



**ORDER**

**OF THE**

**WEST BENGAL ELECTRICITY REGULATORY COMMISSION**

**IN CASE NO. OA-467/23-24**

IN REGARD TO THE APPLICATION SUBMITTED BY THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED (WBPDCL) IN TERMS OF CLAUSE 2.8.4.1 AND CLAUSE 5.2.2 FOR APPROVAL OF INVESTMENT FOR INSTALLATION OF EMISSION CONTROL SYSTEM OF FLUE GAS DESULPHURIZATION (FGD) IN RESPECT OF UNIT NOS. 1 & 2 OF 300 MW CAPACITY EACH AND UNIT NOS. 3 & 4 OF 500 MW CAPACITY EACH RESPECTIVELY AT SGTPP OF WBPDCL.

**PRESENT:**

**DR MALLELA VENKATESWARA RAO, CHAIRPERSON  
SRI PULAK KUMAR TEWARI, MEMBER**

**DATE: 05.07.2024**



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBDCL



### CASE IN BRIEF

- 1.0 The West Bengal Power Development Company Limited (in short 'WBDCL') submitted an application vide letter dated 05.12.2023 for investment approval for installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of having capacity of 300 MW each and Unit Nos 3&4 having capacity of 500 MW each respectively at Sagardighi Thermal Power Project (in short SgTPP) in terms of regulations 2.8.4.1 and clause 5.2.2 of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011, as amended. The application has been admitted by the Commission in Case No. OA-467/23 – 24.
- 2.0 The petition has been filed in compliance with the Environment (Protection) Amendment Rules, 2015 dated 07.12.2015 and subsequent amendment dated 28.06.2018 notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC), specifying new standards of compliance for the thermal power plants with respect to emission of pollutants into the atmosphere. The MoEF&CC Notification mandates all thermal power plants (TPPs) to comply with the revised Emission Control Norms (ECNS) as specified in the MoEF&CC Notification.
- 3.0 In the petition, WBDCL has inter-alia stated the followings:
  - 3.1 The petitioner submitted that, as per the amended rules, MoEF&CC modifies the existing norms (prior to December 2016) related to emission of Suspended Particulate Matter (SPM) and introduces new norms for emission of SO<sub>x</sub>, NO<sub>x</sub> and mercury from thermal power plants (TPSSs). A summary of new regulations on air emission is given in Table-2 below. The timeline within which the FGD project is to be installed is December, 2026:

Table-1: Environment Norms as per MoEF & CC notification dated 07.12.2015

Year	SPM	SO <sub>2</sub>	NO <sub>2</sub>	Mercury
Pre 2003	100 mg/Nm <sup>3</sup>	600 mg/Nm <sup>3</sup> for 500 MW 200 mg/Nm <sup>3</sup> for >= 500 MW	600 mg/Nm <sup>3</sup>	0.03 mg/Nm <sup>3</sup> for >500 MW
2003-2016	50 mg/Nm <sup>3</sup>	600 mg/Nm <sup>3</sup> for < 500 MW 200 mg/Nm <sup>3</sup> for >= 500 MW	450 mg/Nm <sup>3</sup>	0.03 mg/Nm <sup>3</sup>
Post 2017	30 mg/Nm <sup>3</sup>	100 mg/Nm <sup>3</sup>	100 mg/Nm <sup>3</sup>	0.03 mg/Nm <sup>3</sup>

- 3.2 WBDCL submitted that, its NO<sub>x</sub> level at Sagardighi is beyond the permissible limit of 300 mg/Nm<sup>3</sup>. Accordingly, WBDCL is installing emission control systems to reduce NO<sub>x</sub> levels, with projects for Stage-II, scheduled to be completed by December 2024, under the small



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



- CAPEX program under Regulation 2.8.4.1, where no separate investment approval is required. Further, to comply with the SO<sub>2</sub> emission norms, WBPDCCL decides to install FGD, to reduce SO<sub>2</sub> emission, and has engaged M/s Tata Consulting Engineers Limited (hereafter, M/s TCE) to prepare Detailed Project Report. A project cost of Rs. 180334.00 Lakhs (incl. taxes) is estimated by M/s TCE based on DPR for FGD installation at SgTPP for units 1&2: 300 MW, Units 3&4: 500 MW each. The levelised tariff for installation of FGD at SgTPP will be Rs. 0.31/ kWh as per DPR.
- 3.3 Accordingly, tender was floated initially for Units 3 & 4, which was subsequently cancelled due to response from insufficient bidders. In the repeat tender, Bharat Heavy Electricals Limited (BHEL) was the only qualified bidder, but their bid was significantly higher than the estimated cost. During the 202<sup>nd</sup> Board of Directors meeting on 24.09.2020, it was decided to cancel the tender and issue a new one.
- 3.4 On 30.10.2021, a new tender with revised qualification requirement was floated for installation of FGD plants for Sagardighi Units 1, 2, 3, and 4, including a common Limestone and Gypsum Handling System for the under-construction Unit 5. The estimated package cost was Rs 180,334.00 lakhs, including taxes and a 2.5% contingency. The tender included a price variation clause and provisions for reverse auctioning to ensure competitive pricing. Larsen and Toubro Limited (L&T) and Bharat Heavy Electricals Limited (BHEL) were the two qualified bidders. After a third-party evaluation of technical and commercial bids, L&T was identified as the lowest bidder (L1) with a bid amount of Rs.1382.24 Crore including GST of 18%.
- 3.5 The project proposal in this regard was placed before the Board of Directors (BoD) of WBPDCCL for approval. The BoD of WBPDCCL in its 217<sup>th</sup> meeting accorded the approval for for awarding the contract to L&T for FGD installation for SgTPP units 1,2,3,4 (2x300 MW + 2x500 MW) through EPC turnkey package. Accordingly, the petitioner has issued the letter of Award (LOA) to L&T for Supply, Erection and Commissioning of Flue Gas Desulphurization (FGD).
- 3.6 WBPDCCL submitted that, in order to meet the timelines as mandated by Central Electricity Authority (CEA), they started with FGD implementation at Sagardighi TPP as stated above. Accordingly, Department of Power, Government of West Bengal, vide No. 1186-POW-13012(11)/4/2023-SECTION(POWER) dated 31.08.2023 accorded approval to the revised project cost of Rs. 1803.34 Crore including GST and with 30% equity participation of State Government i.e. Rs.541.00 Crore. WBPDCCL submitted that the balance amount Rs. 1262.34



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



Crore i.e. 70% of the project is funded by REC Ltd. They have submitted the sanctioned letter from REC with Reference No. REC/RO/Kol/WBPDCCL/2023-24/54 dated 10.10.2023.

- 3.7 WBPDCCL submitted that project requires shutdown for 36-month in phased manner starting from the zero date and will be completed by December 2026. After completion of the project, the SO<sub>x</sub> level at SgTPP will be below 600 mg/NM for Stage-I and below 200 mg/NM<sup>2</sup> for Stage-II respectively, which will comply the MoEF & CC norms.
- 3.8 In view of above, WBPDCCL has prayed for investment approval of Rs. 180334 lakh for installation of emission control system of FGD in its Sagardighi Thermal Power Plant.

### OBSERVATION OF COMMISSION

- 4.0 WBPDCCL has prayed before the Commission to allow the project cost of Rs. 180334.00 Lakhs for installation of emission control system of Flue Gas Desulphurisation (FGD) in respect of Unit#1 & Unit#2 of having capacity of 300 MW each and Unit#3 and Unit#4 having capacity of 500 MW each at SgTPP. The cost breakup submitted in the DPR is as below:

Table-2: Break-up of Project cost submitted in the DPR

Sl No	CAPEX	Base Cost including transportation	Tax & duties	Total Cost
		Rs. Lakh		
1	FGD Equipment & related mechanical works along with new wet stack cost	69491	11690	81181
2	Total Electrical works cost (For FGD and related common facilities)	7886	1327	9213
3	Total civil works (including construction materials)	44615	7505	52120
4	Total instrument cost	2675	450	3125
5	Cost of spares @ 2.5% on item 1, 2 & 4	2001	337	2338
6	<b>FGD material, spares and erection</b>	<b>126668</b>	<b>21309</b>	<b>147977</b>
6	Pre-executive expenses on Engineering consultancy			30
8	Engineering consultancy in execution phase			370
9	Third party inspection services			444
10	Field quality inspection services			370
11	<b>PROJECT HARD COST</b>			<b>149191</b>
12	Overhead inclusive of preliminary expenses			4476
13	Contingency			7460



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



14	<b>Sub-total</b>			<b>161127</b>
15	Interest during construction			19207
	<b>TOTAL PROHECT COST</b>			<b>180334</b>

5.0 It is observed that WBPDCCL has prayed for investment approval based on the DPR value, whereas during the tendering process, the quoted value was substantially lower. Moreover, the project cost includes common facilities for upcoming unit-5 of SgTPP. Thus, the Commission vide letter dated 31.05.2024 directed WBPDCCL to submit additional information / clarification on the following issues:

- (i) Specify the reasons for not obtaining prior approval in terms of Regulation 2.8.4.1(iii) of the Tariff Regulations, as required for project cost more than 300 Cr / 5% of the GFA;
- (ii) Submit revised project cost considering the contracted value.
- (iii) Specify the price break-down for the components and installation costs specific to unit 5

6.0 Accordingly, WBPDCCL vide letter dated 10.06.2024 inter-alia submitted the followings:

- (i) As per MOEF&CC notification, SO<sub>x</sub> related compliance has to be complied by 31<sup>st</sup> December 2026. Under this emergency, WBPDCCL issued LOI to the L1 bidder on 31.08.2023 and subsequently the application was submitted to the Commission on 05.12.2023. WBPDCCL also mentioned that, in terms of proviso to regulation 2.8.4.1, generating company may undertake capital expenditure without taking prior approval of the Commission, but shall intimate the same to the Commission within 120 days from the date of incurring such expenditure.
- (ii) WBPDCCL submitted a revised project cost of Rs. 170581 lakh considering L1 tender of the main FDG package as Rs. 138224 lakh as below:

Table-3: Revised Break-up of Project cost

Sl No	CAPEX	Base Cost including transportation	Tax & duties	Total Cost
		Rs. Lakh		
1	FGD Main Equipment including factory fabricated steel structures, mandatory spares and special tools & tackles	73267.19	13188	86455
2	Erection & services of main equipments including factory fabricated steel structure (excl. Site fabricated steel structure)	10978.26	1976	12954



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCL



3	Services of supply, fabrication & erection of site fabricated steel structural works	10957.40	1972	12930
4	Services for Civil, structural (other than steel structures) and architectural works	18818.92	3387	22206
5	Miscellaneous services for Design Engineering, project management, Training and initial O&M	3117.22	561	3678
6	<b>FGD Equipment cost including mandatory spares and cost towards erection &amp; commissioning</b>	<b>117138.98</b>	<b>21085</b>	<b>138224</b>
7	Pre-executive expenses on Engineering consultancy			30
8	Engineering consultancy in execution phase			370
9	Third party inspection services			444
10	Field quality inspection services			370
11	<b>PROJECT HARD COST (sum 6 to 10)</b>			<b>139438</b>
12	Overhead inclusive of preliminary expenses			4476
13	Contingency			7460
14	<b>Sub-total (11+12+13)</b>			<b>151374</b>
15	Interest during construction			19207
	<b>TOTAL PROHECT COST</b>			<b>170581</b>

- (iii) WBPDCL submitted that, cost of common Limestone Handling System (LHS) and Gypsum Handling System (GHS) is Rs. 20733.60 lakh and Rs. 12440.16 lakh respectively including taxes. Accordingly, they proposed apportioned cost of LHS and GHS for unit-5 as Rs. 6634.75 lakh.

7.0 During detailed analysis of the scope mentioned in the DPR vis-à-vis the scope of tender document and the final LOI contract as well as the additional clarifications submitted by WBPDCL, the followings observations are made :

- (a) The main FGD package of the LOI contract for material includes cost of spares as Rs. 4368 lakh against the material cost of Rs. 82082 lakh. However, as per regulation 5.1(vi) initial spares admissible for a thermal power plant is upto 2.5% of the original capital cost. Accordingly, the admissible amount for spare becomes Rs. 2052 lakhs.
- (b) From the tender documents it is observed that, detailed design, etc are within the scope of the contractor and an amount for design, project management, training has been considered in the quoted amount. Hence further consideration of engineering consultancy expense in the revised project cost calculation (repeating the DPR value) seems to be unreasonable.



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



- (c) In terms of 10.9 of the tender documents, contractor is responsible for supply all consumables, lubricants, chemicals, etc. till completion of all facilities and handover. Even the electricity will be provided by WBPDCCL to the contractor on chargeable basis. Thus, further consideration of pre-operative expenses in the revised project cost by WBPDCCL is duplication of cost.
- (d) The Commission observes that, WBPDCCL in the DPR proposed contingency expense as 5% of total hard cost. Whereas, in its revised estimate, WBPDCCL has considered same amount as contingency expense without considering the impact of reduction of project cost. The Commission finds it reasonable to allow 5% contingency on the revised project cost.
- (e) The Commission also observed that, WBPDCCL has not revised the amount of interest during construction (IDC) in its revised project cost estimation, though the loan requirement got reduced with reduction of project cost. The Commission finds it prudent to compute admissible IDC based on the admissible project cost and the interest rate approved by REC for a project completion period of 36 months.
- (f) In its additional submission dated 10.06.2024, WBPDCCL has proposed prorated cost of common LHS and GHS of unit 5 as Rs. 6634.75 lakh against the total cost of Rs. 33173.76 Lakh (Rs. 20733.60 lakh for LHS + Rs. 12440.16 lakh for GHS). The Commission observed that, WBPDCCL has not considered the installed capacity of the plants while arriving at such prorated value. The Commission is of the view that, limestone handling system and gypsum handling system has a direct relationship with the quantum of limestone and gypsum to be handled, which is proportionate to the Capacity of the plant. Thus, the prorated cost for unit # 6 (1 x 660 MW) becomes Rs. 9687.91 lakh ( $=33173.76 \times 660 / 2260$ ).

8.0 In view of the above, the admissible project cost is computed as below:



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



Table-4: Break-up of approved project cost

SI No	CAPEX	Base Cost including transportation	Tax & duties	Total Cost
Rs. Lakh				
1	Equipments including steel structure, spares, etc			
	Equipments & steel structures	69561	12521	82082
	Spares	1739	313	2052
	Tools & tackles	4.6	0.8	5.4
2	Erection and civil works	40755	7336	48091
3	Design, project management, training and initial O&M	3117	561	3678
4	<b>FGD material, spares and erection</b>	<b>115176</b>	<b>20732</b>	<b>135908</b>
5	Pre-executive expenses on Engineering consultancy			30
6	Engineering consultancy in execution phase			0
7	Third party inspection services			444
8	Field quality inspection services			370
9	<b>PROJECT HARD COST</b>			<b>136752</b>
10	Overhead inclusive of preliminary expenses			0
11	Contingency			6838
12	<b>Sub-total</b>			<b>143590</b>
13	Interest during construction			18016
	<b>TOTAL PROHECT COST</b>			<b>161605</b>

Note: 1. Spare is allowed upto 2.5% as discussed in paragraph 8.0(a) above;

2. No separate cost for engineering consultancy in execution phase considered as discussed in paragraph 8.0(b) above;

3. No separate cost on overhead is allowed as discussed in paragraph 8.0(c) above;

4. Contingency cost is allowed at 5% of the projected hard cost as discussed in paragraph 8.0(d) above;

5. Interest during construction is recomputed as discussed in paragraph 8.0(e) above and detailed calculation is shown in Annexure -1.

9.0 From the submission, the Commission observed that Administrative Approval, vide no 186-POW-13012(11)/4/2023-SECTION(POWER) dated 31.08.2023 has been granted by the Department of Power, Government of West Bengal for the installation of a Flue Gas Desulphurization (FGD) system for units 1 to 4 of SgTPP, along with Common Limestone Stone Handling & Slurry System Gypsum Harding system catering all the units including the new unit





In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



#5 (660 MW) under construction, at a revised cost of Rs. 1803.34 crore, including GST @18%, based on the revised estimate. Government of West Bengal also approved 30% equity participation in phased manner.

- 10.0 WBPDCCL submitted that, the balance 70% of the project is funded by REC Ltd as loan at a interest rate of 10%. WBPDCCL submitted an approval letter from REC.
- 11.0 In view of the above, Rs. 161605 lakh is found admissible as the project cost for installation of FGD at Sagardighi Thermal Power Plant of WBPDCCL. However, the proportionate cost of Rs. 9687.91 lakh for common Limestone Handling System (LHS) and Gypsum Handling System (GHS) of unit-5 will be considered for capitalization once unit-5 attain COD.

### ORDER

- 12.0 Considering all the above facts and submissions made by WBPDCCL in the instant petition, the Commission decides to admit an amount of Rs. 161605 Lakhs (including GST) as 'investment approval' for installation of Emission Control System of Flue Gas Desulphurization (FGD) of unit 1 to unit 4 of Sagardighi TPS along with common LHS and GHS for proposed unit-5, in terms of the clause 2.8.4.1 of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011, as amended from time to time. The proportionate cost of unit-5 of Sagardighi TPS in the common LHS and GHS is Rs. 9687.91 lakh. The project shall be completed by December, 2026 as per MOEF&CC notification.
- 13.0 The Commission further directs as bellow:
- After closing of all contracts, the final project cost needs to be approved in terms of regulation 2.8.5 of the Tariff Regulations. WBPDCCL shall submit audited expenditure, justification of deviation from investment plan, if any, and all other details as specified in regulation 2.8.5.1 of the Tariff Regulations. In the petition for final project cost determination, WBPDCCL shall submit all reports including third party certification as specified under regulation 2.8.5.3 of the Tariff Regulations.
  - During the project construction period the incurred capital expenditure and other expenditure under project cost shall be audited annually as specified under regulation 2.8.5.2 of the Tariff



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



Regulations and WBPDCCL shall submit such audit report along with the progress report to the Commission within the timeline specified under the said regulation.

- 14.0 The petition is disposed of in terms of the above.
- 15.0 A copy of the order shall be posted in the website of the Commission.
- 16.0 WBPDCCL shall download the copy of the order from the website of the Commission and act on it. Certified copy of the order, if applied for, be given to the parties on completion of formalities laid down in the West Bengal Electricity Regulatory Commission (Conduct of Business) Regulations, 2013, as amended and on submission of necessary fees.

**Sd/-**  
**(PULAK KUMAR TEWARI)**  
**MEMBER**

**Sd/-**  
**(MALLELA VENKATESWARA RAO)**  
**CHAIRPERSON**

**Dated: 05.07.2024**

**Sd/-**  
**SECRETARY**



In regard to application in terms of Clause No. 2.8.4.1 and Clause 5.2.2 of the WBERC (Terms of Conditions of Tariff) Regulations 2011, as amended, for approval from Hon'ble West Bengal Electricity Regulatory Commission for investment for Installation of emission control system of Flue Gas Desulphurization (FGD) in respect of Unit Nos. 1&2 of 300MW capacity each and Unit Nos 3&4 of 500 MW capacity each respectively at SgTPP of WBPDCCL



**Annexure -1**

MONTHS	Computation of IDC proposed by WBPDCCL												
	1-3	4-6	7-10	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	TOTAL
Capital Exp	15000	15000	25000	25000	24000	17000	15000	12500	4000	3000	2000	3600	161100
Cumulative expenditure	15000	30000	55000	80000	104000	121000	136000	148500	152500	155500	157500	161100	
Equity	4500	9000	16500	24000	31200	36300	40800	44550	45750	46650	47250	48330	
Loan	10500	21000	38500	56000	72800	84700	95200	103950	106750	108850	110250	112770	
interest @9.55%		251	501	919	1337	1738	2022	2273	2482	2549	2599	2632	19303

MONTHS	Computation of admissible IDC considering admissible project cost												
	1-3	4-6	7-10	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	TOTAL
Revised CAPEX	13370	13370	22283	22283	21391	15152	13370	11141	3565	2674	1783	3209	143590
Cumulative expenditure	13370	26739	49022	71305	92696	107848	121218	132359	135925	138598	140381	143590	
Equity	4011	8022	14707	21391	27809	32354	36365	39708	40777	41580	42114	43077	
Loan	9359	18717	34315	49913	64887	75494	84853	92651	95147	97019	98267	100513	
interest @ 10%		234	468	858	1248	1622	1887	2121	2316	2379	2425	2457	18016