

NY Prize Community Microgrid Data Collection Questionnaire

This questionnaire solicits information on the community microgrid you are proposing for the NY Prize competition. The information in this questionnaire will be used to develop a preliminary benefit-cost analysis of the proposed microgrid. Please provide as much detail as possible. The questionnaire is organized into the following sections:

- A. [Project Overview, Energy Production, and Fuel Use](#)
- B. [Capacity Impacts](#)
- C. [Project Costs](#)
- D. [Environmental Impacts](#)
- E. [Ancillary Services](#)
- F. [Other Information](#)

If you have any questions regarding the information requested, please contact Claire Santoro at Industrial Economics, Incorporated, either by email (csantoro@indecon.com) or phone (617-528-1137).

Location of the microgrid (municipality and/or county): [Click here to enter text.](#)

Point of contact for this questionnaire:

Name:

Address:

Telephone:

Email:

A. Project Overview, Energy Production, and Fuel Use

1. The table below is designed to gather background information on the facilities your microgrid would serve. It includes two examples: one for Main Street Apartments, a residential facility with multiple utility customers; and another for Main Street Grocery, a commercial facility. Please follow these examples in providing the information specified for each facility. Additional guidance is provided below.
 - **Facility name:** Please enter the name of each facility the microgrid would serve. Note that a single **facility** may include multiple **customers** (e.g., individually-metered apartments within a multi-family apartment building). When this is the case, you do not need to list each customer individually; simply identify the facility as a whole (see Table 1, "Main Street Apartments," for an example).

- **Rate class:** Select the appropriate rate class for the facility from the dropdown list. Rate class options are residential, small commercial/industrial (defined as a facility using less than 50 MWh of electricity per year), or large commercial/industrial (defined as a facility using 50 or more MWh of electricity per year).
- **Facility/customer description:** Provide a brief description of the facility, including the number of individual customers at the facility if it includes more than one (e.g., individually-metered apartments within a multi-family apartment building). For commercial and industrial facilities, please describe the type of commercial/industrial activity conducted at the facility.
- **Economic sector:** Select the appropriate economic sector for the facility from the dropdown list.
- **Average annual usage:** Specify the average annual electricity usage (in MWh) **per customer**. Note that in the case of facilities with multiple, similar customers, such as multi-family apartment buildings, this value will be different from average annual usage for the facility as a whole.
- **Peak demand:** Specify the peak electricity demand (in MW) **per customer**. Note that in the case of facilities with multiple, similar customers, such as multi-family apartment buildings, this value will be different from peak demand for the facility as a whole.
- **Percent of average usage the microgrid could support in the event of a major power outage:** Specify the percent of each facility's typical usage that the microgrid would be designed to support in the event of a major power outage (i.e., an outage lasting at least 24 hours that necessitates that the microgrid operate in islanded mode). In many cases, this will be 100%. In some cases, however, the microgrid may be designed to provide only enough energy to support critical services (e.g., elevators but not lighting). In these cases, the value you report should be less than 100%.
- **Hours of electricity supply required per day in the event of a major power outage:** Please indicate the number of hours per day that service to each facility would be maintained by the microgrid in the event of a major outage. Note that this value may be less than 24 hours for some facilities; for example, some commercial facilities may only require electricity during business hours.

2. In the table below, please provide information on the distributed energy resources the microgrid will incorporate. Use the two examples included in the table as a guide.
- **Distributed energy resource name:** Please identify each distributed energy resource with a brief description. In the event that a single facility has multiple distributed energy resources of the same type (e.g., two diesel generators), please use numbers to uniquely identify each (e.g., “Diesel generator 1” and “Diesel generator 2”).
 - **Facility name:** Please specify the facility at which each distributed energy resource is or would be based.
 - **Energy source:** Select the fuel/energy source used by each distributed energy resource from the dropdown list. If you select “other,” please type in the energy source used.
 - **Nameplate capacity:** Specify the total nameplate capacity (in MW) of each distributed energy resource included in the microgrid.
 - **Average annual production:** Please estimate the amount of electricity (in MWh) that each distributed energy resource is likely to produce each year, on average, **under normal operating conditions**. The benefit-cost analysis will separately estimate production in islanded mode in the event of an extended power outage. **If the distributed energy resource will operate only in the event of an outage, please enter zero.**
 - **Average daily production in the event of a major power outage:** Please estimate the amount of electricity (in MWh per day) that each distributed energy resource is likely to produce, on average, **in the event of a major power outage**. In developing your estimate for each distributed energy resource, you should consider the electricity requirements of the facilities the microgrid would serve, as specified in your response to [Question 1](#).
 - **Fuel consumption per MWh:** For each distributed energy resource, please estimate the amount of fuel required to generate one MWh of energy. This question does not apply to renewable energy resources, such as wind and solar.

Distributed Energy Resource Name	Facility Name	Energy Source	Nameplate Capacity (MW)	Average Annual Production Under Normal Conditions (MWh)	Average Daily Production During Major Power Outage (MWh)	Fuel Consumption per MWh	
						Quantity	Unit
<i>Backup Generator</i>	<i>Main Street Grocery</i>	<i>Diesel</i>	<i>1.5</i>	<i>20</i>	<i>0.03</i>	<i>9.99</i>	<i>MMBtu/MWh</i>
<i>Wind Turbine</i>	<i>Main Street Grocery</i>	<i>Wind</i>	<i>.25</i>	<i>8</i>	<i>0.01</i>	<i>N/A</i>	<i>Choose an item.</i>
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.
		Choose an item.					Choose an item.

Initial Planning and Design Costs

10. Please estimate initial planning and design costs. These costs should include costs associated with project design, building and development permits, efforts to secure financing, marketing the project, and negotiating contracts. Include only upfront costs. Do not include costs associated with operation of the microgrid.

Initial Planning and Design Costs (\$)	What cost components are included in this figure?

Fixed O&M Costs

11. Fixed O&M costs are costs associated with operating and maintaining the microgrid that are unlikely to vary with the amount of energy the system produces each year (e.g., software licenses, technical support). Will there be any year-to-year variation in these costs for other reasons (e.g., due to maintenance cycles)?

- No – proceed to [Question 12](#)
 Yes – proceed to [Question 13](#)

12. Please estimate any costs associated with operating and maintaining the microgrid that are unlikely to vary with the amount of energy the system produces each year.

Fixed O&M Costs (\$/year)	What cost components are included in this figure?

Please proceed to [Question 14](#).

13. For each year over an assumed 20-year operating life, please estimate any costs associated with operating and maintaining the microgrid that are unlikely to vary with the amount of energy the system produces.

Year	Fixed O&M Cost (\$)	What cost components are included in this figure?
1		
2		
3		
4		
5		
6		
7		
8		
9		

Year	Fixed O&M Cost (\$)	What cost components are included in this figure?
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Variable O&M Costs (Excluding Fuel Costs)

14. Please estimate any costs associated with operating and maintaining the microgrid (excluding fuel costs) that are likely to vary with the amount of energy the system produces each year. Please estimate these costs per unit of energy produced (e.g., \$/MWh).

Variable O&M Costs (\$/Unit of Energy Produced)	Unit	What cost components are included in this figure?
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	

Fuel Costs

15. In the table below, please provide information on the fuel use for each distributed energy resource the microgrid will incorporate. Please use the same distributed energy resource and facility names from [Question 2](#).
- **Duration of design event:** For each distributed energy resource, please indicate the maximum period of time the distributed energy resource would be able to operate in islanded mode without replenishing its fuel supply (i.e., the duration of the maximum power outage event for which the system is designed). **For renewable energy resources, your answer may be “indefinitely.”**

- **Fuel consumption:** For each distributed energy resource, please specify the quantity of fuel each distributed energy resource would consume if it operated in islanded mode for the assumed duration of the design event.

Distributed Energy Resource Name	Facility Name	Duration of Design Event	Quantity of Fuel Needed to Operate in Islanded Mode for Duration of Design Event	Unit
				Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.

16. Will the project include development of a combined heat and power (CHP) system?

- Yes – proceed to [Question 17](#)
- No – proceed to [Question 18](#)

17. If the microgrid will include development of a CHP system, please indicate the type of fuel that will be offset by use of the new CHP system and the annual energy savings (relative to the current heating system) that the new system is expected to provide.

Type of Fuel Offset by New CHP System	Annual Energy Savings Relative to Current Heating System	Unit
Choose an item.		Choose an item.
Choose an item.		Choose an item.
Choose an item.		Choose an item.
Choose an item.		Choose an item.
Choose an item.		Choose an item.

Emissions Control Costs

18. We anticipate that the costs of installing and operating emissions control equipment will be incorporated into the capital and O&M cost estimates you provided in response to the questions above. If this is not the case, please estimate these costs, noting what cost components are included in these estimates. For capital costs, please also estimate the engineering lifespan of each component.

Cost Category	Costs (\$)	Description of Component(s)	Component Lifespan(s)
Capital Costs			
Annual O&M Costs			
Other Annual Costs			

19. Will environmental regulations mandate the purchase of emissions allowances for the microgrid (for example, due to system size thresholds)?

Yes

No

D. Environmental Impacts

20. For each pollutant listed below, what is the estimated emissions rate (e.g., tons/MWh) for the microgrid?

Emissions Type	Emissions per MWh	Unit
CO ₂		Choose an item.
SO ₂		Choose an item.
NO _x		Choose an item.
PM		Choose an item.

E. Ancillary Services

21. Will the microgrid be designed to provide any of the following ancillary services? If so, we may contact you for additional information.

Ancillary Service	Yes	No
Frequency or Real Power Support	<input type="checkbox"/>	<input type="checkbox"/>
Voltage or Reactive Power Support	<input type="checkbox"/>	<input type="checkbox"/>
Black Start or System Restoration Support	<input type="checkbox"/>	<input type="checkbox"/>

F. Other Information

22. If you would like to include any other information on the proposed microgrid, please provide it here.

Click here to enter text.