E-Cat Technologies

Opportunities for Business

What is the E-Cat Product?

– Industrial / Commercial

- Now
  - 1 MW water and low temp Steam
  - Maximum 99 °C water or 120 °C steam

    9000 L/ hr 1500 L/hr
  - Scaled up by combining modules
  - Potential for smaller units
  - Safety certified for Europe – CE mark
- Near Future
  - The release of the Hotcat – a new E-Cat running at up to 1200 °C
  - Expecting to see commercialisation of a low temperature electricity generator using energy from the E-Cat
  - Expecting to see the commercialisation of low temp/pressure de-salination plant using energy from the E-Cat

What is the E-Cat Product?

– Domestic 5-20kW

- Now
  - Under planning and certification
- Future
  - The release of the domestic unit 60°C
    - Depends on Safety certification
  - Specs to be confirmed closer to the date
  - Expect to produce both Hot Water AND Electricity

- The average “western style” house
  - Consumes approx 1-2 kW per hour, peaking at about 5 kW in any one hour

Industrial / commercial market

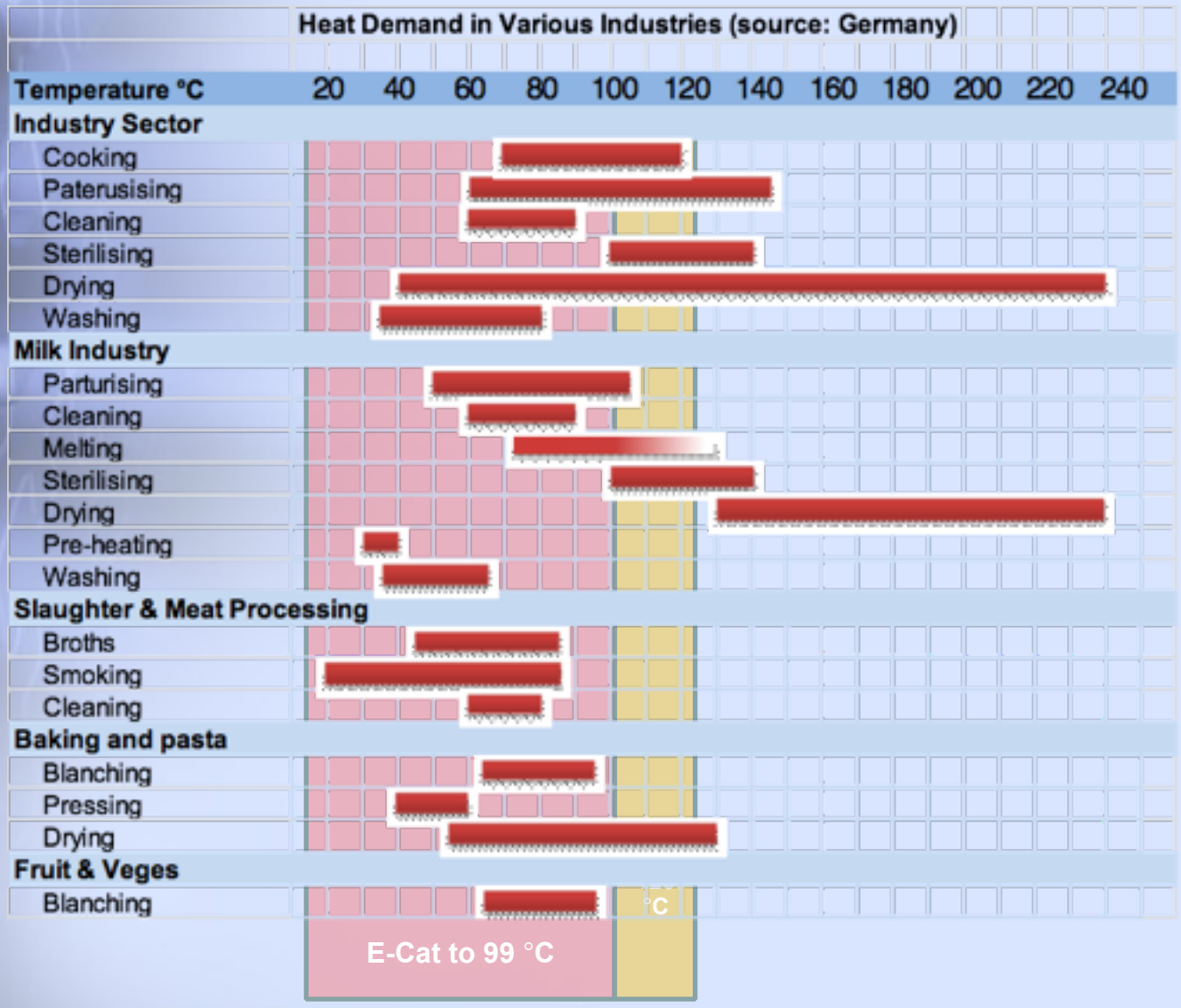
- Right now, the E-Cat 1MW is suitable for a huge range of industries.
- Most uses do not need more that 60 °C water, for Heating or Cooling.

- Examples
  - Process Industries
  - Hotels / Resorts
  - Hospital
  - General Heating / Cooling

Technical Explanation

- Heat is generated by "Cold fusion" or "Nuclear Low-energetic reactions" (LENR)
  - The technology is based on the invention / development of Andrea Rossi
  - It has been implemented industrially and is marketed by Leonardo Corporation by their licensees
  - E-Cat systems generate heat, possibly as a result of the fusion of hydrogen with nickel
    - In this exothermic process, nickel is transmuted into copper.
  - The cost of materials are 1/1000 of the costs of oil
  - The energy density is 100,000 times greater than oil
  - The reserves of the raw material (nickel) are enough for 10 billion years
  - ECat produce no emissions, no pollution and no noise.
  - One litre of nickel-hydrogen replaced 2 million gallons of oil

Process Industries



Hotels & Hospitals

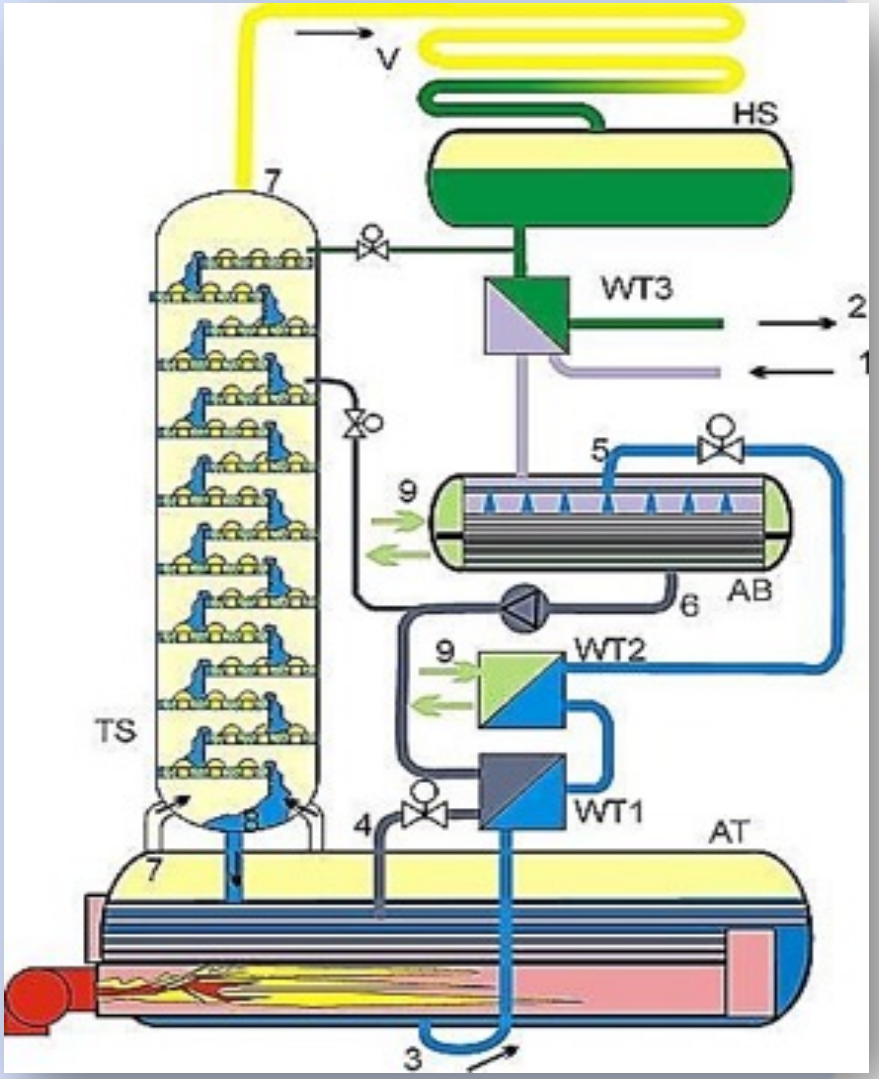
- Hotels and hospitals use Hotwater predominately
  - Showers/baths
  - General washing
  - Cleaning
- Hotels on average
  - use 47 litres water at 65 °C
  - Eg. A 466 room hotel needs approx 22,000 litres / day of 65 °C water (47 litres/room/day)
    (reference available)

Example Hotel Energy Demand

- Based on a sample 466 room hotel
  - Heat Demand 466,000 kWh (1677.6 GJ)
  - Natural Gas (466,000 kWh)
    - Gas @ $0.50 / MJ $838,800 p.a.
  - Natural Gas (268,000 kWh) + Solar (198,000 kWh)
    - Gas @ $0.50 / MJ $482,400 p.a
    - Solar @ $0.00 $0
    - Solar $300k capital cost depreciated over 15years
    - Solar depreciation $ 20,000 p.a.
    - Annual Op Cost $502,400 p.a.
  - E-Cat can reduce more than even Solar
    - Electricity for Operation 146 MWh p.a.
      - @ $0.20 / kWh $300,000 p.a.
    - E-Cat $1.5M Depreciation over 20 years
    - E-Cat Depreciation $75,000 p.a.
    - Carbon credits @ $6/CER $ 480 p.a.
    - Annual Op Cost $374,520 p.a.
    - **Carbon footprint** **Save 80 tonnes CO_2 p.a.**
    - Reliance on natural resources
    - Above figures are constantly updated

Cooling

- Heat can also be used for cooling
- Industrial Absorption chillers can be adapted to use the heat from the E-Cat



E-Cat would replace this furnace

Pictures

Industrial

Domestic (concept diagram)

ECAT 1MW Technical Data

All data provided below may be subject to change due to the ECATs rapid development. Technical specifications will continuously be updated when changes are made.

	Steam Production	Hot Water Production
Thermal Output Power	1 MW	1 MW
Electrical Input Power Peak	200 kW	200 kW
Electrical input Power Average	167 kW	167 kW
COP	6	6
Output Power Ranges	20 kW-1 MW	20 kW-1 MW
Modules	104	104
Power per Module	10kW	10kW
Water Pump brand	Various	Various
Water Pump Pressure	4 Bar	4 Bar
Water Pump Capacity	1500 kg/hr	9000 kg/hr
Water Pump Ranges	300-1500 kg/hr	1000-9000 kg/hr
Water Input Temperature	4-85 C	4-85 C
Water Output Temperature	100-120 C	50-99 C
Control Box Brand & Software	National Instruments	National Instruments
Fuel Cost	$1/MWhr	$1/MWhr
Recharge Cost	Included in O&M	Included in O&M
Recharge Frequency	2/year	2/year
Warranty	2 years	2 years
Estimated Lifespan	30 years	30 years
Price	USD$1.5M	USD$1.5M
Dimension	2.4×2.6x8m (approx)	2.4×2.6x8m (approx)

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