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Clean Energy Whitepaper

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Welcome to CAMRADATA's Clean Energy Whitepaper

Global investment in clean energy is on course to rise to $1.7tn in 2023, with solar set to eclipse oil production for the first time, according to the International Energy Agency.[1]

The agency also noted, in May, that annual clean energy investment is expected to rise by 24% between 2021 and 2023, driven by renewables and electric vehicles. This is considerably higher than a 15% rise in fossil fuel investment over the same timeframe.

It seems renewables and other sources of less carbon-intensive sources of energy have captured both the attention of those trying to pivot to a more environmentally friendly approach to transportation, but also – critically – those allocating capital to its progress too.

All good news, potentially, but the road to clean energy is likely to be neither straight nor without significant bumps.

A transition from something our economies have relied upon for centuries cannot happen overnight, and the technology needed to support it will not feature some major disasters, along with breakthroughs.

How can investors be part of this vital shift to a more responsible energy supply, while keeping a firm grasp on their investment objectives, risk budget and, in some cases, fiduciary duty?

[1] https://www.iea.org/news/clean-energy-investment-is-extending-its-lead-over-fossil-fuels-boosted-by-energy-security-strengths

Meet the Team

Natasha Silva
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Associate, Business Development

Clean Energy Roundtable

The CAMRADATA Clean Energy Roundtable took place in London in June 2023

A shift to clean energy might be non-negotiable, but creating a holistic investment ecosystem remains challenging

Clean energy is likely to be vital to the planet's long term survival, and investors are under mounting pressure to expedite the transition away from fossil fuels.

Even the most ardent climate change sceptics would concede that fossil fuels are a finite resource, and that alternative - and reliable - sources of energy to power our homes, cars and workplaces must be harnessed.

Impressive progress has already been made; global investment in clean energy is on course to hit $1.7tn in 2023, with solar set to eclipse oil production for the first time, according to the International Energy Agency.

But ensuring the interconnectedness of the investor eco-system with the sustainable energy industry means balancing the supply and demand for capital, clear and proactive governmental and regulatory support, as well as the appropriate investment vehicles to help funnel money towards the most compelling opportunities.

CAMRADATA invited a panel of renewable energy investment and industry experts to discuss matters including the development of clean energy opportunities, the challenges that investment funds and pension schemes might face when trying to access sustainable energy-related investments, supporting transition investments, and China's undeniable renewables ascendancy.

Trying to walk the talk

Sustainability, ethical investing, and ESG are embedded into the investment world's lexicon, but this is a relatively new phenomenon.

Roughly 10-15 years ago, many managers might have incidentally gained exposure to a solar or wind farm through an infrastructure fund, but now an array of products allows investors to target renewable energy specifically, as well as the likes of climate-related technology and broader climate opportunities.

The lion's share of the new/greenfield opportunities with real impact, reside in private markets rather than in publicly listed entities. This can be an issue for the default funds of occupational (DC) schemes that are subject to the 0.75% fee cap and so may not be able to afford the often more expensive fees of private equity funds.

> ***"Impressive progress has already been made; global investment in clean energy is on course to hit $1.7tn in 2023, with solar set to eclipse oil production for the first time, according to the International Energy Agency."***

"Thankfully, the trend in my part of the pensions world (DB schemes), there has been a shift towards private markets investments, which is helpful when trying to gain exposure to clean energy," said George Graham, director at the South Yorkshire Pension Authority (SYPA).

Graham claimed his scheme is "an outlier" when it comes to direct renewable energy exposure, with his organisation dedicating 5% of assets to this sub-asset class.

"Our Net Zero target is more aggressive [than our peers], and it's obviously open for debate whether we achieve it, but by setting a more stretching target we are more likely to get to Net Zero before 2050," he added.

While the South Yorkshire scheme might be leaving its UK rivals behind, its progress, while laudable, certainly lags some of the world's major pension schemes.

Canada is among the nations whose sizeable workplace schemes are more commonly targeting renewable energy investments, with the $311bn Caisse de dépôt et placement du Québec (CDPQ) recently taking a majority stake in Trencap, which owns natural gas and renewable energy company Énegir .

The move was part of its plan to triple the value of its low-carbon asset portfolio compared with 2017, to C$54bn by 2025 .

John Cook, portfolio manager and team co-lead at Canadian firm Mackenzie Greenchip, agreed Quebec was "clearly a leader in making renewable energy investment allocations".

He suggested his firm had somewhat broken the mould by launching a daily-traded open-ended fund that invests in areas such as clean energy, as most investment opportunities tended to reside in private markets.

However, he noted that a step-change was currently underway in terms of what types of investments his fund might be able to target.

"Historically we could find small to mid-cap businesses that were important players in our sectors. Many of these became large businesses, were acquired, or went bankrupt. Another shift we've noticed is that the large energy companies, like BP and other European integrated oil firms that were getting into our space have been pulling back as traditional energy returns have improved," he said.

"This maybe creates more opportunities for dedicated renewable developers, and so we are seeing a swing now as returns from renewable projects are not as good and this will change who [in terms of investors] is interested in the sector."

Darryl Murphy, managing director, infrastructure, at Aviva Investors, said a shift in investor appetite had also been impacted by undulating subsidy schemes, particularly in the UK.

"Initially, renewable energy investments, like onshore wind and solar, presented big investment opportunities and certain factors meant they aligned very well for pension schemes, as lots of projects were supported by long-term subsidies, meaning investors faced relatively low risk investments with fairly steady cashflows," he said.

> ***"When we've exited a wind farm investment, for instance, we need to publicise the positive impact on emissions that asset has had and will continue to have, or if we've invested in EV charging points, we need to tell people how many have been installed to help scheme investors better understand what impact we're having."***

"But there is a divergence now, as the value has disappeared, the prices have gone up, and the returns are down, plus theres the changing market, which means investors realise that the long-term financial support [could be] gone, meaning they're facing real market risk."

The UK government closed a consultation in October 2022 looking into the enduring market framework that will deliver a transition to a low carbon power sector. The Review of Electricity Market Arrangements has the scope to fundamentally reform some of the mechanisms that have delivered the investment to date, including the much lauded Contract for Difference Scheme.

It plans to publish its response to the consultation in 2023, however, while it undertakes this work, there remains some uncertainty about what exactly will be covered and whether the UK can meet its ambitions of up to 50GW of offshore wind by 2030 and up to 70GW of solar by 2035.

Sam Hollister, head of markets at LCP Delta, suggested a much bigger hurdle to overcome than the robustness of government subsidies was how investors approached clean energy as an asset class.

"The challenge we have to overcome is that when some investors first consider investing in assets like wind, they recognise that the price of wind is zero and power prices will tend to that level and not offer a financial return. But renewable energy in the future is not going to be about simply selling units of energy, per se, there will be value in selling a service to the grid or providing back up power," he said.

"We need to change that mindset and recognise the multiple available revenue streams."

Other panellists agreed that some important shifts were needed by investors if they were to grasp the opportunities of clean energy.

Shifting mindset

Many investors, some of the panel believed, didn't necessarily back companies with money because those firms need the capital, but more because they expected to get the return from an appreciation in the share price.

But some on the panel suggested this perspective needed to shift.

"In my opinion, the likes of Microsoft and Facebook don't need capital," said Mackenzie's Cook.

"A big slosh of savings have been driving their stock price, but that's different as what we're talking about is opportunities in the clean economy which are high capex businesses. This is a capital decision.

"As I often say, governments can print money, but they can't print capital, and investors increasingly need to make difficult and different decisions about where to allocate their precious capital, considering carefully what their cash is actually going to be used for by the recipient company."

Furthermore, those investors who are already targeting clean energy opportunities need to ensure that they are championing its benefits and discussing its returns and its positive impact on people and planet.

"We need to tell the story about what our investments in clean energy are achieving," said SYPA's Graham.

"When we've exited a wind farm investment, for instance, we need to publicise the positive impact on emissions that asset has had and will continue to have, or if we've invested in EV charging points, we need to tell people how many have been installed to help scheme investors better understand what impact we're having.

"Our members do think our clean energy investments are important, and they want us to do more, but I don't think they realise what we're already doing."

Jonathan Roe, investment manager at Cardano, agreed it was vital to ensure investors knew the importance of clean energy investments.

"If you can show the emissions avoided, then maybe you can get people to fully understand and appreciate how important those investments are," he said.

Of course, for investors to be able to do this, though, they need to be able to identify clean energy opportunities to invest in.

But, as Aviva Investors' Murphy stated, this might not be as easy as desired.

"In the UK, at least, there is nowhere near enough supply of opportunities," he said.

"You might say that we are getting closer to there being private equity opportunities in early stage companies, but if you look at the likes of battery storage, carbon capture and storage (CCS), and hydrogen, those don't exist in a scalable, investible format."

LCP Delta's Hollister noted that the world needed to decarbonise its power, heat and transport systems to successfully tackle climate change, but such huge tasks were challenging from a regulatory, governmental and investment perspective.

"Something like 85% of UK households have a gas boiler, but if we are to meet our Net Zero targets, nobody can be heating their homes with gas in 20 years' time," he added.

"But working out who is responsible for this and finding ways to support households with the costs of new technologies, such as heat pumps, is extremely complex."

Potent policy

Most of the panel agreed that whilst regulatory reviews by governments wouldn't necessarily hinder their enthusiasm for clean energy investments, they also acknowledged the power for regulatory regimes to either encourage or stymie investor interest.

Cardano's Roe stated that the existence of regulation would not impact his decision to make an investment, but that one must be aware that government actions could impact the appetite for clean energy investments more generally.

"Many industries face regulatory risks. We are seeing increasing regulatory focus on the tech industry and the advent of AI is only likely to accelerate this further" he said.

"Clean energy is no different; we are pivoting to a world where we need to take a longer term view, and regulation will have a key part to play in that."

Aviva Investors' Murphy cited detrimental moves by the Spanish and Italian governments that introduced retrospective cuts within the clean energy space.

Indeed, a UK government Energy and Climate Change Committee received evidence stating that Spain and Italy's energy policy moves were damaging to investor sentiment.

"The retrospective cuts to renewable energy policy in Spain and Italy are the worst European examples of government interference in stated energy policy, which are often referred to within the renewables sector and by investors as case studies in how not to operate an energy policy strategy," the evidence paper stated .

While governments often prefer free-market economics to drive an industry, policymakers can be vital in setting the wider narrative.

Again, Canada was hailed as a leader when it established a revenue-neutral carbon tax which saw emissions dollars collected returned directly to Canadians.

In 2019, Canada mandated a federal rule that provinces needed their own carbon pricing systems or be subjected to the federal rules.

The government says the average household gets back more than they pay in through tax initiatives, with the price of carbon set to rise by CAD$15 a tonne per year until it hits CAD$170 a tonne in 2030.

While such initiatives make a significant difference to carbon emissions, the panel noted that securing a clean energy system is a transition that cannot be achieved overnight, and that reliance – to some degree - on fossil-fuel derived energy will need to remain for years to come.

"What I would ask is what is clean-er energy, as nothing is entirely clean," said Mackenzie's Cook.

"You need water to polish solar wafers, coking coal is needed to make the steel for wind towers, chemicals feature in wind turbine gearbox insulation, and while gas is cleaner than coal, it is not clean but probably necessary to stabilize the grid as we add intermittent renewables" he said.

LCP Delta's Hollister added that support also needed to be given to investors to help turn so-called 'brown' assets to 'green' ones.

"Something that is probably overlooked at present is investment into something like a coal-fired power station with the intention of transitioning it to gas power which is lower carbon and will be needed to support a move towards a wind-based energy system," he said.

"It's difficult as that is enabling the Net Zero transition but is still investing into a fossil-fuel related asset."

The panel also debated the ethical dimension of pursuing clean energy at all costs, highlighting that the 'S' in ESG had to be considered when making investments that might hasten the decline of fossil fuels in favour of cleaner alternatives.

If coal production was shut down overnight, for instance, a country like Chile would suffer a huge hit to employment, potentially plunging whole communities into poverty.

Mackenzie's Cook said it was imperative that investors supported an energy firm that was transitioning into renewables, even if it still had some exposure to fossil fuels, as long that business was actively demonstrating a willingness and a plan to transition away from its legacy fuel.

However, Aviva Investors' Murphy claimed he would struggle to present to his clean energy investors a position in a gas firm, for example.

"I agree it can be different in emerging markets, but we had an exclusion on a German company with a similar energy profile to the Chile example," Murphy added.

"I think if a firm says it has a plan to reduce its use of fossil fuels, it has to show progress on that plan, and investors have to have teeth against any intransigence."

SYPA's Graham added that his scheme did have an exclusion on thermal coal and tar sands, which was "quite something" given his board included ex-miners from a community that was hit hard by the UK's mine closures in the 1980s.

"We wouldn't do coal, but we accept that other fuels are not necessarily clean, but a necessary evil in the transition," he said.

"The important thing, from our view as investors, is that we have a managed transition rather than an unmanaged one, as the communities where our members live and work have seen an unmanaged transition."

Number crunching

One of the most vital aspects of managing a transition, and indeed investor and government policy, is data.

The panel were unanimous on the importance of data, however acknowledged various hurdles that needed to be overcome, including regulatory frameworks, compatibility, and ensuring firms have the skills required to generate the relevant data about their firm.

"The government is relying on people like me to move the market [on regulation]," said SYPA's Graham.

"They're relying on the supply/demand mechanism to improve data rather than regulating it, but it's an obvious place where regulation would help."

He added that the Task Force on Climate-Related Financial Disclosure (TCFD) was useful, but that not everyone was compelled to provide the data, and a taxonomy was still emerging.

"I have TCFD metrics from underlying holdings that I can't add together," Graham added.

Aviva Investors' Murphy agreed that his clients wanted TCFD-style data, but that there needed to be "clear methods on calculating carbon", and that particular focus needed to be shifted to overcoming a dearth of data within fixed income.

"If you're an equity owner, the data is a easier to come by, but it's challenging in the debt space as you don't control the assets and so sponsors might not be willing to provide data," he said.

"There's a desperate need for standardisation on the debt side."

Of course, without easily identifiable data, there is an "information advantage" to be had, said Mackenzie's Cook.

"There's a lack of data and a lack of understanding about what's going on under the hood, and that has created value opportunities for those that look hard," he said.

LCP Delta's Hollister said he felt the availability of data in the UK was stronger than many other markets, but that it required work to digest it and derive meaning from it.

Dominant forces

Looking internationally, the panel agreed that China was probably one of the few nations that genuinely thought long-term, and that in spite of some western nations' narrative that it was an unbridled polluter, it was clearly making progress regarding clean energy.

"From our perspective, it's dominating in so many technologies," said Mackenzie's Cook.

"The US tries to say that China is dirtying the world, but it feels to me that we send our manufacturing .

there, and they're well ahead of other countries in areas such as battery, EV and solar production," he added.

Cardano's Roe agreed that China was "moving ahead from a Net Zero transition standpoint", while Aviva Investors' Murphy stated that while it wasn't necessarily an investment issue as to China's dominance in clean and renewable energy, it could become a supply chain issue if China began to monopolise and control key raw materials.

Roe added that the potential rise in cost of materials, such as copper, that are intrinsic to many renewable technologies, was potentially the "biggest risk" faced by investors and the renewable energy industry more broadly.

LCP Delta's Hollister agreed that such problems could impact supply chains, and thus derail national governments' targets for renewable energy.

"With supply chain issues and inflation, cost is a big problem," he said.

Nevertheless, the fact that fossil fuels cannot be relied upon for the long-term, the panel believed that the outlook for clean energy investing was positive, and that regardless of the hurdles, solutions would be found.

"I'm positive on clean energy, as it has to happen," said SYPA's Graham.

"I don't think that we can let it not happen, and that creates opportunities to find the right sort of long term returns in different places to where we've historically looked for them; it's about moving money from the traditional places to new ones with the types of return trajectory that fit my scheme's liabilities."

> *"I don't think that we can let it not happen, and that creates opportunities to find the right sort of long term returns in different places to where we've historically looked for them; it's about moving money from the traditional places to new ones with the types of return trajectory that fit my scheme's liabilities."*

Roundtable Participants

Darryl Murphy
Managing Director, Infrastructure

Personal Profile

Darryl is responsible for origination, structuring and execution of new infrastructure debt transactions. Transactions are sourced and assessed against the investment strategies of our clients and structured accordingly.

Prior to joining Aviva Investors, he was a partner at KPMG in the Infrastructure Advisory practice. Darryl has over 27 years' experience in infrastructure finance having also worked at Hambros, SG, Newcourt Capital, RBC and was head of European Project Finance at HSBC. He is widely recognised as one of the leading infrastructure financing experts in the UK and has structured, advised and arranged on a wide number of projects globally and has particular expertise in public private partnerships.

Darryl holds a BSc and PhD in Maths from the University of Exeter.

Company Profile

Aviva Investors is a global asset manager with over £222:bn of AUM managed in real asset, fixed income, equity, multi-asset and alternative investments in 14 countries. Our clients can benefit not only from our significant local knowledge and experience, but also from the extensive global investment resources at our disposal. Responsibility is incorporated at all levels of our organization: understanding the factors, risks and opportunities in ESG helps us to be better investors and delivering the investment results our clients expect.

The value of an investment is subject to increases and decreases. Investors may not recover the amount originally invested. * Data as at December 2022.

John A. Cook, CIM
Senior Vice President, Portfolio Manager, Team Co-Lead Mackenzie Greenchip Team

Personal Profile

Joined Mackenzie in 2021; investment experience since 1991.

John brings 30 years of experience ranging from mutual funds, venture capital and social finance.

Before co-founding Greenchip in 2007, John was President of MaRS Discovery District, one of Canada's largest innovation hubs. He also held a number of executive positions at Canadian mutual fund companies.

BA from Queen's University; Chartered Investment Manager (CIM) designation.

Company Profile

Mackenzie Investments, founded in 1967, is a leading Canadian global asset manager, headquartered in Toronto with international investment teams in Boston, Dublin and Hong Kong. As part of IGM Financial Inc., a subsidiary of Power Corporation with a history dating back to 1925, Mackenzie benefits from the financial stability of a deep corporate structure while maintaining a boutique investment management profile.

Our distinct and experienced investment teams offer both fundamental and quantitative approaches with expertise across traditional and non-traditional asset classes, including equities, alternatives, currency and multi-asset strategies.

We provide investment management services to pension plans, consultants, foundations and other institutions, building trusting relationships that seek to understand client perspectives. We are committed to delivering strong investment performance and offering innovative, relevant solutions to our clients by drawing on the experience gained through over 50 years in the investment management business.

Roundtable Participants

Jonathan Roe

Investment Manager

Personal Profile

I have over 13 years of experience in investment consulting. I joined Cardano in March 2021 as an Investment Manager in the Manager Research Team.

My role involves selecting and monitoring equity and equity-related strategies. Previously, I spent seven years undertaking equity manager research at Stamford Associates. I am a CFA Charterholder.

Sam Hollister

Head of Markets, LCP Delta

Personal Profile

Sam works within LCP's energy analytics team and leads on external engagement and market insight. With over 10 years experience within energy policy and public affairs, he has been a Senior Director at the leading energy trade association and most recently led the policy team at one of the UK's largest energy retailers.

He has expertise across the breadth of energy policy and has represented the industry on several government expert working groups; most recently looking at the impact of EV deployment on the energy system and separately how to encourage the uptake of low carbon heat solutions to transition to net zero. Sam supports clients with the assessment of the impact of energy policy and the identification of investment opportunities.

George Graham

Director

Personal Profile

George joined the South Yorkshire Pensions Authority as Director in February 2018 and as Head of Paid Service is responsible for the management of all aspects of the Authority's activity which is concerned with the management of a £10.5bn Pension Fund with over 170,000 members.

Previously he was Managing Director of Local Pensions Partnership's pension administration business, having led the Lancashire County Pension Fund prior to the transfer of its staff to LPP as part of the creation of a joint venture with the London Pension Fund Authority.

A fellow of CIPFA, George's previous career in local government finance involved roles as Deputy County Treasurer at Lancashire County Council, Executive Director of Resources at Rossendale BC and Director of Finance at Chorley BC, preceded by roles at Northamptonshire CC and Oxfordshire CC where he did his CIPFA training. George also represents practitioners on the Local Government Pension Scheme Advisory Board for England and Wales and is a member of the Board's Responsible Investment Advisory Group.

Moderator

Elizabeth Pfeuti

Chief Client Officer

Personal Profile

Former Dow Jones staffer Elizabeth Pfeuti is Rhotic's Chief Client Officer and a member of the Rhotic Media executive leadership team. A highly-decorated journalist, Elizabeth has been in financial journalism for around 15 years. At Dow Jones, she covered the asset management, investment banking and investor services beats for Financial News, where she also wrote on a wide range of regulatory themes

She was previously the European Editor for CIO Magazine and boasts an exceptional contact book of buy-side and in-house institutional CIOs and asset management executives. More recently she has worked on corporate briefs for pension consultants, investment banks and asset management groups.

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