KEYNOTE INTERVIEW

Powering the path to decarbonisation

As the global drive towards a cleaner energy future accelerates, technologies that enable reliable and scalable decarbonisation are becoming ever more critical, says Nuveen Infrastructure's Joost Bergsma

Over the past 15 years, efforts towards an emission-free future have focused on retiring coal plants and expanding wind and solar. Scaling clean energy further, however, requires investing in technologies that strengthen and enhance grid flexibility.

In Europe, the main bottleneck is the grid itself. Electricity production and demand are often geographically mismatched – wind generation is concentrated in coastal areas while industrial demand is elsewhere – making high- and medium-voltage networks critical constraints. Access to the grid, not just capacity, is essential, and 'last-mile' off-grid infrastructure such as smart meters and behind-the-meter solutions can improve delivery efficiency for large consumers like data centres.

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Battery storage and biogas are also emerging as key energy transition solutions. Together, these building blocks provide proven technology, portfolio resilience and strong growth potential, says Joost Bergsma, global head of clean energy at Nuveen Infrastructure.

Q What key considerations shape capital allocation across generation, storage, grid infrastructure and end-use solutions?

When building portfolios, investors typically balance diversification with the potential to scale. Investing in multiple technologies helps manage risk, while focusing on areas where investments can be expanded creates value and maximises returns. Medium-sized investments often hit the sweet spot – big enough to have impact but not so large that deployment becomes impractical, particularly in densely populated regions like Europe.

Platform-based aggregation is another key strategy. Rather than

simply acquiring large, fully built assets, investors can generate outsized returns by starting with smaller assets and expanding them into larger portfolios. Typically, this begins with clustering assets within a single country under one platform. Over time, these can then grow into a significant entity, enabling efficient capital deployment while creating scale and operational synergies. For example, combining multiple smaller energy projects in a market like Spain can create a larger, more impactful platform that remains manageable.

Geography also shapes strategy. Europe is very much our home region, but compared with the US or Australia, its higher population density limits the scale of investments that can be deployed. As a result, we're somewhat sceptical of super-large funds, which tend to be less effective here. Ultimately, success requires combining conviction in high-potential themes with practical considerations around scale, technology maturity, market dynamics and regional concentration.

Q Where do you see opportunities for scaling platforms?

Some sectors are difficult to decarbonise with solar panels or battery storage alone, making biogas a particularly compelling opportunity. Unlike hydrogen, which remains costly to scale, biogas can utilise existing gas grids, deliver reliable energy and generate stable cashflows. While the energy transition has been delayed, demand for gas persists, creating a clear role for biogas.

Across several European countries – not everywhere, but in many – we see significant opportunities to produce green gas. The sector is fragmented, offering potential to scale platforms that consolidate multiple small assets. Optimising revenue streams through a holistic energy mix – combining biogas and other forms of power generation, storage and direct-to-consumer solutions – enhances pricing power and stabilises returns.

Battery storage is also playing an increasingly important role in balancing supply and demand, and optimising electricity pricing. Technological advances and falling costs – driven in part by electric vehicle battery production – have increased storage efficiency, allowing batteries to complement solar and wind generation more effectively. Wind, solar and storage each have different production profiles: wind performs well in winter, solar in summer and batteries bridge the gap at night.

Scaling businesses in these sectors may involve cross-border activity but operational focus is critical. Too many markets under one platform can dilute attention and reduce efficiency. Regional platforms often deliver the best combination of scale, focus and growth potential.

Q How important are partnerships and local expertise in sourcing differentiated opportunities?

Partnerships are critical across the energy transition value chain. Local expertise is essential for navigating permitting, regulatory approvals and other community-level requirements. On the construction and supply chain side,

Q How can short-term returns be aligned with long-term structural opportunities in the energy transition?

Balancing short-term returns with long-term opportunities is a natural feature of infrastructure investing, particularly in clean energy. These assets are inherently long-term investments, but the market has evolved significantly over the past decade. Today, investors have more flexibility in structuring capital to capture both immediate gains and enduring value. For example, some vehicles are designed as buy-and-hold structures, offering investors the ability to hold operating assets over many years and benefit from stable, long-term cashflows. At the same time, newer technologies or development-stage projects allow investors to take on construction or development risk and realise shorter-term uplifts. Once built, these assets can be rolled into longer-term portfolios, effectively bridging the short-term and long-term horizons.

Institutional investors increasingly want diversified exposure – a mix of vehicles with different risk-return profiles, combining stable operating assets with higher-growth, development-stage opportunities. By creating separate pots of capital for different strategies, investors can balance short-term performance with long-term structural growth without forcing a trade-off within a single vehicle.

high-quality equipment and trusted suppliers are vital for long-lasting assets – solar panels, batteries or other hardware must perform reliably over 25 to 30 years. Strategic relationships with these suppliers help mitigate risks from cost volatility, geopolitics and equipment reliability.

On the operational and revenue side, partnerships with corporates and other customers are crucial. Long-term power purchase agreements, often 12 to 15 years, provide stable cash-flows and predictable returns. These relationships also allow investors to tailor services to clients' production needs and sustainability goals, such as helping corporates meet net-zero targets through certificates of origin or internal reporting standards. In solar and battery storage, we work closely with local developers, often small, regionally focused businesses, through formal agreements or longstanding relationships.

Q What are the biggest risks in energy transition investing today and how can they be mitigated?

The biggest risk in energy transition investing is policy and regulatory uncertainty. These are heavily regulated sectors, and projects – whether wind, solar or storage – require government approvals, grid connections and local execution. While European and national governments have clear decarbonisation objectives, the practical implementation often moves slowly due to limited capacity in state-owned grid operators and infrastructure teams. Delays in grid connections remain one of the key bottlenecks.

Technology risk for established assets like solar, wind and biogas is lower than a decade ago. But emerging technologies such as battery storage still carry operational risk, as few large-scale assets are fully deployed in Europe. Supply chain risk remains significant too, with much equipment sourced from a small number of countries, particularly China. Disruptions could slow deployment.

In the US, tariffs on Chinese solar panels have encouraged some domestic production despite higher costs, while Europe continues to rely heavily on Chinese imports, with little reshoring so far. External shocks, such as geopolitical crises, can create opportunities as well as risks. Rising power and gas prices may boost uncontracted output, while economic slowdowns or higher interest rates could reduce returns.

> *"As the energy transition matures, differentiation increasingly comes down to discipline, experience and execution"*

Q How can investors gain an edge in the increasingly crowded energy transition space?

As the energy transition matures, differentiation increasingly comes down to discipline, experience and execution. A major advantage lies in focusing on proven technologies – those supported by established supply chains, reliable equipment and strong performance track records. Importantly, 'proven' is not static. Technologies such as offshore wind, for example, have evolved from emerging to established over the past decade. Investors who can recognise when technologies cross that threshold are better positioned to manage risk while capturing growth.

Discipline is essential at every stage of energy transition investing. Careful portfolio construction, diversification and an understanding of local policy and execution risks help investors avoid overcrowded trades. At the asset level, technical expertise and strong relationships allow investors to de-risk opportunities, optimise operations and enhance value through engineering, revenue structuring or electricity sales. Planning for the exit from the outset ensures assets are well-structured and sale-ready six to seven years later. Combining disciplined portfolio strategy, hands-on value creation and forward-looking exit planning enables sustainable growth without chasing short-term trends.

Experience is another significant asset. Investors with long track records across market cycles are better equipped to navigate complexity, avoid common pitfalls and apply lessons learned to new opportunities. In a crowded market, that combination of technological insight, operational value creation and strategic portfolio construction can create a distinctive capability and meaningful edge.

Q How do investors measure financial performance and real-world impact when evaluating energy transition investments?

Clean energy delivers both strong financial returns and measurable impact. We track audited financial metrics alongside carbon reductions, job creation and biodiversity outcomes. Wind and solar projects replace fossil fuels, while operations and management also create local employment. Across our 60-plus investments in 15 countries, we report quarterly on these key performance indicators, showing that sustainability and profitability go hand in hand –providing investors with reliable returns and tangible contributions to decarbonisation. ■