KEYNOTE INTERVIEW

Greenfield's essential transition role

Building the next generation of renewables and related enabler technologies will be a key focus for years to come, says Ivor Frischknecht of Sosteneo Infrastructure Partners, part of Generali Investments

The energy transition constitutes an unprecedented overhaul of where we get our energy from and opens up a whole host of opportunities for infrastructure investors.

Indeed, given that demand for clean energy is rising, renewable infrastructure will need to expand substantially to keep pace, according to Ivor Frischknecht, managing partner and CIO for Asia-Pacific at Sosteneo Infrastructure Partners, part of the Generali Investments platform.

Ready-to-build greenfield opportunities will therefore be an essential part of the future mix and are attracting more and more attention from investors, he explains. The challenge, then, lies in identifying which projects will ultimately provide reliable investment returns.

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Q How do you define greenfield infrastructure assets, and what makes these appealing to investors?

There are three distinct stages to an infrastructure asset over its life. The first is the development stage, which covers everything from prospecting the land to designing the asset, obtaining permits and so on. This is very high-risk, and a lot of projects ultimately don't see the light of day, particularly in the renewables space. But it can offer high returns, and it doesn't take too much capital.

The second stage is what we call the greenfield window, which is everything between being ready-to-build and achieving notice to proceed. This means you have all the permits, so the project is almost certain to be built, but you may still need someone to do the construction, to lock in the revenue and to finance it.

Arranging all this may take six

months or longer. Following notice to proceed, construction takes place and then the plant needs to be de-risked during the first few months of operation. This entire stage – which is where we focus – has high capital requirements, high complexity and low-to-medium risk. However, it is a relatively well-defined time period, so we know how long we will have the asset, and we can have confidence regarding what the outcome will be if the risks are managed well.

The third stage is brownfield, where an asset is fully operational, has a track record, and most aspects have been de-risked. It's a stage marked by low complexity, low risk and high capital requirements.

We focus on that middle, greenfield stage. Different investors have different preferences in terms of risk/return profile, but we feel greenfield offers us a higher return, around 2-3 percent additional return compared to brownfield assets, with the benefit of a defined investment timeframe. There is a little more risk involved than with brownfield, but we can manage this.

Greenfield assets also provide real additionality. For instance, if you are concerned about moving the dial on climate change and decarbonising the energy system, it is only by building a new asset that you can achieve that change. If you just buy brownfield assets, you are not achieving that.

Q Does the appeal of investing directly in renewables risk enabler investments – such as interconnectors and battery storage – getting overlooked? What opportunities can be found here?

It's true that wind and solar are the most mature and best-known energy transition assets, but there are lots of other related technologies to consider too, including these so-called enablers. These are present across many different geographies, but not all markets will be at the same stage when it comes to developing these technologies.

For example, Australia has a long and skinny energy network mostly extending up the east coast, with relatively high renewable energy penetration. This means there is considerable need for batteries, and the Australian market has been investing in these solutions for some time.

After all, storage is crucial to keeping the lights on consistently when you're relying on renewable energy, given that it's not always windy or sunny. The benefits go deeper, too, as storage solutions such as batteries can provide grid stabilisation services that help to instil system strength and grid safety. In Australia, market-based contracts are increasingly being offered for such grid stabilisation services. By contrast, in the UK, which is not quite as advanced, there are frequency markets that you can be paid for. And crucially,

Q To what extent is NIMBYism still holding back progress?

NIMBYism – or, more politely, social licence – is a huge issue that we as an industry have not done enough to address. Over time, though, these concerns will go away, as we as a society work out what is acceptable and what isn't. For instance, we don't worry about which side of the road to drive on. We're told where to drive and we just accept it. At some point, people will simply accept a solar farm or wind turbine being a certain distance away, as it will become part of the norm.

In the meantime, compromises can be made, of course. For instance, there might be discussions around whether or not a solar farm is the best use of agricultural land. Realistically, though, the land can be used for both purposes, and we can often deal with any practical issues raised. Some additional cost may be involved, but this will likely be a cost worth paying. The level of community support is part of the ESG review we do on all projects.

Governments – whether local or national – also play a big role here. They help to define the community norms, set aside zones for development and oversee permitting and conflict resolution. Having local knowledge and strong relationships to navigate all of this is critical.

In short, whether the community will be accepting of a project is a very important consideration, as this can make the difference between a project proceeding or stalling. Having a lot of engagement early on and consistently with the local community is critical.

batteries' revenue stack will continue to grow over time too.

Likewise, power networks are both a good enabler asset, transporting energy from one place to another, and an important balancer, in that they help to ensure energy is not wasted because of a lack of capacity to get it to users. The efficient use of networks comes from a combination of local storage and managing demand so that it (partly) adjusts to the available supply. The digital infrastructure required to make all this work together plays a critical role here.

Other, less mature assets warrant attention too. For instance, we need to make progress on the likes of rolling out charging infrastructure for electric vehicles (as well as the actual trucks and cars), geothermal energy exploration and extraction, and scalable sustainable aviation fuels. All of these asset types need to have effective funding models developed over time.

To us, 'infrastructure' means something that delivers a predictable yield for portfolios, so there needs to be revenue contracted to these assets. This can happen with immature asset types – for example, when a trucking company underwrites the revenue for a charging depot – but often investors are asked to take on the risk of how much an asset will be used. Such a model isn't 'infrastructure' to us because the returns aren't reliable.

"Greenfield offers around 2-3 percent additional return compared to brownfield assets"

Q How is technology changing designs for greenfield energy infrastructure?

The latest technologies are enabling all sorts of changes. For example, wind turbines themselves are actually getting bigger, which means greenfield wind farms can benefit from steadier and stronger wind higher up.

The term 'capacity factor' relates to how you measure the output of a particular project relative to its theoretical maximum. If a wind farm were producing 100 percent of the time at its rated capacity, it would have a capacity factor of 100 percent. A few decades ago, wind farms had capacity factors around 30 percent. Today, they are more often in the 40-45 percent range, which shows how output has improved. This is partly due to the design and size of turbines, but the technology inside these turbines is supporting this too, helping to reduce downtime, minimising the heat generated and ultimately allowing for more electricity to be put through to the grid. Solar farm capacity factors have also increased, while costs continue to fall.

New systems can also help with maintenance, by informing operators before parts break. This helps to eliminate inefficiencies, by ensuring you don't end up replacing a part that didn't need to be replaced – or worse, having it break and causing unscheduled downtime. With smarter systems, we can listen to the machinery, measure vibration levels and keep track of how equipment is performing. All of this data is then being analysed by people and AI, allowing us to make better decisions.

Technology is now getting smarter in other ways, too. We often hear a concern that wind turbines will harm local bird populations, especially nesting eagles. It's now possible to install AI-connected cameras that can shut down the blades of a single turbine before an eagle gets hit.

Q What are the main misconceptions you encounter about greenfield infrastructure?

One of the most prevalent misconceptions is that greenfield assets, or energy transition assets in general, are always enormous pieces of equipment. In fact, they can be relatively small and distributed. The key feature of these assets is that the revenue is contracted, meaning a high degree of predictability, which gives investors stable yield. A wide range of asset types could qualify.

There's also a misconception at play when people ask whether or not a type of infrastructure is 'mature' or 'bankable'. A technology doesn't have to have been around for decades for it to provide stable infrastructure returns. After all, you can learn a lot from experience with similar or analogous technologies that can then be applied to the new technology.

For instance, if you've built a bioenergy facility, you can use that knowledge elsewhere, such as in sustainable aviation fuel production. That ability to leverage existing experience is what is going to drive energy transition investing forward into new sectors over the coming years without 'new technology' levels of risk. ■

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