

# A new approach to concentrating solar plant (CSP) by ENEA

- ENEA objective
- ENEA technology innovations
- Archimede demonstrative solar plant
- Final remarks



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presented by Sergio La Motta

## ENEA objective

**To produce electricity by solar plant at high temperature (550°C) using molten salt.**

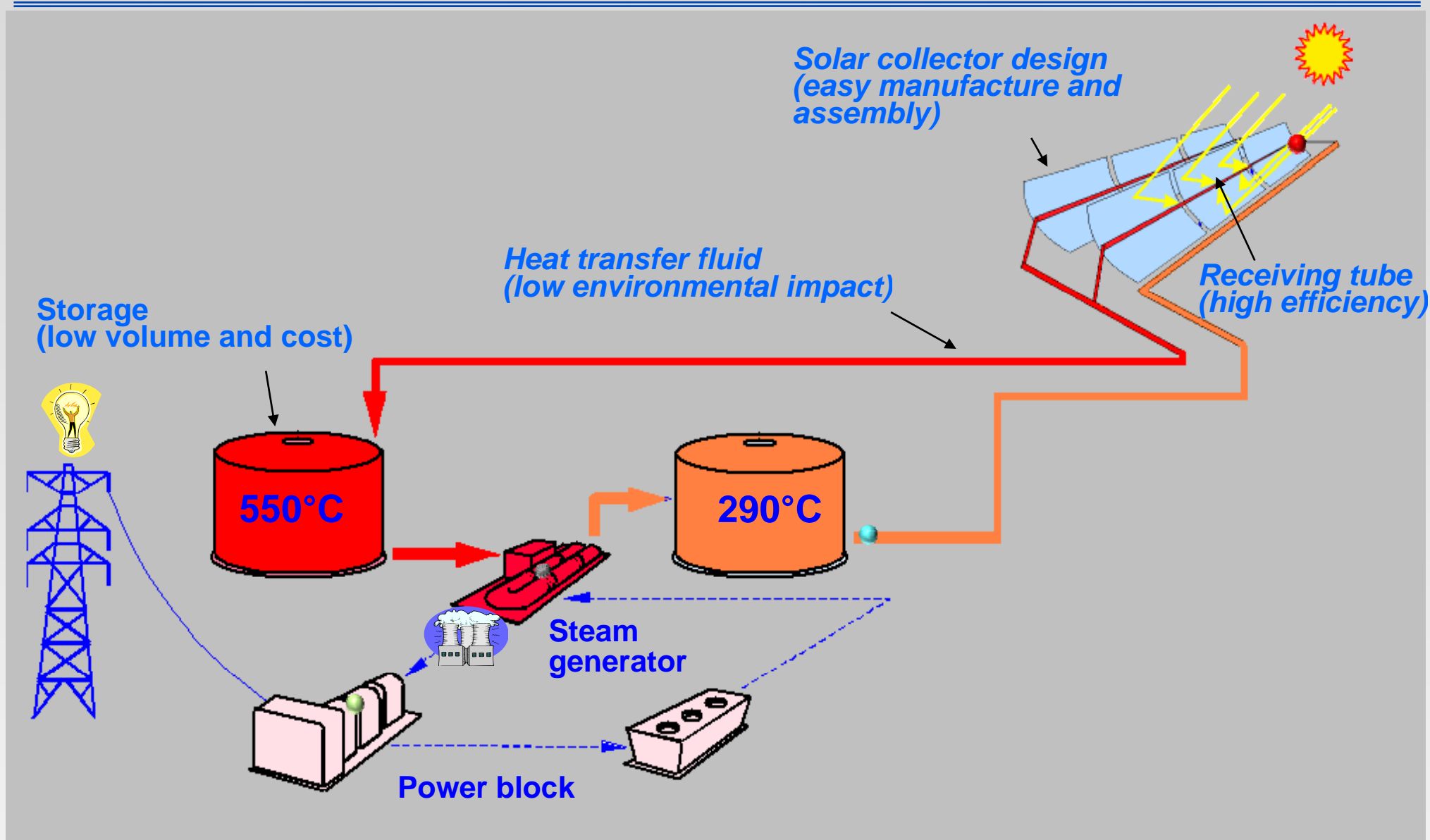


**the advantages are:**

- u Higher solar plant efficiency;**
- u Lower solar electricity cost;**
- u Higher storage efficiency;**
- u Integration with gas combine cycle plant.**



# ENEA technology innovation



# ENEA Roadmap: from labs to industrial demonstration (10 years)



ENEL Archimede 5 MWe

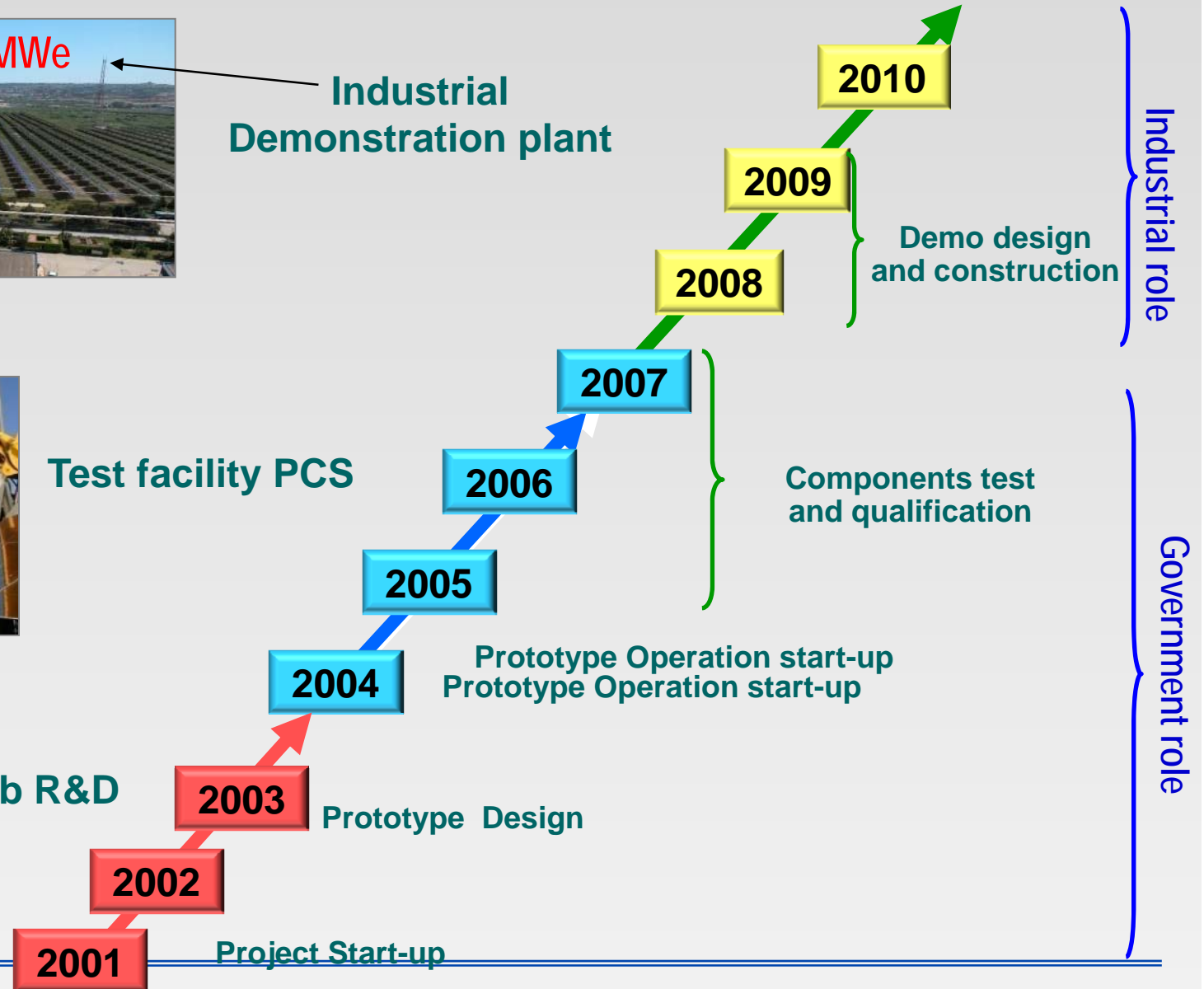
Industrial Demonstration plant



Test facility PCS



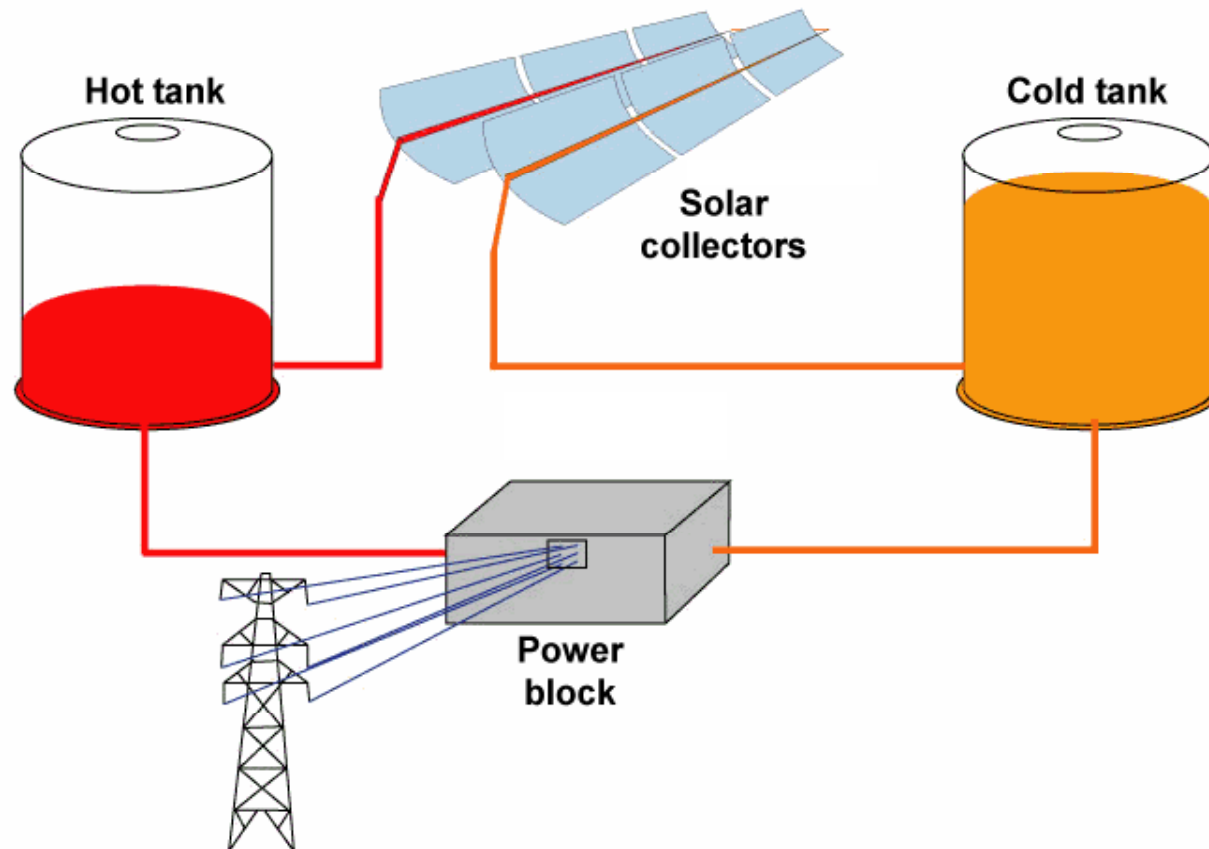
Lab R&D



# Storage

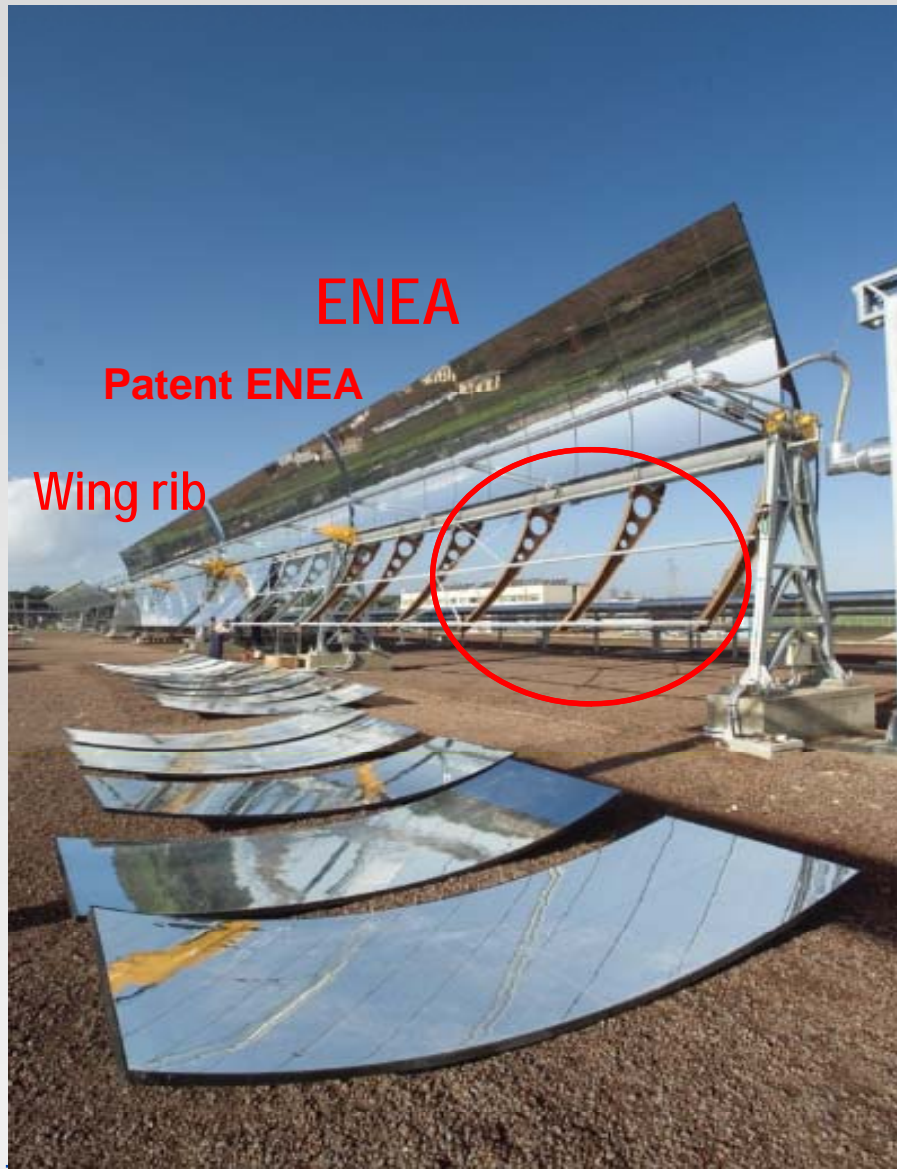
With  
sunshine

Temperature  
550 °C

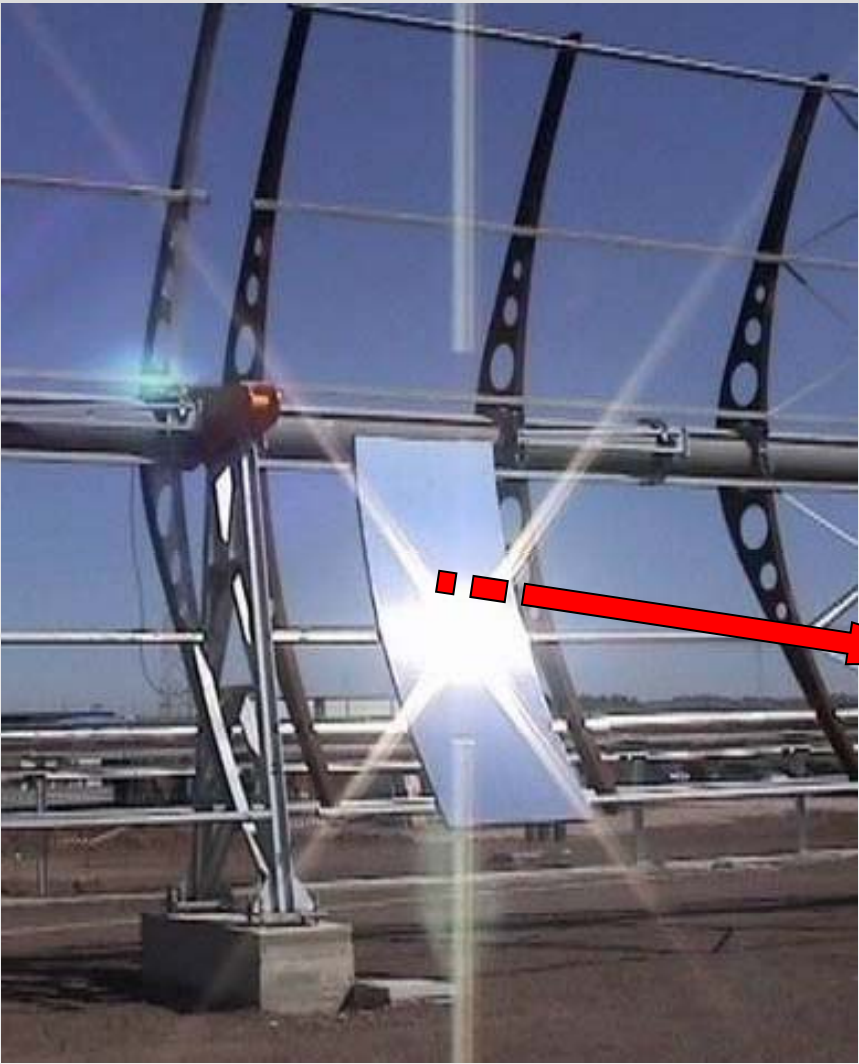


Temperature  
290 °C

# Technology innovation: support structure of solar collector



# Reflecting surface and tracking system



Patent ENEA

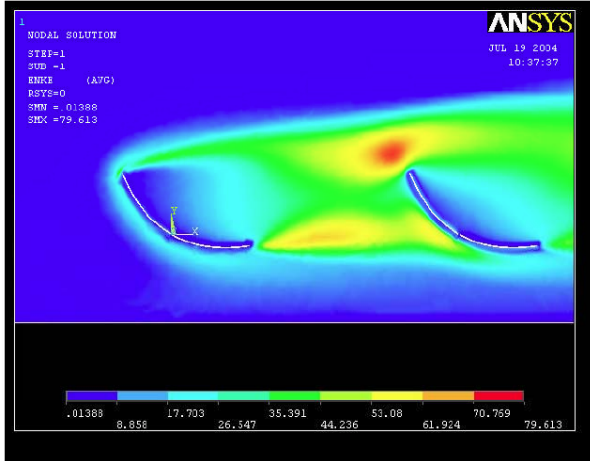
DIPLOMATIC

Tracking system



RONDA – REFLEX

Wind effect on collector

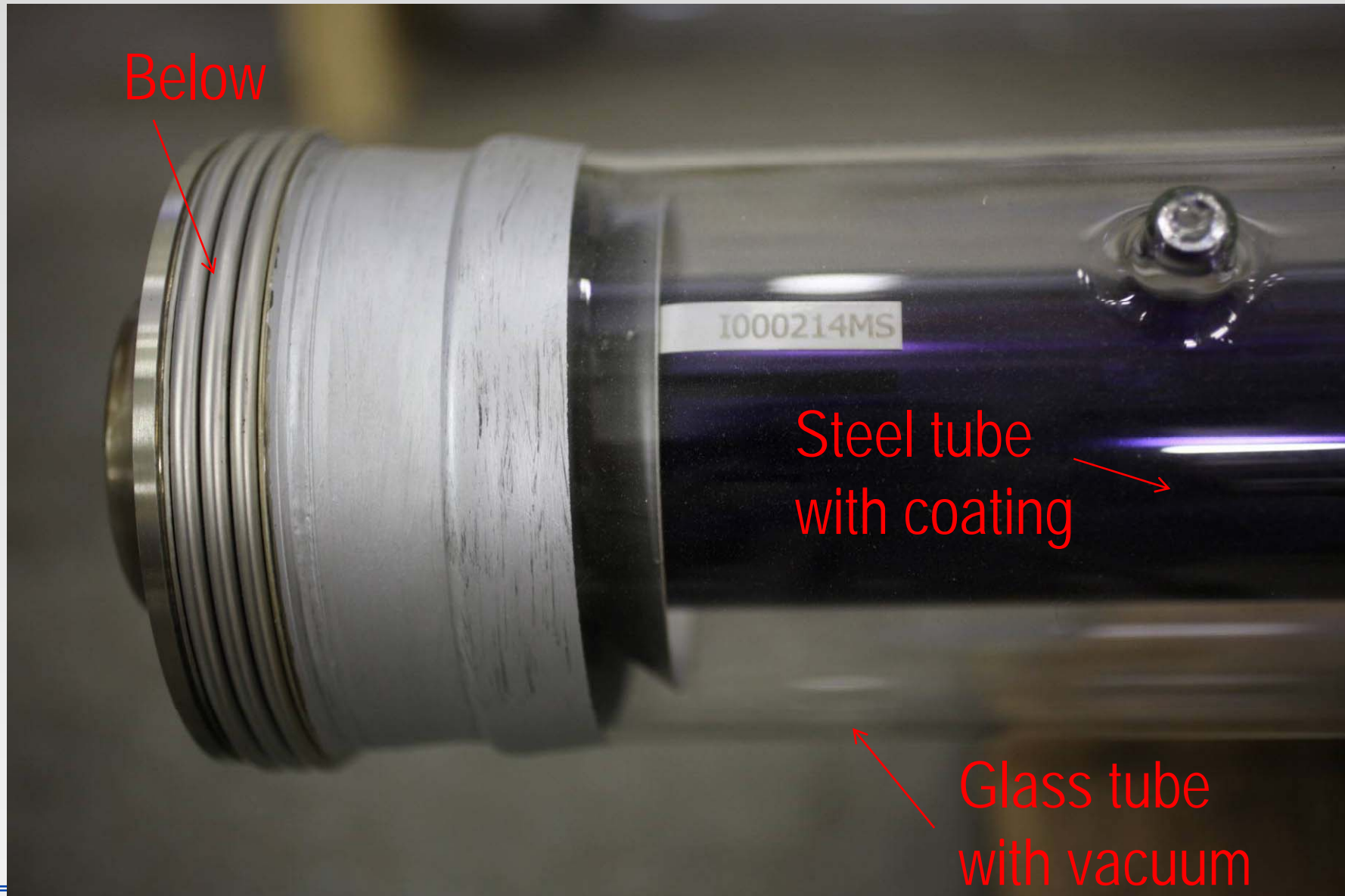


# Reflecting panel manufacturing





# Receiver tube



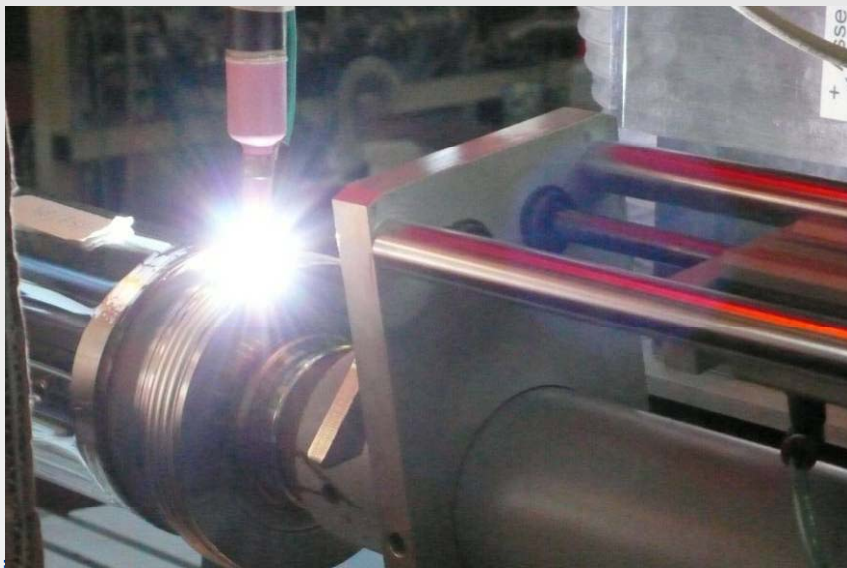
# Manufacturing of the receiver tubes



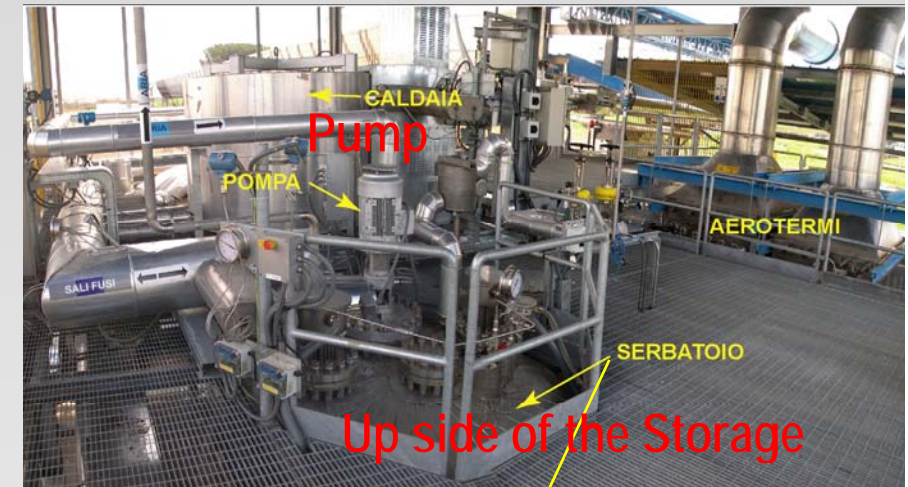
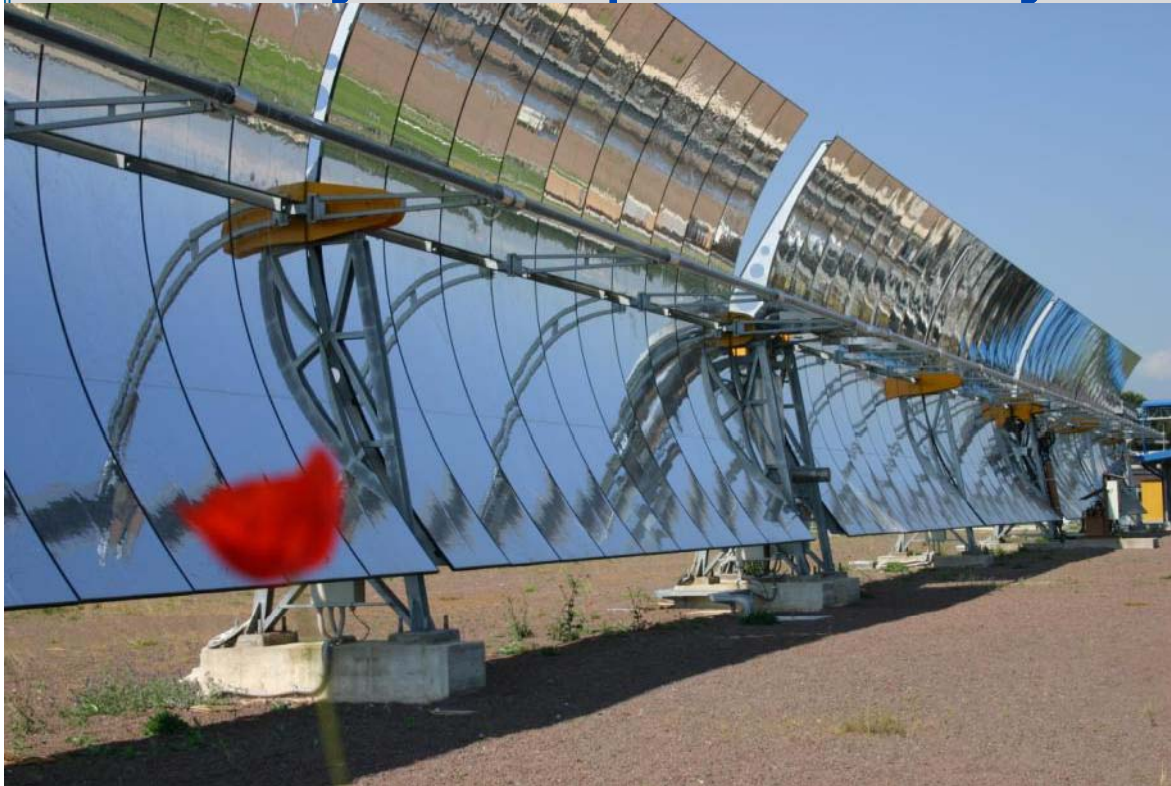
# Manufacturing process of the glass tube



## Glass coating



# Test facility for components and system qualification



ENEA Casaccia labs (Rome) - Started-up April 2004



Investment 5,43 M€

## “Archimede” project

- Owner ENEL (electrical utility)
- Technology and design ENEA
- Power 5 MWe
- Placed in Siracusa (Sicily)
- Storage 7 hours



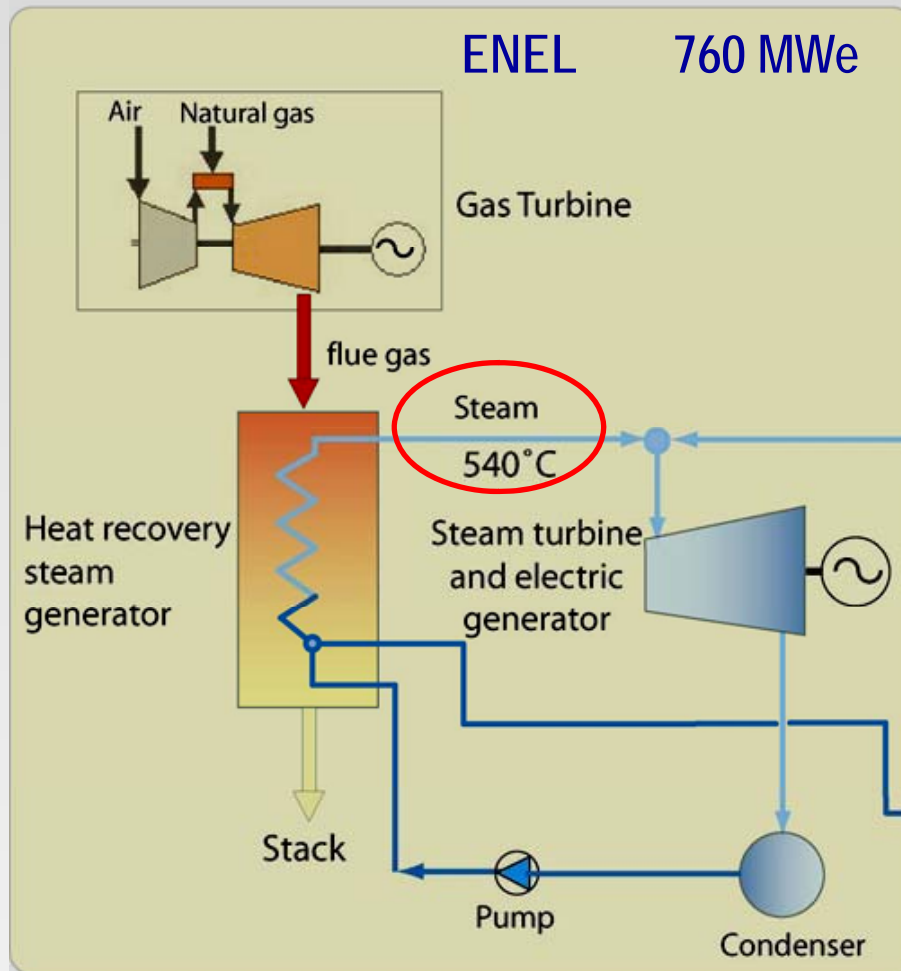
ENEL



# Archimede project is the integration of solar plant with gas combined plant

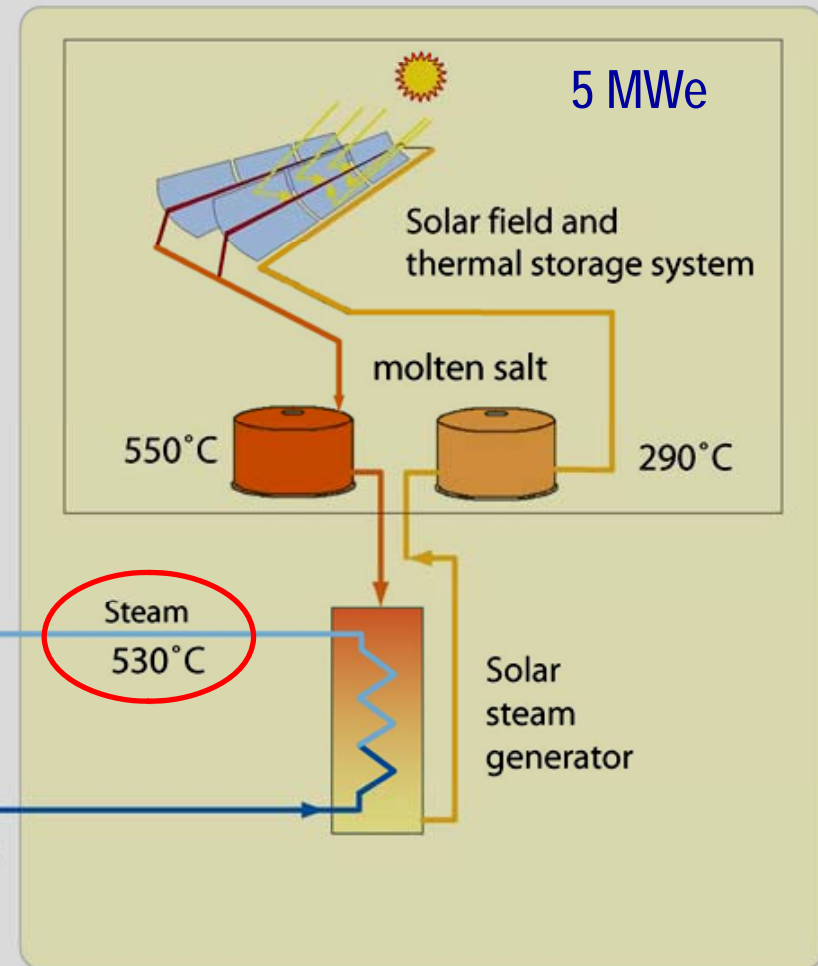
## Combined cycle

ENEL 760 MWe



## Solar plant

5 MWe



# Archimede collector assembly

