

MINUTES OF MEETING

MINUTES OF THE 1ST “WORKING TECHNICAL GROUP” HELD ON 10TH OCTOBER 2018, IN THE CONFERENCE HALL OF UNIDO, UNDER THE PROJECT “PROMOTING MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN MICRO, SMALL & MEDIUM ENTERPRISES (MSME)”.

1st Working Technical Group (WTG) meeting was held on 10th October 2018 at UNIDO office, New Delhi. UNIDO and EESL briefed about the aim and objective of the project “Promoting Market Transformation on Energy Efficiency in MSME -GEF 5”.

2. A list of the members participated in the meeting is enclosed at **Annexure A**
3. At the outset Mr. Rene Ven Barkel, UNIDO welcomed the members present in the meeting and briefed about the importance of the WTG in the project.
4. Mr. Debajit Das, UNIDO made the presentation on the background, objective, and components of the project. He explained about context, objective, various components and framework of the project, its energy saving and CO2 emission targets. He further highlighted activities done as well as the roadmap of the project. He also briefed about the roles of WTG and its members. His presentation is attached at **Annexure B**
5. A presentation was made by Mr. Mrinal Bhaskar, EESL about the project status and activities undertaken by EESL under this project and key milestones achieved. He presented the qualifying criteria proposed by EESL for selection of technologies under this project. EESL suggested 5 qualifying criteria namely 1) Energy Efficiency, 2) Financial Viability, 3) Replicability, 4) Availability and 5) Ease of Implementation. Presentation made by Mr. Bhaskar is attached at **Annexure C**. Following are the suggestions made by the WTG:
 - a. In the 1st criteria, the % improvement in energy efficiency shall be enhanced from 5% to 15% on the individual equipment basis.
 - b. In the 2nd criteria, the payback period of the technology shall be increased from 1.5 years to 2 years.
 - c. Any technology to qualify under this project must fulfill the first three criteria as mentioned in the presentation.

- d. The WTG suggested to use the term 'Applicability' instead of 'Replicability' as the third criteria. This also means the applicability boundary would take care of 'no of replication' possible in a cluster.
 - e. Above criteria may be revised at later stage of the project, if deemed necessary after discussion in subsequent WTG meetings.
 - f. It was decided that a clear roadmap would be worked out as to how the overall 0.9 GJ of energy per year energy saving would be achieved during the project period from the set of selectable technologies in these 10 clusters so that the normalization as to what should be the distribution of cluster-wise saving could be planned.
6. Presentation on the 5 identified technologies, its basis for selection, its benefits and replication potential and energy saving estimation was also made by EESL. Below are the five technologies presented in the meeting and observations of the members in this regard.
- a. **Technology 1** (*Replacement of Reciprocating Compressor with VFD Enabled Screw Compressor with PM Motor in Surat Textile Cluster*): While WTG agreed to consider the technology as a prospective one, members suggested to include the IE3 motor in place of PM motor for wider participation in the bidding process. Members also proposed to work out two separate standards/specifications for 5 kg pressure and 8 kg pressure lines of the compressor.
 - b. **Technology 2** (*Online Combustion Efficiency Monitoring and Control System in Surat Textile Cluster*): In Surat Cluster, as there are different fuels used in the boiler and the measurement was reflected only on a single fuel, therefore WTG suggested to take more sample measurements related to this technology and the same may be presented in the subsequent WTG meeting for deciding on the way forward. Members also expressed that since overall energy saving would be dependent on the operational service of the control system, emphasis should be given on the specific aspects as to who would assure the performance guarantee and how the operational efficiency would be achieved. The business model also needs to take care of this angle.
 - c. **Technology 3** (*Condensate and Flash steam Recovery in Surat Textile cluster*): Considering the wide energy saving potential and replicability potential, members endorsed this technology, however more representative baseline units' results should be considered before finalising the specifications.

- d. **Technology 4** (*PLC Control Jet Dyeing Machine in Surat Textile cluster*): WTG endorsed the potential of the technology and suggested to include the additional monetary savings due to the expected co-benefits. These Co-benefits would be in the form of water consumption reduction, better dye penetration, enhanced productivity, reduction in ETP cost which needs to be assessed exhaustively through detailed energy audit and the savings should be estimated in a more realistic basis so that the payback period becomes lesser. Members also expressed that the cost of technology shown for a single PLC appears at the higher side and it should be clarified whether single PLC would take care number of dyeing machines or individual jet dyeing units.
- e. **Technology 5** (*Replacement of Existing Dryer with LSU Dryer in Vellore Rice Cluster*): Members endorsed this technology in view of the reported energy saving prospect and its replication potential. Results of the on-going commissioning of the LSU carried out by the President of Arni Rice Mills Associations should be captured by the team and results should be used while confirming the design specifications, operating conditions and the business model.
7. Mr. Rakesh Kumar (Ministry of MSME) suggested to get the registration of MSME and their UAM number before the implementation of the project in the MSME units. He also suggested to take consent of the MSME unit before the implementation on which EESL informed that EOI documents has been circulated in each cluster through hired Project Management Consultants (PMCs) for taking the consent from the MSME units on the adoption of technologies. He also suggested to integrate the existing scheme of Ministry of MSME in this project, where technology cost is higher and if deemed fit. Ministry will share the details of existing scheme.
8. EESL presented the business models for the implementation of demo projects. While expressing acceptance to the basic business model members raised a few queries on the recovery mechanism. It was stressed that the business model should be designed in a way so that payment recovery is effectively ensured. Experts expressed that the ESCROW account would be difficult to operate because of two different entities involvement in the process and also since it demands access to the bank of individual bank account of the MSMEs, the same would be quite challenging to use as a recovery instrument. Members further highlighted that for MSMEs, banks also hesitate to sanction bank guarantee easily. As such it would be critical that the recovery instrument is devised in a way that are

acceptable to all parties including concerned bank, EESL and the participating industries. EESL assured the members that the team would work towards eliminating the challenges discussed. TWG endorsed the proposed business model as an initial base model and proposed that based on the lessons learned during the initial demo projects, the model may be modified if deemed necessary. Members also largely in agreement with the project administration charges of maximum of 6% which is reflected as project cost.

9. The meeting ended with vote of thanks to the members.

Annexure A

LIST OF PARTICIPATED MEMBERS OF THE WORKING TECHNICAL GROUP:

- Mr. Rene Ven Bakel, UNIDO India Representative
- Mr. Debajit Das, National Project Coordinator, UNIDO
- Mr. Rakesh Kumar, Deputy Director, Office of DC MSME, New Delhi
- Mr. S P Garnaik, CGM (Technical), EESL, New Delhi
- Mr. Girja Shankar, AGM, EESL, New Delhi
- Mr. Avind Kumar Asthana, IGEN, GIZ New Delhi
- Mr. Milind Chittawar, CEO & MD SEE-Tech Solutions Pvt. Ltd, Nagpur
- Dr. S. A. Akbar, Chief Scientist, CSIR-CEERI, Pilani
- Mr. Somnath Bhattacharjee, Director, IPII, New Delhi
- Dr. Satish Kumar, President & ED, AEEE, New Delhi

LIST OF OTHER PARTICIPANTS:

- Mr. Mrinal Bhaskar, Senior Technical Expert, GEF-5
- Mr. Arivu Selvam, Financial Expert, GEF-5
- Mr. Deepak Tiwari, Sr. Research Associate, AEEE
- Mr. Ramesh Kumar, Project Assistant, UNIDO



Framework of Market Transformation Project on EE for the Indian MSMEs

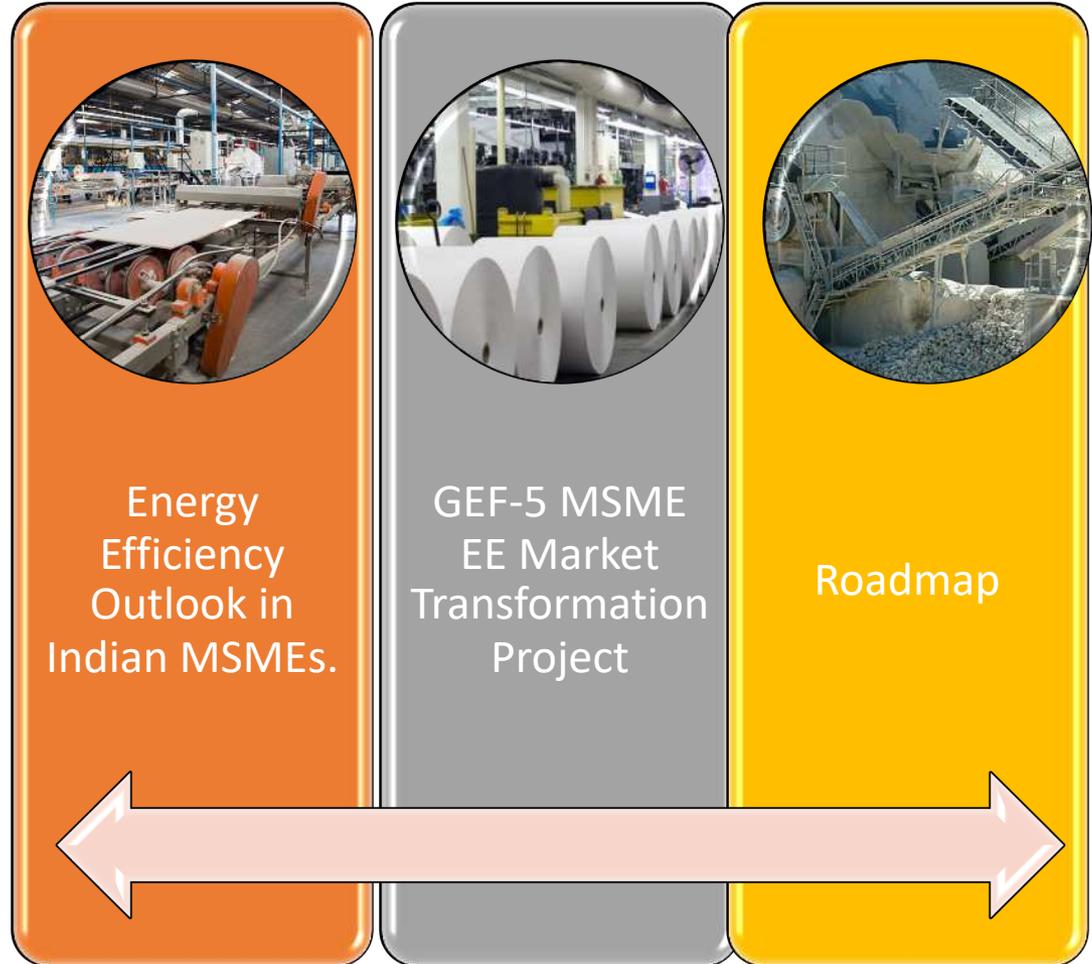
Presentation at the
Working Technical Group Meeting

By
Debajit Das
(National Project Coordinator)
d.das@unido.org



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Content



MSME ENERGY OUTLOOK



There are 1.96 Crore in Manufacturing MSMEs in India
(Annual Report MSME 2017-2018)



MSME energy consumption is around 90 MToE



15-40% energy savings potential across different clusters.



Profitability bottom-line can be enhanced from 7% to 30%



Current and past initiative has outreached to around 55000 MSME units



India's MSME energy efficiency market has an investment potential of INR 12,100 crores. (International Association of Engineering and Management Education (IAEME))



SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

Objective of GEF-5 Market Transformation Project



To promote EE implementation in MSMEs



To create and sustain a revolving fund mechanism for enabling replication



Scaling-up energy efficient technology



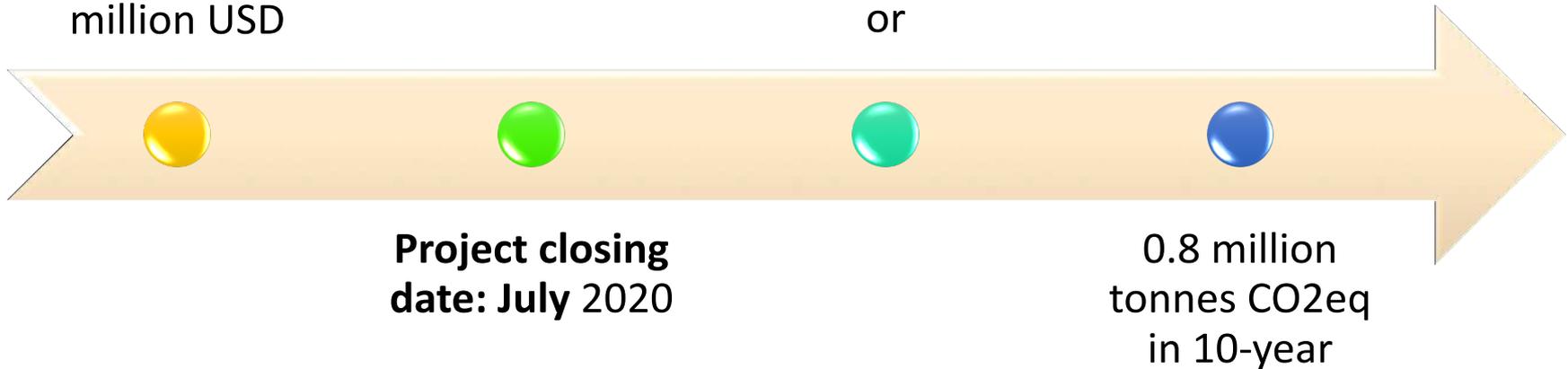


SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

GEF- 5 Project: BRIEF SNAPSHOT

Total Project Value: 31.32 million USD

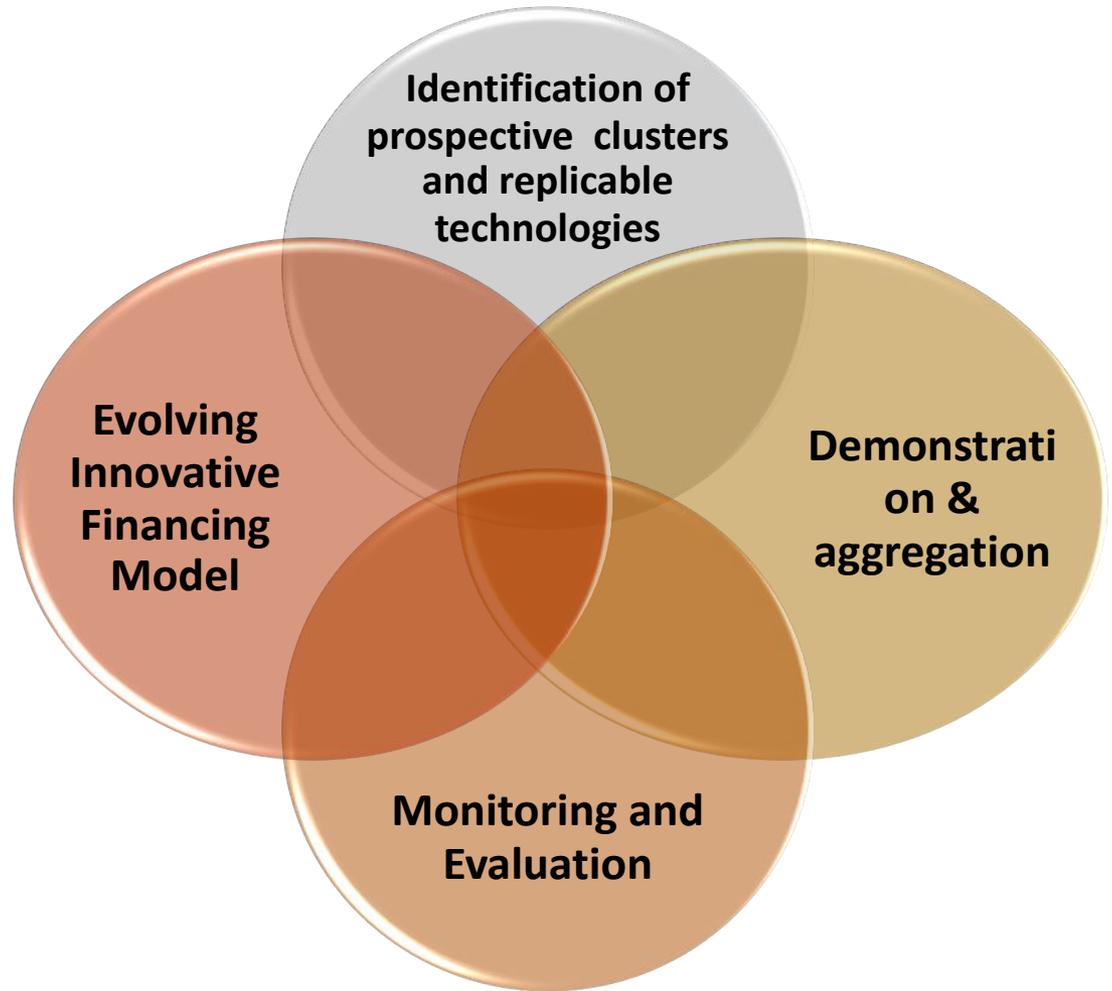
Target: A total reduction of 9.5 million GJ or





SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

Project Component

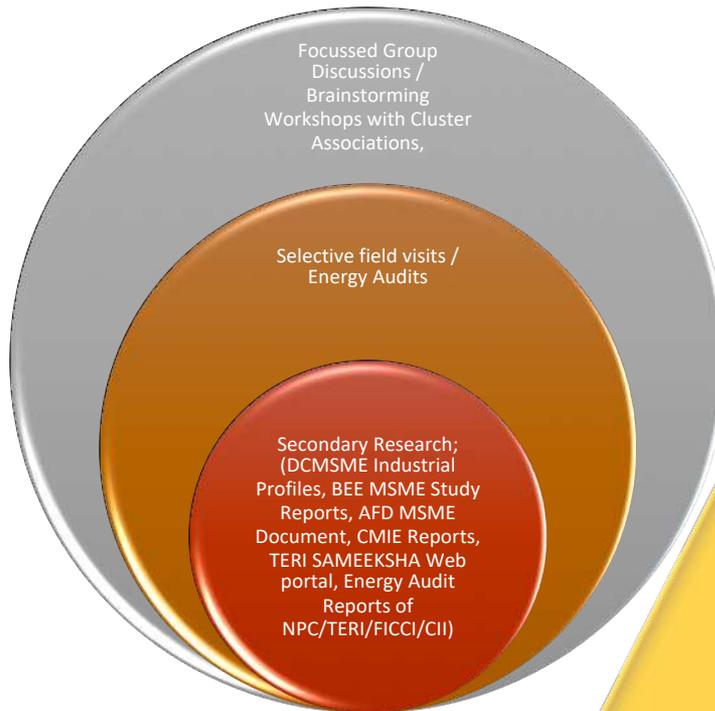


Source



Criteria

Cluster Selection Criteria



No of MSME's

Absolute Energy Consumption (EC)

Energy Density (ED)

SEC Bandwidth

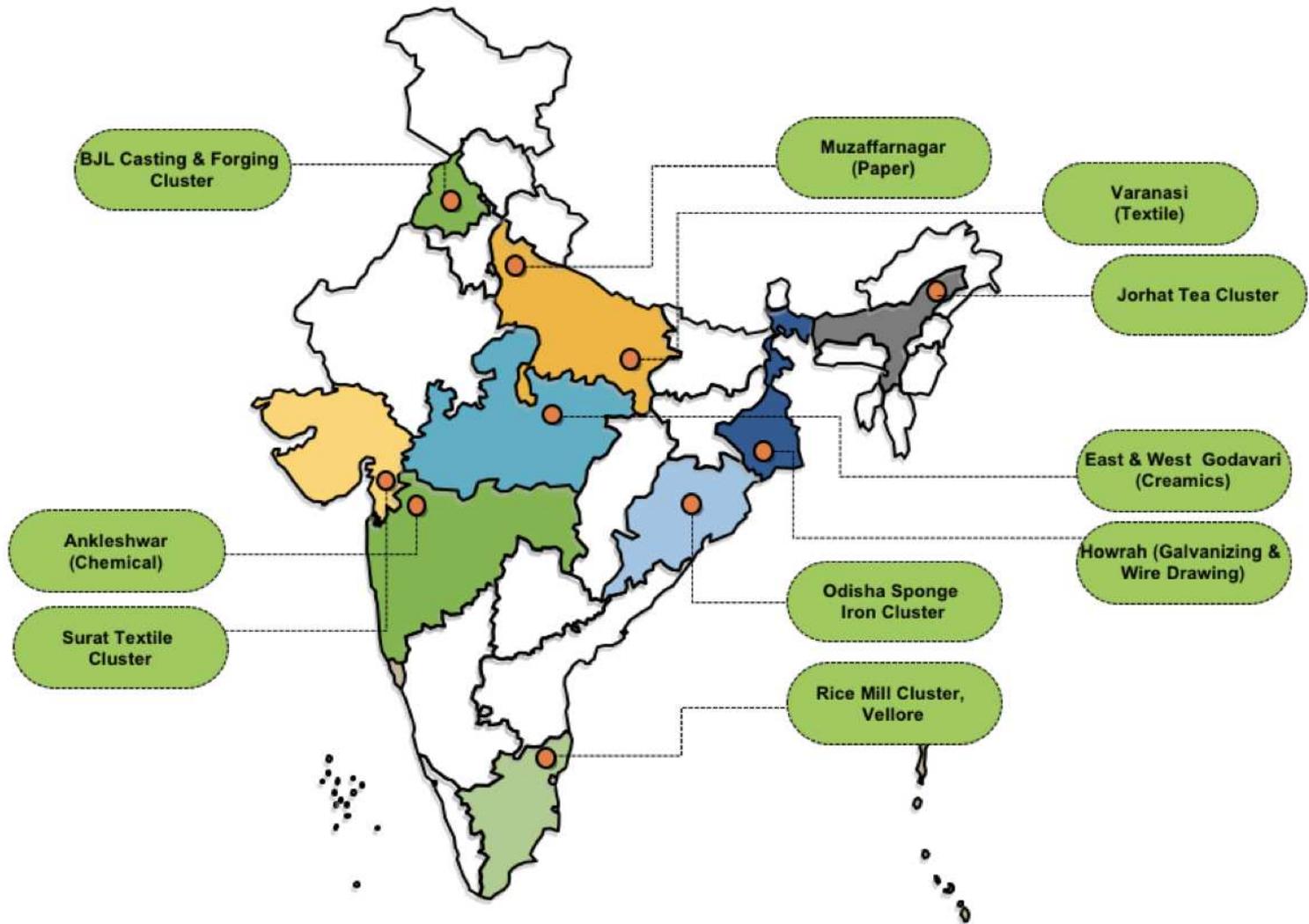
Contribution to Industrial GDP

Potential Improvement through GEF5 (Assuming 20% participation in GEF5)

Investment Potential (IP)

Energy cost as a % of Mfg. Cost

Selected Clusters





SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE



MSME
MICRO, SMALL & MEDIUM ENTERPRISES
सूक्ष्म, लघु एवं मध्यम उद्यम

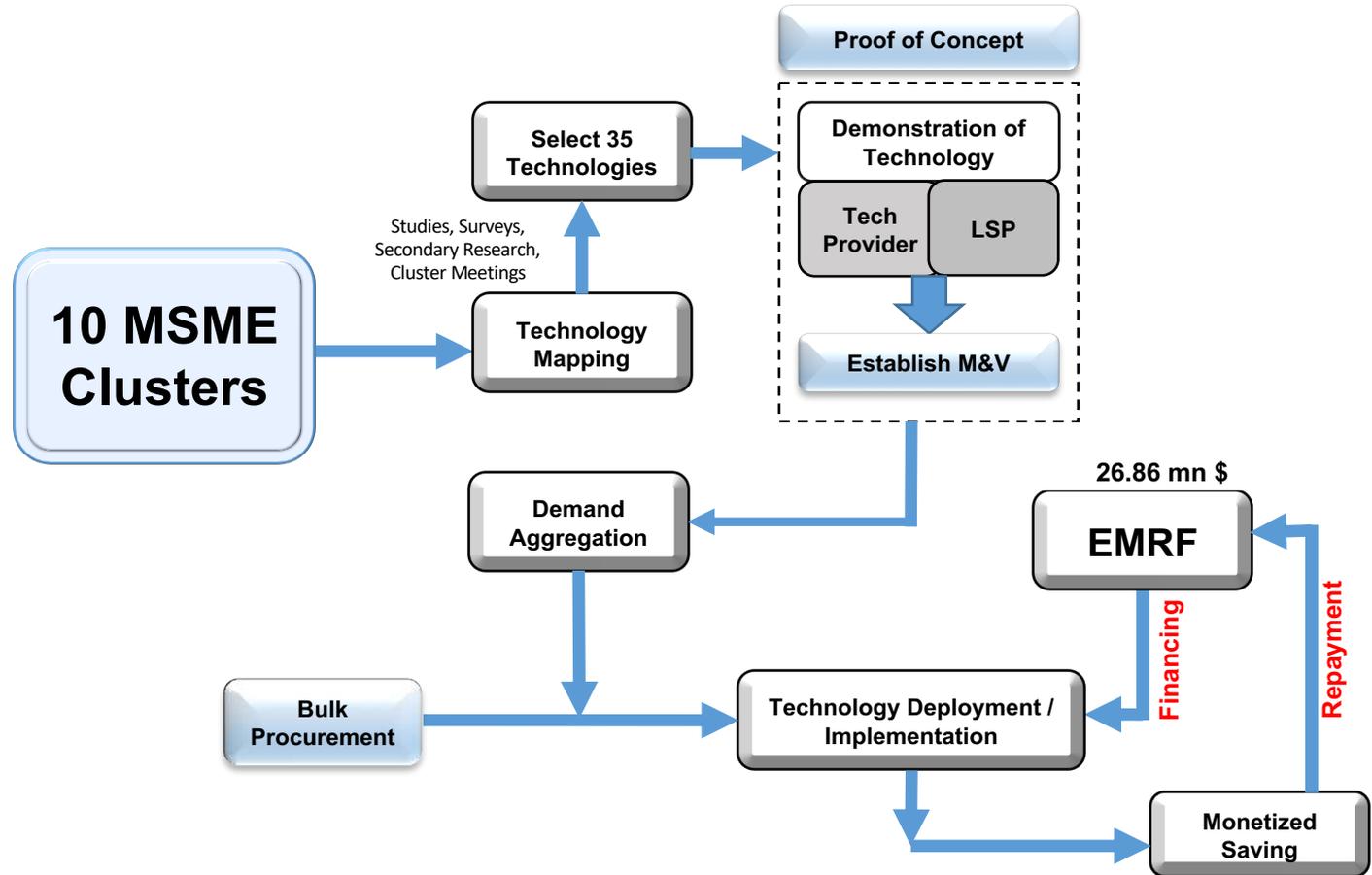


MSME
Industries

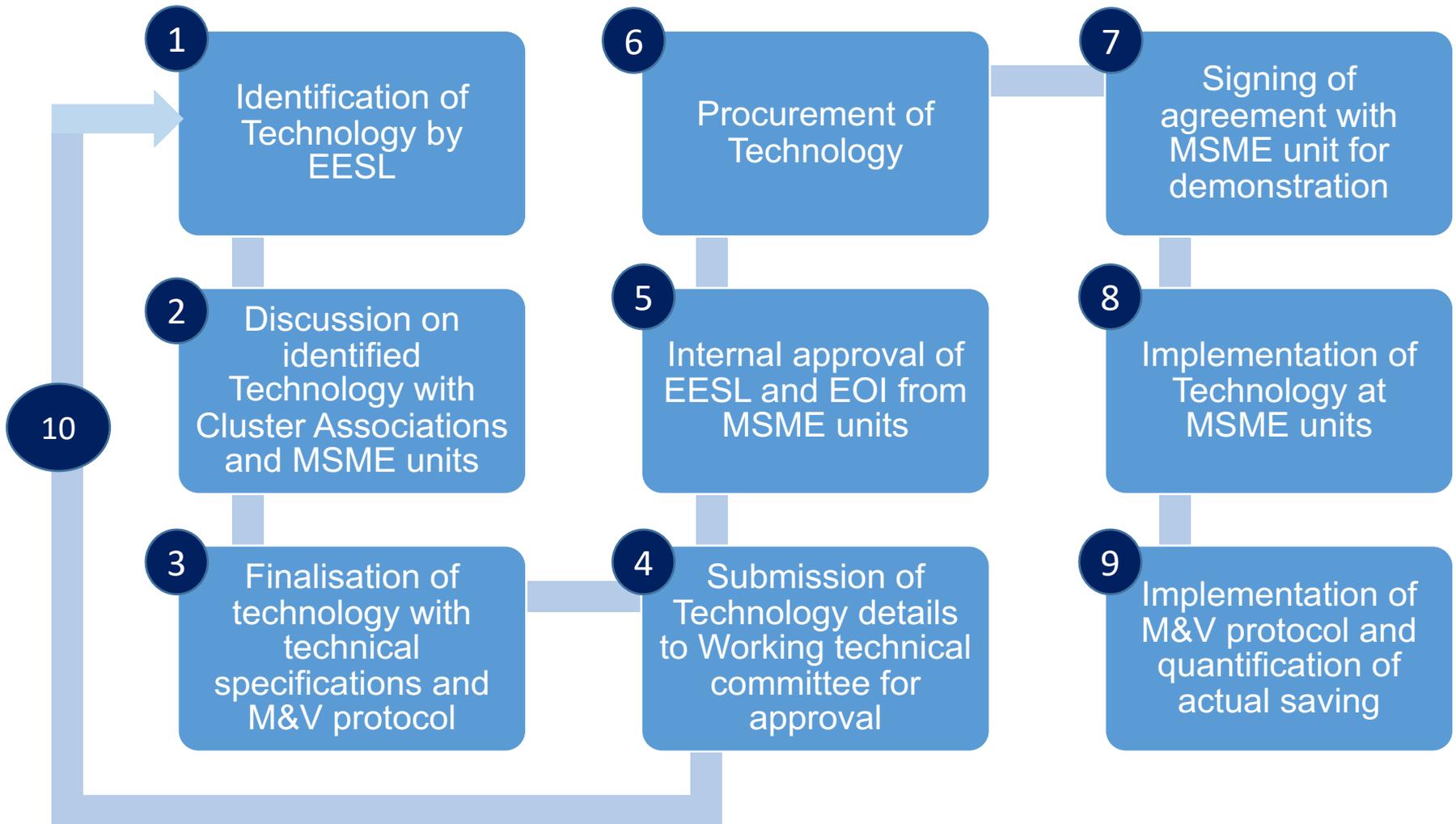
Project
Stakeholders



Market Transformation Project Framework



Procedure for Demo unit selection



Progress made so far

- Short scoping study and data validation activities carried in 8 clusters.
- Video graphic baseline study in 5 clusters.
- Outreach to cluster association and industries completed in all the clusters
- Energy Audit carried out in Vellore and Jorhat
- Focussed Group Discussion in six clusters
- Five technologies identified for demonstration
- Technical Working Group formed.

Road Map

- Baseline study in remaining
- Brainstorming workshop
- Finalization of technologies
- Pilot (35*2) demonstration
- Tool-kit preparation
- Dissemination and training
- Evolving innovative financial mechanism
- Creating and sustaining EEMRF
- Up-scaling



SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE





Annexure C

**Promoting Market Transformation for Energy
Efficiency in MSME under GEF-5 Program**

**1st Meeting
of
Working Technical Group (WTG)**

Energy Efficiency Services Limited

10th October, 2018

Agenda

- Agenda 1: Introduction of WTG Members
- Agenda 2: Project Background
- Agenda 3: Project Status
- Agenda 4: Technology Selection Criteria
- Agenda 5: Technologies Identified in Surat Cluster
- Agenda 6: Technologies Identified in Vellore Cluster
- Agenda 7: Business Model for DEMO Projects

Agenda Item 3: Project Status

Key Activities Completed

- MOA signed between EESL and UNIDO on **10th Oct 2017**
- Three Project Steering Committee (PSC) Meetings held
- Establishment of PMU: Completed
- Hiring of 3 PMCs: Completed (DESL, Deloitte & NPC)
- Stakeholder consultation at all 10 clusters: Completed
- Cluster coordinators hired for 6 clusters
- Constitution of WTG: Completed
- Dedicated GEF 5 project Web Portal developed

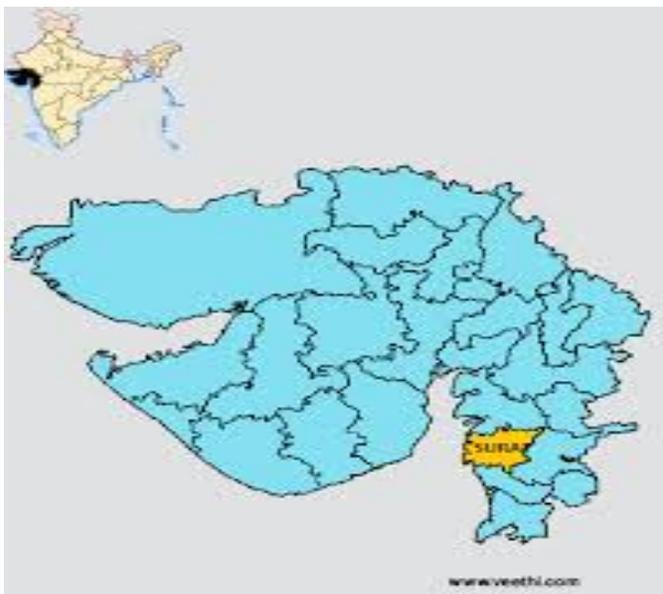
Agenda Item 4: Technology Selection Criteria

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description
1	Energy Efficiency	% improvement from Baseline	5% or above	The identified technology must have the energy saving potential to the tune of 5% or above to meet the overall project saving objective. In the identified clusters the energy saving potential is around 1,10,000 TOE against the baseline energy consumption of around 2.8 mTOE i.e. 4%
2	Financial Viability	Payback Period (PBP)	PBP must be less than 1.5 years	As per industry practices the typical payback period is less than 2 years for any energy efficiency project
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	We have a range of 30 MSME to 400 active MSMEs in all 10 clusters. So a replication potential of 20 to 120 MSMEs would be considered
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	The identified technology must be available in India.
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	Supply and Commissioning of the technology must be less than 6 months from the date of issuance of LOA to the Technology Provider

Out of above 5 criteria, the technology must qualify at least any 3 criteria including criteria no 1

Agenda Item 5: Technologies Identified in Surat Cluster

Cluster Profile: Surat Textile Cluster

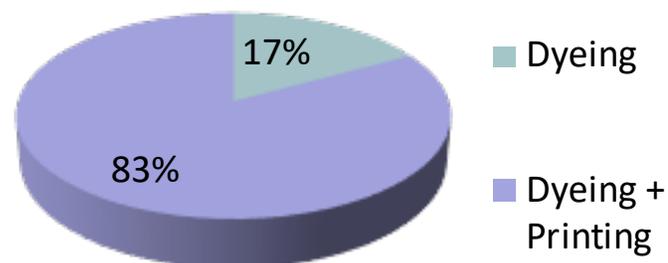


- Around **320** registered MSME unit
- Industry association: South Gujarat Textile Association
- Large Industry: 22%; Medium 41%; Small: 37%

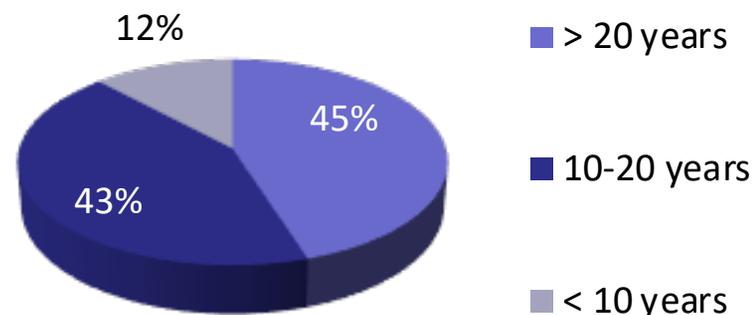
Fuel used

- Coal (Average cost @ Rs. 7.5/kg)
 - Lignite
 - Imported coal
- Diesel (@ Rs. 70/liter)
- Electricity (@Rs. 7/kWh)

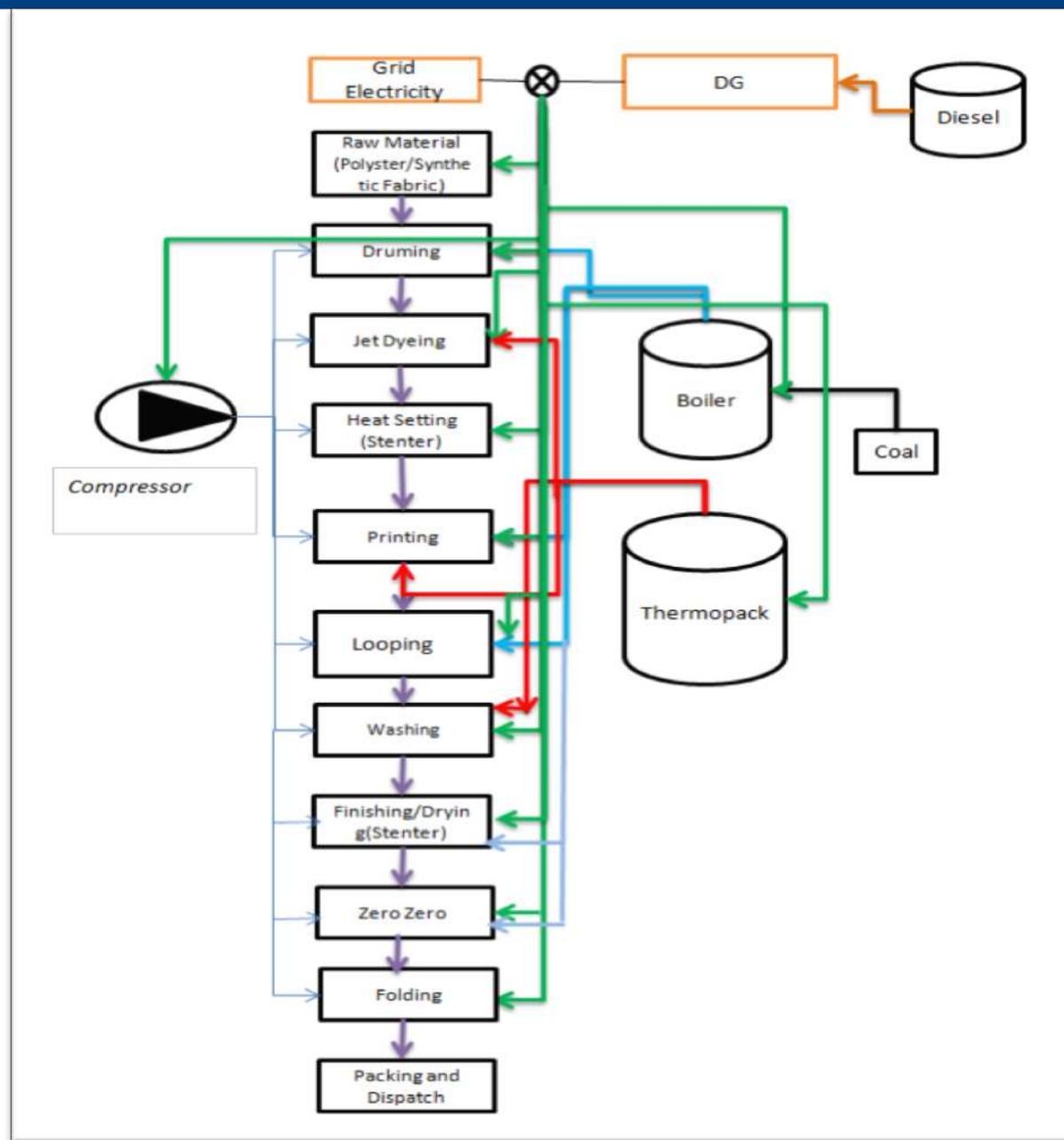
Type of Process (%)



Age of units (%)



Process Flow of Typical Dyeing Unit



Legend

- Compressed Air Line
- Electrical Power Supply
- HSD Supply
- Coal Supply
- Steam Line
- Thermic Fluid Line
- Process Flow

Replacement of Reciprocating Compressor With Screw Compressor With VFD

**Old Technology
(Reciprocating Compressor)**



**New Technology
(Screw Compressor)**

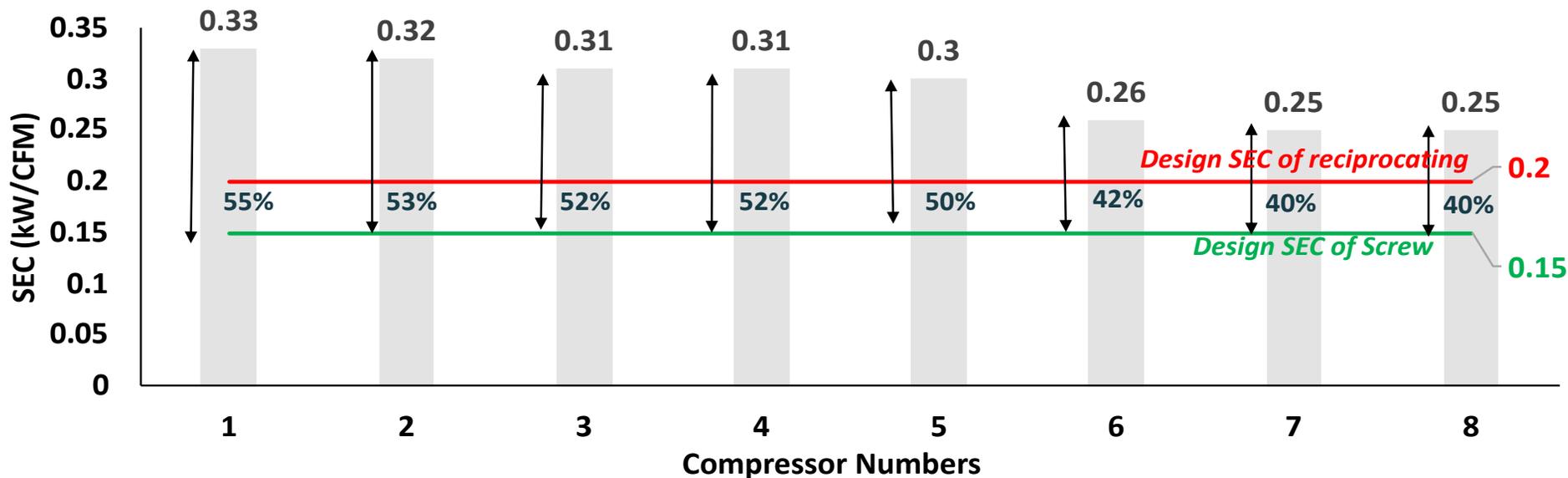


Comparison of Technologies*

Parameter	Reciprocating Compressor (Old)	Screw Compressor (Proposed)
Pressure (Bar)	0.8 - 12	0.8 - 24
Design SEC (kw/CFM)	0.20 (+/- 2%)	0.15 (+/- 2%)
Type of Motor	IE1 (Belt Driven)	IE3/PM Motor (Direct Driven)
Cooling Technology	Fan Cooled	Oil Cooled
Dryer System	NA	Yes
Control System	NA	VFD Enabled
Monitoring System	NA	Yes

*Based on the technology availability in the cluster

Technology Parameters (Based on Case Study)



Annual Benefits

Electricity Saving
185640 kWh

₹ Rs. 13.92 Lakh
(Saving/Yr)

15.97 TOE
(Saving)

167 Tons
(Reduction)

16.52
Rs in Lakhs

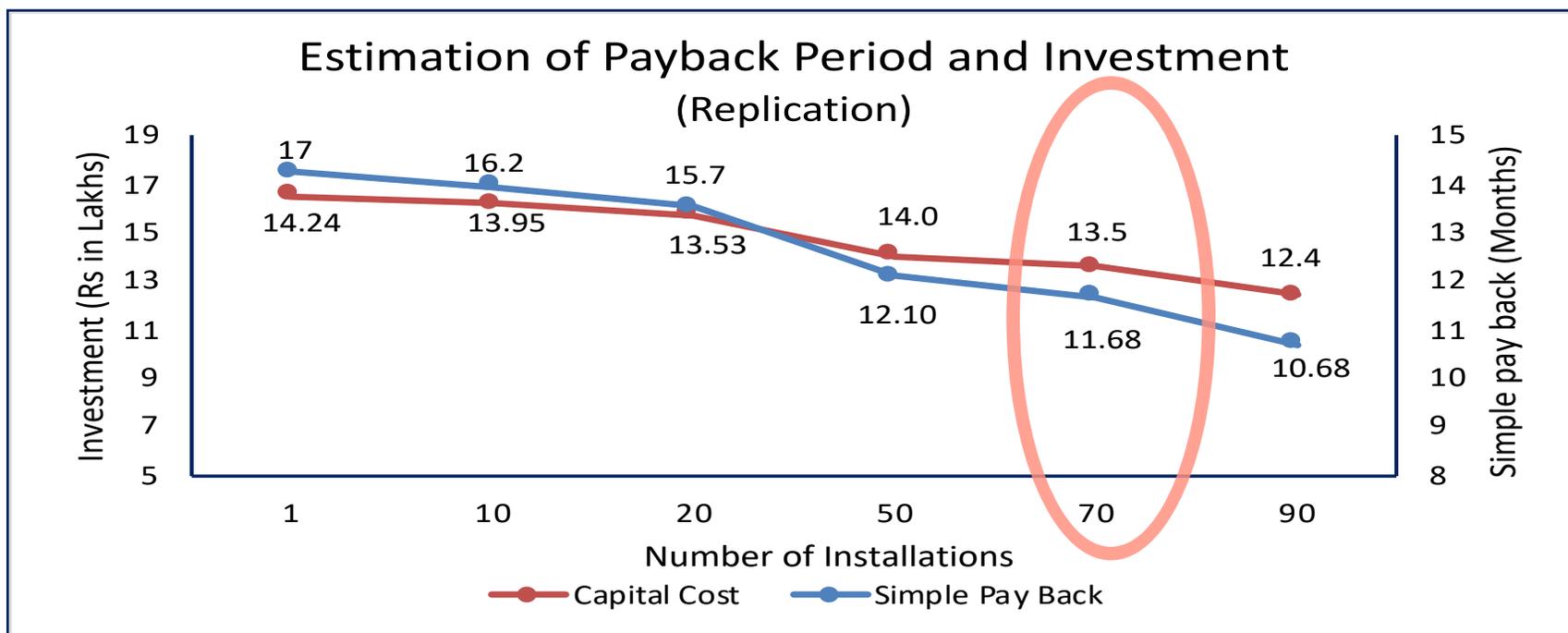
Qualifying Criteria



Agenda Item 5

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description	Qualified (Yes/No)
1	Energy Efficiency	% improvement from Baseline	5% or above	Electrical Energy Saving is =/> 40%	Yes
2	Financial Viability	Payback Period (PBP)	PBP must be less than 1.5 years	PBP is less than 1.2 years	Yes
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	Replication potential of minimum 120 units based on interaction with MSME units and Association during survey	Yes
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	(a) Yes; (b) Yes; at least 4 vendors is available	Yes
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	Easy; Very less customization is required with commissioning period around 1 month	Yes

Impact of Bulk Procurement (Anticipated)



Electricity Saving
16.63 Million kWh

13.36
(Rs In Crore)

1430 TOE
(Saving)

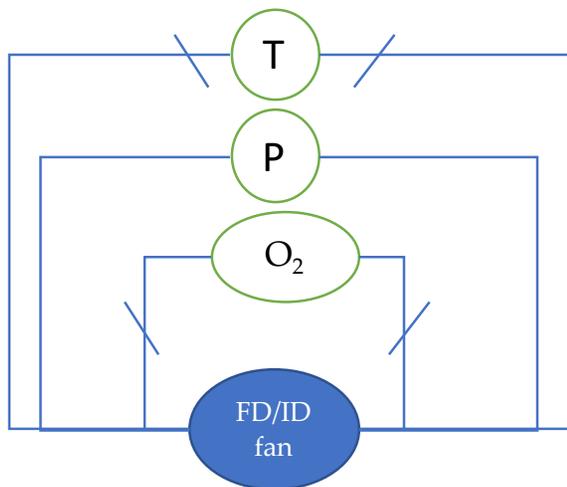
16039 Tons
(Reduction)

14.80
(Rs In Crore)

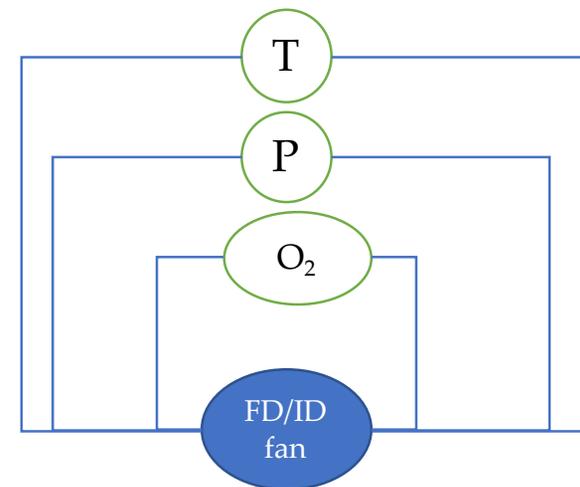
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Online Combustion Efficiency Monitoring & Control System (Oxygen Trimming & Excess Air Control)

Existing Technology
(Pressure Based)



Proposed Technology
(Oxygen % & Temperature Based)

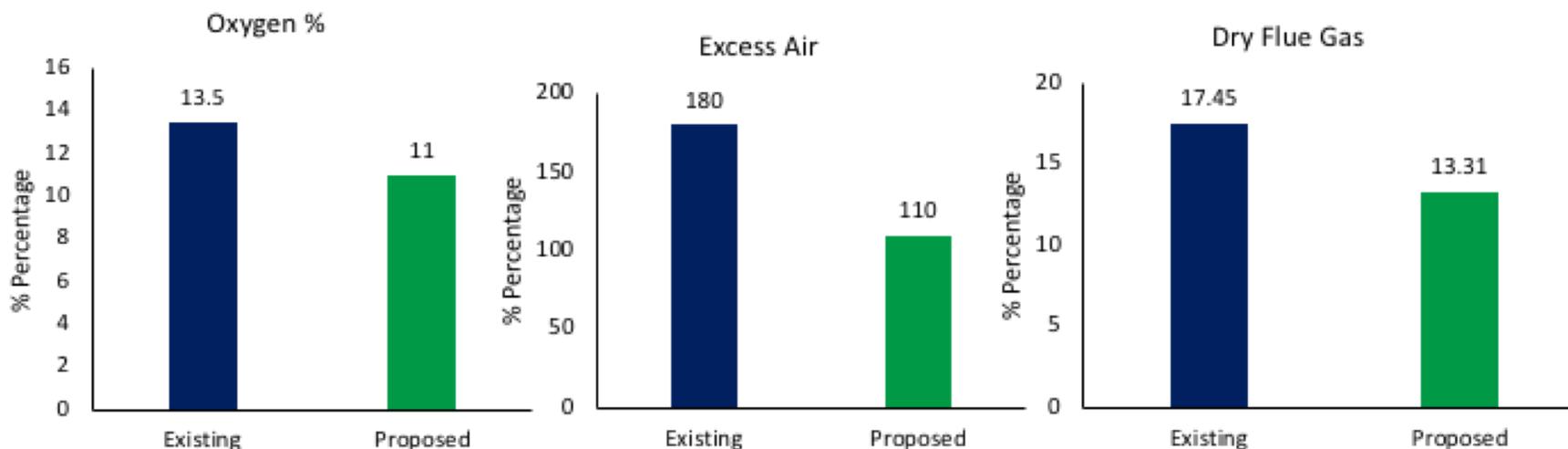


Comparison of Technologies*

Parameter	Existing Technology	Proposed Technology
Control Mechanism	Steam Pressure based	Oxygen %, Steam and Temperature based
Combustion Control	NA	Close Loop
Monitoring System	Only Temperature	Temperature, Oxygen %, Combustion efficiency and Pressure
Oxygen %	13 - 17	7 – 11 (As per fuel)
Dry Flue Gas Loss	High	Optimum

*Based on the technology availability in the cluster

Technology Parameters (Based on Case Study)



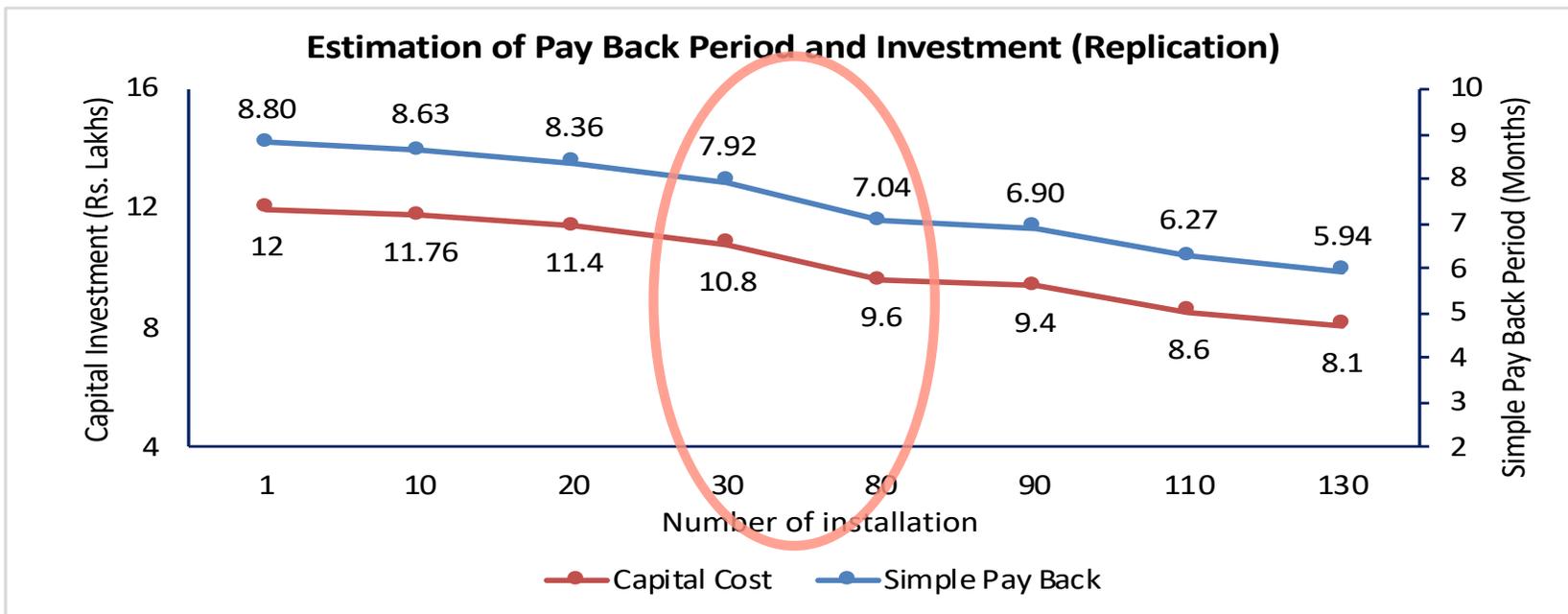
<p>120 TOE (Saving)</p>	<p>248 T (Coal Saving)</p>	<p>Rs. 16 Lakhs (Monetary Saving)</p>
<p>17260 kWh (Electricity Saving)</p>	<p>16 Tons (Reduction)</p>	<p>Rs. 12 Lakhs (Investment)</p>

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Qualifying Criteria

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description	Qualified (Yes/No)
1	Energy Efficiency	% improvement from Baseline	5% or above	Electrical Energy Saving: $\leq 10\%$ Fuel saving : $\geq 15\%$	Yes
2	Financial Viability	Payback Period (PBP)	PBP should be less than 1.5 years	PBP is less than 0.5 years	Yes
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	Replication potential of minimum 120 units About 43% of the total number of MSME in cluster.	Yes
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	(a) Yes; (b) Yes; at least 4 vendors is available	Yes
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	Commissioning and installation period is around 1.5 months	Yes

Impact of Bulk Procurement (Anticipated)



7723 TOE
(Saving)

15893 T
(Coal Saving)

Rs. 10.46 Cr
(Monetary Saving)

1.1 Million kWh
(Electricity Saving)

994 Tons
(Reduction)

Rs. 7.68 Cr
(Investment)

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Condensate and Flash Steam Recovery

Existing Technology
(Electrical Pump Based)



Proposed Technology
(Pressure Power Pump Based)

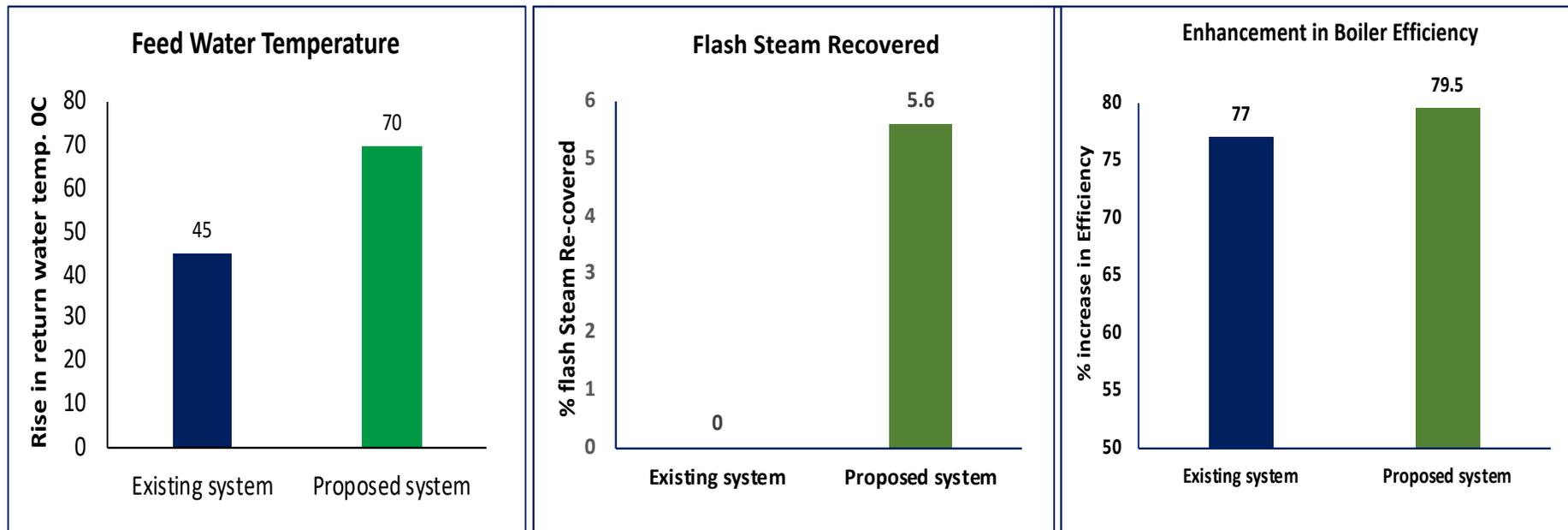


Comparison of Technologies*

Parameter	Existing Technology	Proposed Technology
Control Mechanism	Electrical Pump Based	Pressure Power Pump Based
Boiler Feed Water Temperature (Deg C)	45	70
Flash Steam Recovery	No	Yes
Electrical Power Consumption	Yes	No
Time required (<i>Condensate to Feed water</i>)	High	Instant

*Based on the technology availability in the cluster

Technology Parameters (Based on Case Study)



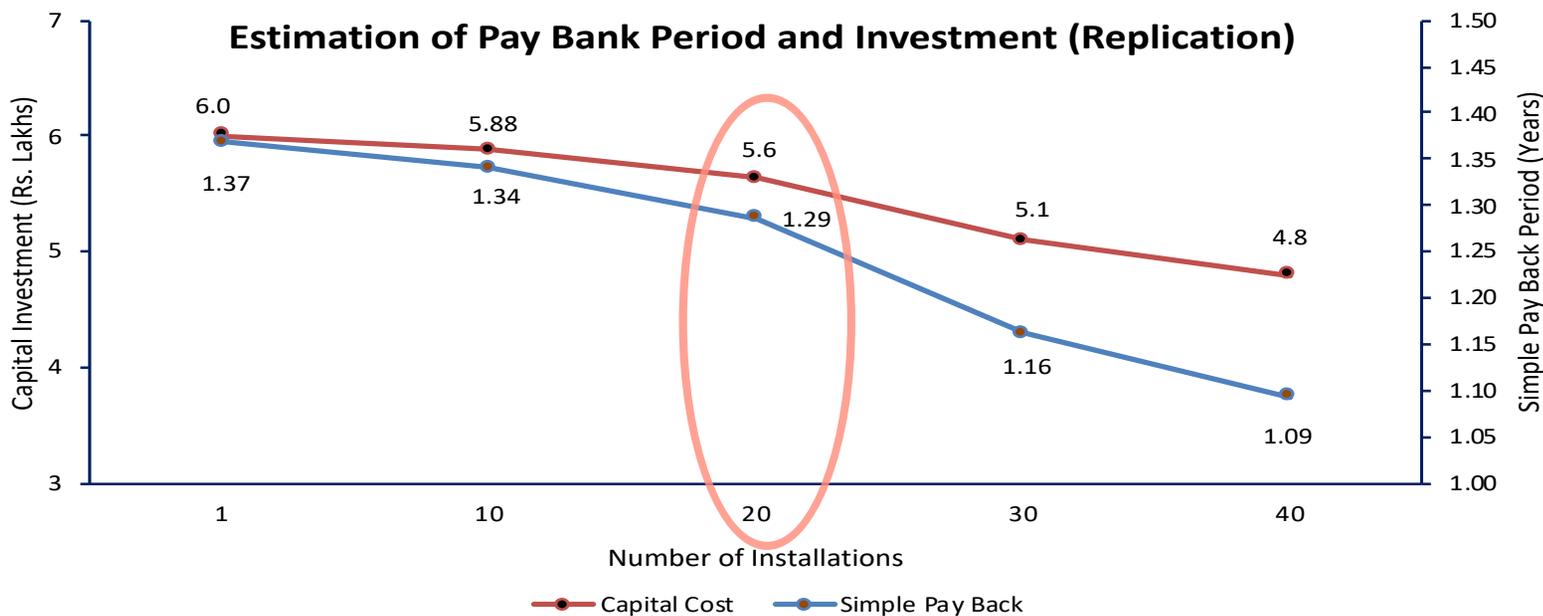
<p>21 TOE (Saving)</p>	<p>43 T (Coal Saving)</p>	<p>Rs. 8.7 Lakhs (Monetary Saving)</p>
	<p>86 Tons (Reduction)</p>	<p>Rs. 6.22 Lakhs (Investment)</p>

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Qualifying Criteria

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description	Qualified (Yes/No)
1	Energy Efficiency	% improvement from Baseline	5% or above	Fuel saving : >= 10%	Yes
2	Financial Viability	Payback Period (PBP)	PBP should be less than 1.5 years	PBP is less than 1.4 years	Yes
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	Replication potential of minimum 115 units About 38% of the total number of MSME in cluster.	Yes
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	(a) Yes; (b) Yes; at least 4 vendors is available	Yes
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	Customization is required Resizing of condensate piping is required. Replacement of existing steam traps The commissioning and installation shall takes around 4 months	Yes

Impact of Bulk Procurement (Anticipated)



1320 TOE
(Saving)

2751 T
(Coal Saving)

Rs. 5.57 Cr
(Monetary Saving)

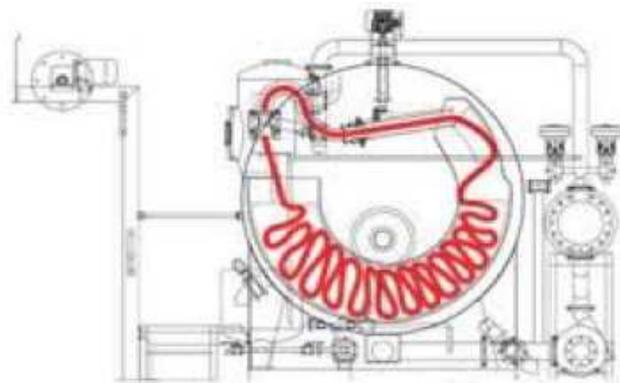
5506 Tons
(Reduction)

Rs. 1398 Cr
(Investment)

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PLC Control Jet Dying Machines

Existing Operation
(Manual Control)



Proposed Technology
(PLC Based Control)

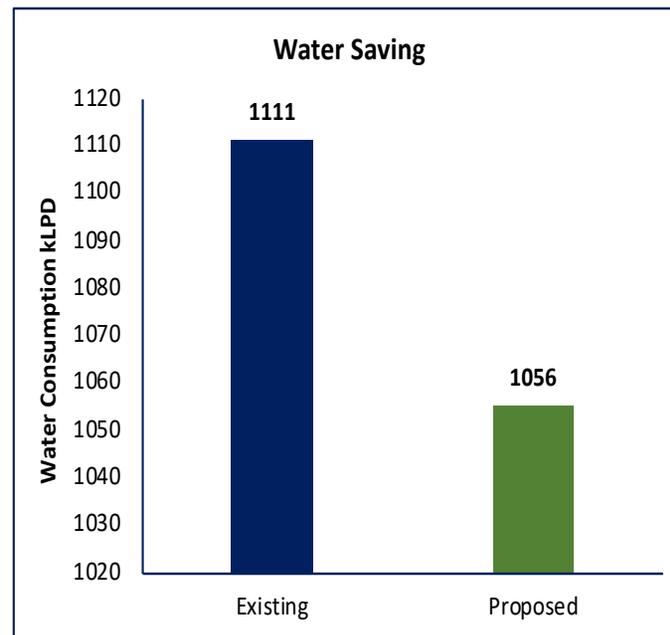
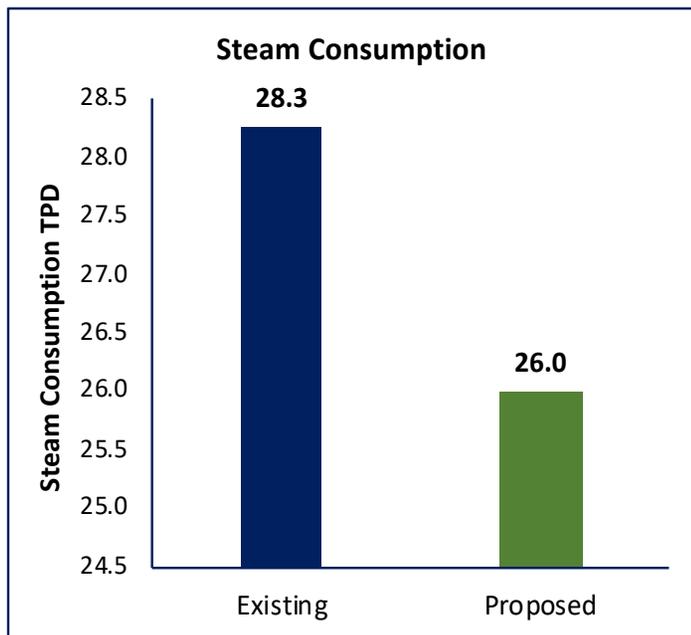


Comparison of Technologies*

Parameter	Existing Technology	Proposed Technology
Control Mechanism	Manual	Automatic
Reduction in Batch Time	NA	20%
Water Consumption	Higher	Less
Monitoring System	No	Yes
Chemical Requirement	High	Low
Steam Consumption	High	Low
Manpower Requirement	6 -8	2-3

*Based on the technology availability in the cluster

Technology Parameters (Based on Case Study)



59 TOE
(Saving)

125 T
(Coal Saving)

Rs. 7.3 Lakhs
(Monetary Saving)

2745 kL
(Water Saving)

250 Tons
(Reduction)

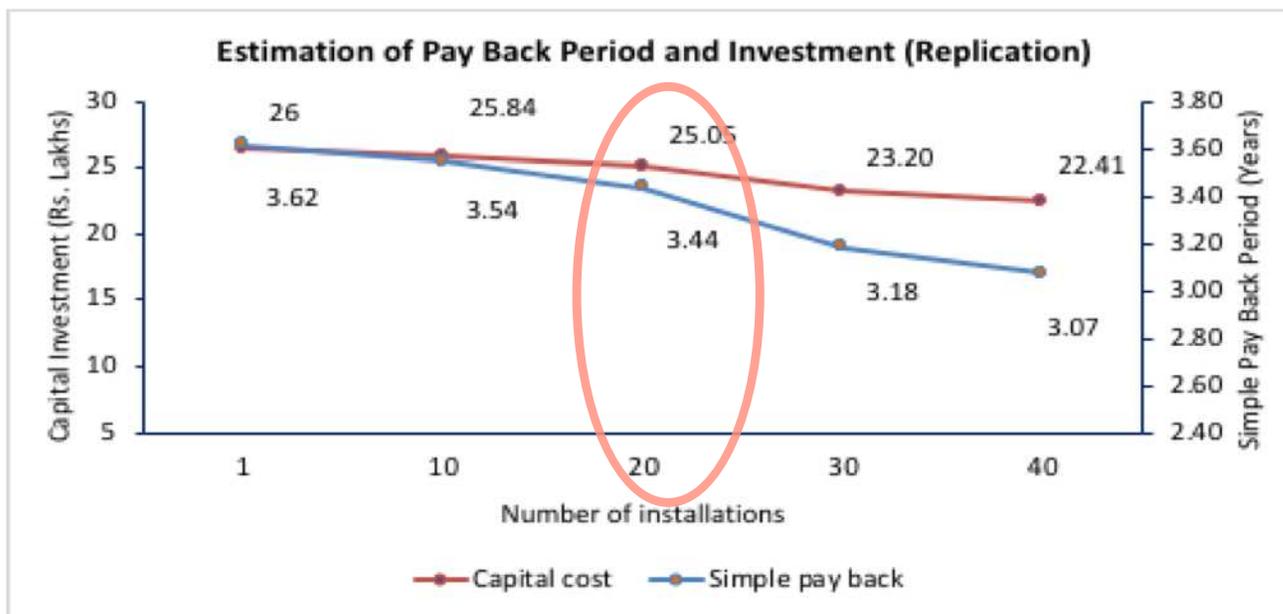
Rs. 26.4 Lakhs
(Investment)

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Qualifying Criteria

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description	Qualified (Yes/No)
1	Energy Efficiency	% improvement from Baseline	5% or above	Fuel saving : 8- 10%	Yes
2	Financial Viability	Payback Period (PBP)	PBP should be less than 1.5 years	PBP is 3.6 years	No
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	Replication potential of minimum 100 units About 33% of the total number of MSME in cluster.	Yes
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	(a) Yes; (b) Yes; at least 6 vendors is available	Yes
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	The commissioning and installation period is around 3 months	Yes

Impact of Bulk Procurement (Anticipated)



3836 TOE
(Saving)

7992 T
(Coal Saving)

Rs. 4.67 Cr
(Monetary Saving)

175680 kL
(Water Saving)

15993 Tons
(Reduction)

Rs. 16.87 Cr
(Investment)

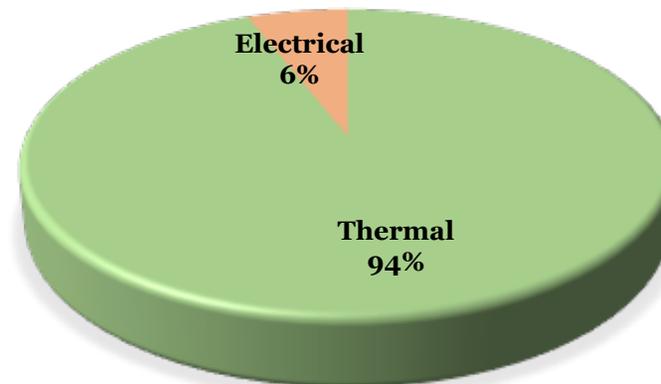
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Agenda Item 6: Technologies Identified in Vellore Cluster

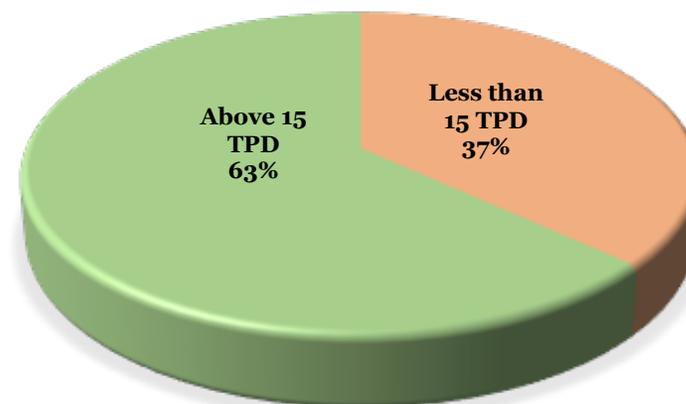
Cluster Profile: Vellore Rice



- Around **340** registered MSME unit
- Units spread across:
 - Arni
 - Arcot
 - Vellore
- Fuel Used:
 - Electricity
 - Ground Nut Shell
 - Rice Husk
 - Bio mass



Type of Units	No. Units
Less than 15 TPD	125
Above 15 TPD	215
Total	340



*Source: BEE SAMEEEKSHA Report

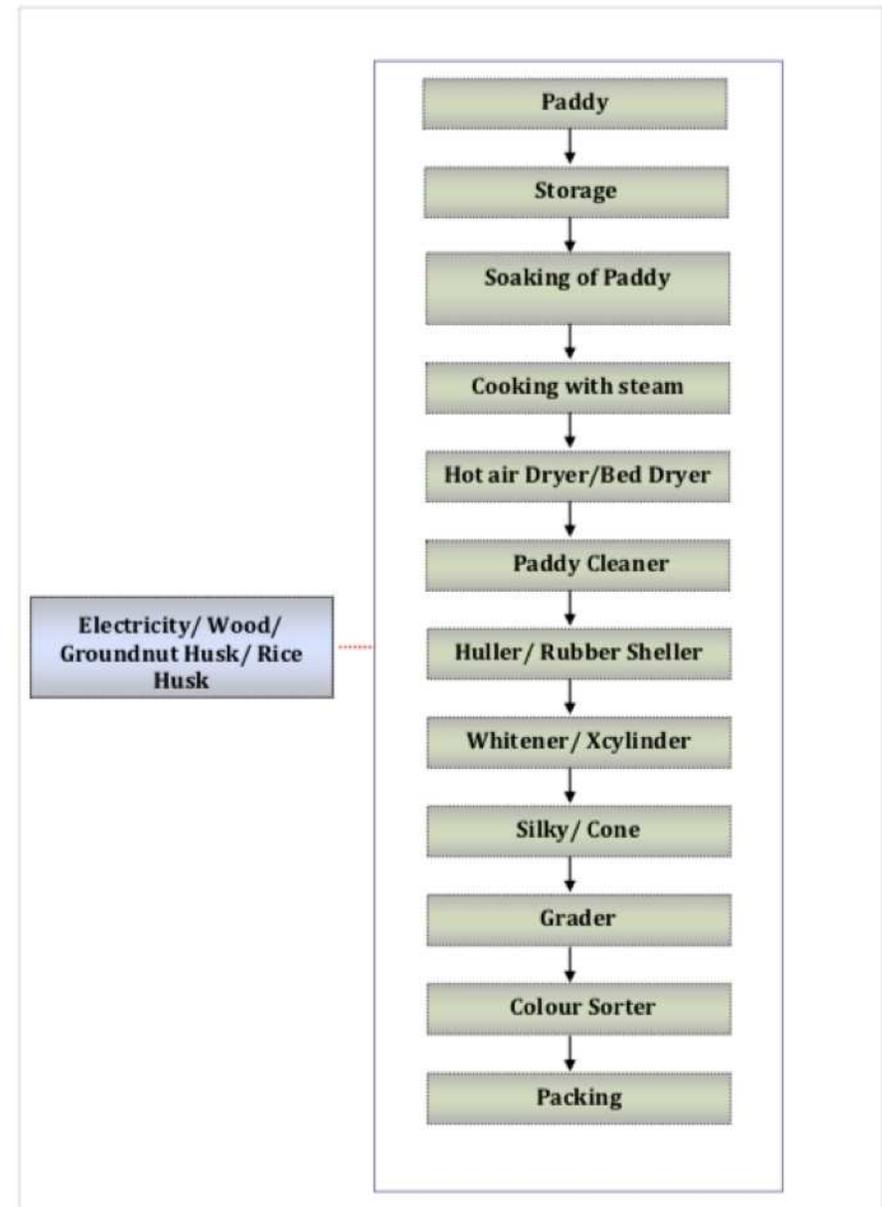
Process Flow: Rice Mill

Type of Utilities Used in the Process:

- Boiler for steam generation in order to cater all thermal loads
- Compressed air system for all pneumatic operation
- Electric drive (induction motor)
- Electric pumps
- Fans and Blowers

Type of Process Utility:

- Soaking tanks
- Hot air dryers
- Bed dryers
- Color Sorter
- Paddy Cleaners

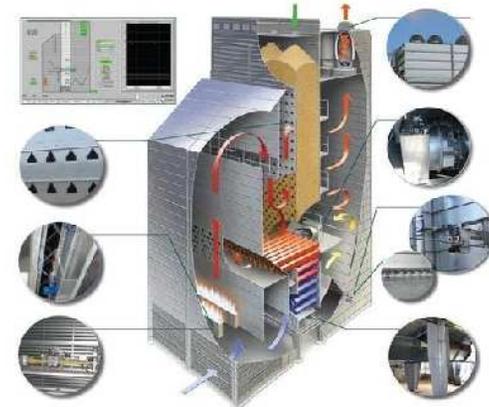


Replacing Existing Dryer with LSU Dryers

Existing Dryer



Proposed Dryer

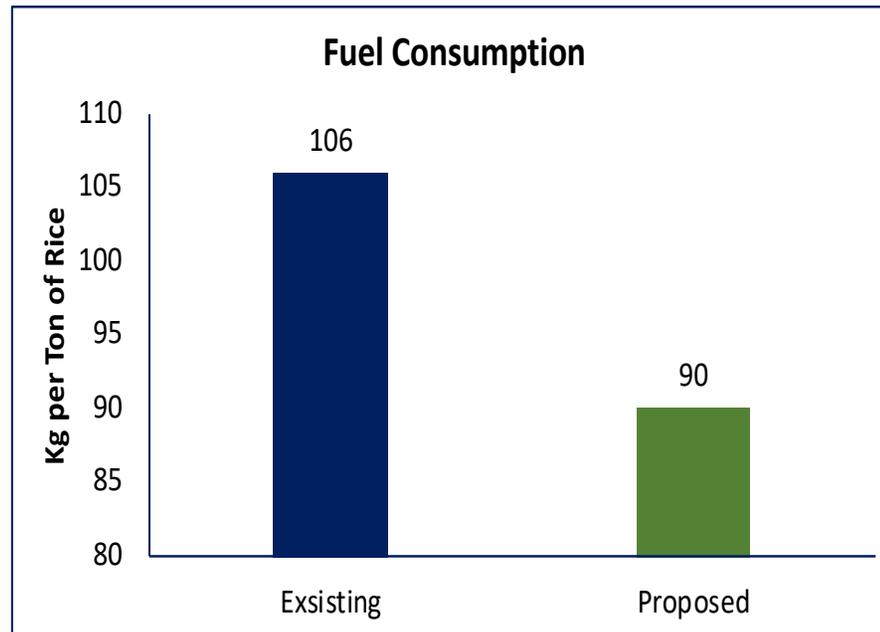
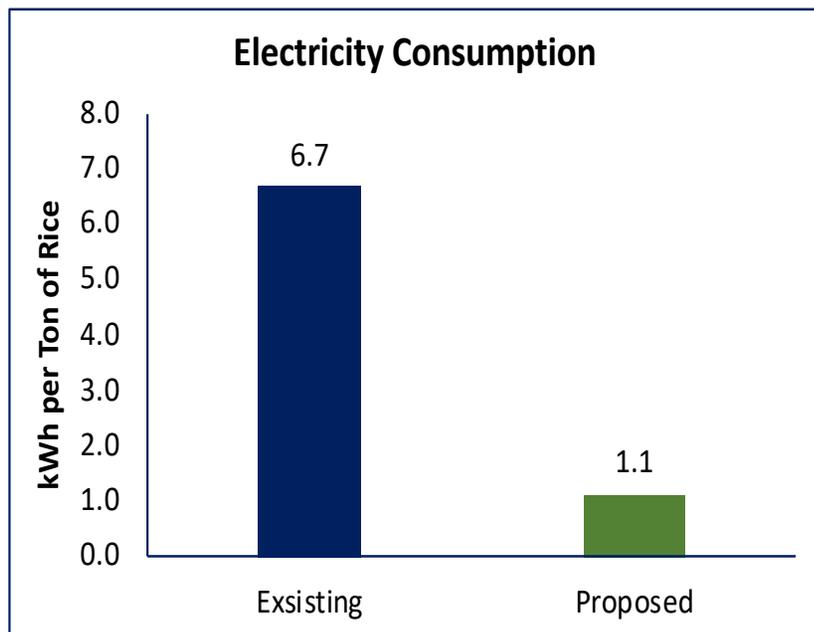


Comparison of Technologies*

Parameter	Existing Technology	Proposed Technology
Hot Air Movement	Bottom to Upside	Horizontal
Air Pressure for Fluidization	High	Low
Motor Capacity for 24 TPD	22 kW	11 kW
Reduction in Batch Time	NA	44%
Heat Exchanger Surface Area	Low	High
Reduction in Steam Consumption	NA	15-20%

*Based on the technology availability in the cluster

Technology Parameters (Based on Case Study)



11.53 TOE
(Saving)

153 T
(Ground Nut Saving)

Rs. 11.70 in Lakhs
(Monetary Saving)

134100 kWh
(Electricity Saving)

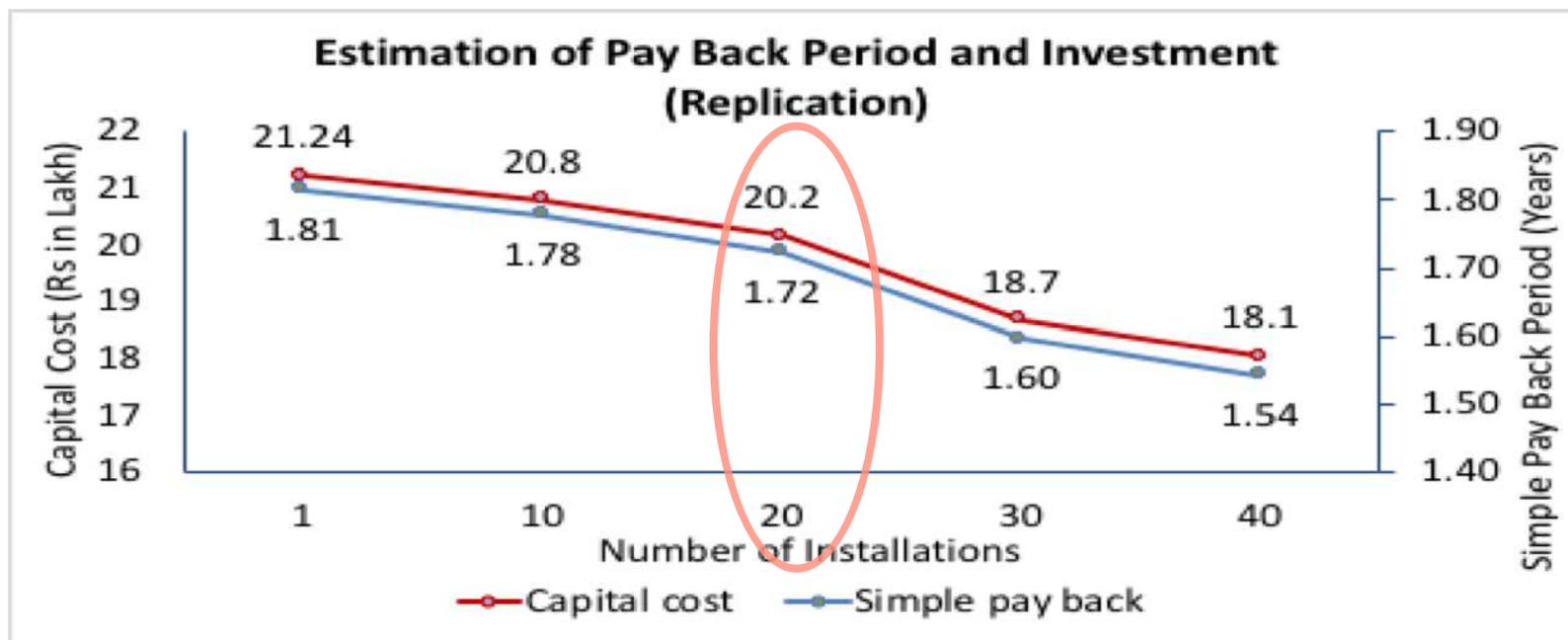
121 Tons
(Reduction)

Rs. 21.24 Lakhs
(Investment)

Qualifying Criteria

S. No.	Criteria	Sub Criteria	Minimum Qualifying Criteria	Description	Qualified (Yes/No)
1	Energy Efficiency	% improvement from Baseline	5% or above	Fuel Saving : 15% kWh Saving: 65-80%	Yes
2	Financial Viability	Payback Period (PBP)	PBP should be less than 1.5 years	PBP is less than 1.8 years	No
3	Replicability	No. of MSME to accept	20 MSME or 30% of total MSME in cluster whichever is higher	Replication potential of minimum 80 units About 25% of the total number of MSME in cluster.	Yes
4	Availability	(a) Locally Available (b) At least 3 technology provider	(a) Yes (b) Yes	(a) Yes; (b) Yes; at least 4 vendors is available	Yes
5	Ease of Implementation	(a) Easy (b) Medium (c) Difficult	The commissioning and installation period < 6 months	Around 3.5 months	Yes

Impact of Bulk Procurement (Anticipated)



577 TOE
(Saving)

7638 T
(Ground Nut Saving)

Rs. 5.8 in Cr
(Monetary Saving)

6.7 Million kWh
(Electricity Saving)

6035 Tons
(Reduction)

Rs. 10.62 Cr.
(Investment)

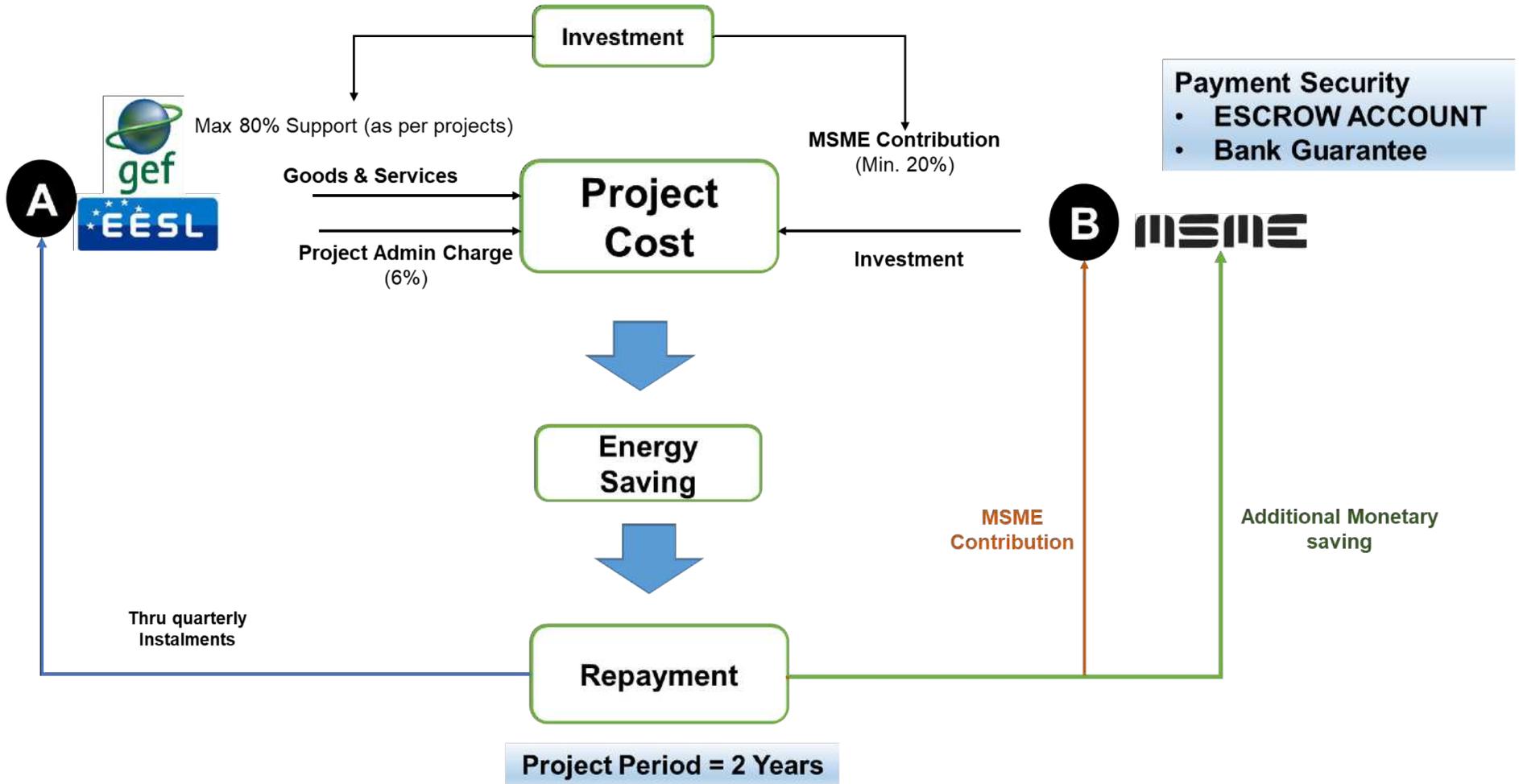
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Agenda Item 7: Business Model

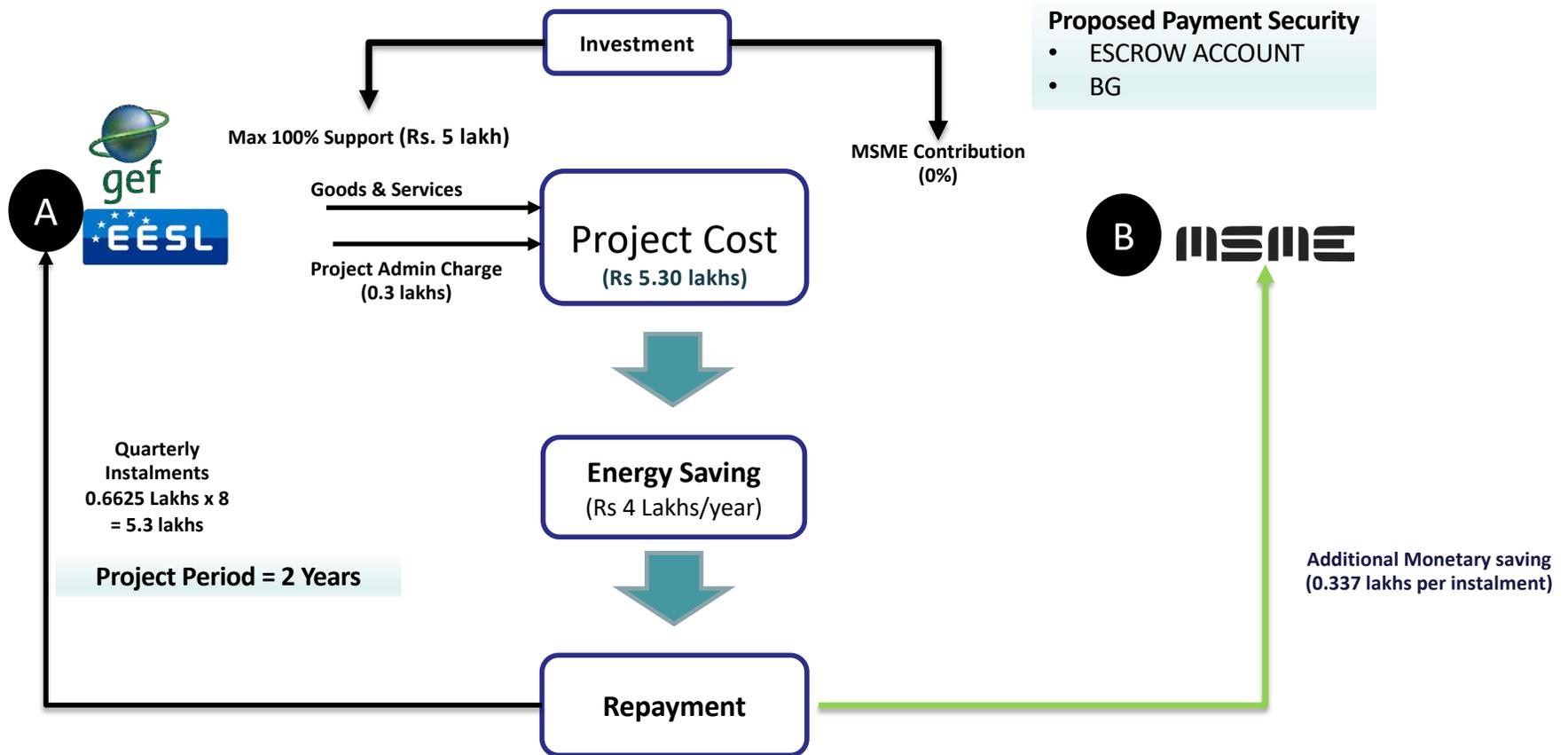
Business Model for DEMO Projects



Agenda Item 7



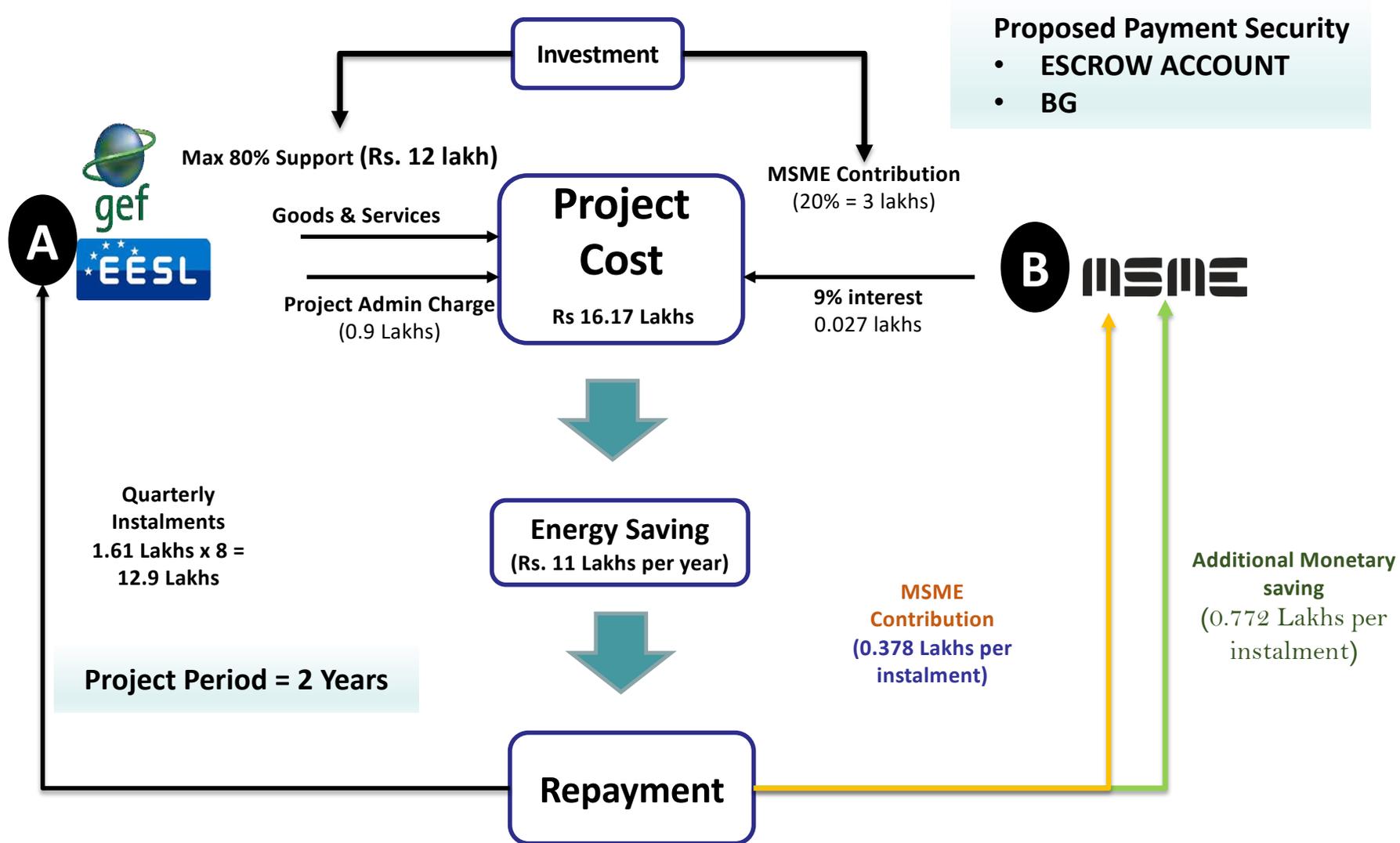
Business Model for DEMO Projects: Case 1



Business Model for DEMO Projects: Case 2



Agenda Item 7





DISCUSSION