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SOLAR ENERGY



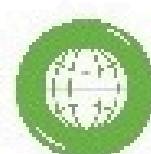
PROJECT REPORT

PREPARED BY:

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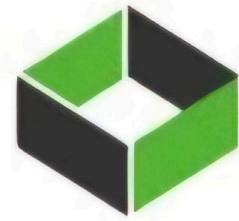
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PROJECT REPORT



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Panthera Africa “Ignite the Light” Solar Project Grant Report

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Alone we can do so little, together we can do so much.

– Helen Keller



Solar Energy System Implementation Report

Reporting Period: 12 June 2024 - 30 June 2025

Scatec contribution: R534,000

Submitted by: Cathrine S. Nyquist

Submission Date: 3 July 2025

Funding and Partner Contributions

Acknowledgement and Gratitude

We proudly acknowledge that this project was made possible through the invaluable support of:

Scatec Innovation AS: R534,000

Olsen Animal Trust: R500,000

Marchig Animal Welfare Trust: Contributed \$20,000 (R367 200 -\$ exchange rate quoted- 12 June)

Panthera Africa fundraising campaign 2023 raised R125,000

HIPPO sponsored 17 cubic meters of cement - vital groundwork for the solar frame infrastructure.

Total R1 526 200.00

Ignite the Light – Solar Project Summary Report

1. Executive Summary

The Ignite the Light initiative was launched in direct response to the severe impact of South Africa's ongoing loadshedding crisis on the daily operations of Panthera Africa Big Cat Sanctuary. Frequent and prolonged power outages were threatening critical systems, compromising food storage, disrupting water supply, and increasing dependence on costly and environmentally harmful diesel generators.

This project aimed to establish a reliable, sustainable, and cost-effective solar energy system to ensure uninterrupted power supply, protect animal welfare, and reduce our carbon footprint in alignment with our conservation values.

We are deeply grateful to our generous sponsors, whose contributions made the implementation of this essential project possible. Your support has provided far more than power—it has restored stability, secured operational continuity, and upheld the sanctuary's commitment to responsible and ethical wildlife care.

2. Background & Context

About Panthera Africa Big Cat Sanctuary

Panthera Africa is a true sanctuary for captive big cats, located near Stanford in the Western Cape, South Africa. Established as a non-profit organisation, Panthera Africa is committed to the ethical care, protection, and conservation of big cats rescued from exploitative and abusive conditions.

The sanctuary provides a lifelong home to lions, tigers, leopards, and other wild cats that have been saved from the captive big cat industry, such as cub petting, canned hunting facilities, and the exotic pet trade. Each resident animal is treated with dignity, receiving specialised care in spacious, enriched enclosures that prioritise their physical and psychological wellbeing.

Panthera Africa is founded on four core pillars:

1. Education – Raising awareness about the plight of captive big cats and advocating for an ethical, exploitation-free future within the tourism industry.
2. Animal Welfare – Offering rescued cats a safe, peaceful, and enriching environment where they are respected as individuals and never bred, traded, or used for entertainment.
3. Conservation – Supporting the broader conservation effort by ending exploitative breeding and trade in captive wildlife.
4. Sustainability – Operating with a focus on eco-conscious practices and reducing the environmental impact of sanctuary operations.

Context: South Africa’s Loadshedding Crisis (2020-2025)

Over the past five years, South Africa has faced an intensifying national energy crisis marked by frequent and prolonged periods of loadshedding—the scheduled and rotating interruption of electricity supply to different parts of the country. This has primarily been due to the ongoing operational and financial challenges faced by the state-owned power utility, Eskom.

Key contributing factors include:

Aging infrastructure:

Much of South Africa’s electricity generation capacity relies on coal-fired power stations, many of which are decades old and prone to mechanical failure. Inadequate maintenance and planning: Delays in maintenance schedules and insufficient investment in infrastructure upgrades have led to repeated breakdowns.

Corruption and mismanagement:

Reports of governance failures and large-scale corruption at Eskom have undermined the utility’s ability to respond effectively to growing electricity demands.

Delayed new capacity:

Significant delays in bringing new generation capacity online, especially from renewable sources and independent power producers, have widened the gap between supply and demand.

From 2020 to 2025, South Africans have endured some of the worst loadshedding on record, with rolling blackouts occurring almost daily in many regions. Power cuts have ranged from Stage 1 (minimal impact) to Stage 6 and higher, meaning several hours of electricity interruption per day, often unpredictably.

This unstable energy supply has had far-reaching consequences for all sectors of society, including wildlife sanctuaries and other conservation-focused non-profit organisations. For operations like Panthera Africa, reliable electricity is not a luxury—it is vital to ensure the safety, well-being, and continued care of the animals under protection. Specific challenges faced by the sanctuary before solar installation (e.g., temperature control, food storage, surveillance, veterinary equipment).

3. Why solar energy was identified as a necessary intervention

Impact of Loadshedding on Sanctuary Operations

South Africa’s persistent and unpredictable loadshedding poses significant challenges to the safe and effective running of a true big cat sanctuary. These sanctuaries, which prioritise animal welfare above commercial interests, depend heavily on a consistent power supply to uphold ethical care standards.

The consequences of power outages in this context are far-reaching and can compromise both daily operations and the long-term well-being of the animals.

Key areas affected include

A. Food Storage Preparation

- * Big cats require a specialised raw meat diet, stored in large freezers and cold rooms.
- * Loadshedding interrupts the cold chain, leading to food spoilage, increased health risks, and costly wastage.
- * Meat preparation, often requiring electric tools and safe, hygienic workspaces, becomes difficult or unsafe during outages

B. Water Security

- * Sanctuaries that rely on boreholes or pumped water systems need electricity to access clean, running water for animal hydration, cleaning, and staff use.
- * Interruptions to the water supply can quickly escalate into health and hygiene risks for both animals and caretakers.

C. Security and Safety

- * Electrical fencing is a vital component of sanctuary safety, helping to ensure that big cats remain within designated areas and deterring external threats.
- * Loadshedding can disable or weaken electric fencing, increasing the risk of animal escapes or unwanted intrusions.
- * Security camera systems and lighting around enclosures are also compromised, reducing visibility and surveillance capacity at night.
- * Medical equipment, incubators, oxygen concentrators, and other critical devices require reliable electricity. Power outages can delay or disrupt urgent medical interventions.
- * Rehabilitation or monitoring procedures that involve cameras or automated systems may become impossible to carry out during blackouts.

D. Staff Operations and Administration

- * Daily administrative tasks, communications, and record-keeping rely on computers, phones, and internet connectivity—all of which are affected by power cuts.
- * Coordinating volunteer programs, tours, and educational outreach is hindered, which can affect both awareness efforts and funding.

E. Environmental and Financial Impact

- * Diesel generators used as backup power are costly to run, noisy, and environmentally harmful, contradicting the sanctuary's conservation values.
- * The financial burden of running generators diverts essential resources away from animal care and sanctuary improvements.

4. Summary of the solar project implementation and its impact.

Objectives of the Project:

- Ensure uninterrupted power supply for animal care.
- Reduce dependency on the unreliable national grid.
- Improve animal welfare conditions through stable systems.
- Lower, long-term electricity costs.
- Increase sustainability and operational resilience.

Performance and Impact

Immediate benefits:

- Freezers and water pumps now run reliably even during outages.
- Staff night shifts to monitor diesel usage have been eliminated.
- Reduced diesel usage and maintenance costs (previously R10,000–13,000/month).

Battery performance:

During cloudy periods, the system auto-switches to the generator at 15% battery level. Generator recharges batteries to 25% before switching off, ensuring efficient fuel use.

Outlook:

- In summer, the System may run entirely off solar + batteries.
- In winter: Likely 1/3 solar and 2/3 Eskom—will improve with added panels.

5. Project Implementation Timeline.

Date	Milestone
12 June 2024 - Project planning	Contractor Project meeting - Phase one
20 June 2024 - Procurement	HIPPO confirms cement sponsorship. Eclipse Energy deposit payment.
4 July 2024 - Procurement continued.	Full deposit of R1 million paid to contractors to secure all materials. Payment and sourcing of solar panels, batteries, and inverters.
16 - 17 July - Site Planning	Site marked up. Trenching attempt failed due to high water table.
24 – 29 July - Installation	Battery system installed despite heavy rain and ground saturation.
August – October - Testing & Integration	Battery system tested under load. Severe rains and Eskom outages continued.
30 Nov 2024 - Installation	Final trench prep and wooden box levelling commenced.
6 – 13 Dec 2024 - Foundations layed	Trenching completed. Cement poured by HIPPO before “Builders Holiday” start 15 Dec .
19 Dec 2024 - Solar launched	Panthera Africa officially powered by solar energy!
17 Jan 2025 - Monitoring	System check: 3,320 kWh total used— 2,747 kWh solar, 573 kWh Eskom.

6. Financial Report.

Total Grant Received: R 1 526 200.00 (Including Scatec nvestment - R 534,000)

Sum Spent on Project: R1 538 839.15

<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Exclusive Total</u> <u>(ZAR)</u>	<u>Inclusive Total</u> <u>(ZAR)</u>
Victron Quattro 15kVA Inverters	5-year warranty. Comms cables included.	3 units	R214,380.00	R246,537.00
Victron Ekrano GX	5-year warranty. Monitoring and control system for inverters and batteries.	1 unit	R10,221.00	R11,754.15
Freedom Won 60/48 Batteries	Total storage: 120kWh. 10-year warranty. Comms cables included.	2 units	R643,220.00	R739,703.00
Canadian Solar 605W PV Panels	36 panels (21.78kWp total). 12-year workmanship, 30-year output warranty.	36 panels	R80,285.00	R92,327.75
PV Integration	PV cabling, combiner unit with surge protection, isolators on frame.		R59,010.00	R67,861.50
Ground Mount Frames	Ground-mounted structures for 72x 605W panels (future capacity).		R125,690.00	R144,543.50
Victron 450/200 MPPT	Solar charge controller with 5-year warranty. Comms cable included.	1 unit	R33,565.00	R38,599.75
AC Integration	Generator integration, cabling, surge protection, DB board upgrades, and load balancing.		R30,700.00	R35,305.00

DC Integration	Victron Lynx DC couplings, fuses, and cabling from panels to batteries and inverters.		R29,450.00	R33,867.50
Labour & Sundries	Complete installation labour and minor components.		R62,300.00	R71,645.00
Additional Provision	Miscellaneous costs buffer.		R10,000.00	R11,500.00
Courier & Rigging	Delivery, logistics, and lifting equipment for heavy components.		R30,000.00	R34,500.00
COC (Certificate of Compliance) Fee	Electrical safety compliance certification.		R1,800.00	R2,070.00
ECSA Engineer Signoff Fee	Professional signoff by registered electrical engineer.		R7,500.00	R8,625.00
Shuttering Material (Estimated)	Materials for secure base structure or housing (cost estimate pending).			

Invoices, statement and a signed financial reconciliation is available upon request.

7. Visual Documentation.

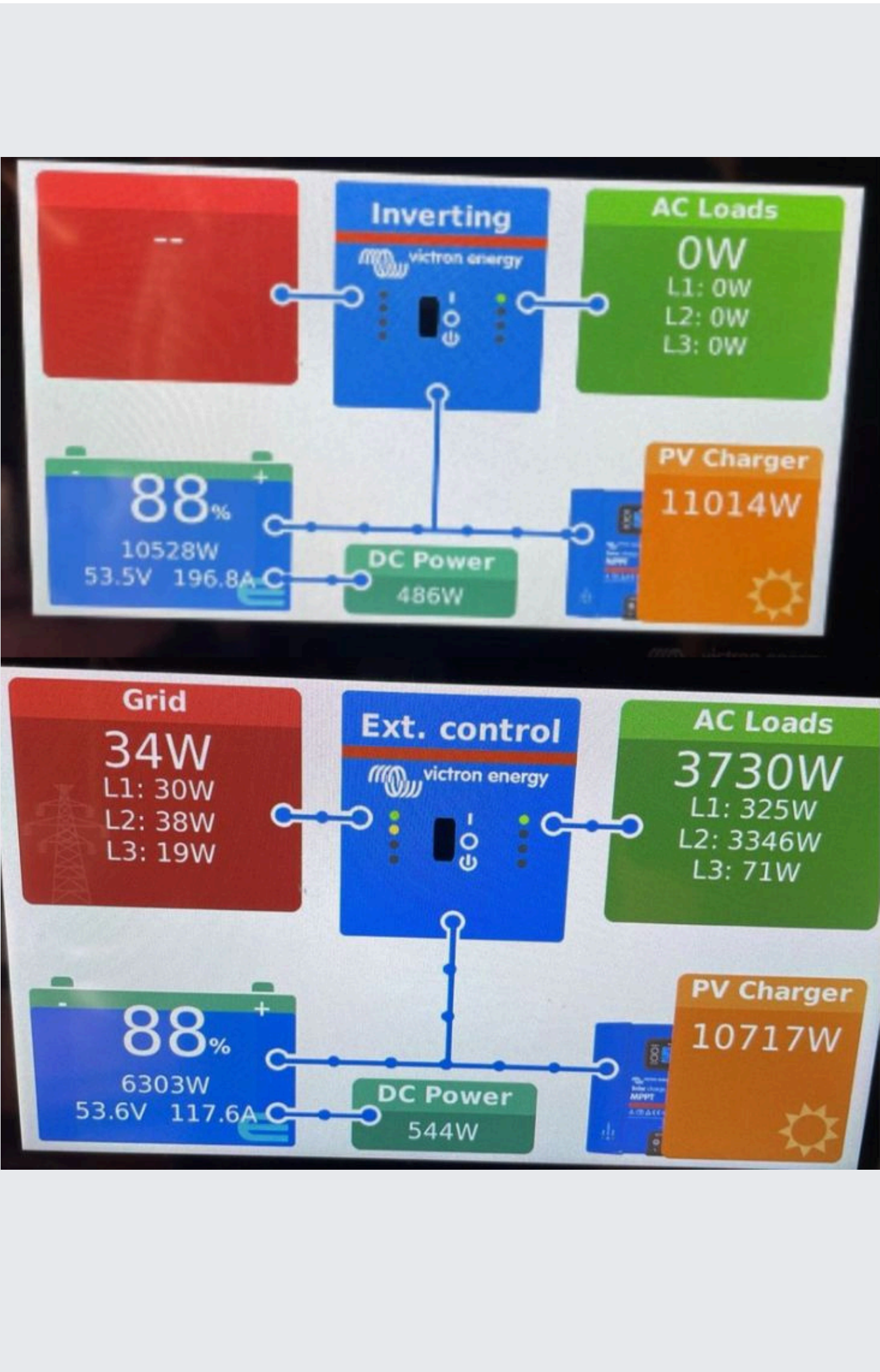
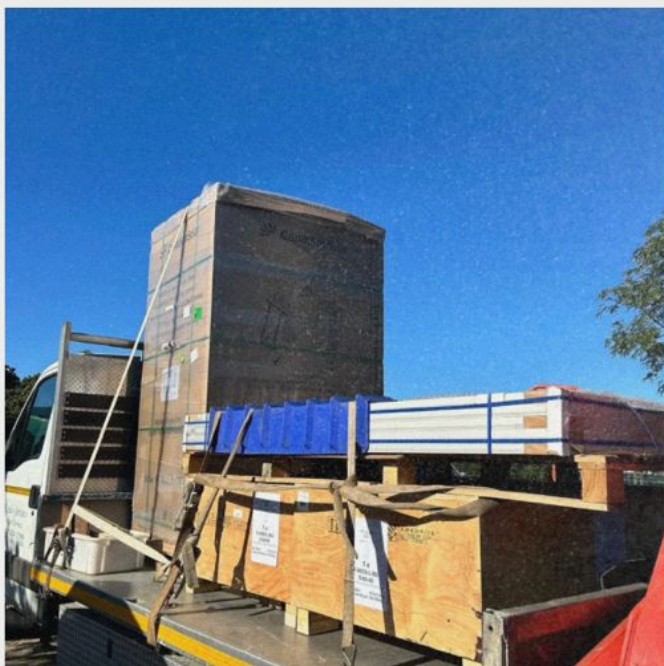
Photographs & Video Documentation:

Site Preparation.

Photos of panels installed on the structure.

Screenshots of the power performance dashboard.

Site preparation, panel installation and screenshots of the power performance



8. Project Outcomes & Impact.

Your contribution has directly safeguarded the well-being of our animals, preserved our food supply, and propelled Panthera Africa into a new chapter of green sustainability. Our solar system stands not only as a technical achievement but as a testament to collective compassion and shared vision for a brighter, more resilient future.

Operational Improvements:

- 24/7 power supply to critical systems, including:
- Refrigeration for food and medication
- Security fencing and CCTV
- Veterinary clinic and isolation units
- Reduced use of diesel generators by 90%.
- Less stress on animals during power outages (e.g., lighting, climate control maintained)

Animal Welfare:

- Stable conditions improve health outcomes.
- Reduction in noise pollution from generators.
- Continuous access to water and medical equipment.

Environmental Benefits:

- Sanctuary is now operating on 80% renewable energy.
- Contribution to carbon reduction efforts.

Staff Morale:

- Reduced crisis management during outages.
- Greater focus on proactive animal care.

Monitoring & Evaluation:

- Weekly energy usage reports from solar monitoring software.
- Monthly performance reviews with the maintenance team.
- Six-monthly animal welfare audits.
- Incident log showing reduction in emergency events related to power failure

Sustainability Plan:

- Annual maintenance plan in place.
- A dedicated reserve fund aimed to be set up for battery replacement and servicing.
- Sanctuary is exploring partnerships for future green expansions (e.g., water catchment, backup battery bank).

Gratitude & Acknowledgment

“The eyes of a rescued big cat reflect a depth of peace that only consistent care and a stable environment can bring. Thanks to the Scatec Trust, our animals sleep safely under powered lights and live without the stress of power failure. Your support brought light in the most literal and meaningful way.”

– Cathrine Nyquist, Sanctuary Co-Founder

Marketing Material acknowledging the contribution to the sanctuary:

A PR Campaign, including Social media and a Monthly newspaper, was launched in December 2024 and ran for 6 months.

Contact information & Declaration

Prepared by: Cathrine Nyquist

Role: Co-Founder

**Email & Phone: cat@pantherafrica.com/
+27 (76) 974-3088**

Declaration: I hereby declare that the above information is accurate, the grant was used for its intended purpose, and all financial details are true to the best of my knowledge.

Next Steps:

* Completion of the solar project with the expansion of panels to improve winter efficiency - quoted R200.000.

* Ongoing monitoring and reporting in line with funder requirements.