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DIGITAL ENERGY

MY ENERGY MARKETPLACE (MEM)

Lessons Learnt Report No. 3

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PROJECT PARTNERS



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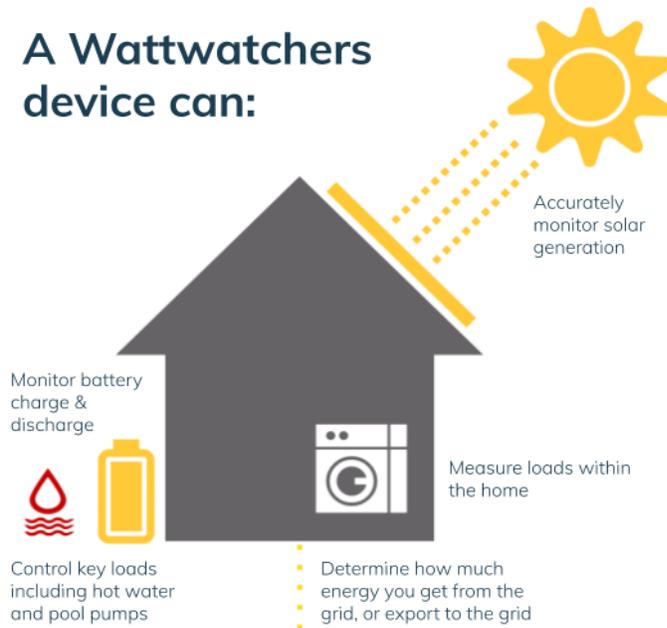
Overview of the project

The My Energy Marketplace (MEM) project, led by Wattwatchers Digital Energy and running over three years (2019 to 2022), has reached its half-way point. The MEM is exploring a data-driven model for engaging and empowering electricity consumers to be active participants in the emerging digital-and-distributed energy system in Australia.

In particular, the MEM project focuses on residential and small business consumers, plus schools and school communities. The MEM project has now deployed smart energy management solutions to over 400 households and small businesses and 44 schools. Data is also being processed for 100 smart meters to demonstrate how data from non-Wattwatchers devices integrates into the MEM. These continue to build on the momentum from the initial pilots and demonstrations, towards the full project deployment targets of 5,000 homes and small businesses, 250 schools and 1,500 non-Wattwatchers devices.

The MEM deals mainly with data collected from devices that consumers can control themselves, and that are often associated with energy assets owned by consumers—such as solar and battery system inverters and ‘smart devices’ like Wattwatchers’ monitoring and control products. Core issues for deploying such solutions at consumer sites include upfront and ongoing costs, installation of physical equipment, and considerations of consumer data rights.

A Wattwatchers device can:



Which unlocks services potential



Key MEM activities

The highlight activities undertaken in this milestone period have been:

- Continued development and user-testing of the mydata.energy mobile application, publicly released for Apple iOS and Google Android. The current publicly available version of the app is 1.2.0.
- A major new feature, budgeting, has been under active development in this milestone for release in v1.3.0 of the app, which is in final deployment stages and will be released week commencing 10 May 2021.
- Installation of over 230 new devices across residential, small business and school sites.
- Onboarding of 100 smart meter devices from an innovative market metering services provider to meet the requirements for non-Wattwatchers device data in the MEM.
- Revision of the project budget and rollout plan in preparation for this Milestone 3 report and a formal minor variation request and in the lead up to the Stage Gate Review process.

- Further evolution of the MEM Data Advisory Panel (DAP) to provide expert and independent guidance to Wattwatchers including a review of the role and activities of the DAP, and support required from them, in the next 12 months.
- Continued collaboration with key project partners e.g. Accurassi (tariff data integration), Solar Schools (energy and education), and the ANU Battery Storage and Grid Integration Program (3-year PhD student project focused on energy data-related analysis and related services).
- A major update for the Wattwatchers Privacy Policy for the MEM and wider use (currently drafted and working towards finalisation).
- Channel partner recruitment and development, including early deployment trials and more extensive roll-outs with engaged individuals, community groups, business programs, commercial solar installers, electrical contractors, niche energy retailers and others.

Lessons learnt and key reflections

Key lessons emerging from the MEM are being tracked as the project progresses, and are updated and expanded on in each six-monthly Lessons Learnt Report (of which this is the third instalment).

Legal and Governance

Who 'owns' data is a complex question, but greater 'control' can be enabled

Wattwatchers' original objective through the MEM was for consumers to 'own' their energy data. We learned through legal advice in the early stages of the MEM, however, that in broad terms copyright law considers the entity that generates data as the 'owner.'

As Wattwatchers provides the sole means of access to most of the data being made available through the MEM for both our service users and to third parties, this means Wattwatchers 'owns' the data generated by our devices in legal terms. Thus our revised objective is to maximise consumers' 'control' of their data.

The development of the **mydata.energy** app strongly reflects this revised objective. The effectiveness of consumer 'control' will be further tested in the second half of the MEM as the app's 'Marketplace' features take shape, allowing consumers to accept or reject use of their energy data and personal information by third parties in real time.

Consumer data rights and protections

Privacy, security and who gets access to customers' data are core 'consumer data rights' being explored in this project. Participants in the MEM agree to the sharing of non-personally identifying data for the three-year duration of the project, and also agree to receive offers of services, rewards and other opportunities through the app.

An emerging issue for the MEM is how to provide anonymised access to data via our existing tools, such as the standard Dashboard web portal and API, where certain methods of device configuration and management could inadvertently expose personal information that is

associated with devices. For example, where the device labels used by some partners as part of their management processes for installation include personal information.

This has required diligence by the Wattwatchers team to ensure that this metadata is updated to ensure any identifying data from the device is removed before providing access to third parties in a de-identified way.

We also recognise that the risk of re-identification remains when there is only a small pool of devices, and/or when particular sites have noteworthy characteristics (i.e. a large energy consumer in a small local geography). Our Data Governance Framework provides guidance on managing this risk, but we are also engaging with members of our Data Advisory Panel to identify and employ methods for avoiding re-identification and improve our processes and toolset accordingly.

Forming and running an independent project advisory group

The MEM Data Advisory Panel (DAP) has proven to be very valuable to the Wattwatchers project team, and also to ARENA itself. The project's ARENA delegate, Adrian Rule, attends DAP meetings as an observer and has indicated to the advisory panel members that ARENA is interested in seeing similar bodies being engaged on projects other than the MEM.

Important lessons have emerged during the first year of the DAP, especially in regard to the importance of striking a workable balance between 'governance' requirements and responsibilities, and a more creative, flexible and less formal 'advisory' role.

The DAP was formed with a quite detailed set of governance requirements in its Terms of Reference (ToR), based on an approach originally proposed by Wattwatchers and then refined by ARENA as part of the formal funding agreement for the MEM.

Some of the ToR' wording raised concerns with advisory panel members—who had agreed to participate on a voluntary basis without remuneration—during the early meetings of the DAP.

A core issue was whether the DAP was required to formally 'endorse' key project materials such as the MEM customer Terms and Conditions or Data Governance Framework, or whether they were only meant to 'advise' or 'guide' the MEM project based on the different areas of expertise and experience of panel members.

This issue was compounded by the volume and detail of documents that needed to be reviewed by the DAP members in early meetings. This meant, for example, that individual DAP members were being asked to deal with more technical documents such as the Information Security Policy (ISP) which were perceived by some members as outside of their areas of expertise and experience.

During 2020, ARENA and DAP members agreed to modest changes to the ToR that more clearly defined the advisory or guiding role that the DAP was meant to play. At the end of 2020, the DAP members and the Wattwatchers team agreed to reshape the DAP engagement process to maximise the advisory contributions and reduce governance-driven demands on the panel members.

The style of meetings and the materials prepared in support of the DAP's advisory role were redesigned via a working session with a subgroup of DAP members and the Wattwatchers MEM team in February 2021. These changes have been implemented for the first meeting of the DAP for 2021, held on March 24, with positive outcomes.

These learnings and recommendations have also been provided as feedback to ARENA via the observer delegate to help improve the areas of emphasis in future projects and encourage participation.

It also has been recognised that recruiting for the DAP, which currently has two vacancies out of a maximum of nine (9) panel members, is affected by the 'time and resource poor' realities for people working in the energy consumer advocacy space. This has prompted discussion, including with the ARENA observer, about making allowance for remuneration of advisory panel members in project budgets—especially where ARENA wants to use such panels more widely across its project portfolio.

Social and Customer

Tariff comparison learnings

We have noted that while customers are interested in the retail tariff comparison features in the application, 'follow through' to actually switch to a different energy retailer via the app has been rare to date. Our early user testing highlighted a number of concerns and potential

barriers to uptake of this feature, which seem to be borne out by app feature usage metrics (see the *MEM Applications* section later in this document).

For example, testers viewed the panel-based offer, with a limited number of participating retailers rather than a 'whole of market' offer, with a degree of scepticism, which also created some distrust of the comparison results. Many testers indicated they would carry out additional research outside of the app before making a switch decision.

The current inability to leverage real-time data for time-of-use (ToU) tariff comparison has also been highlighted by community groups as a key limitation. Negative feedback on the panel model has also been reinforced by a number of community groups.

The inclusion of tariff comparison features within the app has also proven to be a barrier to a number of commercial and community rollout partners. For example, where a potential partner had existing 'comparison + switching' arrangements, or where a group had established arrangements with a particular retailer where the overall value proposition to the customer is not necessarily reflected in a purely cost-driven tariff comparison (e.g. a community group that sources energy from locally-managed generation capacity).

This, alongside user feedback of an expectation of a more 'guided' process to work out how to use energy data to save money, has led us to expand our vision for the Save section. This allows us to hide the tariff comparison feature for users that sign up via select channel partners. This transition will continue into future milestone periods, with budgeting features scheduled for release in May 2021, and the addition of more general data-powered "tips" on how to use the app to achieve savings planned for later this year.

Removal of the tariff comparison feature (with the associated bill upload) means we have implemented support for a manual tariff entry process. This is something that project partner Accurassi has trialled previously, and their experience suggests is likely to introduce inaccurate data entry by users. We will be evaluating this feature via further user testing and will keep a close eye on its effectiveness in future milestones.

Social and community housing

The MEM project is now seeking greater exposure to a range of user groups, including the social housing sector, to better understand relevant issues through the eyes of occupants,

providers, installers and third-party data users. This will include targeted recruitment into the MEM's ongoing user testing process.

One learning identified during the early stages of this expansion—specifically from the social and community housing space—is that community housing occupants are particularly sensitive to issues related to data privacy, security and sharing. This is often due to poor past experiences and a sense of being 'over researched.' In addition, some of the organisations that serve such groups have expressed concern about the potential for presentation of financially inappropriate offers in the app 'Marketplace'—whether by misuse or non-use of the data available. For example, presenting expensive offers, or offers that would not result in the advertised savings. This in turn raises questions of whether the Marketplace may need to be managed in terms of what offers are visible to users that meet specific criteria (i.e. those that are identified in some way that are in financial distress, or at risk of being so).

More widely, Wattwatchers has learned through the MEM that getting the balance right between security and privacy on one hand, and access to and portability and shareability of data on the other, is a dynamic process with no 'one-size-fits-all' solution. Thus flexibility needs to be built into energy management software solutions.

Activating channel partners for scale

The project implementation plan emphasised relationships with community groups as early channel partners—i.e. offering subsidised smart energy solutions via these groups, where the group would promote and manage aspects of the installation of MEM devices.

This channel has been slow to develop. In some cases, this is due to groups, often volunteer-run, lacking capacity to execute or make decisions quickly. In others, this has been due to scepticism and distrust of the immediate opportunity the MEM project presents, as a result of bad past experiences with others who have engaged this channel. For example, where groups have been "burnt" embarking on unsuccessful community-targeted initiatives with partners who haven't delivered to expectations.

In the early stages of the MEM project, as we were ramping up our systems and supporting materials, scepticism was sometimes prompted by a lack of immediately available product, price comparisons, materials, sales tools (e.g. online shop) and the like. This led to us having to provide assurances that the offer was "real," and rapidly create materials, sign-up forms etc.

to demonstrate the validity, and manage the logistics, of the offer before we could proceed to engage with the groups' membership base.

Concerns around vendor lock-in (i.e. only Wattwatchers providing the product) have prompted some to seek expressions of interest from other vendors to ensure a balanced presentation of options to their constituents. This has at times slowed decision making, or otherwise impacted our efforts to activate and provide value via this channel, as the MEM offer is quite unique.

There have of course been exceptions where we've leveraged synergies with other projects for early successes, particularly with highly engaged community groups with the resources and momentum to 'just make it happen.'

Given that up-front cost and installation are key barriers to widespread residential deployment of smart energy devices that operate independently of utility metering systems, participant recruitment remains a core focus for the MEM team. Especially now that we have exhausted supply of the initial 100% subsidised devices, the up-front cost for a fully installed system is substantial, which presents additional challenges to those already highlighted in this report.

Currently the MEM is focusing on enlisting larger-scale channel partners, rather than on making individual consumer sales through promotion-centric partnerships. The more prospective areas for channel partner recruitment include:

- Solar and storage installers
- Community energy initiatives
- Progressive energy retailers
- Research projects
- Government programs

This shift in focus has shown promising early signs, and we are in the process of activating a number of such partners leading into the next Milestone 4.

COVID-19

Societally, digital engagement with online tools and material has been broadly accepted across the disruption caused by the public health response to COVID-19. Some community and environmental groups, however, have not been able to mobilise as well as others in the absence of face-to-face events. Such events allow two-way communication and networking with larger numbers of people who may prefer not to engage through digital technologies.

One lesson learnt is to ensure there is a range of materials available before and after digital events, and to make these available with recordings to members of the community who were unavailable or unable to access the material during the digital event. We continue to ramp up our online 'tool set' to better support this requirement moving forward.

Disruption from COVID-19 also meant we weren't in a position to fully test "direct to customer" price points, positioning and value proposition with early customers leveraging the \$0 stock, as originally intended. This makes it challenging given cost-sensitivity as we move forward (see next section).

Financial

Cost sensitivity

Customer sensitivity to upfront cost has been further demonstrated during this milestone period, coinciding with the switch from the initial small round of \$0 packages (i.e. introductory 100% subsidised offer) to the larger pool of \$399+GST packages (50% subsidised).

In analysing our sales approach, the MEM team has shifted the emphasis of messaging from being about the ARENA project itself (i.e. My Energy Marketplace), to 'selling' the immediately available product benefits in a more 'commercial' orientation (i.e. discounted smart energy management solutions with an app).

Our scale rollout partner approach is also reflective of this approach, where some or all of the up-front cost to the end customer is defrayed.

Retrofitting is a higher-cost option

As anticipated at the outset of the project, the barriers to retrofitting solutions at customer household and small business sites are high. The call-out and job cost of an electrician having to make a special visit are significant in relation to the overall value of the package.

We have noted in situations where a retrofit is undertaken, they are often further compounded by around half of retro-fit installations not having enough space available in the switchboard to install the Wattwatchers devices. This then requires an additional surface mount enclosure to be installed which increases the average cost of the rollout, which is often borne by the customer.

In contrast, there are distinct advantages associated with installing alongside other major energy upgrades, especially rooftop solar. Or, alternatively, incorporating smart energy devices at new-build sites when the main electrical installation work is being carried out.

Our emphasis on scale channel partners who are installing these options is one response to this challenge.

Technical

Non-Wattwatchers devices

The MEM project requires data from non-Wattwatchers devices to understand how these third parties would integrate into the marketplace. The initial expectations were that this data would come, at least in part, from smart metering providers.

Early in the project, a small number of metering providers were approached who immediately deferred to retailers (in part as a result of the structural relationships in the industry). It was quickly evident that it would be difficult to build a value proposition for retailers who themselves often already have app and web portal options, as well as holding reservations about the tariff comparison features provided in our app.

We have engaged one forward thinking smart meter provider who was interested in enhancing their offering with circuit level data and other telemetry generated by a Wattwatchers device installed at the same site.

Data from solar and battery inverters has been identified as another clear opportunity, as inverter generated data, including battery information (charge + discharge, state of charge etc.) is difficult or impossible to access using current transformer measurements alone (the core technology underpinning Wattwatchers' energy monitoring devices). Other operational data would also be valuable to some providers—for example fault and other diagnostic information—that isn't always available. For example, for inverters that don't have a stable and reliable internet connection (either due to reliance on home-owner managed WiFi or internet connectivity being an "optional" extra that is not always installed).

Integration with solar and battery inverter data via API was considered, but often inverters don't collect or make available all the data that we need to provide app services. Lastly, as is the case with retailers, the value proposition for inverter providers is also impacted by many having some form of existing app or web portal already in place.

Thus, accessing inverter data would, in many cases, require a Wattwatchers device to be installed alongside the non-Wattwatchers device (in this case, the inverter). This has resulted in a proposal to ARENA to allow for this scenario where we believe this is in keeping with the spirit and intent of the project Agreement, but provides additional opportunities for us to integrate a wider range of devices into the MEM framework.

Installation accuracy

Data usage by our project partners has identified some misconfigured devices, which in some cases is a result of the physical installation. Through our early MEM project experience, we have found that a more in-depth onboarding process for installers increases the proportion of successfully installed devices. We are also improving our toolset for both on-site and remote review of installations to further reduce these errors.

Commensurate with broader industry experience, the MEM rollout is encountering particular challenges with complex installs, including polyphase systems (e.g. 2-phase and 3-phase), and with various configurations of solar and battery systems. We are improving our documentation and installer onboarding processes, and adding features to our on-site installation app to address some of these issues. To date, the number of complex installations represents around 20% of sites and is within range of our expectations.

In moving to a scale rollout-partner model, we note that the more directly a channel partner controls the electrical contractor work, the better. Installation processes that are indirectly managed by a channel partner appear to be more susceptible to communications breakdowns and misinterpretations that result in installation issues.

Site layout factors can require an extra device

On-the-ground factors mean that the standard MEM installation of a single device per site to cover the main grid connection, solar if relevant, and other major loads does not always work in practice.

Customers sometimes install solar systems on a structure that is separate from the main dwelling—e.g. a garage or shed—that has its own electrical sub-board. This is more prevalent in regional and remote areas than in urban areas in our experience.

This requires at least two devices to be installed—one in the main switchboard at the grid connection point, and one in the solar sub-board—in order to provide the full picture of grid import/export and solar self-consumption to both the customer, and to data recipients in a data-sharing scenario. This increases the number of devices that may be required to be funded by either the customer or the project. This is an example of where customer funding of the additional device or devices significant enough that it is likely to not be accepted, and thus may result in the installation not proceeding.

Regulatory

South Australia solar regulations changes impacts

The rapid adoption of the new solar inverter remote disconnection regulations in South Australia from September 2020 disrupted a number of our customers and planned orders as businesses responded to the industry changes and new functionality from Solar Inverter manufacturers.

In particular, one large key customer had committed to installation of over 100 MEM packages, originally planned to be completed before the last Milestone. This initial rollout was first delayed, and has subsequently not been expanded to the larger volume order originally anticipated. This was due in part to changes to their business strategy that adopted some of

the rapidly developed features from solar inverters manufacturers in response to the changing regulatory landscape.

The lesson has been to scale up with a broad range of partners in a wide range of jurisdictional domains as early as possible in the project to mitigate the potential to lose a major rollout partner early in the project.

MEM Applications

Smartphone application

Application uptake

The mobile application has been downloaded by around 70% of the installed customer base. Given one of the primary components of the customer value proposition is the value provided by the app, this was a surprise to the MEM team.

One hypothesis as to this differential is that some users are not receiving or responding to emails about the application launch. This is especially true for early installations that occurred some time before the initial version of the mydata.energy app was launched (Oct 2020), who had initially been provided with a web-based Dashboard.

A small number of users may not be comfortable or interested in these features, having signed up as part of a broader community-based program may mean a lower level of 'personal' interest in smart energy management—i.e. their interest is in the broader community benefit of the program, rather than the individual features or benefits the app provides.

Number of app downloads

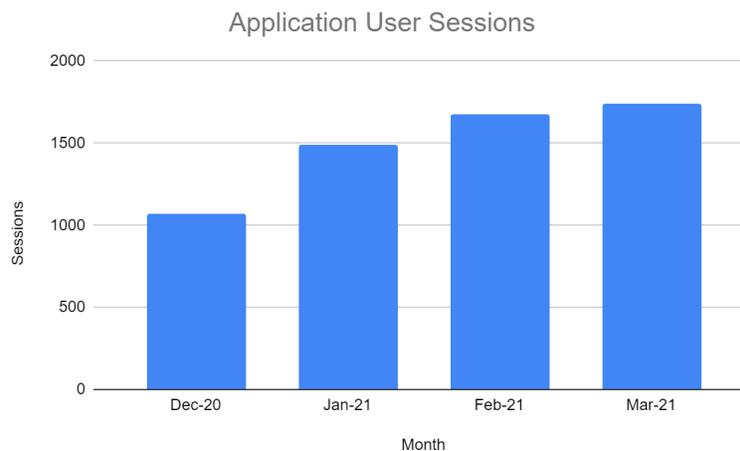
Apple iOS devices are the overwhelming majority of devices, when the general expectation was around a 50/50 split between the two leading mobile device platforms from Google and Apple. This may indicate a slight overrepresentation of Apple devices users installing solar and energy monitoring systems in the market.

Apple iOS	254 (75%)
Google Android	86 (25%)

Total	340
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Application usage report

The number of user sessions indicates that the application is being opened and at least one feature being used, such as to view live usage, history charts or tariff comparison.



The number of sessions increased since the application was launched in November 2020 was generally in line with the number of devices installed, with a lower increase in March that matches a slightly lower number of new installations compared to the earlier periods.

It is expected that these numbers will continue to increase over time as more devices are installed and new users are enrolled in the MEM initiative.

Tariff Comparison Usage

As noted earlier, thus far tariff comparison features have proved to be interesting to participants, but only a few have gone on to actually 'make a switch' to a different retailer tariff plan (i.e. this function has been less popular to date than originally anticipated).

- There were **494 views of the available tariff plans** overview screen, indicating that a material number of users have used this feature.
- There were **222 views of a single plan details**, indicating about 45% of people followed through to this second step.
- There were **46 switching applications started**, representing around 9% of those that started at the overview screen.

- There were **3 switching requests**, indicating that currently less than 1% of users are completing a retailer change request within the application.

Additional switching requests and activities may be being completed outside of the application that are not being tracked by these statistics.

Early interest in data transactions

At roughly half-way into the project, we are beginning to receive requests for data from the commercial sector, government programs and the research community. One influential state government agency representative indicated that *“It was interesting to hear about Wattwatchers’ work and Wattwatchers’ project with ARENA to establish a much needed pool of data.”*

While some MEM data has proven immediately useful to one of our core project partners (ANU), there is currently not enough sites and data to respond to commercial and government requests. Data for at least 12 months, covering significant numbers of installations (i.e. >1,000 sites), has been generally requested.

It is expected that requests for data can be better served later in 2021 as the number of devices, and the duration they have been delivering data, increases to the point where we can meet these stated requirements.