

# Towards a standardised contract for solar O&M

**Operations & maintenance** | In April an international working group will publish a bundle of standardised contracts aimed at aiding the rollout of PV worldwide. Sara Verbruggen previews the template contract for solar O&M and assesses its impact in streamlining this aspect of the business



Credit: BayWa r.e.

To an observer today solar epitomises everything that a high-tech industry should be. Since its inception, upstream and downstream the solar value chain has undergone transformation, often through greater use of automation, in new areas like plant construction and maintenance. It's always with the aim of pushing down the cost of solar electricity.

With the accumulation of years of experience in mature markets, it is inevitable that soft costs too should be streamlined, especially if new markets with solar resources and demand for cheap electricity are to be tapped. Otherwise there might well be justification for a joke along the lines of: How many people does it take to build and manage a PV plant? Just robots, and a team of lawyers, of course.

The second quarter of 2018 will see the fruit of efforts by the Solar Energy Standardisation Initiative (SESI) to

condense and streamline the legal documentation required in the process of developing, constructing and operating large-scale solar power plants. SESI will publish seven template contracts, providing a standardised legal framework, free of charge, applicable to any solar market in the world.

Formed by the International Renewable Energy Agency (IRENA) and the Terawatt Initiative, SESI draws on the input of all stakeholders involved in the development and operation of solar plants. Lenders, developers, asset managers, operations and maintenance (O&M) service providers and others have all been consulted so that the template contracts reflect years of accumulated practical experience by the industry.

## A template contract that reflects the state of O&M today

In more mature PV markets, like Europe, O&M has emerged as a valued

sub-sector of the industry in its own right. When the first solar installations were built several years ago O&M used to be something the original engineering, procurement and construction (EPC) firm took care of and largely involved vegetation clearing and panel cleaning.

Operating and managing these assets to perform optimally throughout their lifetime has since evolved into a more complex task, relying on scheduled maintenance activities, weather forecasting, equipment monitoring and strict data recording and analysis.

Specialist O&M service providers compete for tenders, and their services are often procured by asset owners that are not the original developer/owner, with the objective of ensuring that plant performance can be sustained or increased to generate returns for their own shareholders.

The industry's early O&M contracts reflected the previous over-simplification of O&M activity.

"In most cases the O&M contract was signed together with the EPC contract and included basic activities done by the EPC or its subcontractor, with a performance ratio guarantee, amongst others," says Vassilis Papaconomou, managing director of O&M specialist Aletris and until recently chair of trade body SolarPower Europe's O&M Task Force. "It was also common for asset owners to be tied into fairly onerous long-term contracts usually with the company that developed the project. It was difficult to get out of these, even if the O&M service was poor."

Paolo Chiantore, managing director of operation services at Germany-based BayWa r.e., who recently took over from Papaconomou as the task force chair, points out that in the intervening years, as the secondary solar market began

## The evolution of solar O&M has created a need for greater standardisation in contracts and other practices

to emerge, the new owners of assets, quite legitimately, renegotiated O&M contracts, defining new conditions, price limits, liabilities and so on.

"In some cases the O&M contracts then became unbalanced but in favour of the asset owner. A key part of SESI's work has been to make sure these contracts reflect a fair balance of liabilities and risks between parties," Chiantore says.

As development of solar in Europe indicates, a mature PV market has two definitive parties: the long-term plant owners, with their own departments for managing these assets, and the specialised O&M contractors, which have emerged as a result of M&A activity and improvements in technology for operating and maintaining these assets, explains Chiantore.

### Simplifying negotiations

While the SESI template contracts won't put lawyers out of a job, they will simplify contractual negotiations. Chiantore explains: "Just recently, I got a call from a new client that our company had been awarded an O&M tender with. After that news the client asked me to send over my contract and he would send over his. When we negotiate a new O&M mandate we often have to draft a new and dedicated contract each time. That means lots of negotiations, exchange of marked up files, involvement of legal departments and so on. With a template O&M contract we can both work off it, making adaptations of course. It might take a few weeks to get to the point of signing, instead of a few months."

The initiative has drawn on the services of several corporate law firms, with practices in relevant fields, such as energy and project finance, to produce template contracts designed to provide a full legal framework for delivering bankable PV projects. This means having contracts that ensure risk is properly allocated and proportioned among the different parties.

While a bankability perspective from the outset is more evident in mature PV markets, it will be critical also for projects to proceed smoothly and successfully in emerging markets, where debt is the main source of finance, according to Elizabeth Reid, an energy law partner at Bird & Bird.

This bankability perspective has been baked into the O&M contract template.

For example the template includes two contract term options. One is for five years, with automatic extensions, or there is one for 15 years to match the debt term.

Reid says: "Certain aspects of an O&M contract are fundamentally important to achieve a bankable contract. One is the term of the contract, with term matching the tenor of the debt, for example. Others include ensuring there are adequate liquidated damage remedies if the contractor is not performing.

"Often response time liquidated damages are a better way of ensur-

*"A key part of this work has been to make sure O&M contracts reflect a fair balance of liabilities and risks between parties"*

ing this, certainly when compared to a performance ratio (PR) guarantee or an often easy-to-hit availability threshold. The position on who pays for spare parts on corrective maintenance is also key for lenders – they will want to see either a full wrap from the O&M contractor, giving the contractor the right to rely on manufacturer warranties, or if the owner is taking the risk then a maintenance reserve account in place."

### Standardised contracts with sufficient flexibility

A challenge for the SESI initiative has been producing a suite of contract templates that are standardised but also flexible enough to account for the variations between different markets, particularly those that are more mature as well as new, emerging ones. The latter can often be in developing markets, which can carry more risk for investing. Typically project lenders will want to see full risk transfer to the O&M service provider, and this is particularly the case in project-financed deals in emerging markets.

Reid uses as an example, spare parts management: usually the asset owner procures an agreed spares stock initially for the first two years. After this period, the O&M service provider will maintain, store and replenish spares but with the asset owner paying the cost of the spare part replacement or the materials cost.

"In a developing market the lender will often want to see a full-wrap on corrective maintenance by the O&M provider. The lender will not want a special purpose vehicle to take on that risk. It has been harder to be really innovative in contract terms when developing markets are considered, due to the risks," says Reid.

### Template contract aspects

So while the contract includes standard features found in many O&M contracts, such as term of agreement, scope of services and so on, it has to be flexible and some degree of optionality is inevitable. The fact that the optionality is kept to a minimum is credit to the efforts by legal advisers, according to Papaconomou.

Again there is a degree of optionality in the section on plant takeover, which differentiates between a scenario where the O&M contract was set up before or during construction, or the EPC's two-year warranty period, and the other where a new O&M service provider takes over after the initial two-year warranty period.

The template also accounts for the fact that subcontracting out certain aspects of O&M has to happen. In the area of security, for example, the O&M provider is the interface between the subcontractor and asset owner but is not held liable for performance of that subcontractor.

One important outcome of the new O&M contract template will be the clarification in terms of the most appropriate key performance indicators (KPIs) to measure the service provider's performance.

The template contract considers the availability guarantee – in conjunction with response times, where relevant – as the most accurate and fairest performance indicators for the O&M service provider, instead of the performance ratio (PR).

"The prevalence of PR as the main KPI goes back to the early days of the market, when the EPC, which designed and built the plant, also carried out the O&M tasks. The PR made sense because a performance guarantee is connected to the equipment choice, the design and construction, all decided by the EPC. But PR doesn't make sense for plants that are six, seven, eight years old, when the O&M provider is not responsible for

## Performance versus availability

### *Agreeing the most suitable O&M key performance indicators (KPIs) has been one of the main challenges of drawing up a template contract*

The logic behind replacing the performance ratio (PR) – the historical method of measuring the O&M service provider's performance – with availability guarantees and response times is that the latter are based on what is within the O&M provider's control.

Often, O&M service providers taking care of PV plants are not the original EPC; therefore the argument runs that they should be liable for availability, which is something they can influence, not performance, which is down to the plant design, construction and equipment choice.

The response time covers areas that the availability guarantee does not. For example, at a large PV plant an inverter might fail. This may have little, or negligible impact on plant performance but with a response time guarantee the O&M provider is still contractually obliged to fix it or replace it within a certain timeframe.

Using availability guarantees, instead of PRs, as KPIs also allows for smoother switching between providers and smoother hand over processes, according to Vassilis Papaconomou. "Because the new contractor is not in a position to influence the PR they would need to undertake measurements and evaluations of the plant and its performance, all of which can take several months to accomplish," he says.

That said, unanimity in favour of doing away with PR altogether is not forthcoming from the solar industry.

According to Elizabeth Reid, energy law partner at Bird & Bird in London, in a detailed consultation in recent weeks with a cross section of the sector, including lenders, some insisted that the PR guarantee must appear in their contracts. "We therefore still haven't come to a landing on this point in the contract – we may need to include a PR guarantee as an option, explaining that it is not recommended as the best measure of plant performance in the context of O&M," says Reid.

Furthermore, general feedback has been that if there is a bonus at all in O&M contracts it should be linked to performance, not availability.

According to Santiago Estrada from 3E, in his experience PR continues to be an important parameter that lenders and asset owners like to see for new plants, definitely during the EPC warranty period, which is typically for the first two years. "Availability-related KPIs are increasingly accepted for O&M contracts after that period."

However, ultimately preference depends on the individual lender and asset owner.

historical choices that impact performance," says Papaconomou.

However, during the final period of consultation it seems that many of respondents, including lenders, do want to see a PR guarantee appear in the contract.

### Taking best practices to new markets

The template contract follows the work by the Solar Power Europe O&M task force that has recently resulted in the second version of its "O&M Best Practices Guidelines" first published in 2016 (see *PV Tech Power* Volume 8, September 2016).

The guidelines are also an important piece of standardising documentation and function as a technical support and manual, to be used together with the O&M template contract.

Consultancy 3E acts as a technical adviser in the development and construction phases of PV plants, with responsibilities that include assisting clients with reviewing contracts. The company also provides software and related services for managing PV plants, which are used by PV plant asset owners, operators and O&M service providers.

3E has worked with SolarPower

Europe on putting together the O&M taskforce and also assisting SESI on the O&M contract template.

According to Santiago Estrada, lead consultant, international business development at 3e, when his company reviews contracts for clients the objective is to try to standardise from a technical advisory point of view.

"We try to even out, or equalise, the O&M contracts that we review, where required," Estrada says. "Having a standard template that the whole global PV industry can use for O&M is good for owners and lenders as well as O&M service providers, as it will help, for example when portfolios change hands, that you have a standardised set of contracts for each project."

While in Europe's solar market SESI's template contracts will help reinforce work already well underway to formalise best practice, it is new solar markets that may benefit the most.

"In Europe, we are at a good level of understanding. All of this doesn't sound that strange or new, but if you go somewhere in sub-Saharan Africa, say, where local developers, banks and other stakeholders have no experience in solar, then the value of the SESI template contracts and the supporting guidelines,

will be highly appreciated," says Papaconomou.

Chiantore adds: "Mature markets such as the European pioneers, including Germany, Spain and Italy, have accumulated more experience. More lessons have been learnt here... That's why people from these countries have given more support and contributions to the templates. Emerging solar markets will not need to start from scratch when defining contractual structures for development of new sites."

The template has to be flexible enough to account for differences between markets. In Europe, for example, panel cleaning is a fairly basic and standardised O&M procedure, but in other markets may not be so straightforward. "Take a new market in Africa," says Estrada. "You have to account for local conditions. It may be drier and dustier so panels may need cleaning more often, but water is not going to be so abundant nor cheap, so you have to factor these considerations in. That means in reality having a clause about panel cleaning but depending on the asset's location, how frequently this occurs is agreed between the parties."

Before the seven template contracts are published, final reviews are taking place. Dissemination will take place at key global solar events and SESI is working with solar and renewable energy associations in various countries to promote the initiative.

While the initiative's success will be measured in the adoption of the template contracts, it relies on voluntary adoption.

The contracts will be promoted as a set and cherry picking is not advised, as so much work has gone into harmonising the contracts, which include the power purchase agreement, installation agreement and finance facility agreement, to ensure consistency in aspects, such as liabilities, health and safety, force majeure definitions and so on.

In countries that are in desperate need of new sources of electricity to power their economic growth, a simplified legal framework for large-scale solar investments will help ensure solar electricity is as competitive as other forms of power generation, focusing all parties' efforts on bankable projects more likely to see successful development and execution. ■