Mediclinic Rooftop PV Projects: Monthly report

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Moshesh Partners

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Abbreviations

|  |  |
| --- | --- |
| A | Actual |
| B | Budget |
| F | Forecast |
| HSE | Health and Safety and Environment |
| OPEX | Operating expenses |
| PR | Performance ratio |
| SCADA | Supervisory control and data acquisition |
| YTD | Year-to-date |
| Δ | Variance |

Glossary of Terms

|  |  |
| --- | --- |
| Outages | Carrying out preventive maintenance work can mean the implicit disconnection of:   * The whole plant: This will only happen when working on the whole substation. * Grouping of blocks: This situation will arise when working on equipment that connects various blocks at the same time (transformers, MV cabling, etc.…) * Whole blocks: This situation will arise when working on the transformer or inverter of a block. * Parts of a block: This will occur when we are working on PV module junction boxes or DC combiner boxes.   No disconnection: When working on auxiliary equipment (security system, SCADA, fire fighting equipment, etc.…), or when working on the PV installation, the work does not involve an electrical risk (cleaning the modules, visual inspection, etc.…) Frequency: Is the frequency with which each of the jobs is carried out. |
| Communication systems | Are those systems that are common to all the blocks that make up the plant, for example, the security system, SCADA, perimeter fence, fire equipment, etc. |
| DC Combiner Boxes | The boxes where all the DC strings are combined. AC cabling: Comprises all AC cabling on the entire plant including the MV cabling between the 22kV transformers and the IPP substation. |
| DC Cabling | Comprises the cabling between the modules, as well as the cabling between the combiner boxes and the inverters. |

# Executive Summary

## Performance Summary

### Moshesh Mediclinic Durbanville Solar PV

* Production is 784,777 kWh with a variance of 3% below the forecast.
* Irradiation is 145 kWh/m2 with a variance of 10% below forecast.
* Availability is 96.66% with a variance of 1.75% above the warranted availability.
* PR is xxx with a variance of xx below warranted availability.
* The gross revenue of R3,738,287 with a variance of 3% below the Budget.

### Moshesh Mediclinic Hermanus Solar PV

* Production is 784,777 kWh with a variance of 3% below the forecast.
* Irradiation is 145 kWh/m2 with a variance of 10% below forecast.
* Availability is 96.66% with a variance of 1.75% above the warranted availability.
* PR is xxx with a variance of xx below warranted availability.
* The gross revenue of R3,738,287 with a variance of 3% below the Budget.

### Moshesh Mediclinic Highveld Solar PV

* Production is 784,777 kWh with a variance of 3% below the forecast.
* Irradiation is 145 kWh/m2 with a variance of 10% below forecast.
* Availability is 96.66% with a variance of 1.75% above the warranted availability.
* PR is xxx with a variance of xx below warranted availability.
* The gross revenue of R3,738,287 with a variance of 3% below the Budget.

### Moshesh Mediclinic Midstream Solar PV

* Production is 784,777 kWh with a variance of 3% below the forecast.
* Irradiation is 145 kWh/m2 with a variance of 10% below forecast.
* Availability is 96.66% with a variance of 1.75% above the warranted availability.
* PR is xxx with a variance of xx below warranted availability.
* The gross revenue of R3,738,287 with a variance of 3% below the Budget.

### Moshesh Mediclinic Vergelegen Solar PV

* Production is 784,777 kWh with a variance of 3% below the forecast.
* Irradiation is 145 kWh/m2 with a variance of 10% below forecast.
* Availability is 96.66% with a variance of 1.75% above the warranted availability.
* PR is xxx with a variance of xx below warranted availability.
* The gross revenue of R3,738,287 with a variance of 3% below the Budget.

## Key Risks, Recommendations & Actions

The following key risk were identiﬁed in report month.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Key Risks | Descriptions | Actions | Recommendation |
|  |  |  |  |  |
|  |  |  |  |  |

# Portfolio Overview

Harmattan Renewables (Harmattan) has been appointed by Moshesh Partners (the Client) to provide asset management support for its rooftop assets at the various Mediclinic sites.

This document is intended to assist the Client in understanding the operational status of its active installations. The document provides details of energy production at Vergelegen, Midstream, Hermanus, Highveld, and Durbanville Mediclinics. The following table provides an overview of Commercial Operation Dates (COD). Harmattan will conduct a detailed review of plants performance in the asset management report to determine any factors that have affected plants performance.

|  |  |  |
| --- | --- | --- |
| **Name** | **COD (Commercial Operation Date)** | **Capacity DC (kW)** |
| Moshesh Mediclinic Durbanville Solar PV | 11 Nov 2021 | 705.7 |
| Moshesh Mediclinic Hermanus Solar PV | 10 Mar 2022 | 219.4 |
| Moshesh Mediclinic Highveld Solar PV | 30 Mar 2022 | 262.7 |
| Moshesh Mediclinic Midstream Solar PV | 27 Oct 2021 | 227.9 |
| Moshesh Mediclinic Vergelegen Solar PV | 28 Oct 2021 | 689.6 |

Table 1: Project Overview

## Scope of Work

The scope of work is fully described in Harmattan proposal “*HAR\_P215\_MOSHESH\_MediclinicAssetManagement \_v2”*, dated 15 July 2021”.

## Site Visits

Harmattan has not yet conducted operational monitoring site visits to any of the Project, however site visits are planned to Durbanville, Midstream and Vergelegen operational sites for July 2022.

# Revenue

## Revenues This month

Figure 1: Revenue Year to Date

|  |  |  |  |
| --- | --- | --- | --- |
| Plants | Actual ZAR | Forecast ZAR | Var % |
| Mediclinic Durbanville | 42149.02 | 47715.92 | -12% |
| Mediclinic Vergelegen | 37110.00 | 36465.55 | 2% |
| Mediclinic Highveld | 21364.50 | 24253.22 | -12% |
| Mediclinic Midstream | 18145.07 | 20377.57 | -11% |
| Mediclinic Hermanus | 17771.48 | 17225.23 | 3% |

Table 2: Project Revenue Overview

# Hermanus Technical Performance

Technical performance tables and figures below give details on plant Gross Generation, Irradiation, Availability and Performance Ratio compared against the forecast/warranted values, then analyse the results and give recommendations.

|  |  |
| --- | --- |
| Project Overview | |
| Capacity (kW DC): | 219.4 |
| Resource | Solar |
| Project Company: | Moshesh Solar PV 1 (Pty) Ltd |
| Address: | Ravenscroft Rd Hermanus – 7200 – South Africa |

Table : Hermanus Project Overview

## Hermanus Production vs Forecast

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | **Date** | **Actual**  kWh | **Forecast**  kWh | **Deviation %** | | **01-Jan-2022** | **127624.6** |  |  | | **01-Feb-2022** | **96946.4** |  |  | | **01-Mar-2022** | **94648.1** |  |  | | **01-Apr-2022** | **70139.1** |  |  | | **01-May-2022** | **52487.9** |  |  | | **01-Jun-2022** | **39237.9** |  |  | | **01-Jul-2022** | **nan** |  |  | |  |
| Table 4: Hermanus Production and Forecast | Figure 2: Hermanus Production Vs Forecast |

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## Hermanus Irradiation vs Forecast

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | Month | Actual kWh/m² | Forecast P50 kWh/m² | Var % | | Mar - 22 | 15.73 | 184 | -91.45% | | Apr - 22 | 125.57 | 135.3 | -7.19% | | May - 22 | 111.23 | 102.9 | 8.09% | | **Total** | **252.52** | **422.2** | **-40.19%** | |  |
| Table 5: Hermanus irradiation and Forecast | Figure 3 Hermanus Irradiation Vs Forecast |

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## Hermanus Availability vs Forecast

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | ` | Actual % | Availability Guaranteed % | Var % | | Mar - 22 | 100.00 | 95.00 | 5.26% | | Apr - 22 | 93.46 | 95.00 | -1.62% | | May - 22 | 95.92 | 95.00 | 0.97% | | **Grand Total** | **96.46** | **95.00** | **1.54%** | |  |
| Table 6: Hermanus Availability and Forecast | Figure 4:Hermanus Availability Vs Forecast |

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## Hermanus Performance Ratio Vs Forecast

The following table and graph compare the Scada performance ratio against the monthly guaranteed PR.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | Month | Actual % | Forecast P50 % | Var % | | Mar - 22 | 100.41 | 85.06 | 18.04% | | Apr - 22 | 78.08 | 86.03 | -9.24% | | May - 22 | 81.53 | 86.55 | -5.80% | | **Grand Total** | **86.67** | **85.88** | **0.92%** | |  |
| Table 7: Hermanus PR and Forecast | Figure 5: Hermanus PR Vs Forecast |

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