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FOCUS ON CHANGE

Investment opportunities in the energy transition

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Our previous article in this series considered the need to rapidly scale up the global energy transition in order to meet the goals of the Paris Agreement. The first phase of proving the technologies and making them cheaper than existing options is almost complete. The next phase now requires the scaling-up and deployment of these technologies, particularly in the sectors where more effort is needed to achieve net zero by 2050.

Where are the opportunities?

Table 1 IEA's energy progress tracker[1]

What's on track?

	On track	More efforts needed	Not on track
Energy system	• Electricity from solar	• Energy efficiency • Electrification • Electricity from other renewables (wind, bioenergy, hydroelectricity, nuclear power) • Electricity from transition fuels (natural gas) • Smart grids and battery storage	• Coal • Low emission / biofuels
Transport	• Electric vehicles	• Fossil fuel combustion cars and vans • Rail	• Trucks and buses • Aviation • Commercial shipping
Industry		• Electrification or hydrogen to decarbonise large industries • Light industry • Data centres and data transmission networks • Hydrogen electrolysers	• Large industry (steel, chemicals, cement, paper)
Buildings	• Lighting (LEDs)	• Heating, cooling and equipment in buildings • Heat pumps	• District heating
Oil & natural gas			• Methane abatement • Gas flaring
CO2 abatement		• CO2 capture and utilisation	• CO2 transport and storage

[1] Tracking Clean Energy Progress 2023 – Analysis - IEA

As highlighted in Table 1 and the first article in this series, the scaling-up of a number of areas will be particularly important over the next few years: energy efficiency; electrification and upgrading the electricity grid; renewable energy and low-emissions fuels; and the decarbonisation of large industries.

We expect these areas to provide a number of attractive opportunities for investors. Given the capital expenditure required in these investments, most of these opportunities are in private markets (private equity, real estate and infrastructure funds), where investors are focused on long-term returns.

What level of return can investors expect?

Given the differing pace of development in the technologies and in different industries, some of these opportunities are more focused on capital growth, while others are income focused. Expected returns are directly related to the stage at which investment is made in the lifecycle of a project. Investors should expect a higher return for investing in energy-transition projects before they are operational (development and construction stage) compared to buying assets once they are fully operational.

The graphic below shows the expected returns for each stage in the lifecycle .

Table 2

Highest risk/ highest return		Lowest risk/ lowest return	
Private equity		**Infrastructure**	
Venture capital	**Growth capital and buyouts**	**Development and construction of new energy-transition assets**	**Operational energy transition assets**
20%+ net IRR Capital growth	**15%+ net IRR** Mostly capital growth with some dividends	**10%+ net IRR** Capital growth	**5%+ net IRR** Mostly dividends with some capital growth
Developing and commercialising new technologies. Eg CO2 capture and storage, battery innovation, carbon-neutral transport	Growth capital or buyout of firms supporting the energy transition. Eg maintenance of offshore wind farms, increasing energy efficiency through software, installation of heat pumps	Building new infrastructure projects or converting existing ones. Eg solar farms with co-located battery storage, new data centres, hydrogen production	Infrastructure that has already been built and provides income from operations. Eg an existing solar/wind farm

Almost all of the opportunities highlighted in Table 1 (with the exception of buildings) would fit into one of the categories highlighted in Table 2. Given the range of returns in Table 2, some of these investments could fit within an investor's growth allocation, while others would suit a long-term enhanced-income allocation.

An important point to note is that competition for these assets has been increasing, so careful investment selection is vital to reduce the risk of overpaying for assets.

What are the sustainability characteristics of such investments?

Unlike many other asset classes, the positive impact from a renewables allocation is measurable.

Many funds can quantify:

- impact on local communities (eg jobs created, community benefits paid);
- contribution towards net-zero targets (such as avoided emissions, biodiversity impact, water use);
- strong sustainability credentials (supplier code of conduct, health & safety regulations).

Funds will generally report quarterly on sustainability and ESG (environmental, social & governance) metrics at a portfolio level (mostly around Scopes 1, 2 and 3 emissions, tonnes of avoided CO2 emissions, number of new jobs created, health & safety incidents). On an annual basis, funds will publish a stewardship report with ESG-related information on portfolio companies (diversity, equity and inclusion analysis, how human-rights issues are managed in supply chains, job creation and training in the local area, alignment to global data reporting and regulations).

Case study: solar

300+ megawatt solar installation with on-site battery storage currently under construction in England

Target return: 15% gross IRR at the fund level

Revenues: 40% of capacity pre-sold on 15 year CPI-linked revenues to government-owned entities

Expected benefits:

- Located in an area assessed by National Grid to have an increasing risk of electricity constraint and stability issues. Local suppliers are used for services, such as agricultural contracting and civil engineering.
- The site is expected to support over 2,000 jobs (both directly and indirectly), with an estimated £100m or more in local socio-economic contributions over the lifetime of the project.
- The project targets a 65% biodiversity net gain.
- Ecological and ornithological monitoring will be conducted over 20 years and reported to the Habitat Management Steering Group.
- Quarterly reporting on Scopes 1, 2 and 3 emissions, as well as estimated emissions avoided (Scope 4) at a portfolio level to help with net-zero journey planning and TCFD (Task Force on Climate-related Financial Disclosures) reporting.

How can investors access these opportunities?

Funds investing in energy-transition assets tend to take either a geographical approach (investing globally or only in certain regions) or a sectoral approach (investing in certain technologies only eg solar).

Geographically, the mix of opportunities varies, given how diverse the energy-transition pathway looks from country to country. Many funds focus on OECD[2] countries rather than emerging markets, as growing demand for renewable energy from large corporations (such as Amazon, Google, Tesco) in these countries means output can be sold on long-term contracts to companies with low credit risk. This helps provide more certainty on future cashflows and expected returns.

The UK, for example, was an early mover in the energy transition, making significant progress in decarbonising the electricity-supply sector over the last few decades[3]. This was largely due to the government setting the strategic direction through policies and providing a pricing support mechanism for renewable-energy generators. Both of these measures were supportive in providing assurance for asset developers, given the long project lifecycle (20–50 years) of infrastructure assets.

With such early progress, opportunities in the UK energy sector revolve mostly around updating the electricity grid, as well as scaling up investments in renewables, nuclear, hydrogen, energy storage, and carbon capture and storage to help meet government targets[4].

Case studies in the UK

Grid stability projects in Wales and Scotland

Target return: 12% gross IRR at the fund level

Revenues: 10-year CPI-linked contract with National Grid and the obligatory reactive power service

Expected benefits: Provides stability to a multi-fuel, multi-technology electricity grid. National Grid's Pathfinder programme is the first to solve this engineering challenge, a solution that is likely to be adopted in other countries.

Green hydrogen projects in the UK

Target return: 8% net IRR at the fund level

Revenues: 15 year contracts through the UK government's Hydrogen Allocation Round and with a multinational company with a strong credit rating

Expected benefits: Decarbonising large scale industries which cannot be electrified. Will produce green hydrogen for industrial and manufacturing companies in the surrounding areas, ensuring these jobs remain in these regions.

[2] The Organisation for Economic Co-operation and Development (OECD) countries consist mostly of developed economies in Europe, North and South America, and Asia-Pacific. Full list: ‹https://www.oecd.org/about/›

[3] https://www.iea.org/countries/united-kingdom

[4] CCC assessment of recent announcements and developments on Net Zero - Climate Change Committee (theccc.org.uk)

Beyond the energy sector, there is still a lot of work to be done in the UK to decarbonise the heavy industry, buildings, agriculture, land use and waste sectors[5] as highlighted by the Climate Change Committee[6]. So, while the UK is slightly ahead of other countries in decarbonising the energy sector, it is far behind in other sectors.

This has made some opportunities more attractive in other OECD countries.

Case studies in other OECD countries

Green data centres in the US

Target return: 15% gross IRR at the fund level

Revenues: Contracted with data hyperscalers (largest tech companies in the world) and sites are built to their specifications

Expected benefits: Data centres using 100% renewable energy and improving water usage by over 80%. A single project is expected to create 200 construction jobs and 20 full-time positions over the c35-year life of the investment.

Various solar and co-located battery storage projects in the US

Target return: 15% gross IRR at the fund level

Revenues: 15-25 year purchase power agreements with 100% of output sold to cities or schools

Expected benefits: Projects will benefit from the new incentives available under the Inflation Reduction Act. Some projects are creating 400-800 unionised construction jobs with most of the workforce sourced locally and trained through apprenticeship programmes.

Regulated utility businesses around the world

Target return: 8-10% gross IRR at the fund level with 5–6% cash yield

Revenues: Attractive regulatory frameworks with 25-year availability-based contracts

Expected benefits: Well positioned to grow as more industries get electrified. Updating the electricity grid by investing in enabling infrastructure is vital in supporting the transition to a multi-fuel, multi-technology energy system.

Carbon-capture-and-storage projects in Europe

Target return: 8-10% gross IRR at the fund level with 5-6% cash yield

Revenues: Contracted with large industrial companies

Expected benefits: Carbon emissions from industrial projects are transported to empty gas fields under the ocean, leading to active carbon removal from the atmosphere.

[5] Progress towards reaching Net Zero in the UK - Climate Change Committee (theccc.org.uk)

[6] The Climate Change Committee is an independent statutory body established by the Climate Change Act 2008. Their purpose is to advise the UK and devolved governments and to report to Parliament on progress made on reducing greenhouse gas emissions and preparing for the impacts of climate change.

Conclusion

Investing in renewables infrastructure and energy-transition assets presents an opportunity to target attractive returns with measurable climate impact and broader positive sustainability features.

The increased focus on clean energy from governments and corporations, coupled with the substantial drop in the costs associated with the construction and maintenance of renewables assets, makes the next few years an attractive time to allocate to the energy transition.

However, investing in the energy transition should not be considered risk free. The sector shares many of the risks of the broader infrastructure and private-equity sectors, including (but not limited to) political and regulatory risk, leverage risk, construction, development and operating risk, changing elements (less sunshine or wind than expected) risk, illiquidity risk, technology-obsolescence risk, reduction in income risk and ESG risks.

Many of these risks are mitigated through the careful selection of suitable investments, which gives us comfort that the target returns seem realistic for specialist managers. Managers who have extensive experience of building or operating these assets – and can remain disciplined on pricing – are likely to deliver on their risk, return and sustainability objectives.

As the case studies highlighted in this paper show, investors should cast their nets widely in this space to capture the vast range of opportunities. We believe the starting point should be a core allocation with global exposure to the most attractive opportunities. This can be complemented with smaller allocations to local investment projects where the opportunity is well-defined (eg the energy sector in the UK or industrial decarbonisation in Europe).

If you would like to discuss how an energy-transition investment could fit into your portfolio, please get in touch.

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