

**Capital Expenditure Report
for
the Proposed Project of
6 Gigawatt Ingot Wafer , Solar Cell and Solar PV Module manufacturing facility
in Gujarat and Maharashtra ,
India**



WAAREE ENERGIES LTD.

602, 6th Floor, Western Edge – I, Western Express Highway, Borivali (East), Mumbai - 400 066, Maharashtra,
India

By:



Oriens Advisors LLP

DISCLAIMER

Date: 18th June, 2025

Oriens Advisors LLP has prepared this Project Report on **June 18, 2025** for the setting up new Manufacturing Units (“**Proposed Project**”) at Gujarat, Maharashtra and Tamil Nadu of Waaree Energies Limited (the “**Company**”), with its Registered Office at 602, 6th Floor, Western Edge – I, Western Express Highway, Borivali (East), Mumbai - 400 066, Maharashtra, India, on a best judgment basis.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information provided by Waaree Energies Limited. We have also examined and reviewed all the quotations, along with any other documents or information required for the project execution.

This Report is for information and for inclusion (in part or full) in any documents issued by the Company to the shareholders in connection with the change in its objects of the public issue. This Report can be relied upon by the Company in relation to the general meeting of members of the company

EXECUTIVE SUMMARY

Project Highlights:

Company	Waaree Energies Limited ('WAAREE')
Constitution	Public Limited Company
Registered Office Address of the Company	602, 6th Floor, Western Edge – I, Western Express Highway, Borivali (East), Mumbai - 400 066, Maharashtra, India
Reg. / CIN No.	L29248MH1990PLC059463
Date of Incorporation	December 18, 1990
Scope of the Capital Expenditure Report	To assess the capital cost for setting up of combined capacity of 6 GW of Ingot Wafer, 6 GW of Cell Manufacturing and 6 GW of Module Manufacturing proposed projects at various locations Maharashtra, Gujarat to be executed by Waaree through its wholly owned subsidiary named "Sangam Solar One Pvt. Ltd."
Proposed Project Sites	i) 6 GW Ingot Wafer Manufacturing Unit at Buti Bori, District Nagpur, Maharashtra ii) 6 GW Cell Manufacturing Unit at Village Unn, , Navasari District, Gujarat iii) 6 GW Module Manufacturing Unit at Samakhiyali, Village Vandhiya, Taluk; Bhachau, Kutch District, Gujarat
Business & Products	WAAREE is engaged in the production and global marketing of solar energy product portfolio consists of the following PV modules: (i) multicrystalline modules; (ii) monocrystalline modules; and (iii) Topcon Modules, comprising flexible modules and monocrystalline passivated emitter and rear cell modules, which includes bifacial modules (framed and unframed), building integrated photo voltaic modules. The Company's products are primarily sold under its flagship brand "WAAREE".

Summary of the cost of the Proposed Project

Proposed Project Cost (Refer Annexure I for details):

Rs. Million

Sr. No.	Particulars	Status	Butibori, Nagpur	Unn, Gujarat	Samakhiy ali, Gujarat	Common	Total
1.	Land	Leased/ Purchase	1,528.0	3,090.0	-	-	4,618.0
2.	Engineering Consultancy	Proposed				868.6	868.6
3.	Civil infrastructure and Development Works	Proposed	8,137.2	6,479.2			14,616.4
4.	Machinery	Proposed	19,208.4	13,377.6	4,209.3		36,795.3
5.	Utilities	Proposed	10,873.1	13,650.0	1,166.6		25,689.8
6.	IT Infrastructure	Proposed	-	458.6	43.7		502.2
7.	Freight Charges	Proposed	814.2	1,121.0	592.6		2,527.8
8.	Miscellaneous	Proposed	-	187.2	-		187.2

9	Contingencies	Proposed	2,028.0	2,301.8	360.7		4,690.6
	Total Costs**		42,588.9	40,665.5	6,372.9	868.6	90,495.9

*** The estimated cost includes applicable taxes and duties, Engineering Consultancy is not allocated project wise.*

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CHAPTER 1 – BRIEF BACKGROUND OF THE COMPANY

Waaree is one of the major players in the solar energy industry in India focused on PV module manufacturing, with an aggregate installed capacity of 15 GW as of June 2025. The solar energy product portfolio consists of the following PV modules: (i) multicrystalline modules; (ii) monocrystalline modules; and (iii) TopCon Modules, comprising flexible modules and monocrystalline passivated emitter and rear cell modules, which includes bifacial modules (framed and unframed), building integrated photo voltaic modules. The Company operates four manufacturing facilities at Chikhli, Surat, Tumb and Nandigram in the State of Gujarat, India. The Company also has manufacturing facilities at Noida, UP and Texas, US.

In order to support the growth strategy and to expand their manufacturing capabilities at four locations in Maharashtra, and Gujarat as Tabulated below

Project	Capacity
Butibori, Nagpur, Maharashtra	6 GW Ingot Wafer
Unn, Gujarat	6 GW Solar Cell
Samakhiali, Gujarat	6 GW Solar Module

The land details for the above locations are as follows:

Project	Area	Leased/ Own
Butibori, Nagpur, Maharashtra	191 acres	Leased
Unn, Gujarat	103 acres	Owned
Vandhiya, Gujarat	22 acres	Leased

Waaree proposes to implement the project through a 100% subsidiary named “Sangam Solar One Pvt. Ltd.”

CHAPTER 2- MANUFACTURING PROCESS

Manufacturing process of the key products of the Company

2.1. Ingot Manufacturing

Silicon is a non-casting material due to its physical and chemical properties. It is prone to chemical reactions with other substances during melting, hence crystal growing process needs to take place either in a vacuum or in the atmosphere of inert gas.

Solar ingot is produced from high-quality mono-crystal seed (single Si-crystal). The crystal seed is introduced in a polysilicon melted at high temperature of the order of 1425 Deg. C in a cylindrical crucible made of graphite and quartz. Polysilicon melt will be in contact with the quartz. On introduction of the seed crystal in the polysilicon melt, crystallisation occurs due to a slight drop in temperature. The seed crystal is pulled upwards and single mono-crystal clings to the seed crystal as a cylinder. By regulating the temperature, rate of pulling and speed, a silicon mono-crystal is pulled – whose structure is identical to that of seed crystal – in the form of ingots.

2.2. Manufacturing Process from Polysilicon to Ingot to Wafer

The production process of polysilicon ingot is as below.

2.2.1. Polysilicon Storage and conveying:

Polysilicon is the purest form of silicon and its purity is important in the performance of solar cells. Hence, it is required to be stored in the clean room and handled with abundant caution to maintain the purity and the raw material warehouse and conveyors are to be designed accordingly.

2.2.2. Crushing

Polysilicon can be received either in the form of stone or powder. The polysilicon stones are required to be crushed into smaller particles for better heating in the melting process.

2.2.3. Melting

The next stage is to melt the polysilicon. The polysilicon is charged into an electrically heated crucible. The polysilicon is melted at 1425 °C. The molten silicon is cooled gradually and seed mono silicon crystal mounted on a rotating shaft is introduced from the top. The melt solidifies at the seed crystal and adopts the orientation of the crystal. The crystal is rotating and pulled upwards slowly, allowing the formation of a large, single-crystal cylindrical column- ingot from the melt. To prevent the formation of impurities, the process is conducted in inert atmosphere line argon. The quality and length of the ingot is controlled by maintaining temperature, rate of pulling shaft upwards and rotational speed.

2.2.4. Ingot Cooling and Quality Check

The quality and length of the ingot is controlled by maintaining temperature, rate of pulling shaft upwards and rotational speed. With the latest production equipment, ingot length can be from 200 mm to 2000 mm. Upon rod formation, the ingot is cooled and taken for quality check. Rod length, diameter, resistivity, oxygen and carbon content, dislocation are measured and qualified rods are moved ahead for wafer manufacturing.

2.3. Manufacturing Process from Polysilicon to Ingot to Wafer

Wafer manufacturing process has been described below.

2.3.1. Machining

The ingot produced is conical from both ends due to pulling process. Hence both ends of the ingots are truncated and ground to achieve desired surface finish. The bar is further cropped from four sides. The cylindrical bar is now in brick form. Dimensions and surface will be inspected. The rejected silicon is reused by melting in the crucible.

2.3.2. Brick Bonding

The cylindrical ingot would be transferred through roller conveyors, however, Automated Guided Vehicles could also be used for after machining of the ingot. Hence a resin plate is attached to a plane of the ingot bar.

2.3.3. Wire Sewing / Slicing

- The average thickness of N-type silicon wafer cell is 140 μm . Diamond wire is used to slice the bar into small wafers. Diamond wire cutting is fast, wears less and environment friendly. The diameter of the diamond wire used to cut photovoltaic silicon wafers is 50 ~ 65 μm .

2.3.4. Wafer Debonding

The cut wafer are dipped into the lactic acid bath. The adhesive between wafer and resin plate expands after absorbing lactic acid and the resin plate separates from wafers. Wafers also gets separated from each other in the process.

2.3.5. Cleaning

The wafers are cleaned for any impurities such as silicon fumes, cutting fluid, organic layer, oxidation and metal power using cleaning agent and ultrasonic waves.

2.3.6. Inspection and sorting

- This is the last stage in the wafer manufacturing. The wafers are inspected for any surface defect by using visual inspection as well as electro luminated inspection. The accepted wafers are sorted using automated sorting machines are sent for cell manufacturing.

2.4. Manufacturing Process of Cells

2.4.1. Pre-Check and Pre-Treatment

The raw silicon wafer disks first undergo a pre-check during which they are inspected on their geometric shape and thickness conformity and on damages such as cracks, breakages, scratches, or other anomalies, followed by splitting of wafers and cleaning with industrial soaps to remove any metal residues, liquids or other production remains from the surface.

2.4.2. Texturing

Texturing is the process of etching the surface of the wafer by anisotropic (directional dependent) which creates a pyramidal serration thereby increasing the surface area to capture the incident light at different angles resulting to minimise the losses caused by the complete reflection of the light. Texturing is done by wet etching with both the alkaline and acidic solutions by using KOH, HF & H₂O₂.

2.4.3. Acid Cleaning

After texturing, the wafers undergo acidic rinsing where any post-texturing particle remains are removed from the surface. Using hydrogen fluoride (HF) vapor, oxidized silicon layers on the substrate can be etched away from the wafer surface. The result is a wet surface that can be easily dried. By using hydrogen chloride (HCl), metallic residues on the surface can be absorbed by the chloride and thus removed from the wafer.

2.4.4. Diffusion

The diffusion is a process of introducing the dopants into silicon via high-temperature thermal processes is one method in which silicon wafers are doped with extrinsic elements such as boron or phosphorous in a gaseous or liquid phase to form a p-n junction. N-type cell will be doped with Phosphorus (P) and PERC P- type cell will be doped with boron (B) to form a p-n junction.

Plasma-enhanced chemical vapor deposition (PECVD) system is one of the methods used in the recent times.

This stage can be divided further as follows

Primary Boron Expansion – In this process, the required dopant (Boron) is diffused into the surface of silicon wafer at high temperature.

Secondary Expansion (SE) – in SE, the energy from laser is used to melt the part of surface of silicon wafer and P element from PSG is doped in the melted portion of the silicon wafer.

Secondary Boron Expansion – This process is mainly to push the silicon wafer in diffusion furnace to form the emitter of P/N junction.

2.4.5. Etching and Rear polishing

Etching is done as the same process as cited above in the texturing process and rear side polishing is done by wet chemical treatment on single side is included in the production process for high efficiency solar cells. While polishing, rear side structures are flattened and thus surface enlargement decreases. This improves passivation quality and influences optical effects like light trapping. All these effects can help to increase the final cell efficiency.

2.4.6. PSG removal and RCA cleaning

In edge isolation, removal of PSG (Phosphorus silicate glass) and RCA cleaning is the process of wafer cleaning which removes the doped material on the edges and other sides of the wafer.

2.4.7. ALD Deposition – For Tunnelling Layer

Atomic layer deposition (ALD) is a thin film deposition and passivation technology which is used to fabricate ultrathin, highly uniform and conformal material layers on complex, three dimensional objects with atomic precision. ALD uses alternating, self-limiting surface controlled chemical reactions between gaseous precursors and a surface to deposit material in an atomic layer-by-layer.

Plasma Enhanced Chemical Vapor Deposition (PECVD) is one of the processes for depositing a variety of thin films at lower temperatures. Silicon nitride (SiN_x) layer, positive charge is introduced for n-type surfaces and aluminium oxide (AlO_x) is used in the rear passivation of p-type surfaces.

2.4.8. Screen Printing

Screen printing is the metallization process over solar PV cell using stencil to reproduce the same print repeatedly used to form the rear aluminium electrode and the front surface silver grid (busbars and fingers) on the silicon nitride antireflection coating (ARC)

This involves the application of three different metallization paste types onto the c-Si cell.

The first paste is the front side silver used on the side that faces the sun, creates the collector gridlines and silver bus bars, and the second is the rear side tabbing silver or silver-aluminium, and the third is rear-side aluminium paste that reacts with silicon to create the back surface field.

2.4.9. Inspection

Following screen printing and drying, solar PV cell undergoes visual and performance inspection process. Visual inspection will be carried with AOI (Automatic Optical inspection) and EL (Electroluminescence) where the cells are imaged and analysed for cracks, uniformity, dimensions, area defectors, bus bars and finger interruptions. In a final stage, the solar cells undergo performance testing with I–V Curve parameters in a solar simulator station.

2.4.10. Sorting and Packing

Based on the cell colour, size and defects identified in the above process, solar cells are sorted and redirected to either corrections or scrapped through automated conveying systems with the help of plant MES (Manufacturing Execution System) Solar cells become a raw material for manufacturing of solar module are further conveyed and packed.

2.5. Solar Module Manufacturing

Module manufacturing is the process of converting solar cells to solar module which generates power. This is the final process of solar value chain.

The detailed material flow for the solar module manufacturing is described below.

2.5.1. Cell cutting

Cell cutting is the process of slitting the solar PV cells to the required size based on the module size and power output of the solar module. Cell cutting is slitted with laser under controlled temperature with minimal heating and thermal effects.

2.5.2. Tabbing & Stringing

Post cell cutting the Solar cells goes through the tabbing and stringing. The tabbing is the process where the cells are connected in series with the coated copper wires and these connected arrays of cells are called strings and process is called stringing.

2.5.3. Glass Loader

This is a parallel activity running along with the laser cutting, tabbing, and stringing. Glass loader is a glass placing machine in the process followed by back sheet and EVA (Ethylene Vinyl Acetate) sheet.

2.5.4. Lay-up

Layup is an automation process where the glass, back-sheet, EVA and string of cells are placed one over the other as sandwich layers for further process.

2.5.6. Bussing.

Bussing is connecting the positive and negative terminals of each cell and joining the cell strings to the power output terminal i.e., junction box of the solar module with the help of ribbons.

Two different techniques followed by the manufacturers are

2.5.6.1. Manual bussing

2.5.6.2. Automatic bussing.

Automatic bussing has more advantages over the former as it is designed to handle the cells with car, minimizing the risk of cracks, scratches or other damage that could effect the performance and durability. By adopting the auto bussing, manufacturers can produce more panels in less time, reducing costs and increasing

production volumes while maintaining quality.

2.5.7. Automatic Optical inspection (AOI) and Electroluminescence (EL) testing

Automatic Optical inspection (AOI) and Electroluminescence (EL) the modules are checked for cracks, spots and defects in tabbing, stringing and bussing process before the lamination process. If the module found with any above said defects, module is directed for re-work thorough automated conveyors.

2.5.8. Lamination

During the Lamination process, the layered Solar module is fed to the lamination machine in which the air between the layers is vacuumed out and heated at $\sim 150^{\circ}\text{C}$. Post lamination the module will go through intermediate checks and trimming of excessive EVA and back-sheets.

2.5.9. Framing and Junction box fixing

Framing includes fixing of aluminium frames on all sides of the module and applying adhesives and sealants along the sides of module for gluing the frame. Later module moves for fixing of junction box with the bus bar of the module.

2.5.10. Curing

Curing of module happens in the cooling chamber under controlled temperatures with dry air below 30°C that ensures the proper adhesion and bonding between the layers of the module and frames post applying of RTV (Room temperature vulcanizing) sealant.

2.5.11. Inspection & Testing

AOI & EL test is carried out for cracks, spots and defects post lamination, framing and curing. For performance checking the panel is moved to the sun simulator that provides the illumination approximating the natural sunlight based on artificial irradiation and therefore the reproduction of the standard conditions of temperature, irradiance and spectrum in which the module works.

In Sun simulator IV parameter is measured to read and check the power and efficiency of the module and immediate feedback there by ensuring the quality of the module.

2.5.12. Sorting and Packing

Based on the module capacity, type (mono-facial, bi-facial), size and defects identified in the above process, solar modules are sorted and redirected to either corrections or scrapped through automated conveying systems with the help of plant MES (Manufacturing Execution System). Solar modules are further packed and stored in the designated area and racks.

CHAPTER 3 – EXISTING FACILITIES

As on date of this Capex Report, the Company undertakes the manufacturing operations from facilities located in Chikhli, Tumb, Nandigram and Surat, in the State of Gujarat , and Noida in the State of Uttar Pradesh in India and Texas in United States of America. These Facilities include manufacturing units, storage warehouses and finished good depots. The facilities in Chikhli, Tumb, Nandigram, Surat and Noida, are either owned by the Company or leased from Industrial Development Corporation's (on long term leases), or taken on lease from third parties/ promoter group members.

CHAPTER 4 – PROPOSED PROJECT

Proposed Project Justification

The Company proposes to tap the market potential in Solar energy category. The Company proposes to undertake the project through wholly owned subsidiary in the name and style of Sangam Solar one Private Limited.

The Company intends to continue to invest in the capacity expansion and backward integration of it's operations, which would enable the Company not only gain competitive advantage but also lead to benefits such as product improvement and cost reduction, that would help to improve the competitive advantage and ability to compete with larger global players.

For the purpose of this Proposed Project, the Company, in the current calendar year, has been procuring land or leasing land and building as per following tabulation

Project	Area	Status
Butibori, Nagpur, Maharashtra	191 acres	Land Leased from Maharashtra Industrial Development Corporation
Unn, Gujarat	103 acres	Under procurement from Wealth City Development Private Ltd.
Samakhiyali, Gujarat	22 acres	Land and Building Leased from Ajanta Manufacturing Pvt Ltd.

The Company intends to use a portion of the Net Proceeds from the Initial Public Offering for construction of the proposed new manufacturing facilities, towards investing in plant & machineries, utilities to expand its module production capabilities and to achieve backward integration of it's operations to the extent of Cell, wafer and Ingot manufacturing, that shall allow the Company to increase its production capacity, derisk the supply chain and reduce the dependence on imported components and improve the profitability.. (“**Proposed Project**”). The total estimated cost for setting up the Proposed Project is mentioned below:

Sr. No.	Particulars	Total Estimated Cost**	Total Amount already deployed from Internal Accruals as on May 31, 2025	Total Amount to be deployed from the Net Proceeds and Internal Accruals
		(in ₹ millions)	(in ₹ millions)	(in ₹ millions)
1	Land	4,618.00	4,062.07	555.93
2	Engineering Consultancy	868.60	-	868.60
3	Buildings and Civil works and Land Development	14,616.37	685.09	13,931.28
4	Purchase of machinery including Ingot and Wafer Manufacturing machines, Cell Manufacturing, Module Manufacturing machines and other related ancillaries	36,795.30	1,057.07	35,738.23
3	Utilities	25,689.79	64.67	25,625.12
4	IT Infrastructure	502.24	-	502.24

5	Freight	2,527.78	-	2,527.78
6	Miscellaneous	187.20	0.13	187.07
7	Contingencies	4,690.59	-	4,690.59
	Total Project Cost	90,495.87	5,869.03	84,626.84

The Estimated Cost includes applicable taxes and duties. Customs Duty and Goods and Service Tax for import of equipment has not been considered as Waaree proposes to avail benefits under Manufacturing and Other Operations in Warehouse Regulations (MOOWR) / Export Promotion Capital Goods (EPCG) scheme of the Government of India scheme for export goods as notified by Government of India and Goods and Service Tax services are based on assessable value of services where ever they are excluded

Land:

- i) Butibori : Letter of Possession of 191 Acres land has been at Additional Buttibori Industrial Area District Nagpur by Maharsatra Industrial Development Corporation Ltd. on 9th June 2025
- ii) Unn: Letter of Procurement of 103 acres of land from Under procurement from Wealth City Development Private Ltd. dated 20th August 2024
- iii) Samakhiyali, Gujarat : Approx 22 Acres Land and Building Leased from Ajanta Manufacturing Pvt Ltd. under a lease agreement dated 12th June 2025

Land Cost

Sr. No.	Particulars	Cost (in ₹ millions)
1.	Butibori, Maharashtra	1,528.00
2.	Unn, Gujarat	3,090.00
3.	Samakhiyali, Gujarat	-
	Total	4,618.00

Engineering Consultancy:

The Company has invited budgetary quotations from various agencies to provide consultancy for a) total plant design including concept design, basic design, detailed design, technical specifications and technical support b) Detailed engineering for Ingot and Wafer plant c) Detailed engineering for Cell Manufacturing plant and d) Detailed engineering for Module Manufacturing plant & Other Complementary Services,

Cost associated with consultancy is

Sr. No.	Particulars	Cost (in ₹ millions)
1.	Total Plant Design	320.05
2.	Detailed Engineering Design for Ingot and Wafer Plant	548.55
3.	Detailed engineering for Cell Manufacturing plant	
4.	Detailed engineering for Module Manufacturing plant	
5.	Other Complementary Services	
	Total Consultancy	868.60

Building Construction and Civil work:

The Company plans to construct 3 buildings as a part of its Proposed Project. Building and civil works for the proposed expansion include construction related work including building the foundation, structure, roof, doors and windows, drainage and sewerage system, Electrical Substation, Gas Station, Waste Heat Recovery Station, Stores, Workshops, Administrative Building and other Infrastructure works like internal roads, Parking area, Drainage, The detailed scope of work in building construction and civil work is provided in **AAppendix III**. The costs associated with the construction of building and civil work comprises of as follows:

Sr. No.	Particulars	Cost (in ₹ millions)
1.	Civil Works for Infrastructure	13,711.20
2.	Site Development	905.16
Total		14,616.37

Purchase of Machinery:

The Company has identified the machinery it intends to purchase and install at the Proposed Project. The key plant and machinery include purchase and installation of equipment for a) Ingot and Wafer Plant, b) Cell Manufacturing Plant, c) Module Manufacturing plant along with laboratory which will be utilised for the purposes of setting up of the Proposed Project. The details of the plant and Machinery that will be installed at the Proposed Project, the detailed break-up of which is provided in **Appendix IV**.

The major costs associated with the plant, machineries and other items are as follows:

Sr. No.	Particulars	Cost (in ₹ millions)
1.	Ingot and Wafer Plant	19,208.41
2.	Cell Manufacturing Plant	13,377.63
3.	Module Manufacturing plant	4,209.26
4.	Total Purchase of machinery:	36,795.30

** Basis the quotations received from multiple suppliers of these plant, machineries & others, details of which are provided in AAappendix IV.*

Utilities:

The Company intends to procure Utilities for each of the Ingot and Wafer Plant, Cell Manufacturing Plant and Module Manufacturing plant requirement for the proposed project at the said location.

The various utilities proposed are

a) **for Ingot and wafer Plant** comprising are Chillers Centrifugal, Pump House, Cooling Towers, Compressors, Dryer, Receiver, Piping, Argon Recovery System, Argon Liquid Storage, Exhaust and Scrubber, Process Water, Room Temp PCW for pullers, HVAC AHU including Ducting and Piping, Deionised Water, Reverse Osmosis(RO) + ElectroDeIonisation (EDI), Effluent Treatment Plant and Recycling System, Chemical Distribution Unit and Piping, DG Sets, UPS and all Electrical system,

b) **for Cell Manufacturing plant** comprising Abatement System (Waste Gas) with Piping, Piping - PECVD Vacuum, Pumps to Abatement System, Compressed Dry Air & Piping, Special Gases Delivery System, Chemical Delivery System, Chemical Scrubber, Piping & General Exhaust, DI, ETP (Waste Water) & Piping, Process Cooling Water with Chiller & PHE Pumps, Clean Room, HVAC, with piping, Cooling Towers, DG Sets, UPS, Electrical systems,

c) **for the Module Manufacturing Plant** comprising Compressed Dry Air & Piping, Clean Room, HVAC with Chillers, Exhaust Air System with Piping, DG Sets, UPS, Fire Safety System, Electrical Misc - Lightings, earthing, cabling, site services, and

d) **Common Utility** comprising Electrical Line etc The details of Utilities that will be installed at the Proposed Project and the detailed break-up of which is provided in **Appendix V**

Sr. No.	Particulars	Cost* (in ₹ millions)
1.	Ingot and Wafer Plant	10,873.12
2.	Cell Manufacturing Plant	13,650.04
3.	Module Manufacturing plant	1,166.63
	Total Utilities	25,689.79

* Basis the quotations received from multiple suppliers, details of which are provided in Annexure III.

IT Infrastructure :

The Company has also invited quotes of the Information Technology Infrastructure for the a) Ingot and Wafer Plant, b) Cell Manufacturing Plant and c) Module Manufacturing plant

The details of IT Infrastructure that will be installed at the Proposed Project and the detailed break-up of which is provided in **Appendix VI**

Sr. No.	Particulars	Cost* (in ₹ millions)
1.	Ingot and Wafer Plant	0.00
2.	Cell Manufacturing Plant	458.57
3.	Module Manufacturing plant	43.67
4.	Total IT Infrastructure	502.24

* Basis the quotations received from multiple vendors details of which are provided in Appendix VI.

Freight charges

The Company intends to engage with specialist loading, unloading and freight forwarders for the various equipment

The details of scope of work comprises the freight charges, port and customs clearances, Unloading, Erection and Local movement and the detailed break-up of which is provided in **Appendix VII**

Sr. No.	Particulars	Cost (in ₹ millions)
1.	Ingot and Wafer Plant	814.20
2.	Cell Manufacturing Plant	1,121.00
3.	Module Manufacturing plant	592.58
4.	Total Freight and Unloading	2,527.78

* Basis the quotations received from multiple vendors details of which are provided in Annexure VII.

Miscellaneous

The Company has budgeted about Rs 187.20 Million towards safety measures based on quotations received

Contingencies:

Contingencies comprises costs related to increase in a) scope of work for all the plant and machinery, civil, utilities, freight and IT infrastructure which will be finalised along with detailed engineering., b) foreign exchange variations , c.) taxes and duties etc.. The estimated contingency is approximately 5.5%% of the hard cost costs at Rs. 4690.59 Million

CHAPTER 5 – PROPOSED PROJECT TIMELINES DEPLOYMENT OF ESTIMATED COST& KEY APPROVALS

Project Timelines

Based on the past experience of the execution of the projects by the Company, discussions with the management and the experience of the personnel involved, the Company is very well placed to execute the Proposed Project within the timelines it has defined and which are mentioned hereunder:

6 GW Ingot Wafer, Buti Bori_Nagpur

Particulars	Start Date	End date
Acquisition of Land (by way of lease)	May-25	Jun-25
Consultancy	Jun-25	Oct-25
Building Construction & Civil Work	Oct-25	Jul-26
Plant & Machineries	Jan-26	Dec-26
Utilities	Jun-25	Nov-26
Commercial Production- Ingot and Wafer Plant		Mar-27

6 GW Cell_Unn

Particulars	Start Date	End date
Acquisition of Land (by way of lease)	Sep-24	Dec-24
Consultancy	Jan-25	Aug-25
Building Construction & Civil Work	Jan-25	Mar-26
Plant & Machineries	Jul-25	Aug-26
Utilities	Dec-25	Aug-26
Commercial Production- Solar Cell Plant		Sep-26

6 GW Module_Samakhiali

Particulars	Start Date	End date
Acquisition of Land (by way of lease)	May-25	May-25
Consultancy	Jun-25	Nov-25
Building Construction & Civil Work	NA	NA
Plant & Machineries	Jun-25	Nov-25
Utilities	Jun-25	Nov-25
Commercial Production- Solar Module Plant		Dec-25
Commercial Production- Solar Module Plant		Dec-25

Considering the Company's plans to construct three buildings at the new manufacturing facility. These building are expected to be completed in a phased manner. Accordingly, installation and commissioning of the plant & machineries shall also happen in a phased manner. Consequently, the commercial production shall also start in a phased manner. However, the table above considers the timelines for completion of the entire Proposed Project.

Deployment of Estimated Costs

The proposed deployment of the of estimated costs towards the Proposed Project is as follows:

(in Rs. Million)

Particulars	Total estimated amount/ expenditure (A)	Total amount spent on the Objects as of May 31, 2025 (B)	Balance amount to be incurred (C=A-B)	Estimated utilisation from Net Proceeds	Year wise break-up of Utilisation from Net Proceeds		
					Fiscal 2026	Fiscal 2027	
Cost of Proposed Project	90,499.59	5869.03	84,626.84				
General corporate purposes ⁽¹⁾	[•]	-	[•]	[•]	[•]	[•]	
Total ⁽¹⁾	[•]		[•]	[•]	[•]	[•]	

Key Approvals

Companies engaged in the manufacturing activities in India are regulated by various central, state & local legislations. Additionally, functioning of these units requires the sanction of concerned authorities, at various stages, under relevant legislations and local laws. With respect to the Proposed Project, the Company would be required to obtain approvals from certain governmental and local authorities, an indicative list of which is mentioned below:

Sr. No.	Approval Description	Approving Authority and Department	Stage at which the approval is required	Status of the approval
1.	Lease of land *	Gram Panchayat / Concerned Local Authority	Prior to commencement of civil works	Completed
2.	Environmental Clearance from Ministry of Environment, Forest, and Climate Change	Central Pollution Control Board	Prior to commencement of civil works	To be applied for at the appropriate stage
3.	Consent to Establish	State Pollution Control Boards	Prior to commencement of civil works	To be applied for at the appropriate stage
4.	Approved factory layout plan	Gram Panchayat / Concerned Local Authority	Prior to commencement of civil works	To be applied for at the appropriate stage
5.	License to work a Factory, as per Factories Act, 1948	Directorate of Industrial Safety and Health of respective States	Upon completion of civil works and prior to commencement of commercial production	To be applied for at the appropriate stage
6.	Import Export Code (IEC)	Directorate general of foreign trade, Ministry Commerce, and industry	Prior to undertaking export of goods	To be applied for at the appropriate stage
7.	Manufacturing and Other Operations in Warehouse Regulations / Export Promotion Capital Goods scheme	Director General of Foreign Trade	Prior to commencement of commercial production	To be applied for at the appropriate stage
8.	Approval for usage of Power required for construction as well as operation	Electricity Boards / State Power Distribution Agency	During the period of construction	To be applied for at the appropriate stage
9.	Drawing Approval for Electrical Installation	State Chief Electrical Inspector,	During the period of construction	To be applied for at the appropriate stage

10.	Approval for load connection at substation	State Chief Electrical Officer	During the period of construction	To be applied for at the appropriate stage
11.	Approval for usage of water required both during construction and operation	State Water Resources Department	During the period of construction and subsequently during the period of commercial operation	To be applied for at the appropriate stage
12.	Raw Water Cross-Country Pipeline	Respective Industrial Development Corporation	During the period of commercial operation	To be applied for at the appropriate stage
13.	Building Plan Approval	Town & Country Planning Department	Prior to commencement of civil works	To be applied for at the appropriate stage
14.	Fire NoC	State Fire Service Department	Prior to commencement of commercial production	To be applied for at the appropriate stage
15.	Building and Construction Workers Registration	State Directorate of Industrial Safety and Health	During the period of construction	To be applied for at the appropriate stage
16.	Consent to Operate	State Pollution Control Board	Upon completion of construction and before commercial production	To be applied for at the appropriate stage
17.	License to store and handle Hazardous substances	Petroleum & Explosives Safety Organization (PESO)/ Ministry of Commerce & Industry	During the period of commercial operation	To be applied for at the appropriate stage
18.	Insurance under Public Liability Insurance Act, 1991	Directorate of Factories – Labour department	During the period of commercial operation	To be applied for at the appropriate stage

Taking into consideration the experience of the Company, and the team which is involved in the Proposed Project, the Company is well placed to apply for and get the required approvals/ licenses/ certifications for the Proposed Project.

CHAPTER 6 – CONCLUSIONS & RECOMMENDATIONS

Oriens Advisors LLP has assessed the cost estimates of the Proposed Project for reasonableness and fairness based on the following:

- Specifications provided
- Proposals invited by the Company and the Budgetary (non-negotiated) Quotations/ Proposals received from vendors with the scope of work
- Similar manufacturing facilities commissioned by the Company
- Basic engineering for the project
- Clarifications and representations provided by the Company

Oriens confirms that all budgetary quotations/ proposals invited by the Company are related to first hand and brand-new machines/ equipment.

For the Building Construction and Civil Works, the Company has invited and received turnkey quotations.

Goods and Service Tax for quotations received from domestic vendors and service providers are based on the current applicable rates of 18% and 28%. Goods and Service Tax and Customs Duty have not been considered for imported equipment as Waaree proposes to avail benefits under Manufacturing and Other Operations in Warehouse Regulations (MOOWR) / Export Promotion Capital Goods (EPCG) scheme of the Government of India scheme for export goods. Goods and service tax on import of Services have been considered at 18% grossed up for withholding tax

The Company proposes to procure insurance for those goods which have been quoted without insurance. The cost of insurance has been estimated and included in the contingency and are estimated to be negligible compared to the overall cost.

Certain quotations have been received without freight charges. They have been excluded as they constitute a minimal percentage of overall costs.

Oriens has only referenced the signed budgetary quotations and proposals for technical specifications of the capital expenditure programme and timelines for implementation schedules but does not opine on any other conditions of the agreements.

Oriens Advisors estimates that the costs are fair and reasonable.

The implementation of the facilities is estimated to be completed in phases by Fiscal 2026, Fiscal and 2027

Oriens does not have expertise in the laws relating to approvals required and based on experience the list of approvals specifically required for setting up the plants is given.

Based on the detailed discussions with various senior level personnel, Oriens Advisors LLP is of the opinion that Waaree Energies Limited is capable of executing the Proposed Project within the estimated cost and within the desired timelines.

Yours faithfully,



Oriens Advisors LLP

Membership No.: LLP IN: AAN 6288

Place: Mumbai

Date: June 18, 2025