correlation between the party affiliation of the President and the outcome for fossil fuel production in the US, something we expect to continue.

Conclusion

President-elect Trump's victory in the US elections represent a backward step for the energy transition compared to the "business as usual" scenario of a Harris victory. In our portfolio, we see his victory as negative in particular for offshore wind players and lithium-ion battery manufacturers with US operations. We see Trump's victory as positive, however, for names exposed to the wider theme of electrification, especially our electrical equipment manufacturers. It is worth remembering, though, that the US is currently responsible for around 7% of global solar installations, around 8% of global wind installations, and around 11% of global EV sales. This is not to downplay what is a critical growing market in the energy transition, but to provide context.

In considering the various routes available to him, we expect Trump will be able to support the fossil fuel industry without being able to restrain the sustainable energy industry as much as he might wish. With tariffs and domestic content definitions open to him, he will look to improve the competitiveness and resilience of US manufacturing, but we do not see this as being particularly negative for the outlook for sustainable energy in the United States.

After an initial period of uncertainty where debate about Trump's plans continue, we ultimately expect investment under the IRA to pick up once again. We note that there is a substantial backlog of investment planned. According to the Financial Times, approximately 40% of major manufacturing projects funded by the Inflation Reduction Act (IRA) have been delayed or paused indefinitely in 2024, thanks partly to electoral uncertainty. Lifting the uncertainty around this investment would have a significant pro-growth multiplier effect on the US economy, and the growth would occur largely in Republican states. Thus, not only is it tough for the Trump administration to undo the IRA, but doing so is also likely to be unpopular and counterproductive. In our assessment, this leaves a few attention-grabbing tweaks to the IRA as the most likely course of action, just as it was for Obamacare.

Performance

as of 10/31/2024	YTD	1 Year	3 Years	5 Years	10 Years
GAAEX	-2.27%	19.96%	-7.40%	13.26%	3.84%
MSCI World Index NR	16.50%	33.68%	6.38%	12.01%	9.77%

All returns after 1 year annualized.

Inception 03.31.2006 Expense ratio* 1.10% (net); 1.79% (gross)

Performance data quoted represents past performance; past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. Performance data current to the most recent month end may be obtained by visiting www.gafunds.com or calling 800-915-6566.

* The Advisor has contractually agreed to reduce its fees and/or pay Fund expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 1.10% through June 30, 2027. To the extent that the Advisor absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were waived or absorbed, subject to the expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of the waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

MSCI World Index captures large and mid cap representation across 23 Developed Markets countries. With 1,546 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

Fund holdings and/or sector allocations are subject to change at any time and are not recommendations to buy or sell any security.

One cannot invest directly in an index.

Earnings Growth is not a measure of future performance.

Opinions expressed are subject to change, are not guaranteed and should not be considered investment advice.

The Guinness Atkinson Alternative Energy Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

The Fund invests in foreign securities which will involve greater volatility and political, economic and currency risks and difference in accounting methods. The risks are greater for investments in emerging markets. The Fund also invests in smaller and mid-cap companies, which will involve additional risks such as limited liquidity and greater volatility than larger companies. The Fund's focus on the energy sector to the exclusion of other sectors exposes the Fund to greater market risk and potential monetary losses than if the Fund's assets were diversified among various sectors.

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