



PROVING SOLAR'S WORTH

Sustainable Power Solutions' V&A Waterfront project proves solar energy can generate brand value as well as clean, affordable, low-maintenance, sustainable electricity. We take a look.

Switched-on facility managers and others tasked with the performance of infrastructure assets realise that sustainable energy efficiency is no longer a nice to have, but an essential element of a company's long-term feasibility and credibility. Not only does progressing to sustainable solar energy result in reduced electricity bills, it also leads to a lifetime of low maintenance costs.

A further spin-off is that a roof-mounted solar installation provides highly visible demonstration of a company's commitment to sustainability. Such social proof can help shape a company's brand

story, bolster its reputation and add value to the building.

A case in point is the project underway at Cape Town's landmark V&A Waterfront, at which Sustainable Power Solutions (SPS) is installing solar PV plants on eight rooftops of the key buildings, as part of the iconic property's sustainability strategy to switch to sustainable energy.

SPS was awarded the tender as the project's Engineering, Procurement and Construction (EPC) company. The successful EPC chose SolarWorld Africa as the Photovoltaic Module Supplier.



'We are committed to ensuring our environmental and sustainability measures and initiatives are at the forefront of all our business practices. We believe that this project enables us to deliver world-class standards that can be measured against responsible business practices.'

- V&A Waterfront's Executive Manager of Operations, Colin Devenish

SPS is one of the market-leading commercial sector EPC companies in Southern Africa, with projects in all South African provinces, in Namibia, and as far as Saint Helena Island. Total installed power capacity to date is over 5.5MW. A further 2.3MW is under construction and will go online before year-end.

The ground breaking project spanning more than 7500m² of roof space will produce an estimated 1 640 000kWh (units of clean energy) and reduce the V&A's carbon emissions by 1 610 tons per year. This system will produce on average 4 495kWh

daily - enough energy to supply one day's worth of electricity to 310 average-sized households.

Said MD of SPS, Axel Scholle: 'It is a privilege to be a part of this flagship project. We pride ourselves on our focus on quality components and I am most satisfied that our professional team of engineers is on track to deliver this project on time and within budget, particularly as we are working on a live site and are rolling out projects in parallel.'

It takes some doing to deliver work in compliance with their ISO 9001:2008 certification, without disrupting Africa's most-visited destination.

The V&A Waterfront's Executive Manager of Operations, Colin Devenish said, 'We are committed to ensuring our environmental and sustainability measures and initiatives are at the forefront of all our business practices. We believe that this project enables us to deliver world-class standards that can be measured against responsible business practices.'

Through this ambitious project – as with their other 5.5MW installations – Sustainable Power Solutions has endeavoured to deliver an asset that will produce consistent and predictable monthly bottom-line savings as well meeting environmental objectives.

Through careful planning, customer focussed design, sensible engineering and astute procurement, the SPS team is proving once again that the correct choice of end-to-end (turnkey) EPC can indeed help turn a facility around – from being an endlessly draining cost centre into an environmentally responsible, low-maintenance value-generator. **SG**

[See ad on following page for more on Sustainable Power Solutions.](#)

V&A WATERFRONT CASE STUDY

The V&A Waterfront project was unique and presented those involved in its energy provision and management with some unusual and difficult challenges.

PROJECT DESIGN

The V&A solar PV initiative spans over multiple roofs, with multiple utility feeds, each site with its own unique challenges – ranging from logistical challenges where cranes are required to hoist materials to the roof and roads are not large enough to handle the required cranes; to the more technical issues such as an over whelming sea gull population, which perch on solar modules causing soiling and shading. Additional challenges include:

- Ensuring the systems are correctly sized for the sites own consumption and the specific utility feed.
- Optimising solar PV orientations to maximise yield
- Designing around shading objects such as satellite dishes, aerials, skylights, air conditioners and vents.

Besides these technical and logistic issues the V&A Waterfront is one of the busiest sites in South Africa, where besides the tourists and visitors to the site there are numerous conference centres, residential complexes, offices blocks, shops and the Aquarium. All of which can be impacted during the installation of a solar PV plant.

SCOPE OF THE PROJECT

The installation at the V&A Waterfront, spans over eight sites, with 10 buildings and 12 separate feed-in points for the different systems, each building with a unique design and structural requirements. Once this phase of the project is complete, the V&A will have a peak Solar PV Generation capacity of almost 1.1MW (1100kW) which is a significant undertaking relative to most roof-top solar PV plants.

V&A - 1093.8 kWp - Solar PV Project Fact Sheet	
Engineering, Design, Procurement & Construction	Sustainable Power Solutions (Pty) Ltd.
Total Solar PV Project Size	1093.8 kWp
Portsworld EDGE	78.5 kWp
Granger Bay Court	131.5 kWp
South African Rugby Union	25.2 kWp
Clock Tower	85 kWp
Two Oceans Aquarium	128 kWp
Breakwater Appartements	200 kWp
Watershed	348 kWp
West Quay Offices	97.8 kWp
Statistic	Specification
Roof Area Utilised	Approx. 7 500 m ²
Construction Start Date	August 2015
Commissioning Date	Under Construction
Number of PV Modules	4207
Size of each PV module	260 Wp
Type of Solar PV Module	Solar World SunModule Plus SW260 Poly
Number of Inverters	60
Type of Inverters	SMA FLX's & MLX's
Avg. 1 st Year Plant Specific Yield	1520 kWh/kWp/annum
Expected 1 st Year Production	1 640 000 kWh (Units of energy)
Expected 1 st Year CO ₂ Emission Reduction	1 630 tonnes
Average Daily Production	4 495 kWh (Units of energy)
Comparative Statistics	
With 4 495 kWh (Units of Electricity) you can:	
Supply a day's worth of electricity to 310 Average Households	
Operate 9 000 Fridges for 24 hours	
Run 1 800 washing cycles of a Washing Machine	
Travel 22 500 km in an Electric Car	

COSTING & REPAYMENT

The appointment of an EPC contractor for the V&A Solar PV Plant was based on a highly competitive tender process. SPS won the tender for the full EPC scope of works, based on the highest quality, while maintaining a cost-effective solution. Based on the numerous features and unique sites remaining cost competitive was a challenge. SPS was however able to offer a solution which married quality and cost efficiencies, and to-date we are confident that the project will be completed on-time and in budget.

JOB CREATION/MAN HOURS

The installation at the V&A consisted of numerous teams working in parallel, on multiple sites to achieve the necessary milestones and timing parameters as set forth by the V&A. At any given point there were up to seven teams ranging from three to 15 personnel each working in parallel. Besides the installation of the systems, the different PV plants will be monitored and maintained to ensure optimal efficiency and production.

WHAT THIS PROJECT MEANS

It shows everyone how the market and feasibility for solar PV Plants, and renewable, self-generation is becoming increasingly feasible in the South African setting where Utility prices are increasing annually and the demand is constrained.

THE NEXT 1, 5 & 10 YEARS

The financial feasibility of solar PV is improving constantly as material costs are becoming more competitive, solar PV modules are becoming more efficient and the consumer understanding and interest is increasing exponentially. As such with the constrained utility capacity, more companies and consumers will look towards renewable energy generation sources, to not necessarily become independent of the grid, but rather offset the ever increasing utility energy costs.

**WITH ELECTRICITY COSTS
GOING THROUGH THE ROOF,
IT PAYS TO HAVE
SUSTAINABLE POWER SOLUTIONS™
ON TOP OF IT.**



While the cost of electricity from the utility provider continues to climb, the price of solar alternatives has dropped dramatically.

Now, more than ever, it makes perfect sense to offset your company's electricity bill through the installation of a solar energy plant at your premises - either roof or ground mounted.

Solar means clean, sustainable energy. A long-term, low-maintenance, eco-responsible solution. A visible demonstration of your company's green credentials. And a saving you'll see on your electricity bill month after month.

Contact us for info, arrange a visit by an engineer or view our latest work (including the iconic 1093.8 kWp V&A Waterfront project under construction) on powersolutions.co.za.



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ISO 9001:2008 certified  GREEN BUILDING COUNCIL...
MEMBER ORGANISATION

Sustainable Power Solutions (Pty) Ltd specialises in the Engineering design, Procurement and Construction (EPC) of solar photovoltaic (PV) plants for commercial and industrial companies. The leading South African PV EPC, with a 5 MW proven track record throughout SA and in Namibia for commercial, predominantly roof-top, grid-connected systems since 2010, and with 2.3 MW under construction.

Led by a professional engineer. ECSA registered. SANAS accredited. BBBEE Level 3 contributor. Member of SAPVIA and GBCSA. CIDB Level 5 EP rating.