

EPC PACKAGE FOR WASTE TO ENERGY PROJECT (2X350 TPD) FOR KAWAS GAS POWER STATION

Bidding Document No.: CS-2600-001-9

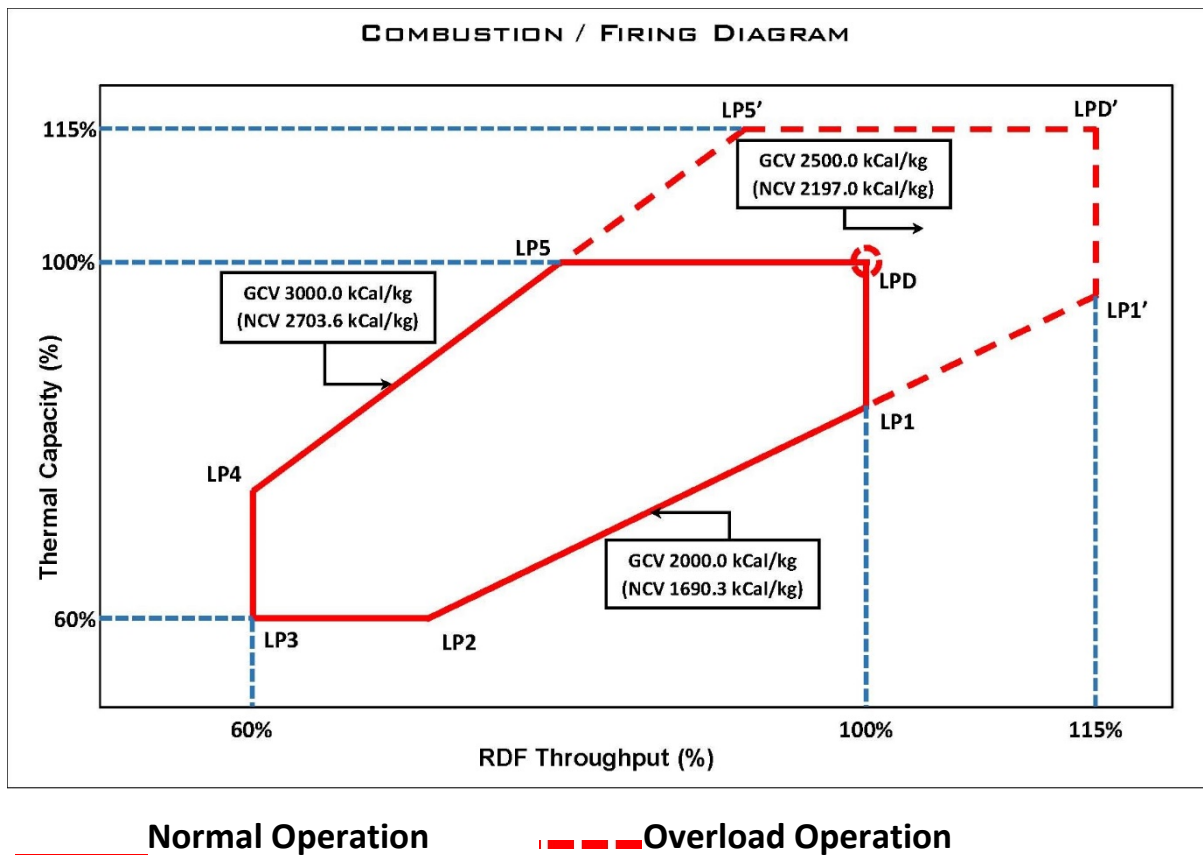
AMENDMENT NO. 02 TO TECHNICAL SPECIFICATIONS (TS), SECTION-VI

SL. NO.	SPECIFICATION REFERENCE				Existing	Read as
	SEC/ PART	SUB SEC.	PAGE NO.	CLAUSE NO.		
1.	Part-A	I-A	1/5	1.2.0	The turbine should have been in successful operation for a period not less than one (2) year.	May be read as two (2) year .
2.	Part-A	I-A	2/5	1.6.0	Provenness criteria for Civil works	May read clause (1.7.1, 1.7.2, 1.7.3 and 1.7.4) as (1.6.1, 1.6.2, 1.6.3 and 1.6.4) .
3.	Part-B	A-06	1/28	1.01.00	Steam turbine rating table	Steam turbine rating table enclosed at Annex-A .
4.	Part-A	II-A-02	912	6.01.00	One fabric bag filter for each Steam Generator of 1 x 500 TPD units complete in all respects including all components and accessories stated in this section.	One fabric bag filter for each Steam Generator of 2 x 350 TPD units complete in all respects including all components and accessories stated in this section.
5.	Part-A	IIA-02	-	-	Revised Firing diagram (ANNEXURE-1) as per Amendment no. 01 to Section-VI - Details of Various Load points in the Firing Diagram: Table	Revised Firing diagram (ANNEXURE-1)- Table to be deleted

CLAUSE NO.	TECHNICAL REQUIREMENTS		एनटीपीसी NTPC																														
1.00.00	STEAM TURBINE AND AUXILIARY SYSTEMS																																
1.01.00	Steam Turbine Rating The steam turbine generator unit shall conform to the following design and duty conditions: <table><tr><td>(i)</td><td>Output under economic maximum continuous rating (ECR) at generator terminals</td><td>At least 14.9 MW</td></tr><tr><td>(ii)</td><td>Turbine throttle steam pressure</td><td>To be optimized by the bidder corresponding to guaranteed gross power output condition.</td></tr><tr><td>(iii)</td><td>Turbine throttle main steam temp.</td><td>To be optimized by the bidder corresponding to guaranteed gross power output condition .</td></tr><tr><td>(iv)</td><td>Design & operational requirement including variations in rated steam temp. & pressure</td><td>Generally as per IEC 45 or otherwise specified elsewhere in the specification</td></tr><tr><td>(v)</td><td>Condenser pressure</td><td>-120 mm to 135 mm of Hg (abs) at 40 °C ambient To be optimised in the range given</td></tr><tr><td>(vi)</td><td>Turbine speed</td><td>As optimized by the bidder to suit the grid condition.</td></tr><tr><td>(vii)</td><td>Frequency variation range around rated frequency of 50 Hz</td><td>+ 3% to - 5% (47.5 Hz to 51.5 Hz)</td></tr><tr><td>(viii)</td><td>DM water make up to thermal cycle under EMCR condition</td><td>3% of throttle steam flow</td></tr><tr><td>(ix)</td><td>Turbine protection against water induction</td><td>As per ASME-TDP-I-latest edition</td></tr><tr><td>(x)</td><td>Steam Extraction for heating/cooling/ industrial use</td><td>Internally controlled extraction to provide up to 60% of the steam at the upstream of the extraction point to provide steam at 8 ata at the terminal point.</td></tr></table>			(i)	Output under economic maximum continuous rating (ECR) at generator terminals	At least 14.9 MW	(ii)	Turbine throttle steam pressure	To be optimized by the bidder corresponding to guaranteed gross power output condition.	(iii)	Turbine throttle main steam temp.	To be optimized by the bidder corresponding to guaranteed gross power output condition .	(iv)	Design & operational requirement including variations in rated steam temp. & pressure	Generally as per IEC 45 or otherwise specified elsewhere in the specification	(v)	Condenser pressure	-120 mm to 135 mm of Hg (abs) at 40 °C ambient To be optimised in the range given	(vi)	Turbine speed	As optimized by the bidder to suit the grid condition.	(vii)	Frequency variation range around rated frequency of 50 Hz	+ 3% to - 5% (47.5 Hz to 51.5 Hz)	(viii)	DM water make up to thermal cycle under EMCR condition	3% of throttle steam flow	(ix)	Turbine protection against water induction	As per ASME-TDP-I-latest edition	(x)	Steam Extraction for heating/cooling/ industrial use	Internally controlled extraction to provide up to 60% of the steam at the upstream of the extraction point to provide steam at 8 ata at the terminal point.
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KAWAS WTE PROJECT (2× 350 TPD) EPC PACKAGE TECHNICAL SPECIFICATION SECTION-VI, PART-B BID DOC. NO.: CS-2600-001-9 SUB SECTION-A-06 TURBINE GENERATOR AND AUXILIARIES PAGE 1 OF 28																																	

ANNEXURE - 1

Revised Firing Diagram



Note: Energy content - Lower calorific value as NCV (dry basis)

1. In addition, the vendor needs to provide a margin of 15 % for both Waste throughput and thermal load beyond 100 % as overload area, as shown.
2. Bidder should clearly define the operation area requiring supplemental fuel in this diagram.