MRC Epidemiology Unit | UNIVERSITY OF CAMBRIDGE

CASE STUDY : NORDIC SYSTEM AT THE BIO-REPOSITORY

BUILDING THE NORDIC SYSTEM

Pros

Built-in -80°C cabinets:

- larger capacity 2-2.5 x conventional freezer

Centralised cooling plant outside of the building:

- no heat produced inside
- cabinets connected in series, economy of scale

100% redundancy – sample safety:

- 2 independent cooling circuits operating at 50% capacity

24/7 external monitoring

Electricity consumption reduced by 30-70%

Cons

Built-in -80°C cabinets:

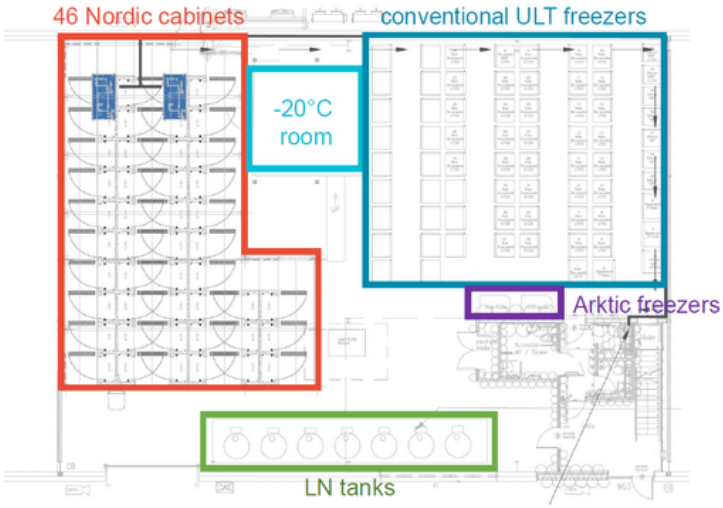
- dedicated space
- always ON

Initial infrastructure cost

Require a humidity-controlled environment

Lack of longevity data

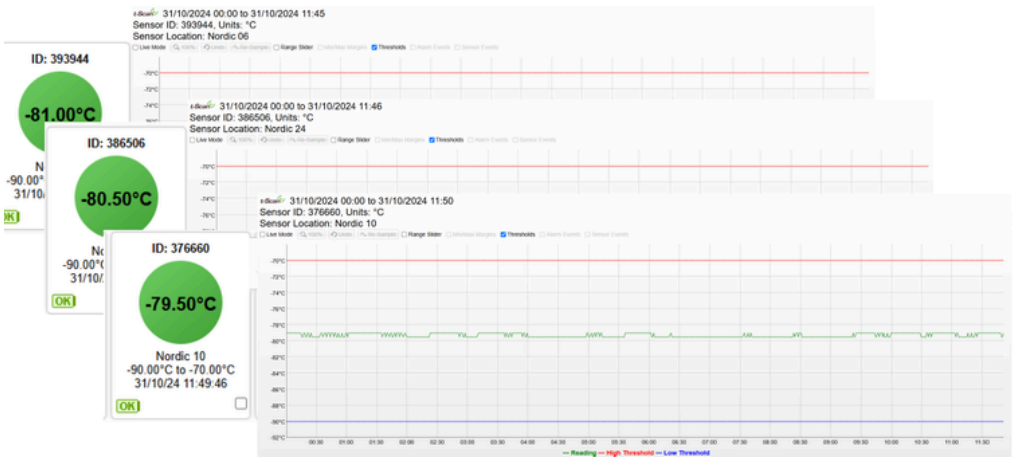
Effort/process needs to be put in place to ensure sample accessibility



BEFORE AND AFTER SOLUTIONS

CONVENTIONAL - 80 DEGREE FREEZERS TEMPERATURE STABILITY

NORDIC SYSTEM TEMPERATURE STABILITY



NORDIC SYSTEM POSITIVE OUTCOME

Predictions: 20-70% reduction

Reality:

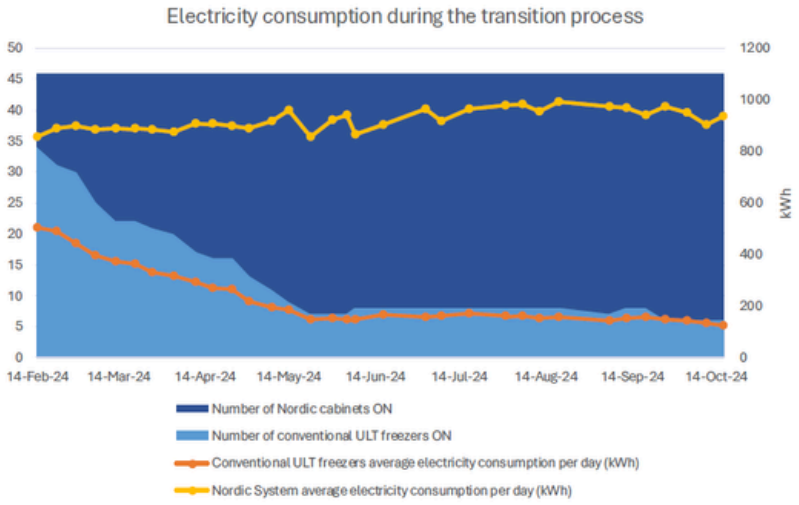
Nordic System = 923 kWh per day

ULT freezer = 18 kWh per day

1 Nordic cabinet = 2.43 conventional ULT freezers in volume

Nordic consumption for a volume equivalent to a conventional ULT freezer = 8.3 kWh

54 % reduction in electricity consumption for an equivalent capacity



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