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Performed projects with TPF for solar water heating

Several national and European studies showed the relevance of TPF schemes to the promotion of large scale Energy Efficiency and Renewable Energy Systems

- capital intensive, substitution of "cheap energy"

Through the realisation of national projects, CRES has aquired valuable experience in the telemonitoring of large solar installations

> Two TPF projects for solar water heating have been performed in the industrial sector, with the active involvment of CRES (no such projects in the residential sector)

- Distillery
- Dairy Industry

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Dairy Industry- General data

- Large industry situated in Northern Greece
- Following the design study, a solar system of 730 m² of solar collectors, designed for the steam generator water preheating and hot water production for wasching machins were installed in the industry (on the buildings' roofs)

TPF contract involving 3 parties



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Dairy Industry- Technical data

Project Development: 3 phases

1st Phase

Preparation and Signing of the Contract between ESCO and the Industry

Call for tenders for the procurement of the equipment

Final project study

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2nd Phase

- Installation of the system
- Installation of the metering equipment
- Pilot operation of the system

3rd Phase

- Acceptance of the project
- Execution of measurements
- Corrections and fine tuning of the system
- Efficient operation of the system
- Final report

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Dairy Industry- Contract data

Three Contracts

Ist Contract : Agreement between ESCO and Industry

2nd Contract : Agreement between ESCO and System Producer

3rd Contract : Contract for Energy Auditing and System Maintenance

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Dairy Industry - 1st Contract's Main Articles

Scope of the Contract

ESCO will provide Energy from the Sun and will achieve Energy Efficiency with the equipment described in the final project study

Installation of the Equipment

- The installation of the equipment will be realised at ESCO's and Bank's expenses within the industry's premises
- The customer has the right to intervene on the choice of the equipment
- The customer has the obligation to facilitate the ESCO and to provide experienced stuff in order to incorporate the system with the existing mechanical equipment of the industry
- The system will remain at ESCO's dominance during the standing of the contract

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Dairy Industry - 1st Contract's Main Articles

System's Maintenance

- The preventively maintenance will be curried out by the customer according to ESCO's instructions
- The repair of the equipment will be curried out by the ESCO after notification to the customer. The customer has the obligation to inform the ESCO within 24 hours after the occurrence of any malfunction the system

System's Insurance

The customer has the obligation to insure the system against fire at his own expenses at an accredited insurance company. The insurance has to be valid during the standing of the contract



Dairy Industry - 1st Contract's Main Articles



Performed projects with TPF for solar water heating Dairy Industry - 1st Contract's Main Articles

- Sudget : ~ 180,000 €
- Duration : until pay-back
- ESCO/Bank will be paid through the solar bills, issued every 4 months through telemonitoring
- Payments will be based on 1997 prices
- Originally agreed price for the «solar kWh» ~ 0.03 € for heavy oil fuel. This price will be readjusted proportionally to heavy oil fuel price changes
- Prices will be renegotiated in the case of heavy oil replacement according to the lower calorific value and the prices relation of the two fuels
- Metering equipment will be installed by and at ESCO's expenses

Performed projects with TPF for solar water heating Dairy Industry - 1st Contract's Main Articles

Disagreements and other Fiscal Issues

- In cases of force majeure the obligations of the two sides will be postponed until the end of the events and within a period of 60 days
- Both sides they have the right to denounce the contract with prior notification to the other side in cases such as:

default of obligations without the possibility of correction

delayed payments, etc.

Contract Termination

- With the normal termination of the contract the equipment comes to the proprietorship of the client
- In the case of the contract denouncement the client has the obligation to buy the equipment at the real cost of the equipment subtracting the payments made from the client

Performed projects with TPF for solar water heating Dairy Industry - 1st Contract's Main Articles

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Conclusions

high potential for large solar water heating and energy efficient systems in Greece

no experience in voluntary agreements

TPF experience for single user/customer - not for domestic water heating

possible project continuation in sectors such as social housing