Recovering waste heat

Pitch Ducor Petrochemicals

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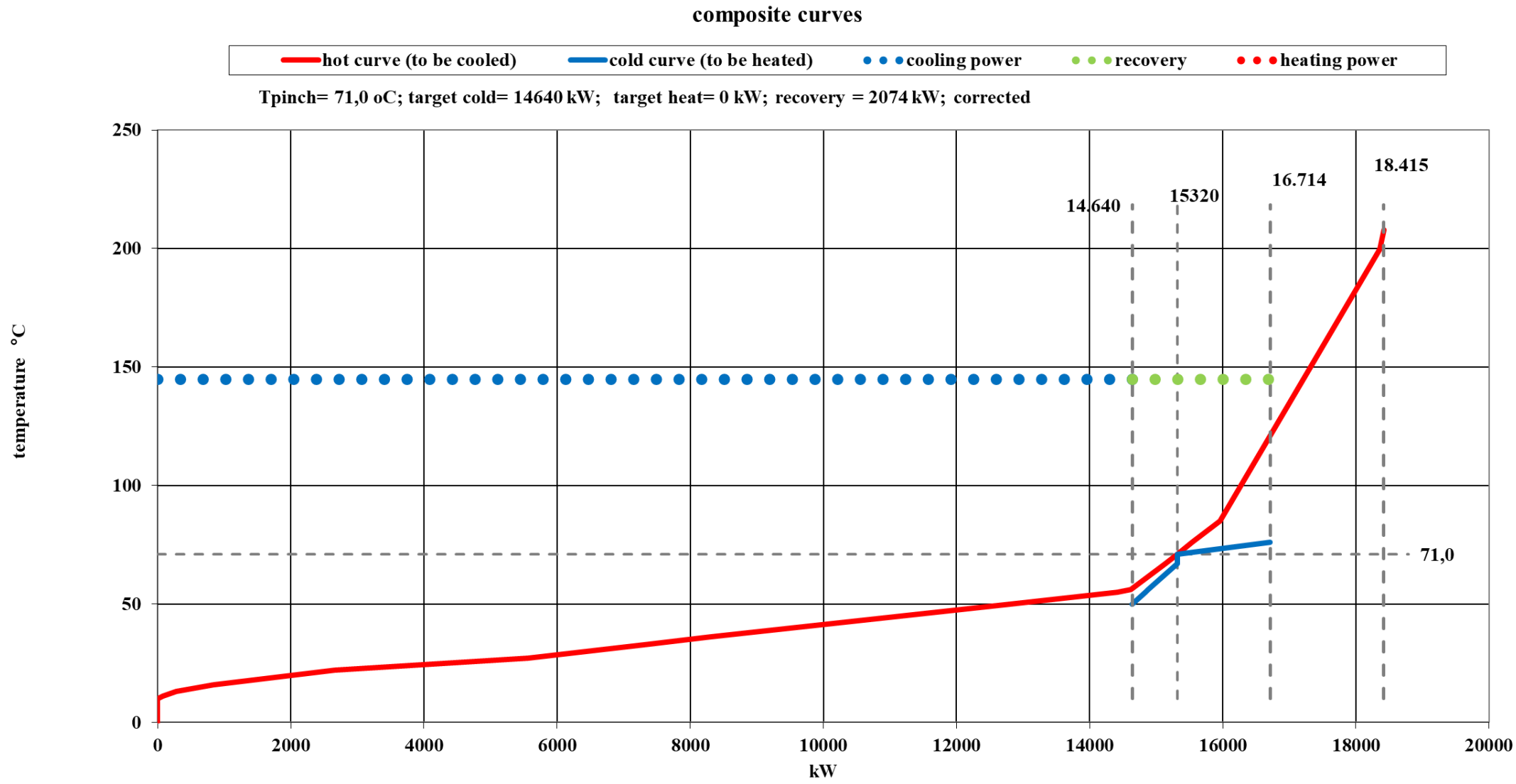
Pitch Ducor Petrochemicals

Recovering waste heat

- Site-wide more waste heat available than total heat demand
- Heat available at high temperature (220°C Granules/60°C CW)
- Heat/steam demand at around 90°C
  - Splitter reboiler: 1.4 MW (88->74°C/12 barg steam)
  - Propylene heater: 0.7 MW (49->67°C/4 barg steam)

Hot and cold streams



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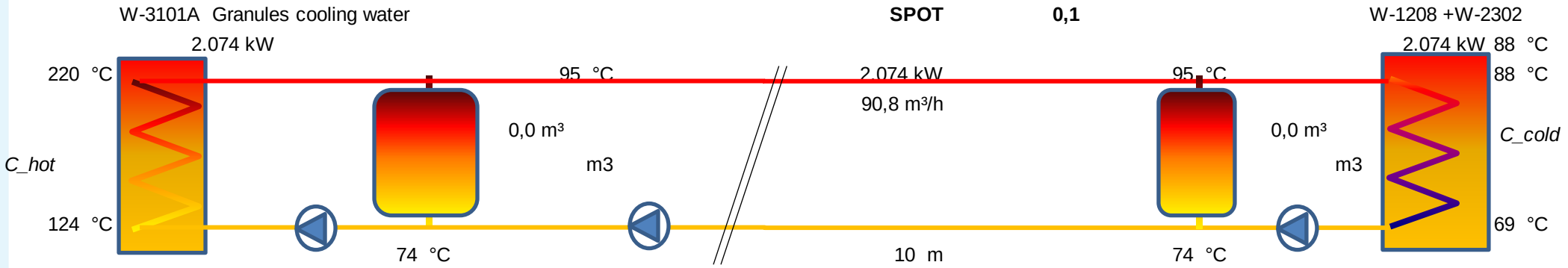
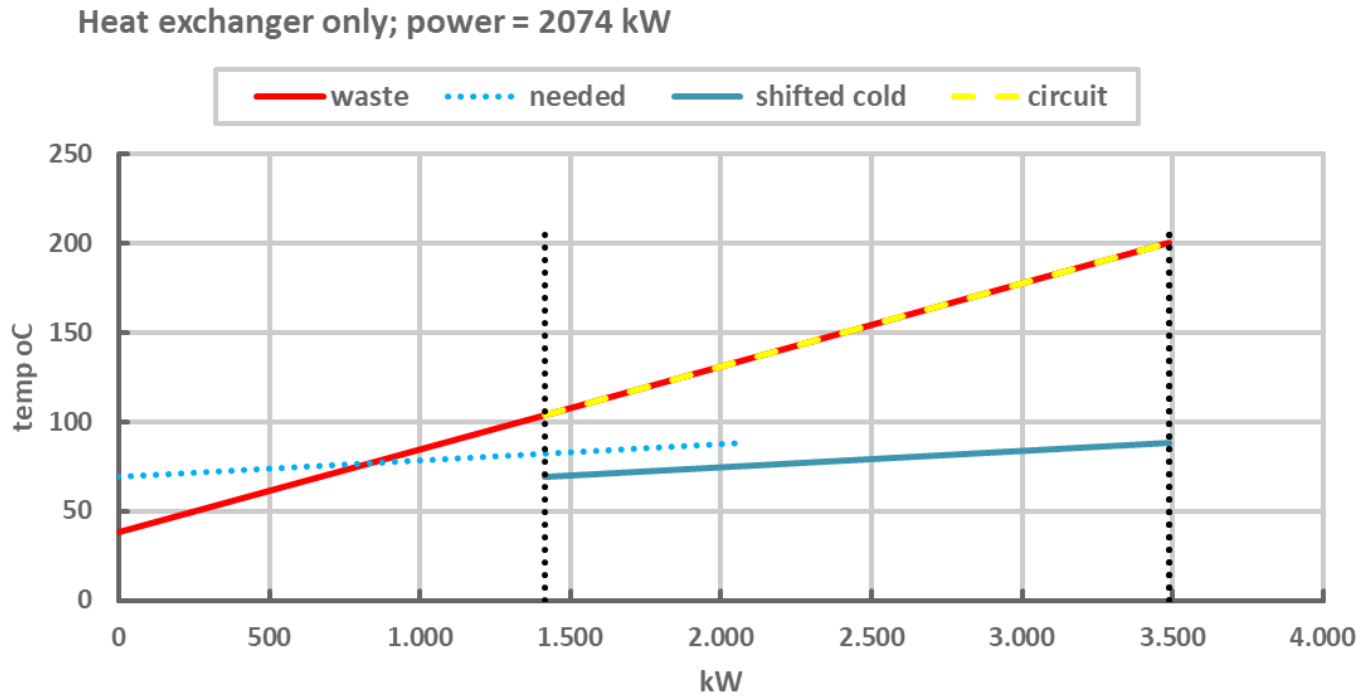
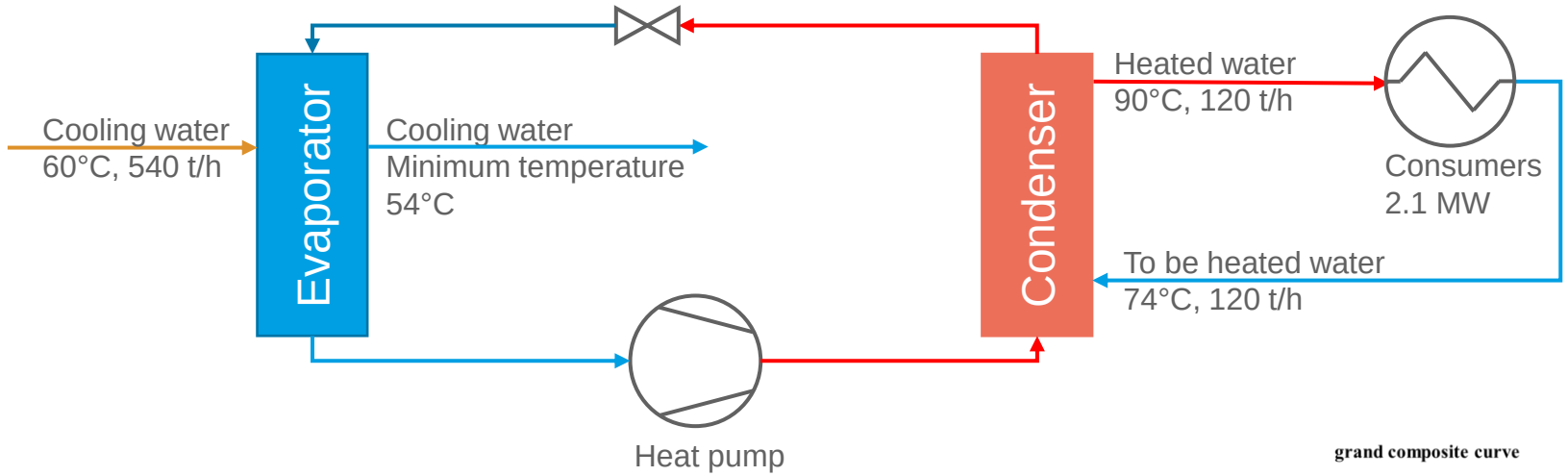
Direct heating with granules (3 lines)



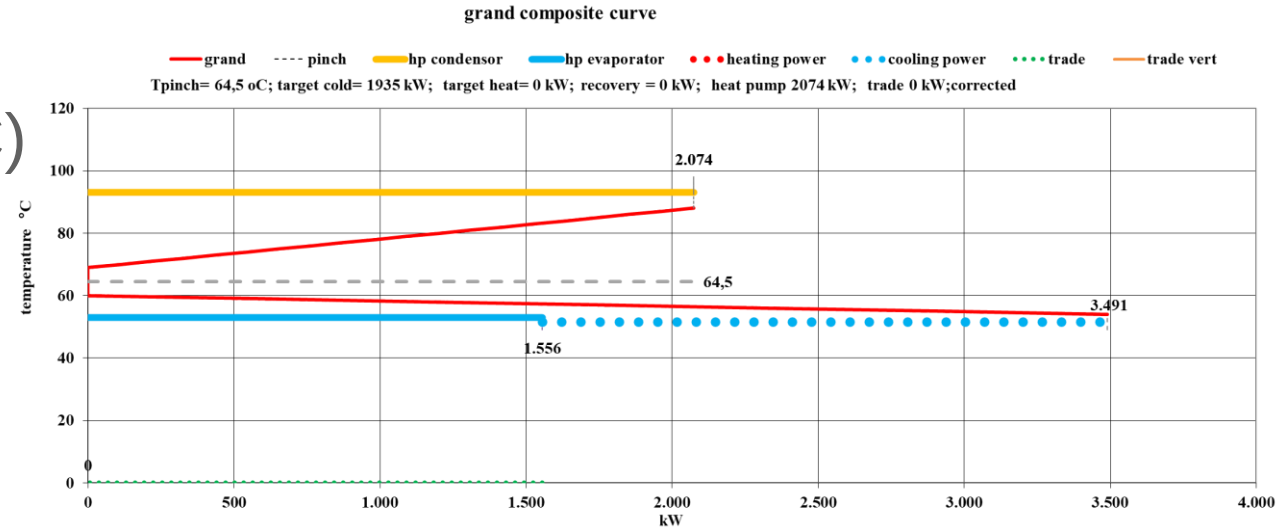
- Direct HX
- Granules cooling to 124°C
- 95°C hot water for:
  - W-1208 + W2302
- Very high COP



HT-Heat pump



- Generate hot water (74-93°C)
- HT-heat pump (2.1 MW)
- COP of 5.0
- CAPEX = 1.75 MM Euro
- Saving = 0.70 MM Euro/year



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Conclusions

- Ample waste heat available
- No fossil fuel required for heating
- Consider direct heat exchange with hot granules
- Next best is HT-Heat pump

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Energy Experts

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