

# KEYNOTE INTERVIEW

## Back to the future?



*Repowering older renewable assets is no longer optional – it’s essential to extending the lifespan of energy-generating platforms and maintaining their financial and environmental benefits, explain Bluefield’s Paula Naranjo and Nunzia Pignataro*

It’s an exciting time for the renewable energy sector, marked by a shift from simple operations to sophisticated re-vamping and repowering. As older solar assets reach maturity, investors face a strategic choice: let performance degrade or proactively invest for a new lease on life.

Market and technological evolution indicate that repowering is increasingly being considered by investors, financial institutions and governments around the world. The benefits in terms of energy generation, sustainability and long-term financial return all suggest that simply backing the initial establishment of a renewable asset is no longer enough. Paula Naranjo, head of engineering, and Nunzia Pignataro,

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investment manager, at Bluefield explore the critical opportunities that exist for investors looking to revamp and repower renewable assets.

**Q What are the key financial indicators to look at when evaluating a repowering opportunity?**

**Nunzia Pignataro:** We have a few strategies for assessing revamping and repowering assets. From an investment perspective, we look at these in a similar way to new investments. As such, we consider our technical findings, the

capex expenses, the potential uplift in energy generation, the additional capacity resulting from the revamping and the asset life extension. The main benefits that you see as a result of re-vamping and repowering activities is the life extension and generation uplift.

Assuming that your assets were built 10 or 15 years ago, if you don’t revamp them, they may only have another 10 or 15 years of life at most. By doing the revamping, you extend that lifespan and gain another 25 to 30 years. Obviously, from a financial perspective, this offers long-term benefits. In addition, you usually have an uplift in power generation that’s between 20 and 50 percent, depending on how old and underperforming the assets are.

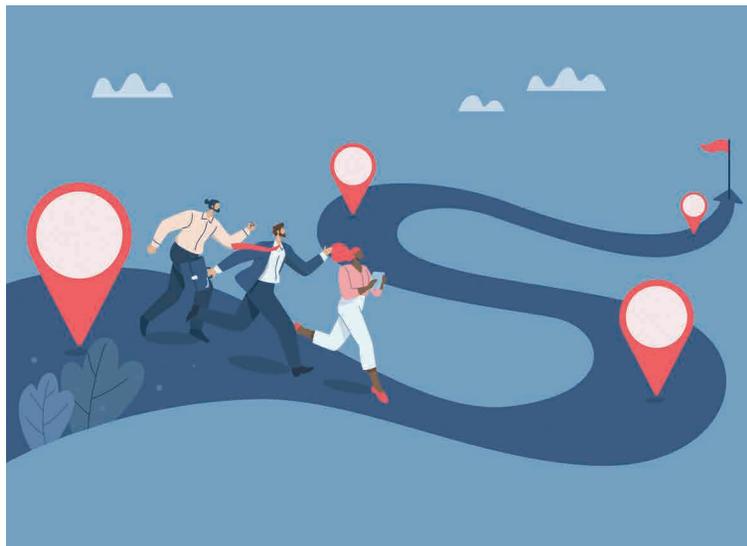
From an investment point of view, government incentives also factor heavily in terms of whether revamping or repowering is financially viable or not. For instance, if there's a feed-in tariff (FiT) available, this represents a significant advantage for a particular market. We prioritise markets where this FiT is available, such as Italy. Most of the older plants here have an existing FiT that's retained when you carry out revamping works. Similarly, on the repowering side, an incentive was recently introduced for new-builds in the country. This means that even for the additional capacity generated, investors could receive a long-term, stable incentive from the government.

A good example of our approach would be Project Brindisi in southern Italy. Bluefield Revive Italia acquired a 7.2MW solar portfolio in Puglia, comprising 10 operational solar plants built more than 10 years ago. This was a strategic acquisition, with existing permits allowing power generation to be expanded up to 10MW (an addition of 3MW).

Leveraging an integrated team, consisting of expertise in investment, asset management, finance, engineering and monitoring, Bluefield has been able to support the energy transition in Italy through the acquisition. The repowering strategy has included upgrading the plants with bifacial modules and trackers, resulting in a generation uplift of circa 50 percent. Full land ownership has been secured as part of the project's long-term operation under the Conto Energia subsidy scheme. The revitalisation of these plants continues to demonstrate the value of proactive asset renewal in the solar space.

### Q What are the main factors for investment?

**Paula Naranjo:** As part of our technical assessment, we explore various scenarios. We evaluate new modules, inverters, monitoring systems and metering solutions, along with any constraints an asset might have due to



### Q From planning to execution, how should managers approach each project?

**NP:** Engaging with local planning authorities as early as possible is crucial. This ensures that any design changes are submitted as non-material amendments, the planning resolution is provided and the project can be executed. It's also helpful to plan in advance with regards to your work schedule.

Next, you need to start engaging with the DNO for your grid. If there's going to be any increase in energy as a result of the project, you'll need to be sure that the grid can handle it. Then, you need to understand the role of your EPC contractor. Do they have access to the right skills and personnel for your project?

**PN:** Lastly, the removal of equipment may involve some special requirements from the manufacturers. In the past, for example, we have had to follow specific guidance regarding logistics around some pieces of equipment. It's important to engage with the manufacturer early to understand what those requirements might be and put them in place. There may be a whole recycling and decommissioning process you need to follow and if you don't foresee those in advance, you cannot embed them into your programme of works.

the compatibility of existing healthy equipment. Essentially, we want to explore what healthy equipment there is on site and whether an organisation's capital expenditure can be reduced by utilising some of it. It's a sort of 'engineering backwards' approach – evaluating what's already on site and how new technology can be implemented without materially increasing the capex.

An interesting factor to consider

for solar generation assets is bifacial modules and trackers, modules that can capture irradiation on the rear side of cells and structures that follow the position of the sun. This can significantly increase yield of approximately 15 percent compared to fixed structures.

Some of the constraints we consider as part of our technical assessment may also relate to the site itself. For example, if the ground is too rocky, you're

unlikely to want to pile again. You'll need to bring in new machinery and spend more money. Alternatively, there could be environmental constraints. If the granted planning application for a particular piece of land has some constraints, for example, you'll have to model your project design around them.

### **Q** What are the most significant risks you associate with repowering projects?

**NP:** When assessing revamping/repowering opportunities, some key considerations undoubtedly relate to the regulatory risk. Here, revamping usually represents a more streamlined process. Conversely, adding new capacity as part of a repowering project often needs to be authorised as if it were an entirely new development.

In terms of market risk, some geographies like Italy, Spain and Germany have enough older solar and wind assets in need of revamping/repowering, while newer markets might not. Of course, the incentives also need to be considered, such as FiTs. Care must be taken to ensure that revamping activities don't compromise existing FiT for the remaining term.

**PN:** Looking at technical risks, any unforeseen events related to construction, including workmanship and health and safety issues, have to be taken into consideration. Logistical risks are another area that must be looked at. Having a holistic approach that includes the grid liaison, planning approval, delivery of materials on site and the successful disconnection and reconnection in the initial programme of works will be key for the success of the project.

Our in-house engineering and construction teams run a technical due diligence process that considers design review, contract negotiation and construction monitoring so we can manage risk and raise red flags as

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soon as possible. Any risks we identify are mitigated at the design stage. The due diligence process looks to ensure compliance with permitting and regulations. As such, preparation and advanced planning are key for any project we undertake.

### **Q** Looking at how projects used to be built, how has the market evolved?

**PN:** Over the last two decades or so, the technology has certainly changed significantly. Modules are now much more efficient and they're 10 times more powerful. Inverters have developed similarly. If we look at the difference between, say, Italy in 2007 versus 2025, inverter manufacturers have learned from their mistakes and invested heavily in R&D.

Away from the technological side of things, owners now want to be more proactive and seek better control. Today, everyone is talking about AI and data management – how we can take data from the site and be able to predict what's going to happen in the future.

**NP:** Looking ahead, we're seeing new regulatory frameworks being developed. Governments are waking up to the number of older assets in existence. Revamping and repowering them is going to therefore become much more widespread. The planning required for revamping is becoming quite straightforward and no longer seen as a risky practice that banks are unwilling to back.

Any future plan regarding renewables has to consider how we decommission a site, what the environmental impact of that might be and how we can minimise the impact throughout the entire life cycle of a project. For me, the future will concentrate on embedding ESG as a core part of asset management activities. We should be building solar plants and other renewable assets with repowering in mind. This view seems to be becoming more commonplace across markets. ■