

WEBINAR ORGANISED BY

SOLAR THERMAL FEDERATION OF INDIA (Shri. Jaydeep Malaviya)

and

GERMAN SOLAR ASSOCIATION ( Mr. Jan Knaack)

on

India's progress on solar Heat for Industrial Process  
(Case study of Gokul Dairy)  
Kolhapur- Maharashtra



# Implementation & results

- Completed installation of 6 Concentrated Solar Thermal (CST) projects with help of NDDDB at locations like Chilling Centres, Satellite Dairy, Automated Dairy at Kolhapur.

Location	CST Area	Net Investment (Millions)	Fuel used	Payback
Gokul Dairy	1350 m2	26.5	FO	4 – 5 years
Shirol Satellite	450 m2	9.1	Briquette	8 years
Tawarewadi CC	225 m2	5.6	FO	4 -5 years
Gogave CC	225 m2	5.6	FO	4 -5 years
Gadhinglaj CC	225 m2	5.4	FO	4 - 5 years
Bidri CC	225 m2	5.5	Briquette	8 years
<b>Total</b>	<b>2700 m2</b>	<b>57.6</b>		

Note:- Currently we are using coal instead of FO



# Gokul Dairy CST project

- Installed Capacity :- 3 million KCal/Day
- Commissioned : Sept 2018
- Hot Water generated : Max 80° C
- Aperture Area :- 1350 m<sup>2</sup>
- No. of collectors :- 450
- Net investment :- Rs. 26.5 Million
- Fuel saving : 1,15,385 Kg of FO/year



# Shirol Satellite Dairy CST project

- Installed Capacity :-  
1 million KCal/Day
- Aperture Area :-  
450 m<sup>2</sup>.
- No. of collectors :-  
150
- Cost of project :-  
Rs. 9.1 million
- Fuel saving of  
90,000 kg  
briquette / year





# Chilling Centre CST project

- Total 4 numbers of similar projects at each chilling center
- Capacity each :- 0.5 million KCal/Day
- Aperture Area of each project :- 225 m<sup>2</sup>.
- No. of collectors in each project:- 75
- Net investment for each project:- Rs. 5.6 million
- Fuel saving of 45000 kg of briquette / year for each.



# Achievements of CST project

Location	Equivalent steam generation (kg/day)
Gokul Dairy	4500
Shirol Satellite	1083
Tawarewadi CC	540
Gogave CC	540
Gadhinglaj CC	540
Bidri CC	540
<b>Total</b>	<b>7743</b>

- Real-time system performance.
- Total CO2 reduction of 3.7 Tons/day (6 projects)



# Funding

- Total Project Cost :- Rs. 57.6 Million
- NDDDB loan :- 70%
- Interest rate :- 5.5 %
- UNDP & MNRE subsidy :- 30% of project cost

Note: - Initially union spent 30% and subsidy received after completion of project



# Suggestions

- Supplier should operate the system for 1 year & should train the local operator during that period
- Solar collectors should be cleaned daily and record should be maintained
- Solar collectors installation should be at a sufficient height
- RO water for primary system and soft water for secondary system should be provided





# Recommendations

- Single window such as NDDDB should do paper work / documentation and technical consultancy for the project.
- Additional subsidy to be considered by MNRE i.e. 50 % of the project cost
- The subsidy of central & state government should go directly to EIA once the DPR and NDDDB clearance obtained
- Provide income tax benefit , reduction in GST, low interest rates to the end implementing agency as incentive



# Future Plans

## 1. Solar pumps for farmers

- Additional income for farmers
- Clean energy
- It will be implemented at village level dairy cooperatives
- We will implement it at village Awali feeder Shirgaon Dist.- Kolhapur, (Maharashtra)

## 2. Solar hot water for Bulk Milk Coolers

- Milk collection from 1250 villages
- BMC installed at 53 villages
- At one BMC (Vadgaon) solar hot water system is installed
- Project cost Rs. 0.3 million
- Saving of Rs. 50000 / Year
- Planning to install this system at all BMCs



# Conclusion

**Though high initial cost it gives clean  
– green energy and reduces carbon  
foot prints which helps to reduce  
adverse effects on the environment.**

