

# **A CASE OF RESIDENTIAL SOLAR HEAT WITH A MINI-COGENERATION BACK-UP SYSTEM**

By

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- Previous situation in the village:

All residential heat was produced from gas by regular gas burning heaters in each house.

- Now:

Residential heat comes from solar energy (20%) and a diesel engine exhaust heat (80%) in each house.

- Purpose

REDUCE NATIONAL CONSUMPTION OF FUEL  
Decrease pollution and greenhouse gases

## Energy Balance

per 100 kWht heat supplied to the residence

SOLAR	20
HEAT FROM CO-GEN.	80
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TOTAL	100 kWht
Electricity output	25 kWhe
	(sent to the grid)

23.8% generator efficiency  $(25/(80+25))$



All this is made possible due to:

the availability of a customer for thermal heat **close** to the electric generator.

and the existence of an **affordable** technology.

To conclude:

Use of solar heat by a residence requires an energy backup.

A mini co-generation backup may supply a plausible solution.

Application can be extended to commercial and public sectors