Despite a period of consolidation, the momentum of the photovoltaic sector shows no sign of slowing down. Increasing cost pressures and strong international competition have led to rises in efficiency at every stage of the value chain.

Technical and business management play a particularly significant role in this process. Investors have long called for affordable and transparent monitoring solutions for securing and optimising the energy yields of their solar parks. By way of its automated and hardware-independent control console, Smart Control, smartblue AG has come up with an efficient tool that maximises yield security while minimising service costs.

With a projected life-span of more than 25 years, PV installations represent long-term investment assets. The maintenance and documentation requirements of medium to large-scale PV installations are extremely capacity intensive.

Although the performance of individual providers varies greatly, there is a clearly recognisable trend towards lower system management prices. To some extent, this is due to the profitability calculations of project planners whose installations operate in the free competition of the electricity markets, independent of feed-in tariffs.

Central factors in the technically demanding service provision of plant management are quality, customer-specific design, and a fast service in maintenance and repairs. On the technical side, a plant control station is essential for this purpose as it goes a long way to guaranteeing the complete and successful realisation of the above factors, delivering a high-yield plant management. Such a system increases revenues by minimising outages and shortening their duration.

For an installation to be profitable over the long-term it is necessary to get the most out of the available technology. In this regard, it is the technical management of the PV installation which underpins its competitiveness.

Maximum freedom in the selection of hardware

With the Smart-Control service platform, smartblue AG from Munich offers a web-based portal service that helps plant operators and managers to view and evaluate their technical measurement data. At present, the focus lies with decentralised power plants that generate electricity from renewable energy - predominantly solar power stations. The retrieval of the measured data takes place via so-called data loggers that manufacturers of measurement devices either provide as accessories or that can be sourced from a third-party provider. The data-loggers are generally compatible with a variety of hardware manufacturers and are able to retrieve and save data from the measurement devices. For larger energy generation plants requiring efficient communication between the data logger and the individual devices, industrial PCs and network technologies are also used.
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Cost efficiency through
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large-scale installations. A key element in
this is the fact that plant portfolios are
generally diverse and include components
from a variety of manufacturers. Due to the
limited compatibility, plant operators feel
compelled to deploy multiple monitoring
portals simultaneously – with
correspondingly different measurement
devices and data loggers.

The multiplicity of manufacturers is thereby
both a blessing and a curse: Of course, all
applications are provided with an optimal
monitoring solution. Yet in the event that an
installation requires modification, for example because a manufacturer has disappeared from the market, the
challenge arises of updating the entire
monitoring solution.
In this event, owners should still have
freedom of choice with regard to hardware
components; and at the same time,
continued access to the installation’s
historical data, while preventing
unnecessary error messages, and reducing
the total cost of the installation monitoring.
A portal such as Smart Control, which has
a translation layer – analogous to
virtualisation in the IT sector – makes it
possible to combine different monitoring
solutions and to map them uniformly.
The logical layer thereby simplifies the
changing of hardware components in the
data capture domain. This function is
particularly indispensable for photovoltaic
installations of all sizes, where it is vital that
outages of individual inverters or strings be quickly recognised. Smart Control offers
the advantage that management
companies retain free choice in their
utilisation of different hardware
components. As a result, service teams
always have access to the best solution to
any given problem.

Time factor monitoring
Precision fault recognition is especially
important to the quality of monitoring
solutions. smartrblue continues to invest in
the development of intelligent algorithms for
fault diagnosis and in the automation of
self-repeating manual work processes that
allow the costs of technical management to
be economically broken down for
plant managers.
Depending on the quality and availability of
information technology, service providers
typically spend between fifty and eighty
percent of their time on the operative
monitoring of their plant portfolios.
This means that they are occupied with
sorting the reports generated by
measurement devices in terms of their
essentiality, in analysing the outstanding
data, comparing performance figures, and
where necessary, analysing the
information more precisely with the help of
downloaded raw data. As a benchmark we
can assume that a plant manager can
carry out the operative monitoring of about
20MW of PV installation.
Smart Control makes it possible to
automate these routine tasks. A plant
manager can thereby control a large
portfolio of PV installations. The solution
provides investors with the necessary
transparency and documentation in respect
of their yield values. At the same time, it
offers management companies the
possibility of expanding both their services
and their contribution margins.
The adoption of automatic processes in
plant management will thereby contribute
to further sinking the costs of decentralised
energy provision and support the transition
to sustainable energies. With its hardware-
development of intelligent algorithms for
fault diagnosis and in the automation of
self-repeating manual work processes that
allow the costs of technical management to
be economically broken down for
plant managers.

Smart Control is an intelligent monitoring system that simplifies the management of photovoltaic installations and ensures that
both operators and investors have a neutral evaluation of their data in order to increase yields and to reduce costs.
A smart solution to a pressing problem

Günter Seel, CEO of smartblue AG, discusses the paradigm shift in the management of solar installations.

PES: Mr Seel, you have successfully positioned smartblue AG as an independent monitoring specialist for solar installations. Who will gain added value from your monitoring solution?

Günter Seel: We are not targeting the owners of small roof-top installations. Our target group is predominantly composed of institutional investors and their management companies, and of service providers of installation monitoring; they could be large installers offering installation monitoring and plant management services.

There is great demand in this area, especially after the solar boom of recent years we see investors focusing on increasing the quality of their plants or recently acquired plants. With a glance at the currently low interest earnings, high property prices and a particularly strong equity market, renewable energies have emerged as an interesting alternative for many investors. But as an investor you expect both transparency and professionalism. The numbers of interested parties from the investment community has grown rapidly.

PES: Why is independence in monitoring so important? Why do you place such high value on this factor?

GS: With Smart Control we offer an intelligent monitoring system that simplifies the management of photovoltaic installations and ensures that both investors and operators have a neutral evaluation of their data. Our solution is not tied to the manufacturers or to the appraisals of general contractors. This allows us to guarantee maximum transparency, help to increase yields, and to reduce costs.

The core competence at smartblue lies in the development of automated management processes. The software requires data from which it can generate the corresponding information. The data is collected by so-called data loggers from various inverter manufacturers and third party providers. In this market, the maxim stands that no solution can be the best for all scenarios, so we have deliberately kept our Smart Control station independent and open for all manufacturers.

This allows us to offer our customers, within the context of the heterogeneous hardware environment, the highest degree of compatibility and freedom in the selection of equipment for their monitoring systems and free access to their data. The advantages are investment protection for existing plants and "best of breed" concepts for new installations.

PES: Why should operators of photovoltaic power stations look beyond the existing monitoring portals?

GS: Conventional PV monitoring portals display the measured data graphically on the screen, but otherwise take it no further. Our Smart Control solution, however, is a comprehensive system for plant management. This means that with our solution intelligence is a prerequisite of the results of the monitoring.

An example: The data loggers pass on each and every piece of data from the inverters to the monitoring portal. The operator must therefore filter out the essential information, such as a defect, and then localise the cause. With an intelligent system such as ours, you can do a lot more. With the aid of the Smart Control-Algorithm for fault recognition, we avoid unnecessary error messages and thereby prevent unnecessary service call outs. We also provide early recognition of actual outages.

In addition, using such a system makes it possible to efficiently monitor a pool of installations because we have automated the repeated working processes inherent in monitoring. In short: Smart Control recognises, analyses, prioritises and independently notifies operators of possible and imminent defects.