

Wellington Multiple Trading Trial Report

January to June 2024

Summary Version

1. A detailed report has been provided to the Electricity Authority for the period 1 January to 30 June 2024, as a condition to the Code exemptions that allow the Wellington Multiple Trading trial to go ahead. This document provides a summary version of that report for general distribution.

Strategic Overview

2. Kāinga Ora and Ara Ake initially started the Wellington Multiple Trading Trial to support the effective deployment of solar panels on social housing with a view to reducing energy hardship for customers. This evolved into an industry trial that provides a first step towards independently trading electricity from multiple connection points in a home.
3. Kāinga Ora needed to gather revenue from the solar systems installed on its homes, while still giving customers access to the solar electricity and allowing them to buy the rest of the electricity they use from a retailer of their choice (maintaining their consumer rights). This trial provides a mechanism to do that.
4. This trial was specifically engineered to operate within the current electricity market processes except for a few exceptions. It required minimal changes to participants' existing processes and systems and no change to electricity market systems. Under trial, the methodology has proven to be effective and robust.
5. The trial demonstrates the benefits from making individual components within a consumer premises independently tradable, that is, a consumer can select an offer from a trader/s that provides the maximum value for each customer component or electrical device. Examples of individual components (electrical devices) may include static batteries, water heating, electric vehicles (charge and discharge), space heating or cooling, gifting of surplus electricity to a social retailer, etc.
6. While this technical solution is suitable for a trial involving a couple of hundred sites, it will require streamlining (for example changes to registry software) to enable smooth operation in the mass market.
7. This principle (MTR) may prove particularly crucial in enabling integration of distributed energy resources (DERs) such as solar panels, wind turbines, and energy storage systems, making energy systems more flexible and adaptive to fluctuating supply and demand.
8. However, implementing multiple trading into the industry will not be without its challenges. Regulatory frameworks, grid and network management, cybersecurity, electricity market integrity and new market design are critical areas that will require careful consideration and strategic planning. Addressing these challenges necessitates

collaboration between policymakers, technology providers, electricity market stakeholders and participants, investors and consumers.

- Multiple trading offers a promising pathway to unlocking value from a more resilient and sustainable energy future. As we navigate the complexities of this emerging market, strategic foresight and collaborative efforts will be key to unlocking its full potential and driving the next wave of innovation in the energy sector.

Introduction

Background

- Kainga Ora has installed 200 solar installations on some of its Wellington homes. Occupants use the solar electricity generated during the day at no charge and can be supplied by whichever retailer they choose.
- Excess solar electricity (i.e. not consumed on site and exported to the grid) is traded by Paua to the People on behalf of Kainga Ora. The funds accumulate to Kāinga Ora and will be used to support the ongoing delivery of solar to Kāinga Ora customers and future energy hardship initiatives.
- The Wellington Multiple Trading trial was initiated in 2023 by Kāinga Ora and Ara Ake with participation by Wellington Electricity, Bluecurrent, Intellihub and Paua to the People.
- The trial is testing a robust process that enables multiple traders at a single point of connection (ICP¹) while testing impacts on other market participants and market processes and systems.
- To support the project, the Electricity Authority approved Code exemptions and a technical and non-controversial Code amendment in July 2023. The Authority approved more code exemptions in April 2024. The regulatory exemptions enable:
 - Wellington Electricity to create a second ICP identifier² at the ICP for each home. The primary ICP identifier records the consumption while the secondary ICP identifier records the excess generation export.
 - The metering equipment provider to separate the Import and Export electricity flows, only sending the relevant data to each retailer at each ICP identifier.
 - The retailer, Paua to the People to manage the generation ICP identifier.

¹ An ICP is the physical point of connection of a customer's electrical installation to a local or embedded network

² An ICP identifier is a unique code that is used in the registry to identify records that apply at an ICP, and identifies the relevant participant responsible for the network, electricity purchases and sales, and the provision of metering

15. This trial is an opportunity to learn more about how multiple traders can supply a single point of connection with the complexity of multiple customers, to identify any possible unintended consequences and highlight any potential Code or market system and process changes.
16. The trial went live in late April 2024.

Progress Update

Current State

17. A total of 163 homes were live in the trial at the end of June 2024 with another 17 expected to come into the trial in July- August 2024.
18. Note that only sites with Bluecurrent meters have been included in the trial so far. This is because most of the meters in the trial candidate sites are Bluecurrent meters.

Staged Implementation Process

19. The trial implementation has been staged to manage risk and to ensure that workloads are manageable. The first stage involved five homes, which were taken through the market reconciliation process before the next stage went live. This was a risk mitigation strategy to ensure that the process was working as expected before bringing more homes into the trial. Subsequent stages have ranged from 20 to 40 homes per stage.

Retailer Engagement

20. Consumption retailers (the retailers serving the consumption ICP at each trial site) were engaged throughout the project, including an on-line briefing held on 16 April 2024. A consumption retailer fact sheet was also distributed at this time (see Appendix 1). The primary (consumption) retailers were given advance notice and visibility of their ICPs that are to be included in the trial via email.

Customer Engagement

21. Engagement with Kāinga Ora customers started when they first agreed to have the solar panels installed on their homes. The agreement signed by each customer before the solar panels were installed included a statement noting that Kainga Ora planned to use the credits from electricity exported from their home to help other customers. This statement has also been included in an Appendix added to tenancy agreements.
22. For the trial implementation, an information pack was sent out to each customer, including a brochure explaining the trial and copies of the original agreements the customer had signed.

23. The trial has been referred to as the “Share the Sunshine” trial when communicating with customers. This makes it easier for customers to understand by using non-technical language and conveys the idea that they’re part of something that benefits other social housing customers in the longer term.

24. The response from most customers has been positive. Typical comments gathered through our customer engagement include:

It’s pretty cool to gift excess electricity, because if you are saving each month, and there is anything sitting there, why not use this to help other struggling families?

I think that is a great idea. I have no problem with this.

I don’t see any reason why not to help another family that is going through a tough time. I am saving heaps. So why not help another family.

Issues and Notifications

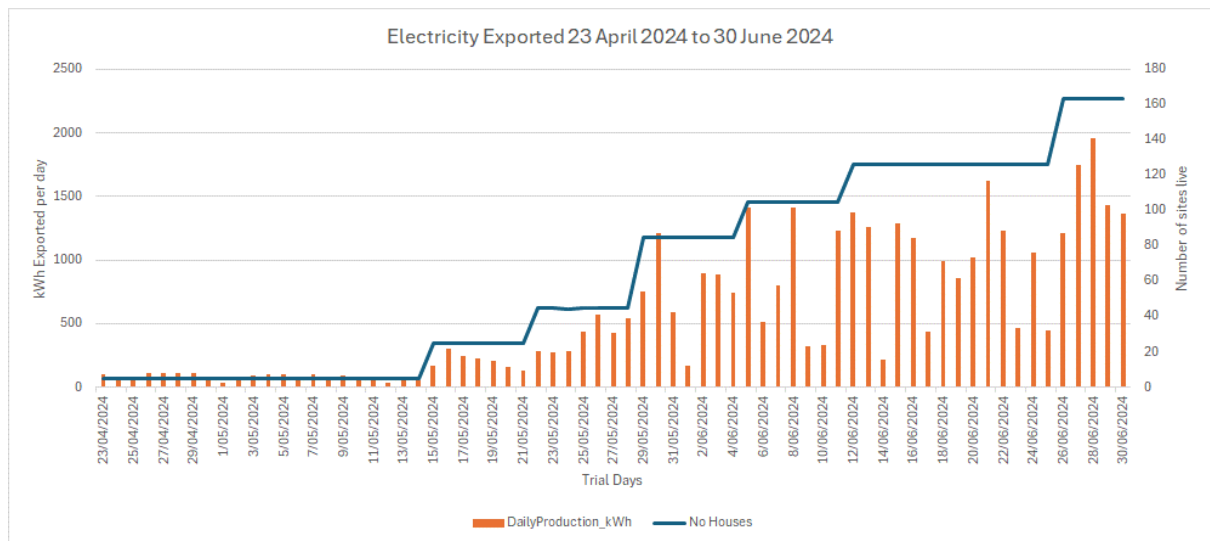
25. The Electricity Authority has required reporting on issues raised and notifications received during this period.

26. All issues raised were well within the remit of the implementation team and could be resolved to allow the trial to go live as expected.

27. No notifications have been received by any of the participants in this trial.

Results

28. As of 30 June 2024, the Wellington Multiple Trading trial had been live for 69 days. 163 properties were brought into the trial in batches, as illustrated in the figure below.



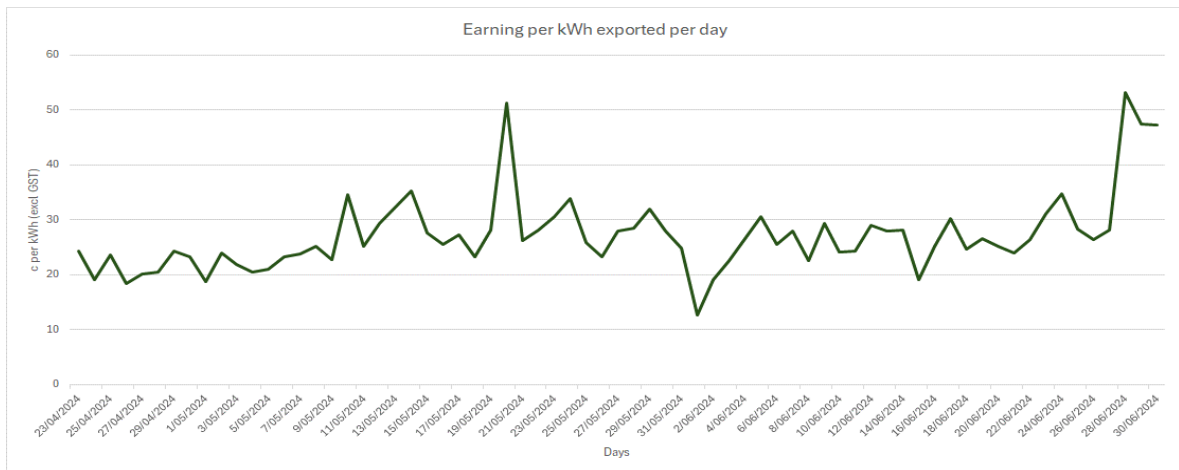
29. As can be seen from the graph above, the trial has not reached a steady state. Most of the homes have been brought into the trial in the final month of the reporting period and most of the generation has been in winter. Future reports will provide a more comprehensive picture of the full value of this trial.

30. The trial had generated a total of 18 MWh exported to the grid as of 30 June 2024.

31. Self-consumption during these winter months was 53%. Historically, annual self-consumption for Kāinga Ora homes in the Wellington region is 31.6%³. This is because the amount of electricity exported increases in summer when solar generation increases. Daily earnings may increase during the summer, as the increase in generation should outweigh the reduction in spot market prices.

32. The average earning rate per kWh exported from our homes over this period was 29c/kWh. Future rates will depend on market prices.

33. The variability in the average price achieved per kWh exported per day is illustrated below.



³ Cohort of 49 homes with meters for period 1 June 2023 to 30 May 2024

Informing Market Adoption

Informing Code Changes

34. This report is required to provide information on “any information that may inform consideration of potential future Code changes, specific to the trial, or to multiple trading relationships more widely.”
35. At this stage, we have identified that a regulatory solution will be required for:
- a. Amendments in line with the exemptions granted.
 - b. Allocation of meter lease fees.
 - c. Provisions that prevent the primary retailer from having a sole contract with the MEP that will prevent a secondary retailer gaining access to the data or meter or reporting functionality.
 - d. Provisions that will allow the secondary retailer to be able to request amendments to the metering configuration should it be required.
 - e. Amendments to the registry to enable:
 - i. The network to manage and track ICPs with duplicate ICP identifiers.
 - ii. Indication of the ICP identifier that has connection and disconnection rights.
 - iii. Capability for the duplicate ICP identifier to be updated at the same time as the consumption ICP identifier.

Cost Structures and Recovery

36. It is important to note that there will be real costs to participants if multiple trading were adopted more widely in the market. There would be costs to change individual participants’ systems to allow the use of these relationships. It is difficult to quantify what these costs could be without knowing what the final format of these types of arrangements would be within the Code and registry.
37. Cost structures and cost recovery will need to be addressed with all participants before this concept can be adopted more widely.
38. Note that by its nature, the set-up costs for a trial are higher per unit than would be expected if the concept were adopted more widely into business-as-usual processes. Participants have absorbed these costs for the shared benefit from collaborative learnings from the trial outcomes.

Concern raised by Retailers

39. Some retailers raised a concern that the wrong ICP identifier could be selected during the retailer switching process, as there is nothing in the registry to proactively prevent this from happening.
40. The process that is in place for the trial, is that if a generation ICP is selected in error for a switch, Paua to the People will send back a response file to the retailer stating “unauthorised switch” accompanied by an email explaining and noting the consumption ICP.
41. No switch requests have come through to Paua to the People since the start of this pilot.
42. Another concern raised by one retailer is the need to prevent accidental disconnections which could put vulnerable and medically dependent customers at risk. Paua to the People have responded to this concern by noting that Code exemptions do not allow them to request any actions regarding meters in the trial and their system cannot raise requests for these meters.

Lessons Learnt

43. The amount of collaboration and coordination necessary to implement a trial involving multiple organisations can not be underestimated. This included:
 - Obtaining commitment to the trial from senior leaders in participating organisations and maintaining senior oversight through regular Steering Group meetings.
 - Ara Ake providing financial support and resources, including their energy sector knowledge and network to help facilitate this trial.
 - Bringing the implementation team, key technical and operational staff from each organisation, together for an in-person workshop kick started the planning process. This planning process was completed during regular weekly on-line meetings over the following months.
 - Core operational staff from each organisation all actively involved was critical to success.
 - To ensure compliance and a shared understanding, a detailed instruction was developed outlining the process to bring ICPs into the trial, manage them in the trial and to remove them from the trial.
 - End-to-end testing using the UAT Registry allowed the project to have confidence that the process was both robust and achievable.

- Clear communications and open channels between interested participants were vital to keeping the project on track.
 - Communications staff from each organisation, plus the Electricity Authority, need to input to and agree on a shared Communications Plan, including key messages and approach.
44. More work is required to understand the true costs to participants if this were to be adopted more widely:
- Feedback from Wellington Electricity has identified that a significant amount of manual work is required to keep the registry compliant.
 - Jade Software provided Kāinga Ora with operational requirements for integrating this “light version” of multiple trading into the registry in June 2022. The proposed changes to the registry involve the introduction of parent-child relationships between ICPs and were assessed as being “minimal and unintrusive”. However, the impact of these changes on participants systems and administrative costs have not been assessed.

In Summary

45. The solution developed to support this trial has been a useful proof of concept for the MTR relationship working in a practical demonstration with Kāinga Ora. There is potential to develop the regulatory settings further for a more streamlined process for enabling further multiple trading relationships between customers, networks, retailers/aggregators and metering system service providers.

Appendix 1 - Information for Retailers Factsheet