8)	Energy Saving by avoiding Idle running of agitator of Milk Cylo by interlocking working of agitator with level of milk inside cylo.	21060	--	1.1	4	3.64	1	1.1
	Total Energy/Cost reduction possibility using proposed recommendations in the Gujarat (Dairy) SME Cluster							**320.4**

Table 12 : Summary of EC & Technological Up-gradation proposals in Gujarat (Dairy) SME Cluster

SN	Name of Measure	Annual Energy Saving in kwh/annum	Annual Fuel Saving in kgs/annum	Annual Monetary saving (Rs. lakh)	Implementation Cost (Rs. lakh)	Simple payback period (years)	Applicable to number of units in cluster (Nos.)	Annual Cluster Saving Potential of particular EC Measure (Rs. lakh)
1)	Energy saving in Ammonia compressor motor by providing soft starter with energy saver at part loads (During modulation at lower loads due to firing of one or two cylinders only)	232344	--	14.5	6	0.41	21	50.75
2)	Energy saving by improving efficiency of condenser water circulation pumps by providing the glass flake coating to pump impellers	90460.8	--	5.44	9	1.65	12	16.32

	and to pump casing.							
3)	Upgrading conventional pneumatic pouch filling machine by PLC based mechanical pouch filling machine which saves energy.	63360	--	3.6	28	7.78	6	10.8
4)	Energy saving in refrigeration system by providing Thermal energy storage system in place of conventional IBT (Ice Bank Tank) system.	569160	--	34.88	283	8.11	22	109.62
5)	Energy Saving by replacing existing heavier metallic cooling tower blade with lighter FRP blades.	16200	--	1.04	1	0.96	7	3.64
6)	Methane Capture from Effluent & Utilization as fuel for boiler / Hot air generator.	--	352870	122	325	2.66	3	183
7)	Energy saving by replacing older lower efficiency electric motor with energy efficient motor of at least	332899.2	--	20.63	38	1.84	15	61.89

	EFF1 level.							
8)	Energy Saving by replacing existing conventional gear box based drive arrangement along with squirrel cage motor for CT Fan by permanent magnet motor & Drive.	6318	--	0.34	1	2.94	3	1.02
							Total Energy/Cost reduction possibility using proposed recommendations in the Gujarat (Dairy) SME Cluster	**437.04**

Table 13 : Summary of Other energy conservation proposals in Gujarat (Dairy) SME Cluster

SN	Name of Measure	Annual Energy Saving in kwh/annum	Annual Fuel Saving in kgs/annum	Annual Monetary saving (Rs. lakh)	Implementation Cost (Rs. lakh)	Simple payback period (years)	Applicable to number of units in cluster (Nos.)	Annual Cluster Saving Potential of particular EC Measure (Rs. lakh)
1)	Maintaining unity PF to get maximum PF incentive along with reducing line losses and improve terminal voltage.	--	--	8.85	10	1.13	15	22.13
2)	Energy Saving by utilization of renewable solar energy for hot water generation.	--	94896	8.95	38	4.25	12	21.48

3)	Energy saving in lighting system by providing T5 type FTL and or CFL in place of conventional FTL with magnetic ballast. Also providing luminaries for improvement in lighting system performance. Also Replacing Mercury Vapor Lamps with Metal Halide Lamps.	62287	--	3.74	9	2.41	22	11.75

6.2.1 Summary of Level of Awareness on Energy Efficiency & Energy Conservation Products in the Cluster

The overall energy efficiency awareness among various units under cluster is improving continuously. As energy audits are mandatory and its implementation to certain extent is also regularly previewed by Gujarat Government, the overall awareness regarding energy saving is improving. Also various agencies like PCRA which are dedicated for energy conservation are regularly spreading the awareness through their various programs.

Still many more efforts can be done at various levels to achieve awareness of higher level. The increased population of engineers in dairy sector will definitely help this cause. Workshops, seminars for higher management, middle level management, engineers, technicians & workers will further improve awareness among the sector. Level of awareness on energy efficiency and energy conservation products in the units of cluster may be lower in few cases (smaller dairies), due to below mention reasons.

- Ü Lack of awareness on the Energy efficiency
- Ü Lack of organizational commitment
- Ü Narrow focus on Energy
- Ü Not clear about their existing level of operations and efficiency, due to lack of instrumentation & non availability of Energy consumption data
- Ü Limited manpower
- Ü Lack of trained manpower
- Ü Limited information on new technologies
- Ü Cost of Energy conservation options

Major energy sources being used in cluster are the Electrical energy and Diesel. Annual electrical energy consumption and Diesel Consumption in Bangalore cluster is around **2,26,79,100 kWh** and **99,376 litrs** respectively. Total energy consumption in the Bangalore Machine Tool cluster is around **85,196 GJ.** After implementation of proposed energy conservation measures, the possibilities of reduction in energy consumption is to the tune of **36,55,563kWh**, and reduction in cost of the cluster is estimated to be about Rs. 2664 per annum. However this implementation will require the investment of Rs. 11376 initially. The payback period estimated for these proposals is about 4.2 years, which is very acceptable to the cluster

List of Annexure

ANNEXURE – 1 : DETAILED TECHNOLOGY ASSESSMENT REPORT

Most of the units in Gujarat (Dairy) Cluster are of co-operative based units with few privately owned units. The units can be classified as milk chilling centers & Dairies. This sector also faces deficiencies such as the lack of access to technology and technology sharing and the inadequacies of strong organizational structure, professional attitude etc. Comprehensive Study conducted at various Gujarat (Dairy) cluster to assess the technology gap in different processes and utilities. The various factors, which influence the management towards implementation energy efficiency and energy conservation projects in Gujarat (Dairy) cluster, are:

- Ü Energy efficiency and energy conservation is low cost investment option which reduces energy consumption
- Ü The energy efficiency improvement will enhance the plant management to be competitive in local and global markets by reducing production cost
- Ü The energy efficiency and conservation measures reduces GHG emissions because of low carbon dioxide and particulate emissions
- Ü Energy efficiency and conservation is a viable strategy to meet future energy needs of the expanding plans in the industry
- Ü The energy efficiency and conservation places no financial and administrative burden as no separate manpower is required and only training of operation and maintenance of the technologies adopted is envisaged.
- Ü The return on investment is attractive with lower pay back periods.

Technical gap analyses in below mentioned areas are identified and details are presented below sections:

Equipments/Systems	Areas/Operation
Ice Built Tank	Refrigeration System
De-super Heater (Waste Heat Recovery)	Refrigeration System
Methane Capture Anaerobic Digester	ETP & Process
Soft Starter with Energy Saver for Ammonia Compressor	Refrigeration System

Ice Built Tanks:-

The thermal losses & operational losses of conventional ice built tank, which acts as thermal storage system for milk chilling centers & dairies, found to be on higher side. Detailed study of the existing IBT tank losses for various locations at various ambient conditions carried. The conventional IBT (Ice Bank Tank) system is provided in all the milk chilling center and dairies for thermal storage purpose. IBT tank acts as buffer for thermal energy & as ice bank.

The main losses in the IBT tank are

- Ü Higher thermal losses as the existing IBT tank is not air tight arrangement.
- Ü Higher energy consumption as agitator (Stirrer) which consumes additional energy and induces heat by way of churning.
- Ü Bulky Size due to which overall constructed area needed in higher.
- Ü Low thermal storage capacity.
- Ü TOD Benefits cannot be availed.

Based on the data measured/collected from the plant during energy audit, the calculation details of loss for typical unit, carried in winter season are as given below –

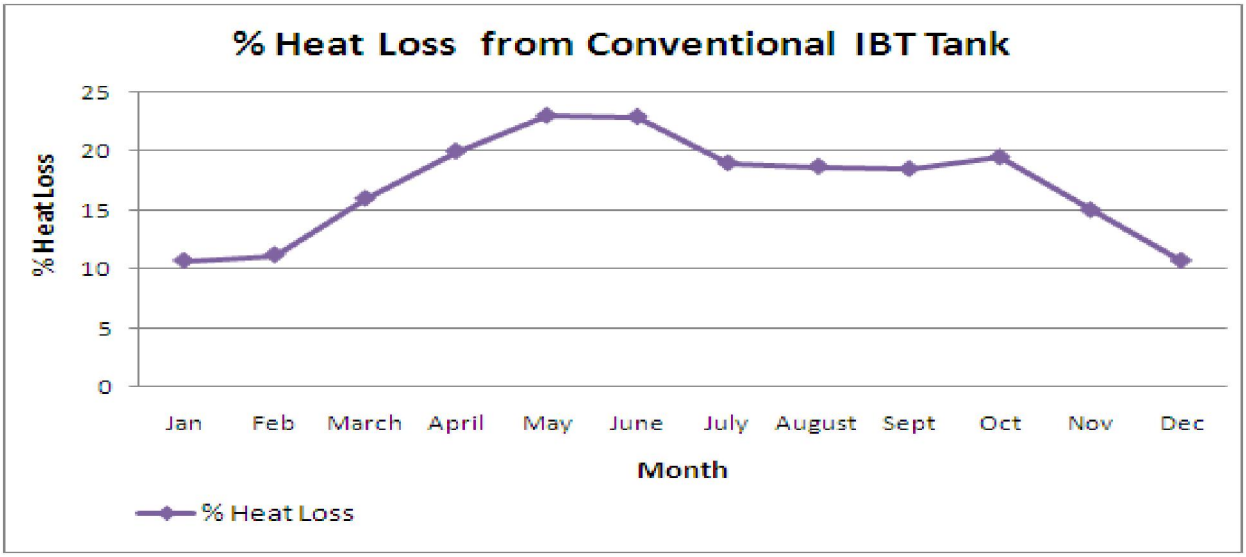
IBT Tank Particulars	L mtrs	W mtrs	H mtrs	Volume m³	Initial Time	Initial Temp in ˚C	Final Time	Final Temp in ˚C	Total Heat in kCal	Heat Loss in kCal	Time in hrs	% Loss
IBT Tank No.1	7.2	2.8	2.8	56.45	2.30 pm	1.6	4:00 PM	1.8	90320	11290	1.5	8.33
IBT Tank No.2	7.2	2.8	2.8	56.45	2.30 pm	1.5	4:00 PM	1.7	84675	11290	1.5	8.89
IBT Tank No.3	7.2	2.8	2.8	56.45	2.30 pm	1.5	4:00 PM	1.7	84675	11290	1.5	8.89
			Total	**169.35**					**259670**	**33870**	**Av.**	**8.7**

The above calculated losses are calculated in Jan-2010 i.e. winter season. The losses in summer will be on higher side. Please refer losses calculated in summer i.e. June-2010 are as given below-

IBT Tank Particulars	L mtrs	W mtrs	H mtrs	Volume m³	Initial Time	Initial Temp in ˚C	Final Time	Final Temp in ˚C	Total Heat in kCal	Heat Loss in kCal	Time in hrs	% Loss
IBT	4.42	4.05	1.768	31.7	3.30	0.9	6.00	1.3	28530	12680	2.5	17.8

Tank No.1					pm		pm					
IBT Tank No.2	5.09	5.06	1.89	48.71	3.30 pm	1	6.00 pm	1.7	48710	34097	2.5	28
IBT Tank No.3	Under Repair & Maintenance											
			Total	80.41					77240	46777	**Av.**	**22.9**

Thus it is clear that, the losses vary with season. Please refer following chart for assessing yearly pattern of loss.



It can be seen from above data that the direct average thermal losses are 8.7%. Apart from direct thermal losses other losses are stirrer losses due to agitator provided, losses in electrical energy of ammonia compressor as subjected to part load operation many times due to lower capacity of existing thermal storage system. Also for HT consumers, electricity Supply Company provides TOD benefits. These benefits cannot be availed by the industry employing IBT tanks.

De-super Heater (Waste Heat Recovery)

The refrigeration system is basically a heat pump, which pumps heat from lower temperature to higher temperature. As lower temperature is required for refrigeration needs, the waste heat pumped out can be used for to save energy by using De-super heater.

The study carried during preliminary & detailed energy audit field study focused on amount of waste heat available from vapor compression ammonia system. For calculating the details, temperature of ammonia gas post compression monitored, amount of actual TR generated by the vapor compression ammonia system studied.

Capacity of Existing VC Cycle Compressor (Working or on-load. But Actual average load may be lower due to load modulation)	=	472.5	TR
Working Hours for Compressor/day	=	20	hrs/day
Ambient Water Temperature	=	30	ºC
Temperature of Hot NH3 Gas available for WHR from Desuperheater	=	94	ºC
Waste Heat Available from Desuper Heater (Considering 12% WHR possible in De-super heater i.e. 12% of total kWh consumed can be recovered)	=	63107	kCal/hr
Expected Temperature of Hot water from De-super heater (Considering Flow Rate and Design of De-super heater to get 65ºC hot water for winter conditions)	=	65	ºC
Quantity of Hot Water Available	=	1803	ltrs/hr
Total Quantity of Hot water that can be generated from De-super heater	=	36060	ltrs/day
Thus Total Hot water at 65 ºC can be generated	=	36.06	kill/day

Methane Capture Anaerobic Digester

Apart from energy saving, these measures have very positive impact on environment. The bio-degradable effluent have high COD which results in liberation of methane gas in to atmosphere which is not desirable. Conventional ETP method both consumes high energy along with liberation of methane in the atmosphere.

By various latest techniques such as anaerobic digestion and various other processes, this methane can be captured as fuel to be utilized either in boiler or hot air generator. Along with saving environment, considerable energy can also be saved.

The field study carried primarily focused on following aspects of existing untreated effluent –

- Ü Quantity of Untreated Effluent Available
- Ü Various parameters of untreated effluent like BOD, COD etc.

Untreated Effluent Data			
BOD	=	2500	mg/
COD	=	5000	mg/
Effluent Quantity	=	41666	ltrs/hr
(1 kg=1000000 mg & Considering for ETP, 1kg=1Ltr)			

Based on the above data, COD load per day is calculated. COD reduction considered is 80% based on which actual COD load and amount of methane capture per day is calculated. One of the measure for capture of methane from effluent & its productive use as fuel, recommended in the cluster development has CDM potential. The methane capture from Effluent by anaerobic digestion results in methane generation which is used as fuel for boiler. Methane is one of the undesirable gases from effluent. Along with direct hazard to human health, methane is potent green house gas.

The further details are already discussed in the chapter for environment in this manual.

Soft Starter with Energy Saver for Ammonia Compressor

The energy audit of ammonia compressor was carried. Various parameters such as actual kwh consumed by compressor motor, suction pressure, discharge pressure, suction temperature, discharge temperature, RPM of compressor etc measured. Also one of the important aspect of the compressor i.e. part load operations also studied.

For energy saving in ammonia compressor, apart from other aspects part load operations of the ammonia compressor also studied. The ammonia compressors are subjected to part loads during entire course of operation due to various reasons such as fluctuating demand, variation in ambient condition due to day, night, seasonal variation etc. The other important aspect is during peak time (milk receipt) time, the demand of chilled water is highest but at other time demand is low. All these factors contribute to part load operation of ammonia compressors at many times during entire day cycle.

Detailed data logged for compressor motor for a dairy and load profile is generated as given below –

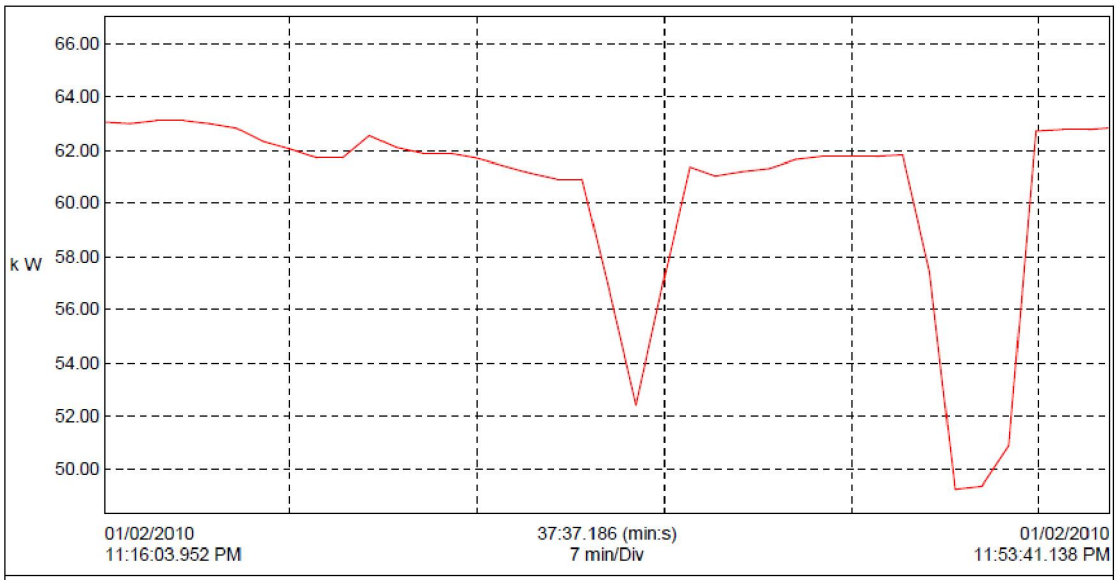


Figure 9 : Load Profile of Compressor

The part load operation by bye-passing of number of cylinders of compressor is reflected in terms of drop is kWh consumption. The field study

SN	Ammonia Compressor Particulars		Model	Motor Rated Kw	Measured Kw	Rated TR	Actual TR
1)	Comp. No.1	=	KC-4	75	53.5	60	40.8
2]	Comp. No.2	=	Sabroe (Equi. Of KC4)	75	57.9	60	44.4
3)	Comp No. 3	=	KC-4	75	56.8	60	40.8
4)	Comp No. 4	=	KC-3	45	44	45	29.7
			Total	270	212.2	225	155.7
	Total Actual on Load			120	97.5	105	70.5
	Specific Power Consumption in kw/Tr						1.38
	For Milk Chilling Only				53.5	60	40.8

The above data clearly indicate the consumption by ammonia compressor of refrigeration section. By providing soft starter with energy saver, energy at partly loaded motor of ammonia compressor can be saved. The energy saved by soft starter with energy saver due to –

- Ü Reduction in motor supply voltage at part loads.
- Ü Improved power factor.
- Ü Improved efficiency of motor at part loads.

Annexure -2 : Details of Technology/Service Providers.

Screw Type Air Compressors

a) Atlas Copco
401, Atma House, Opposite Reserve Bank
Ashram Road, Ahmedabad, Gujarat 380009
079 30009693

b) Ingersoll Rand (India) Ltd
21-30, Gidc Estate, Naroda, Ahmedabad - 079 22820123

c) Kaeser Compressors India Pvt Ltd
21-30, Gidc Estate, Naroda, Ahmedabad - 079 22820123

Solar Hot Water System Manufacturer

a) Ankur Scientific Technologies Private Ltd.
Ankur, Near Old Sama Jakat Naka, Sama Road, BARODA - 390 008, INDIA

b) Urmi Solar System Limited
Plot No. 2113, Phase - III, GIDC, Vatva, AHMEDABAD - 382 445, INDIA

c) Tata BP Solar India Limited
205, Abhishree, Opp. Iskon Mall, Satellite Road,
Ahmedabad - 380 015

Refrigeration related technology & Services including Thermal Storage System

a) Refrecon Magic Systems Private Limited
2nd floor, Airotek House, S. No. 37/3, Vadgaon Khurd, Sinhgad Road,
Pune, Maharashtra - 411 041 (India)

b) Cristopia Energy Systems
303, Kothari Manor, 10 Diamond Colony, New Palasia, Indore, Madhya Pradesh - 452001 (India)

c) Kehems Consultants Private Limited
B-23, Monica Building, J. P. Road, Andheri West, Mumbai - 400 058, India

d) IDMC Limited
Plot No. 124-128, GIDC Estate,
Vithal Udyognagar 388 121,
Gujarat, India

e) MODERN REFRIGERATION
70, Anand Vyapari Sankool, Road No.33,
Near E.S.I.S Hospital, Wagle Industrial Estate,
Thane (West), - 400 604, Maharashtra, India.

Methane Capture

Sun Enviro Technologies Pvt. Ltd.,
178, Chhatrapati Nagar,
Wardha Road, Nagpur - 440 015
Maharashtra, India

a) ENERGY OPTIONS INCORPORATION
216, Krishna Con-Arch 2,

Energy Efficient Electric Motors, VFD, Soft Starter with Energy Saver, PM motor drive for Cooling Tower

a) Simens Ltd
Shanti Chamber, Terapanth Marg, Income Tax Cross Road, Ahmedabad - 079 27546172

b) Baldor Electric India Pvt Ltd

Tagore Road, Godown Road Corner, Rajkot – 360002, Gujarat

b) BIO ENERGY ENGINEERING
MLS Business Centre, Panchasheel Tech Park, Hinjewadi, Pune – 57 Maharashtra

c) INDWA TECHNOLOGIES PVT. LTD.
501, Topaz Building, Punjagutta, Hyderabad. (A.P.) – 500 082. INDIA.

Pump Glass Resin Coating

a) Kirloskar Corrocoat Private Ltd
Sahakar Nagar, Pune 411009

Boiler, Steam System & WHRS

a) Thermax Ltd
D-13, MIDC Industrial Area,
R.D. Agra Road, Chnchwad
Pune-411019

b) Forbes Marshall
4, Shetoor Bunglows, Opposite Drive In Petrol Pump
Bodakdev, Ahmedabad, Gujarat 380054

19, Commerce Avenue, Mahaganesh Colony, Paud Road Pune – 411038

c) Bharat Bijlee Ltd
202 8/A, Arth Building, Rashmi Society, Mithakali 6 Road, Bh A K Patel House, Navrangpura, Ahmedabad - 079 25506846

d) Kirloskar Brothers Ltd
Opp. Railway Station,
Dewas (MP) 455001

e) URJA TECHNIQUES (INDIA) PVT. LTD.

B-17, SHRIRAM INDUSTRIAL ESTATE, G. D.AMBEDKAR ROAD, WADALA,

Mumbai-400031, Phone:91-22-24160606/24150505

Thermal Insulation

a) Lloyd Insulations
386, Veer Savarkar Marg, Mumbai – 400025

b) Se Woon T&S Co., Ltd; Dynaweld Engineering Company Private Limited 72/427, Vijaynagar, Naranpura, Ahmedabad – 380013

c) NOVOTA INDUSTRIES
2nd Floor,Sharada Sadan, S.G.Marg, Opp.Pritam Hotel, Dadar(East), Mumbai 400014.

Note :- Apart from above mentioned manufactures & Service providers, Other manufactures & service providers are also welcome to participate in the cluster development project. Till implementation additional LSP are expected.

Annexure – 3 : Quotations for Techno-commercial Bids from service/technology providers

Date: 29.11.2010
Ref: SFIS/HQ/

Energy Systems
(India) Pvt. Ltd.
Village Unnikheda, 12th K.M
Indore – Khandwa Road,
Dist. Indore – 20 (M.P) INDIA.
Tel. : 0731-4228333
Fax No. 0731-4228342
E mail: sales@kehems.com
kehems@bsnl.in

To,

Kind Attn.:

Dear Sir,

Sub: Proposal Thermal Energy System

We are pleased to submit hereunder our offer for Thermal Energy Storage System for Milk Chilling Unit at Kheralu.

1.0 SCOPE OF SUPPLY & PRICE

Thermal Energy Storage System of 960 TR-HR capacity complete with M.S. Tank, Tank Insulation & Thermal Storage Nodules.

Interconnecting piping, valves and mechanical seal pumps

Price : Rs. 49,50,000/-

(Rupees Forty Nine Lacs Fifty Thousand Only)

2.0 PRICE BASIS

Prices quoted are all inclusive at site basis.

3.0 TAXES & DUTIES

Prices are Inclusive of Excise duty, VAT or CST against for C, Octroi / Entry Tax (if applicable), Transportation and handling charges

CORRESPONDENCE ADDRESS: 303, Kothari Manor, 10, Diamond Colony, New Palasia, Indore -452 001 M.P. Ph. 2536624

Mumbai: B-25, Mariam, 2nd floor, J.P. Road, Andheri (W) Mumbai -58.Ph. 26256858, Fax. 26241642, E-mail: mumbai@kehems.com
Bangalore: House No. 3462, 25th 'A' Main, HAL II Stage, Indira Nagar, Bangalore -08. Ph. 25203185 Fax. 25203185, E-mail: kehems@gmail.com
Pune: Flat No. 16-A, 7, Ground Floor, Building 'F' Hari Purva Residency Ghime Bagh, Solapur Road Pune-13. Ph. 64004797, E-mail: energy_pune@hotmail.com
Noida: D-191, Sector-10, Noida-201 301Tel : 0120-4258731 / 3 Telefax : 0120-4258731 E-mail : kehemsdelhi@gmail.com

Shandilya Energy Systems Pvt. Ltd.
Regd. Off. : B4/5, Utkarsh Nagar, Hadapsar, Pune - 411 028. India Telefax : 91-20-26991782
E-mail : shandilyaenergy@rediffmail.com
Works : Gat No. 176, Dhamalwadi, Bhekrai Nagar, Fursungi, Pune - 412 308. Ph. : 91-20-65783335

To, 04/12/10
M/s Petroleum Conservation & Research Association,
Ahemedabad

Kind Attn: **Mr. Shashibhushan Subhash Agarwal**

Sub: **Quotation for EnergySaver**

Dear Sir,

We are pleased to submit you our quotation for reciprocating compressor for your perusal

SR NO.	MODEL OF ENERGEESAVER	PRICE IN RUPEES each
1	SES 45 FC (FOR 55KW MOTOR	Rs. 48000/- including vat Total for 6 no.Rs.2,88,000/-

Note: The saving is possible in this case only 3%.

TERMS AND CONDITION

1. PRICE FOR: PUNE
2. DELIVERY: 6 WEEKS
3. TRANSPOTAION: AT ACTUAL
4. INSURANCE: DONE BY PARTY
5. P&F: 2%
6. Warranty: 2years

Pankaj Pandey
Director

TECHNICAL SPECIFICATION S.W.H.S. COMPONENTS

1. ISI- SOLAR FLAT PLATE COLLECTOR

'ISI' - "Solchrome-" Collector		
1.	Type of Collector	Flat Plate Collector
2.	Collector dimensions	Length: 2040mm ± 10mm Width: 1040mm ± 10mm Thickness: 100mm ± 10mm
4.	**Absorber Area**	**2 Sq. Mtr.**
5.	Absorber Coating Absorptivity Emissivity Absorber thickness	Copper Solchrome Selective coated **"Fin & Tubes"** 93% ± 2% 12% ± 2% 0.12mm
6.	Collector Box Material	Powder Coated Extruded Aluminum,
	Size Thickness	100mm x 25mm x 25mm/25mm x 25mm 1.6mm /1.2mm
7.	Collector Back	0.46 Aluminum Sheet As per BIS.
	Copper Risers	**9 Nos.**
	Riser Thickness / O.D.	0.56mm / O.D:12.7mm
8.	Copper Header	02 Nos.
	Header Thickness / OD.	0.7mm / 25.4mm
9.	Method of bonding to absorber	100 % Continues Ultrasonic welding
10.	Insulation Material:	
	Material Thick. Of Bottom Insulation Thick. Of Side Insulation Density Thermal conductivity	**Rock wool** 50mm 25mm 48Kg./M3 0.33W/MK.
11.	Insulation Cover	Aluminium foil
12.	Details of Glazing	
	Material Thickness Transmitivity Sealing	Toughened Glass 4mm 85% U-Type EPDM Rubber, Silicone sealing
13.	Header Inlet/Outlet	Brass flanges
14.	Test Pressure	6Kg./Sq.Cms.
15.	Collector Weight	**42 Kgs.**
16.	Supporting Structure	M.S structure of 30 X 30 X 3 mm angle dully Epoxy painted
17	Flange gasket	CHAMPION/KLINGER "CAF"
18	Flange Bolts & Nut	SS 304
19	Connection	**Brass**

URMI/UCHCHL/10-11/260 **11-Oct-10**

URMI / UCHCHL / 10-11 / 260 **11-Oct-10**

2. Hot Water Storage Tank & Insulation:

	Material for Tank & Insulation:	**2000**
	Material	**M.S. Tank:4** mm thk & Descend 5mm thk
	Coating	Inside & Outside Epoxy Painted.
	Inlet & Out let	1½" BSP Coupling
	Insulation	100 mm thick. 50kg/Cu.mtr. Fiber glass wool
	Cladding	Aluminum sheet 24 SWG
	Working. Pressure	Hydraulically **5** kg/cm²

TERMS & CONDITIONS:

PRICE	FOR your site 1st floor of the building at Uchchal, Nr. Tapi.
TAX	5 % VAT, Transportation, lifting & installation charges are included. If any other charges applicable at the time of delivery will be charged extra.
PAYMENT	50 % advance with order.
	40 % before material dispatched.
	10 % after installation but within 10 days after delivery.
	State **B**ank of **I**ndia, Vatva Industrial Estate Branch, GIDC, Vatva, Ahmedabad-382445, Gujarat, India. **A/C. No. : 10278778933**,(IFS Code: SBIN0001754) **Pan No.** AAACU1488P, **GST**: 24075700657
DELIVERY	Within 20 days after receiving your confirm order & advance.
GUARANTEE	ONE year against manufacturing defect. We do not guarantee system damage due to nature cause, Glass breakage & Scale formation in the system.