

### Part 1: Low temperature TES in Industry



- CTES cold thermal energy storage
  - temperature range: from AC applications (20 °C) to low-temperature freezing of food (-60 °C)



# **Goals and advantages of implementing LTES**







#### Main objective:

**Develop the knowledge** required to implement affordable and efficient low-temperature PCM thermal energy storage (PCM-CTES) units for applications in the food industry.

**Forskningsrådet** 



PCM = Phase Change Materials (faseendringsmaterialer) CTES = Cold Thermal Energy Storage

PCM-STORE OF Storag

PCM-based low-temperature thermal energy storage for a more sustainable food industry

# **Activities**







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- Intro: How TES could benefit cold industrial processes
  - Kristina Norne Widell (SINTEF Ocean)
- Cold thermal energy storage for refrigeration systems: Current status and future perspectives
  - Håkon Selvnes (SINTEF Energy Research)
- A new validated model of PCM-pillow-plate heat exchanger to show the benefits of TES in any thermal system
  - Sven Fösterling (TLK-Thermo)
- Thermal energy storage in fish processing industry
  - Jan Petter Urke (MMC First Process)



Technology for a better society