

ANNEX 1: PROJECT INFORMATION

This Annex summarises the Facility and its design-stage energy performance assessment for the purpose of this RFP. The borrower's name and other site-identifying details are withheld for reasons of commercial confidentiality and will be disclosed to the successful applicant under a non-disclosure agreement prior to assignment start.

A1.1 Facility Description

The Facility is a greenfield, large-scale rice milling facility under construction in Banteay Meanchey Province, Cambodia. It is designed to process paddy rice into high-quality milled rice for domestic consumption and export, with an annual processing capacity of approximately 169,200 tons of paddy, yielding approximately 109,980 tons of milled rice, 16,920 tons of rice bran, and 42,300 tons of rice husk per year, based on 24-hour operation across the applicable harvesting seasons.

The Facility's design distinguishes it from conventional rice mills in Cambodia primarily in the paddy-drying stage: the design case uses a biomass steam boiler for paddy drying (fired on rice husk, a by-product of milling), in place of the biomass furnace system used in the baseline / conventional configuration. The design case milling line also adopts IE3 high-efficiency motors in place of the IE2 motors assumed in the baseline.

A1.2 Design-Stage Energy Performance Assessment

An independent, design-stage Energy Efficiency Assessment Report (energy modelling combining EnergyPlus building simulation with bottom-up engineering calculations for process equipment) has established the following baseline and design-case Specific Energy Consumption (SEC), expressed per ton of milled rice produced. The baseline represents a reference facility built to conventional industry practice in Cambodia (IE2 motors, biomass furnace drying); the design case represents the actual project design (IE3 motors, biomass steam boiler drying, and associated efficiency measures).

Parameter	Baseline	Design Case	Target Improvement
Electrical SEC (kWh/ton milled rice)	179	141	21%
Thermal SEC (kWh/ton milled rice)	218	151	31%
Total SEC (kWh/ton milled rice)	397	292	26.4%

The assessment indicates that the design case is projected to reduce total SEC from 397 kWh/ton (baseline) to 292 kWh/ton (design), an improvement of approximately 26.4%, with a sensitivity-tested minimum improvement of approximately 21.8% under conservative operating assumptions (a 10% reduction in both boiler and polishing-motor efficiency applied simultaneously).

The largest single contributor to the projected saving is the replacement of the baseline biomass furnace with the biomass steam boiler for paddy drying, alongside the milling motor upgrade from IE2 to IE3 efficiency.



A1.3 Key Design Parameters Relevant to Verification

Parameter	Design Value
Drying capacity	30 tons/hour wet paddy
Milling capacity	600 tons/day paddy (24-hour operation)
Drying fuel	Rice husk (by-product biomass)
Drying technology (design case)	Biomass steam boiler (replacing a biomass furnace in the baseline)
Design boiler thermal efficiency	84%
Design husk consumption (drying)	721 kg/hour (average)
Paddy moisture reduction	24% to 14% (wet basis)
Milling motor efficiency (design case)	IE3 (upgraded from IE2 baseline)
Annual milled rice production (design)	109,980 tons/year
Drying system operating days	266 days/year (6,384 hours/year)

Note: These design values form the reference benchmarks against which the Consultant shall verify actual installed and operating performance under this assignment, in accordance with the methodology at Annex 2.

