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# PROJECT FACT SHEET

**ROSH PINAH 100 MW  
SOLAR PV PROJECT**













## Background

- Ministerial Determination issued: October 2018
- Original project: 40 MW Wind Project
- Technology changed to Solar PV: November 2022
- Capacity increased from 70 MW to 100 MW: March 2024
- EPC Contract signed: September 2024

## Project Objectives and Rationale

The key objectives of the Rosh Pinah 100 MW PV Project, hereinafter referred to as the “Project”, are to:

- Reduce the overall NamPower tariff to the end-customer by introducing an affordable “new-build” renewable energy to the Namibian grid.
- Support the renewable energy commitments prescribed in the Renewable Energy Policy and National Energy Policy – targets for 70% by 2030.
- Support ambitious commitments made at COP26 to reduce Namibia’s emissions by 91% by 2026.
- Reduce overreliance on imported energy as per the National Development Plan 5 and Harambee Prosperity Plan II.

## Technical Description and Site Details

Although the superb solar resource is localised in western regions, the local solar resource is generally abundant and spatially distributed. Hence the Project Site, located further south near Rosh Pinah in the //Karas region, has ample solar resources (Global Horizontal Irradiance:  $GHI \geq 2389 \text{ kWh/m}^2$ , Specific Yield  $\geq 2088 \text{ kWh /kWp/ year}$ ) as shown in Figure 1.

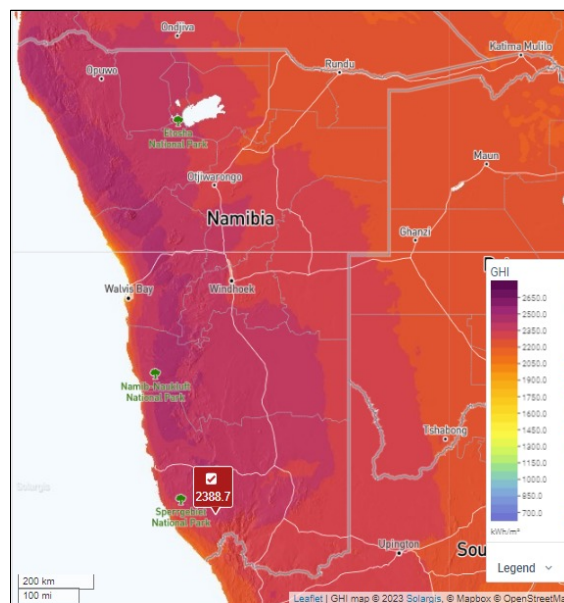


Figure 1: Long-term GHI Solar Resource Map of Namibia

## SWOT Analysis

The Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis for the Project are:

|          |                                                                                                                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>S</b> | <b>Strength</b> <ul style="list-style-type: none"> <li>• Supports key national goals (NIRP, NDP5)</li> <li>• Renewable fuel sources (no forex exposure)</li> <li>• Mature technology</li> </ul>                                                                         |
| <b>W</b> | <b>Weaknesses</b> <ul style="list-style-type: none"> <li>• High intermittency</li> <li>• High supply-demand mismatch in winter and evening peaks</li> </ul>                                                                                                             |
| <b>O</b> | <b>Opportunities</b> <ul style="list-style-type: none"> <li>• Viable funding requirements (relatively low CAPEX)</li> <li>• Lower blended NamPower tariff</li> <li>• Local socio-economic impact</li> <li>• Future addition of battery energy storage system</li> </ul> |
| <b>T</b> | <b>Threats</b> <ul style="list-style-type: none"> <li>• Exacerbated “duck-curve” phenomenon induced by the Modified Single Buyer Model (MSBM)</li> </ul>                                                                                                                |

Figure 2: Project SWOT Analysis



The Project site boundary is outlined in Figure 3. The Project site is approximately 33 km northwest of the Rosh Pinah town on commercial farmland, and is accessible via the C13 district road, which runs adjacent to the Project site.

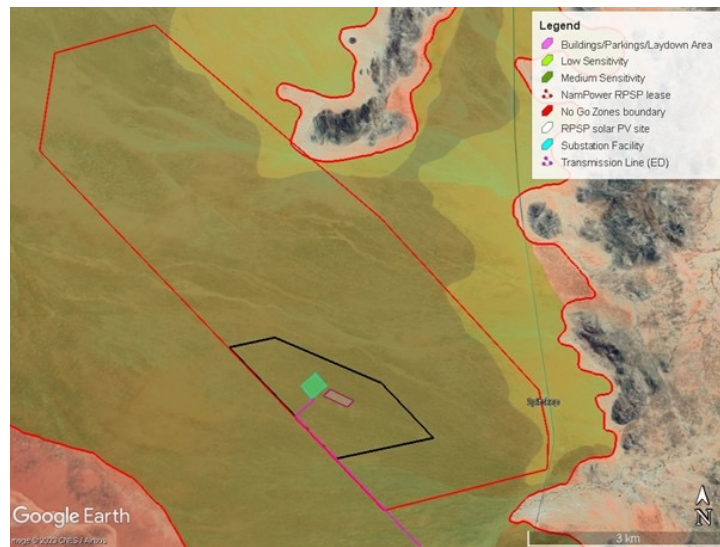


Figure 3: Rosh Pinah PV Project Site Location

The technical description and site details are listed in Table 1. The meteorological site conditions, based on Solargis P50 data (ambient temperature: 17.89°C and Global Horizontal Irradiance (GHI): 2395 kWh/m<sup>2</sup>, Specific Yield  $\geq 2592$  / kWh / year), are summarised in Figure 4.

| Location and Description                                         |                                                                                     |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Locality and Region                                              | Rosh Pinah, //Karas Region                                                          |
| Site Coordinates                                                 | 27°40'26.34"S; 16°40'35.65"E                                                        |
| Plant Footprint                                                  | $\geq 250$ hectares                                                                 |
| Plant Nameplate Capacity                                         | 100 MWac                                                                            |
| Planned Commissioning                                            | First Quarter of 2027                                                               |
| Plant Lifetime                                                   | 30 years (minimum)                                                                  |
| Performance Ratio (PR)                                           | $\geq 82\%$                                                                         |
| Capacity Factor (CF)                                             | $\geq 35\%$                                                                         |
| DC/AC ratio at the Point of Connection (PoC) at 0.9 Power Factor | Minimum: 1.13<br>Maximum: 1.30                                                      |
| PV Module Technology                                             | Bifacial Crystalline Silicon (c-Si)                                                 |
| PV Array Mounting Structure                                      | 1-axis tracking (N-S)                                                               |
| PV Module Cleaning Method                                        | Dry-cleaning                                                                        |
| Climatic Conditions (Solargis data)                              | Max. Temperature: 39.7°C<br>Min. Temperature: - 1.30°C<br>Max. wind speed: 15.5 m/s |

Table 1: Location and Description

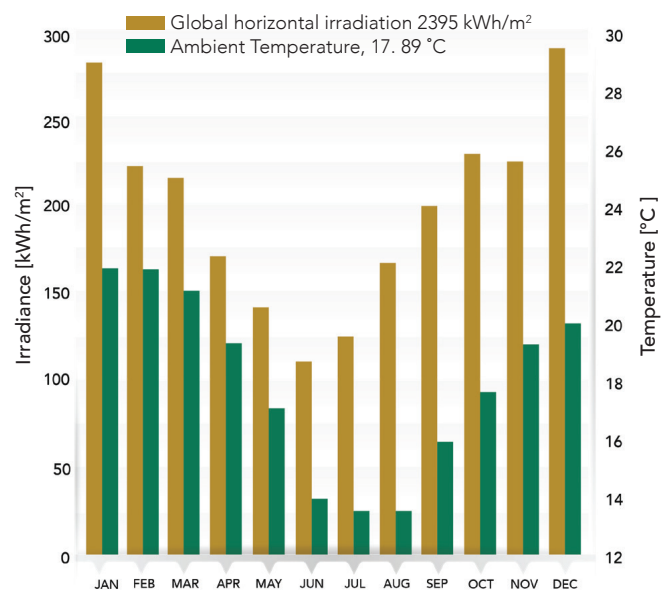


Figure 4: Meteorological Site Conditions (SolarGis P50 Data)

## Plant Yield Estimate

The preliminary Energy Yield Assessment (EYA), based on the technical description, was performed with PVsyst software. The assessment provides indicative normalised monthly energy yields for the Project, as shown in Figure 5. The Plant will be designed for the provisional modular future integration of a Battery Energy Storage System (BESS).



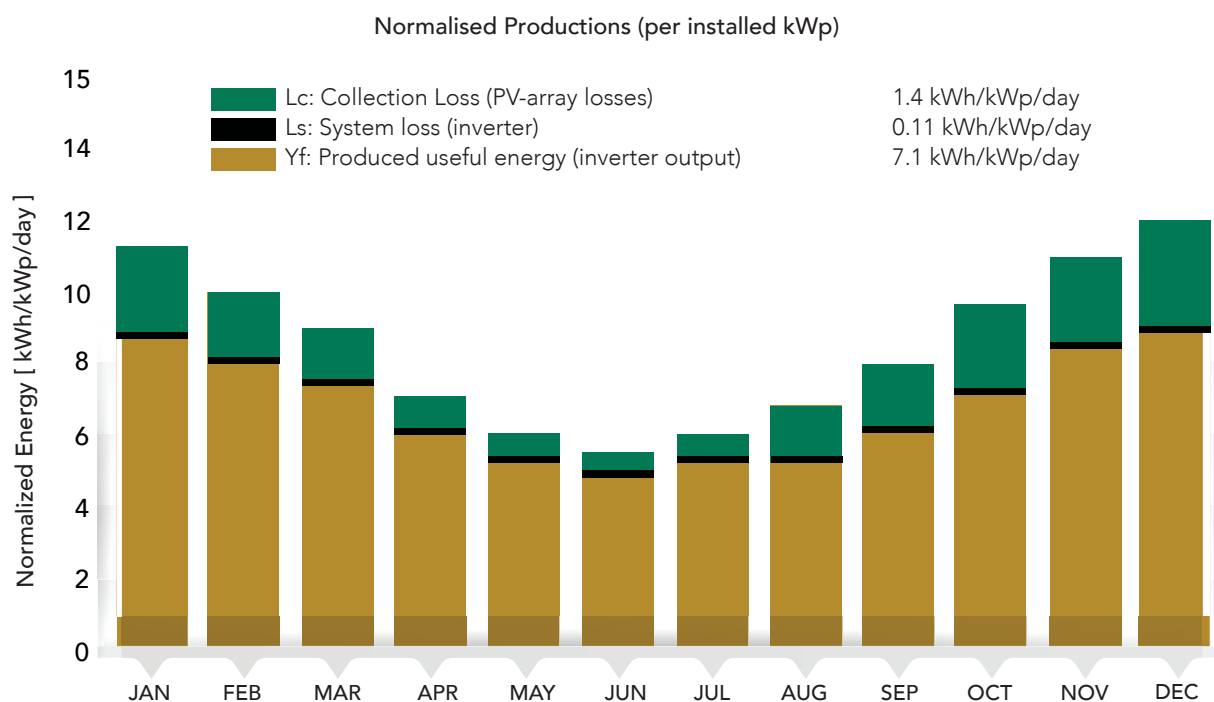


Figure 5: Normalised Monthly Energy Yield Estimate

## Project Structure

The Project structure is depicted in Figure 6, indicating the key stakeholders involved.

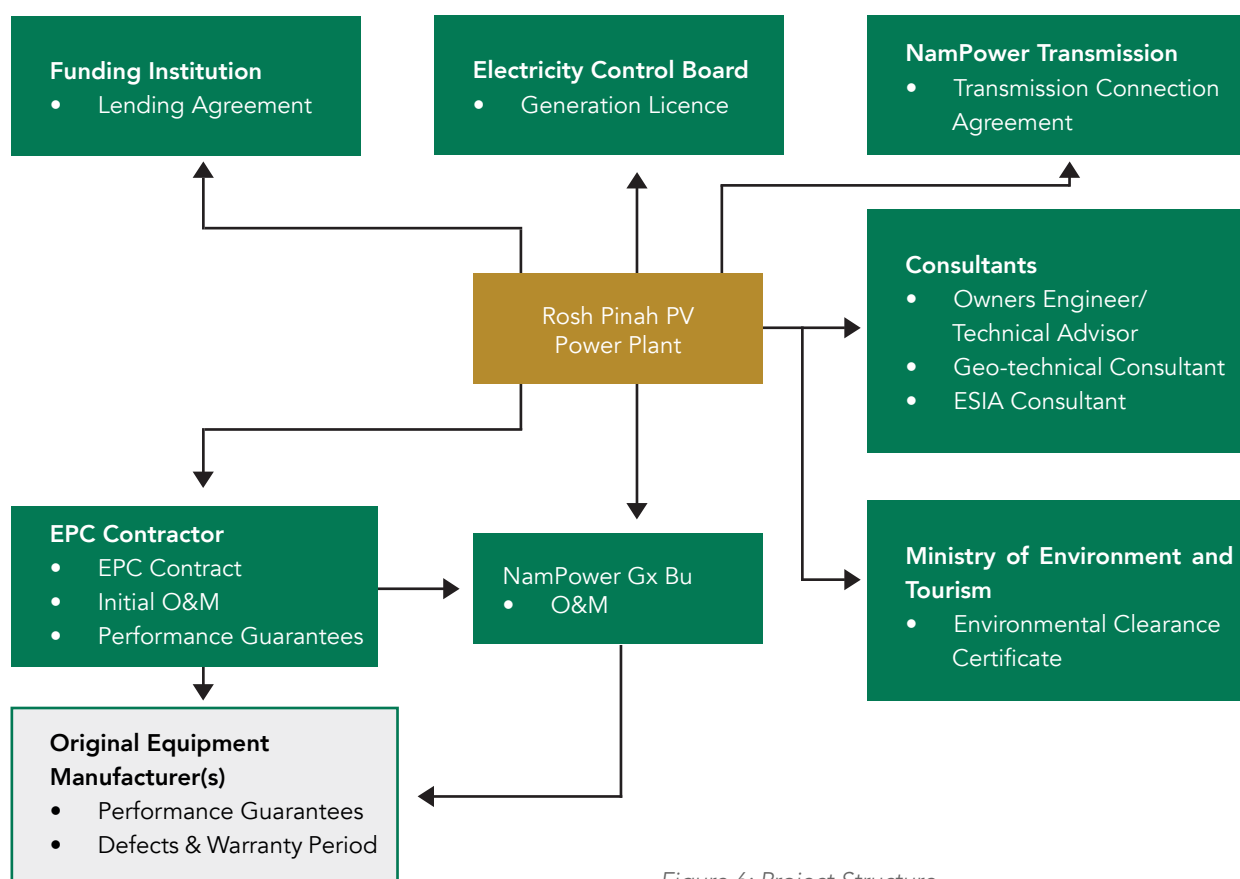


Figure 6: Project Structure

The Project is being implemented by NamPower through an EPC Contract, supported by KfW Development Bank financing and a specialist.

## Procurement Methodology

The EPC Contractor was procured through an open international competitive bidding process in accordance with the Namibian Public Procurement Act, No.15 of 2015, as amended.

The Contract for the Engineering, Procurement and Construction of the Rosh Pinah PV Project was awarded to China Jiangxi International Economic & Technical Cooperation Co., Ltd. – Chint New Energy Development (Zhejiang) Co., Ltd. Joint Venture (CJIC–CHINT JV).

## Construction Progress

Construction of the solar PV plant is well advanced. Major milestones achieved include completion of tracker installation, delivery of all PV modules to site, and ongoing installation of PV modules and electrical infrastructure. Construction of the substations and transmission connection works is also progressing.

## Plant Operation and Maintenance

Following commissioning, NamPower will own and operate the power plant. The EPC Contractor will provide support during the Defects Notification Period.

NamPower personnel will be trained by the EPC Contractor to ensure the necessary knowledge transfer prior to the Date of Completion.

## Environmental Aspects

An Environmental and Social Impact Assessment (ESIA) was completed, and an Environmental Clearance Certificate was obtained. Environmental compliance is monitored throughout construction.

## Stakeholder Engagement

A project-specific Stakeholder Engagement Plan (SEP) has been developed, including the Communication Management Plan (CMP) and the Grievance Mechanism (GRM), to ensure effective internal and external engagements. A summarised GRM is accessible via the NamPower website under the corresponding generation project.



## Capital Budget

The Project is corporate financed through NamPower's balance sheet. NamPower's Financial Statements are reported in NamPower's Annual Report (Investor Relations section of the NamPower website: [www.nampower.com.na](http://www.nampower.com.na)). On 09 September 2024, NamPower secured a Loan from KfW for EUR 66 million to finance the Project.

## Value Proposition

The value proposition of the Project is demonstrated in the cost difference between the energy generated by the Project and the energy replaced for the respective NamPower time of use (ToU) period at the current NamPower ToU tariffs. Table 2 summarises the expected Net Present Values (NPV) at different discount rates.

| Discount Rate [%] | NPV of NamPower ToU Avoided Cost [mil NAD]<br>at USD exchange rate of 19 NAD |
|-------------------|------------------------------------------------------------------------------|
| 8                 | 5,581.07                                                                     |
| 10                | 4,433.55                                                                     |
| 12.5              | 3,419.32                                                                     |
| 15                | 2,713.18                                                                     |

Table 2: Project Value Proposition

Rosh Pinah 100 MW PV Price Path (nominal)

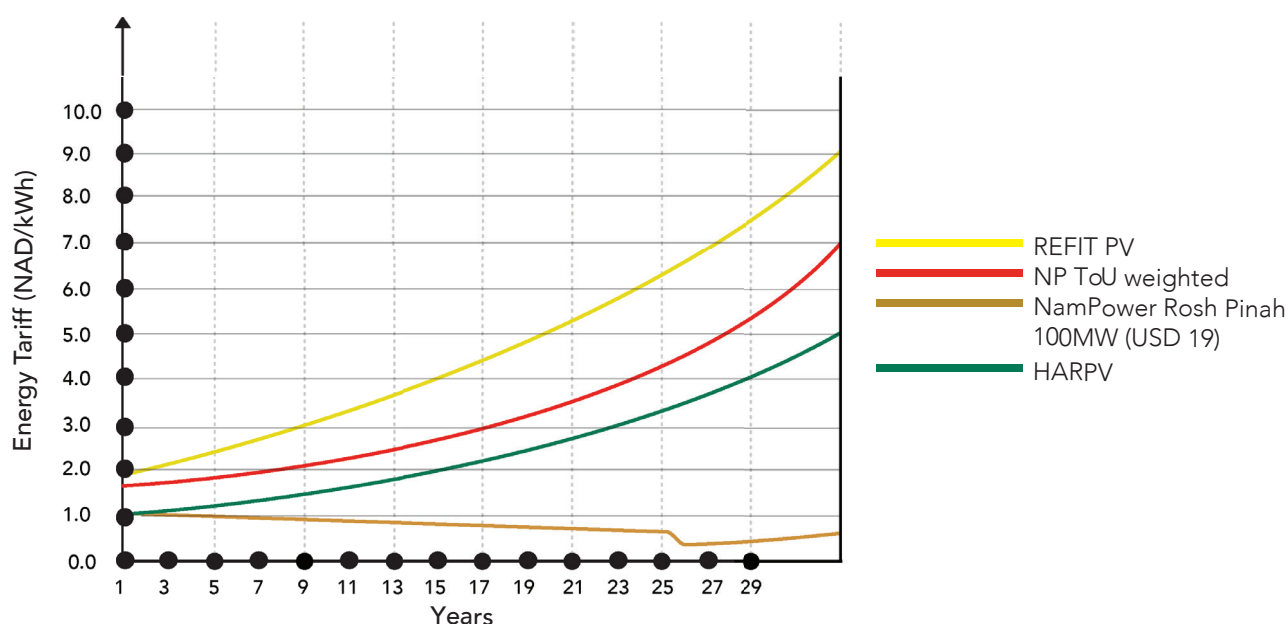


Figure 7: Expected Project Tariff compared to NamPower Time of Use (ToU)

## Risk Assessment

Project risks are managed through a structured risk management framework. Risk assessment workshops have been conducted with NamPower's internal stakeholders, the Technical Advisor and the EPC Contractor to identify, assess and allocate project risks. The project risk register is reviewed and updated regularly throughout the project lifecycle to ensure that mitigation measures remain effective.

## Project Schedule and Progress

The next steps listed in Table 3 are required to bring the project to its execution phase:

| Key Next Steps                                                      |
|---------------------------------------------------------------------|
| Execute TCA and finalise MSB Registration                           |
| Execute the Power Purchase Agreement                                |
| Implement the Project Stakeholder Engagement Plan (ongoing process) |
| Complete EPC construction, testing and commissioning works.         |
| Commercial operation date: Quarter 1 2027                           |

Table 3: Key Next Steps for the Project





The completed tasks of the Project are summarised in Table 4.

| Completed Tasks                                                                  | Completion Date |
|----------------------------------------------------------------------------------|-----------------|
| NamPower Board approval of the change in technology                              | Nov 2022        |
| NamPower Board and Ministerial approval on final Project technology and capacity | Nov 2022        |
| Finalisation of Geotechnical Study                                               | Sep 2022        |
| Finalisation of Topographical Survey                                             | May 2021        |
| ECC issuance by MEFT                                                             | Sep 2022        |
| Option to lease concluded                                                        | Feb 2022        |
| Finalisation of Project Implementation Plan                                      | May 2023        |
| Submission of Generation License Application to ECB                              | Jun 2023        |
| Issuance of EPC Contractor Prequalification (PQ) into market                     | Jul 2023        |
| Issuance of EPC Bidding Documents to Pre-qualified Applicants                    | Jan 2024        |
| Minister of Mines and Energy Determination on additional 30 MW                   | Mar 2024        |
| NamPower Board approval of the increase in plant capacity from 70 MW to 100 MW   | Mar 2024        |
| EPC Contract Signed                                                              | Sep 2024        |
| Obtain the generation license from ECB                                           | 14 May 2026     |

Table 4: Project Completed Tasks

*In partnership with*



**KFW**

This project forms part of the inter-governmental agreement and development cooperation between the Namibian Government and the Federal Republic of Germany.



## NOTES

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## NOTES

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