



HARMATTAN RENEWABLES

ATA Webinar RMIPPPP



WE ARE HARMATTAN RENEWABLES
WE ENHANCE PERFORMANCE
WE IMPROVE EFFICIENCY
WE MINIMISE RISK



WHO WE ARE

Harmattan Renewables is a leading provider of technical, commercial and environmental advisory services for projects and business in the renewable energy space.

A black women owned company, Harmattan Renewables has a proven track record of delivery, all through an experienced BBBEE Level 1 company focused on developing local engineers and project managers.

We continually strive to seek, develop & deploy the latest & greatest innovative technology, which ultimately provides real value to asset owners, managers, EPC's, O&M's and TA's.

WHAT WE DO

We apply our specialist engineering, design, project management, construction and asset management skills to develop bespoke solutions. We aim to minimise the risk and maximise the performance of assets, adding value to both new-build and existing projects. From wind to solar, storage, small hydro, biomass and beyond, our focus is on:

NEW BUILD (or new to you) RENEWABLE ASSETS

De-risking your project through quality control & risk management.

OPERATIONAL RENEWABLE ASSETS

Decreasing your operational liability by maximising production, availability & longevity.

EMERGING RENEWABLES & ENERGY SOLUTIONS

Introducing what is next in the world of renewables & sustainable energy solutions?

PRESENTATION OVERVIEW

- WHAT IS **RMIPPPP**? WHAT DOES IT AIM TO SECURE (MW, schedule etc)?
- DEFINITIONS
- KEY NON-TECHNICAL REQUIREMENTS
- KEY TECHNICAL REQUIREMENTS
- RISKS



An aerial photograph of a desert landscape featuring a large solar farm with rows of photovoltaic panels in the lower-left. A semi-transparent white circle is overlaid on the right side of the image, containing text. The background shows arid terrain with sparse vegetation and some industrial or construction-related structures.

What is **RMIPPPP**?

The 2,000MW Emergency Risk Mitigation IPP procurement programme (RMIPPPP) RFP is based on the following criteria:

- Technology agnostic
- Based on the plant-performance needs of the electricity system operator
- Will procure dispatchable flexible generation that should be able to provide energy, capacity and ancillary services
- Should be able to operate between 5:00 am to 9:30 pm
- Must have an automatic generation control load following ability and flexible capacity factor; it must also be “scalable” with changing capacity requirements
- Must be able to connect power to the grid by June 2022 (Longstop Date)

IRP 2019

	Coal	Coal (Decommissioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)
Current Base	37 149		1 860	2 100	2 912	1 474	1 980	300	3 830	499
2019	2 155	-2373					244	300		Allocation to the extent of the short term capacity and energy gap.
2020	1 433	-557				114	300			
2021	1 433	-1403				300	818			
2022	711	-844			513	400	1000	1600		
2023	750	-555				1000	1600			500
2024			1860				1600		1000	500
2025						1000	1600			500
2026		-1219					1600			500
2027	750	-847					1600		2000	500
2028		-475				1000	1600			500
2029		-1684			1575	1000	1600			500
2030		-1050		2500		1000	1600			500
TOTAL INSTALLED CAPACITY by 2030 (MW)	33364		1860	4600	5000	8288	17742	600	6380	
% Total Installed Capacity (% of MW)	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1	
% Annual Energy Contribution (% of MWh)	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3	

	Installed Capacity
	Committed / Already Contracted Capacity
	Capacity Decommissioned
	New Additional Capacity
	Extension of Koeberg Plant Design Life
	Includes Distributed Generation Capacity for own use

- 2030 Coal Installed Capacity is less capacity decommissioned between years 2020 and 2030
- Koeberg power station rated / installed capacity will revert to 1926 MW (original design capacity) following design life extension work.
- Other / Distributed generation includes all generation facilities in circumstances in which the facility is operated solely to supply electricity to an end-use customer within the same property with the facility
- Short term capacity gap is estimated at 2000 MW

The SA 2019 Integrated Resource Plan identifies a 2 GW gap in the short term due to the performance of Eskom coal power plants declining faster than anticipated

Decision 1 of the IRP: Undertake a power purchase programme to assist with the acquisition of capacity needed to supplement Eskom's declining plant performance and to reduce the extensive utilisation of diesel peaking generators in the immediate to medium term.



KEY INFO

Timelines:

- RFP release in the market: August 23, 2020
 - Bid Registration and Notification Open: August 24, 2020
 - Bid Registration & Notifications Close: October 30, 2020
 - Bid Submission: November 24, 2020
 - Preferred Bidder announcement (*Estimated*): December 2020/January 2021
 - Anticipated Financial Close: April 30, 2021 (+4 months)
-
- 20 year PPA term
 - Fuel cost is a pass through based on indices
 - Development Fee is 2% of the Total Project Cost
 - Government support applicable is DMRE will stand behind payments
 - Bid evaluation 90% Price and 10% Economic Development

KEY EQUIPMENT

Key Equipment allowed to participate in the tender are:

- Fuel Storage and/or fuel pipeline facilities;
- heat recovery steam turbine;
- Boiler and steam turbine;
- gas turbine;
- gas engine;
- wind turbines;
- photovoltaic panels;
- inverters; or
- energy storage;
- Generator and Automatic generation controller (AGC);
- high voltage transformers;
- grid connection equipment;
- water treatment and/or condensers, including water cooled, air cooled or hybrid ;and
- emissions abatement systems proposed i.e. flue gas desulphurisation ("FGD") or mono-nitrogen oxides ("NOx") or particulate control.



NON-TECHNICAL REQUIREMENTS

Qualification criteria must be passed for Bid to be compliant and proceed to the comparative and competitive evaluation stage i.e. pass/fail

Legal Criteria

Contractual framework includes Implementation Agreement; PPA; Independent Engineer Agreement; Direct Agreement; Connection Agreements and Direct Agreements.

Criteria are:

- ✓ Structure of the Project
- ✓ Legal status of the Project Company and nomination of sponsors
- ✓ Confirmation and acceptance of the contract undertakings
- ✓ Contracts with Contractors, Fuel Suppliers, Key Equipment Supply and Water Supply Rights
- ✓ Provision for decommissioning reserve
- ✓ Land Acquisition and Land Use
- ✓ Environmental Consent



NON-TECHNICAL REQUIREMENTS

Financial Criteria

- ✓ Evaluation price compliance test
- ✓ Financial Standing and Robustness of the Funding Proposal
- ✓ Robustness of the Financial Model

How will the Weighted Evaluation Price (WEP) be calculated?

- Electricity Tariff (ET) = Average of NPV of A +B+C+D +SU +CT at 100% load factor and 70% load factor
- Ancillary Services Tariff (AST) = Average NPV of Instantaneous Reserve and Regulating Reserve at 100% load factor and 70% load factor
- $WEP = ET \times 95\% + AST \times 5\%$
- The Evaluation Price must demonstrate Value for Money to the Buyer and Government, and the Bidder must ensure transparent competition in its supply chain
- Include the impact of Carbon Tax
- Include cost for grid connection

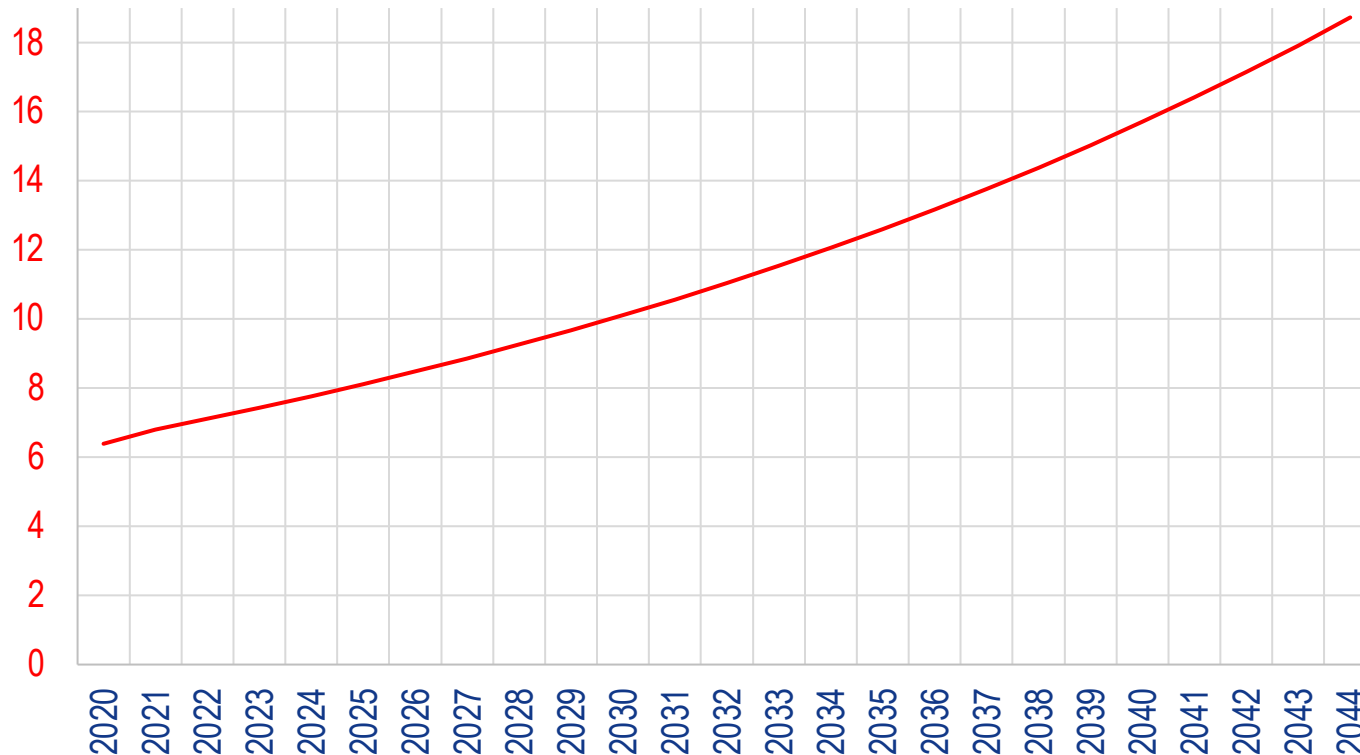
A&B =Net Dependability Capacity Payment + C&D=Commercial Energy Payment + SU =Start-Up Payment + CT = Carbon Tax



CARBON TAX

Carbon tax¹
In €/tCO₂

Carbon tax (€/tCO₂)



The carbon tax is evaluated as it might push the business case towards renewables.

The carbon tax in 2020 is worth 3€/MWh and is a low penalty for gas generators.

1. Sources: RFP 2. Note: Assuming gas engines emit 440gCO₂/kWh of electricity, source:ADEME https://www.bilans-ges.ademe.fr/documentation/UPLOAD_DOC_FR/index.htm?renouvelable.htm



NON-TECHNICAL REQUIREMENTS

Economic Development Criteria

- ✓ South African Entity Participation – min. 49%
- ✓ Contributor Status Level – min. Level 4
- ✓ Compliance with thresholds in Economic Development Qualification Scorecard – min. thresholds on
 - Job Creation,
 - Local Content,
 - Ownership,
 - Management Control,
 - Enterprise and Social Development,
 - Socio-Economic Development

40% Local Content threshold for eligible technologies (If threshold cannot be met, Bidders apply to DTIC for exemption at least 1 month before Bid Submission Date and exemption will apply to all Bidders if granted)

Monetary penalty

TECHNICAL REQUIREMENTS

Qualification Requirements

- Project Feasibility Study
- Project Development Plan
- Proven Design & Technology Requirements
- Design Standards & Certifications
- Water requirements & supply
- Fuels supply arrangements, logistics & evidence
- Heat Balance diagrams and CO2 emissions
- PPA Correction Curves and Correction Factors
- Projected Energy Output & Loss of Energy Output due to reduced Availability
- Ancillary Services Charge Rates Verification
- Construction Contractor Qualifications
- O&M Contractor Requirements
- Project Schedule
- Compliance with Codes
- Time & Cost for Grid Connection
- Decommissioning Cost Report

Independent Review of all of the above



RISKS

Failure to issue a Commencement of Construction Confirmation Form to the Buyer within 30day of PPA Effective Date may result in Termination

Supply of electricity for purposes of storing energy at an electrical storage facility is prohibited

Buyer is entitled to terminate if COD not reached by Last COD

Timing

All bidders required to bid dual fuel machines capable of burning natural gas & DMRE can request variation at any point

For every day COD is delayed beyond the Scheduled COD the Expiry Date shall be brought forward by 6 days for each day of delay, provided this may not be brought forward more than 5 years

Bid Window 5?

The supply of electrical energy from the system is prohibited for the purpose of storing energy at an electrical energy storage facility

Minimum Load Commitment (Appendix D of the PPA) the Buyer will only commit to 50% Available Capacity

Wheeling contracts do not fall under this program

Local content requirement is currently 40%



WHY THIS IS A TECHNO-COMMERCIAL PROBLEM?

What is your base case?

What is your risk profile?

How are you modelling penalties?



HARMATTAN RENEWABLES

ANY QUESTIONS?

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