



## OUTCOME

Understanding of the objectives for the microgrid system and initial preferences, and a decision on whether to undertake further investigation and proceed to following steps.

There are some key questions to be addressed when considering a microgrid. To do this initial investigation you will need to work with your project stakeholders to ensure alignment on the following key questions.

### **01** What are your objectives? These could be one or a combination of:

- a) Resilience: you want the microgrid to operate without the grid (island) for a period of time or function entirely off grid to ensure reliability, or improve power quality for a grid connected system.
- b) Cost savings: implementing energy efficiency measures and optimising assets to reduce energy costs.
- c) Net Zero ambitions: reducing your carbon footprint and increasing the percentage of clean energy use.

### **02** What and who will be involved? This could be any of the following:

- a) One site with one microgrid user.
- b) One site (such as a precinct) with multiple microgrid users.
- c) Microgrid users who are not connected by a private network but want to connect across the grid to meet their collective objectives outlined in question 1.
- d) Other stakeholders will also be involved in the microgrid project, such as distributed network operators and potential project partners who may deliver technology solutions and/or services to the microgrid users (such as consultants, suppliers, retailers).

### 03 What services do you want the microgrid to provide to users? This could be one or a combination of the below:

- a) The capacity to efficiently integrate local sources of renewable energy with grid supply
- b) The ability to maximise the benefits of controlled flexible demand
- c) The ability to access and maximise payments for electricity exports and other services (either through a partner or directly).
- d) A full autonomous microgrid which supplies all of the users energy needs and optimises the value of microgrid assets.

### 04 Who will operate the microgrid and own the microgrid assets? This could include any of the below.

- a) If the microgrid is on one site with one user, this could be operated by the user directly.
- b) A separate entity set up by the microgrid users to run the microgrid on their behalf.
- c) Depending on the services of the microgrid, it could be operated by a project partner on behalf of the microgrid users.

The microgrid assets (such as buildings providing flexibility, batteries, EV chargers or solar panels) could be owned by the site owner, individual microgrid users, the microgrid operator or an entity set up by the microgrid users to own them on their behalf. Another alternative is for microgrid assets to be owned by a third party. This would be a similar arrangement to solar power purchase agreements where a solar system is installed at no cost to the user, who then pays for the supply of renewable electricity. More detail on asset ownership is set out in step 4 (Investment Readiness).

**Once you have considered these key questions, you need to start investigating the following to test whether a microgrid is suitable.**

- What are the energy needs of the potential users?
- What are the typical load patterns of potential users?
- What flexibility is available?
- What distributed energy resources (DER) are already available?
- What capacity is there to cost effectively increase the DER available?
- Are there any existing infrastructure constraints?

- How involved do the microgrid users want to be in the operation of the microgrid?
- Could the microgrid access benefits through existing retail and network products?

A consultant can be helpful in supporting the initial data analysis which will include quantitative data such as energy needs, equipment and local network needs as well qualitative data around perceptions and understanding of energy systems.

There are sometimes grant opportunities for this type of pre-feasibility work. You could either apply for funding for this work, seek in-kind commitments from potential microgrid customers, or justify the investment internally.