



**NIA ENWL034**

# **Cool Runnings**

Progress Report

July 2026

## Version History

| Version | Date       | Author      | Status | Comments |
|---------|------------|-------------|--------|----------|
| 1.0     | 24/07/2026 | D Ainsworth | Final  |          |
|         |            |             |        |          |
|         |            |             |        |          |
|         |            |             |        |          |

## Review

| Name       | Role                         | Signature         |
|------------|------------------------------|-------------------|
| A Howard   | Innovation Programme Manager | <i>A J Howard</i> |
| G Paterson | Innovation PMO Manager       | <i>G Paterson</i> |
|            |                              |                   |

## Approval

| Name      | Role               | Signature & Date                |
|-----------|--------------------|---------------------------------|
| R Moulton | Head of Innovation | <i>R Moulton – 28 July 2026</i> |

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# Glossary of terms

| Acronym       | Description                    |
|---------------|--------------------------------|
| <b>BAU</b>    | Business as Usual              |
| <b>DNO</b>    | Distribution Network Operators |
| <b>HP</b>     | Heat Pumps                     |
| <b>SP ENW</b> | SP Electricity North West      |
|               |                                |
|               |                                |

# 1. Project fundamentals

|                                     |                                                                |
|-------------------------------------|----------------------------------------------------------------|
| <b>Project title</b>                | <i>Cool Runnings</i>                                           |
| <b>Project reference</b>            | <i>NIA_ENWL_034</i>                                            |
| <b>Funding licensee(s)</b>          | Electricity North West Limited                                 |
| <b>Project start date</b>           | August 2025                                                    |
| <b>Project duration</b>             | 0 years and 7 months<br>Updated July 2026: 1 year and 6 months |
| <b>Nominated project contact(s)</b> | Delroy Ainsworth                                               |

## 2. Project background

Cool Runnings will explore the technical and practical implementation of the Smart Heat Variable Transformer Rating method. The Smart Heat NIA project investigated different approaches to manage the impact of network overloads due to the increase in network demand caused by the uptake of heat pumps (HP). Cool Runnings will investigate the extent to which capacity released by applying variable ratings in distribution transformers, can support the additional load from HP uptake for various network designs (building type; transformer size, age, design) and ambient conditions. This phase of the project will develop an initial variable rating algorithm and define the laboratory testing required to prove it which will be conducted in future phases.

## 3. Project scope

This project will:

- Prove the technical capability of distribution transformers to support loading up to a calculated variable rating.
- Update and validate the Smart Heat Variable Rating approaches using experimental data and an understanding of the likely BAU implementation.
- Understand the work, tools, processes, and changes in thinking needed in ENWL and the other GB DNOs for BAU implementation, and the fit of this method alongside emerging new technologies and approaches.
- Scope and specify the required next steps, including the detailed scope for a Phase 2 project.

As a part of the Smart Heat NIA Final Project Report, a Cost Benefit Analysis (CBA) was conducted for the Smart Heat solutions which indicated that the Smart Heat Variable Rating solution has significant financial and carbon benefits over alternatives, including traditional reinforcement and alternative smart solutions.

The CBA (2022 figures) indicates that implementing the Variable Rating solution alone would provide an estimated financial benefit of £127.4m, as well as 30ktCO<sub>2</sub>e in carbon benefit above the traditional base case (current BAU), that is up to 2050 over the Electricity North West network region.

## 4. Objectives

The objective of this project is to scope out testing of distribution transformers, which will include definition of the test requirements and a detailed test plan.

- Scoping of Testing: develop written requirements, scope and deliverables for Distribution Transformer testing. This will include an exploration of transformer monitoring options, which builds on ENWL's initial investigations (from previous innovation projects), definition of test requirements and definition of detailed test plan. This will include a review of previous data to understand the baselining needed in order to develop variable rating equations.
- Develop Initial Variable Rating Method: Investigation into Variable Rating algorithm in advance of trial testing. Areas to understand is the quantity of data needed during initial testing to characterise the transformer into the algorithm. Another point to consider is the type of load profiles to apply during initial testing to acquire enough data to understand the relationships between hotspot and surface temperature.
- Develop initial template for Variable Rating Tool: Develop an initial template of what the Tool will look like.
- Initial Scoping of Tools and Process Changes: Initial view into how this process would integrate into BAU solution architecture.

## 5. Success criteria

- Detailed transformer testing plan
- Temperature measurement process established
- Initial Variable rating methodology established

## **6. Performance compared to the original project aims, objectives and success criteria**

Due to delays finalising the necessary innovation contracts, the project has yet to start. These contracts are in the final stages of negotiation, work will commence as soon as they are signed with the original project aims, objectives and success criteria unchanged.

## **7. Required modifications to the planned approach during the course of the project**

Due to delays finalising the necessary innovation contracts commencement is currently anticipated to be Spring/Summer 2026. These changes have been reflected in the PEA and updated in the Smarter Network Portal.

## **8. Lessons learned for future projects**

As the project has not started, there is no Lesson Learned for future projects to report.

## **9. Data access & quality details**

As the project has not started, there is no Data Access and Quality Details to report.

## **10. Foreground IPR**

As the project has not started, there is no Foreground IPR to report.

## **11. Standards documents**

As the project has not started, there is no Standards Documents to report.