



Australian  
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Program

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# Visibility, meaning and power imbalances in a Virtual Power Plant pilot

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**Vision**

*A future where Distributed Energy Resource (DER) integration supports a safe, reliable and efficient electricity system, and where the full capabilities of DER benefit and provide value to all customers.*

**Project Partners**

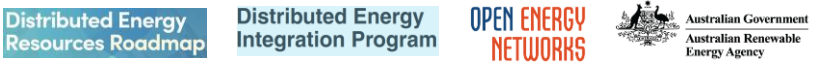


**Inputs**  
*Who will assist in the delivery of Project Symphony?*

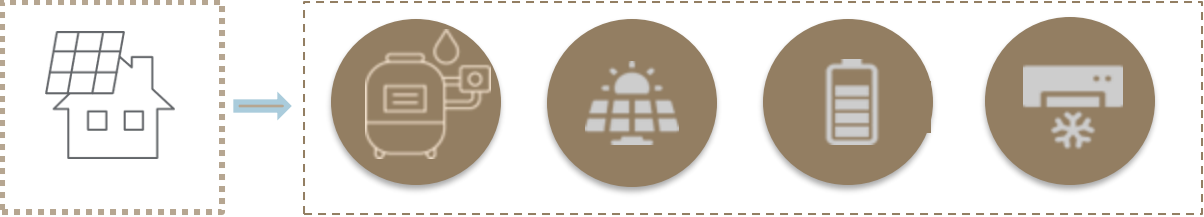
Experienced research partners and contractors



Strong knowledge sharing & stakeholder engagement interfaces

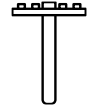



**Customers**  
*Participation*




**Scenarios**  
*What scenarios will we test to determine value?*

1.   
Energy services Bi-directional

2.   
Network Services

3.   
Constrain to zero

4.   
Contingency raise

# Visibility, meaning and power relations

“And some level of forewarning would have been good...  
[Be]cause it really caught us off guard.”

“But we found it was nothing [be]cause the solar panels were dead. And because of the apps as well, we can tell what’s happening. One of the craziest things that was happening with – happened for a few nights – our battery would be fully charged, they take everything. They drain the battery completely.”

# Orchestration – what does it mean?



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# Testing scenarios (orchestration)

- Constrain to zero – reducing output of solar PV at the gross or net level.
- Energy services – dispatching of Consumer Energy Resources (assets) according to economic efficiency.
- Network security services – support with peak demand or local voltage issues.
- Essential system services (contingency raise).



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# Project Symphony background

- Participants received asset subsidies and bill credits to encourage participation in the pilot.
- The behaviour of participants assets was altered (orchestrated) according to the testing scenarios.
- The goal for project partners was to find the value of orchestration for the network, aggregator and the participants.
- The pilot was large (900 assets connected), technically complex and ambitious.

# Social research

- We undertook the social research for the pilot utilising a mixed methods approach from 2022 to mid 2023.
- The social research conducted multiple surveys, interviews and focus groups, with a high participation rate.
- We found that challenges and confusion arose for participants through the pilot, particularly with the first phase of orchestration, which did not meet initial expectations.
- Participants were informed about orchestration (and the testing scenarios), but there was little meaning ascribed to this.

# Power relations

- Several factors led to a shift in power relations.
- Power was recentralised (Avelino, 2021), contrary to the expectations of participants.
- Interpreted that market logics took precedence through the orchestration of consumer energy resources on the Wholesale Electricity Market (WEM).
- Pilot was trying things, many learnings.



Image source: [www.freepik.com](http://www.freepik.com)



# Meaning

- Industry insider terms lacked explicit meaning.
- Meaning for the project differed between the project partners and the participants.
- The logic of orchestration was missing for many participants, and this often related to their motivations to participate (for example, environmental, cost reductions, self-sufficiency).
- Meaning is improved with visibility and communication about the why.

# Visibility

- Participants had limited visibility of how their assets were being orchestrated through the inverter apps (apps were not interoperable).
- Orchestration of customer assets on the WEM was invisible to participants.
- Invisible work (Star, 1999; Binet, 2022) from participants.



Image source: shutterstock.com

# Conclusion

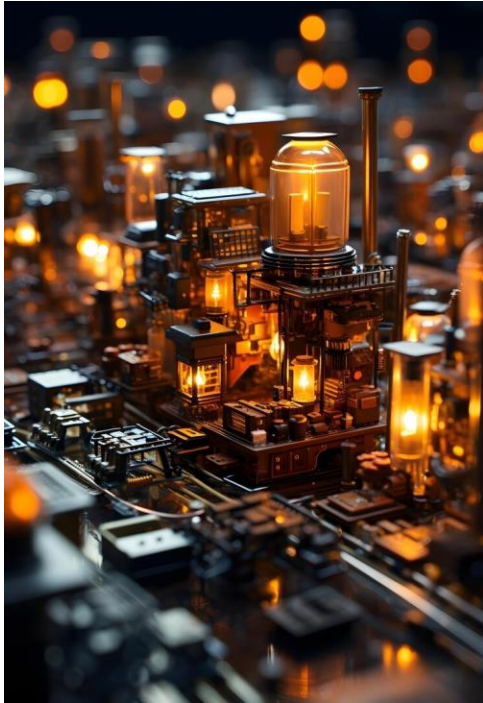


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- We found that power relations, meaning and visibility are important.
- There are power dynamics involved and how power is enacted (power to, over, or with) needs to be understood.
- Participants need to understand the why (meaning) and the value proposition upfront.
- Visibility is crucial to enable meaning.

# References

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