Community/Utility Name✧ -
[*Tech type and project name*]

# Business and Operations Management Plan

**Date✧**

**Name and Contact Information✧**

**[Insert Photo of Project]**

# Instructions

Imagine that you've started in a new job managing an operational renewable energy project. What would you want to know? The template provided here is intended to walk you through the steps needed to create the plan of what is needed to get to done, who will do it, and how it will be done. Inadequate planning before and after a renewable energy project becomes operational has caused numerous projects to underperform or fail.

This document is meant to serve three main purposes:

1. Comply with the requirement that Renewable Energy Fund (REF) grant projects develop a business and operations plan;
2. Help applicants, grantees, and others interested in renewable energy project plan for success; and
3. Assist grantees in maintaining institutional knowledge, limiting the impacts of staff turnover.

The plan should be as practical and concise as possible. For the plan to be useful for the people who will implement it, the plan must be developed by or with significant input from the project's owner and operator.

As this template is meant to cover many different types of projects and phases, there will be sections that may not be needed for your project.

Construction projects will require more detail than early-stage projects. Some sections have specific information that will be needed for construction projects.

An Excel workbook is available that can be used to calculate the values in tables. You can copy and paste the values into this template by following the directions in the Excel workbook.

All ✧ and instructions in *italics* are in place to describe the type of information being requested and can be deleted from the final document. Feel free to delete sections that do not apply. *This page should be deleted from the final plan.*

# Contents

# 1 Project Overview

1. *Describe the project, including*
   A. *The history of the project,*
   B. *A description of how the project is going to be integrated into the community, and*
   C. *A description of the project's objectives*
2. *Describe the expected benefits*
   A. *Cost savings for customers, utility, or others*
   B. *If done for operational reasons, explain why it is needed:*
      I. *Operational reason might include:*
         - *Historical and expected change in load [peak loads, total kWh generation needs by month/year]*
         - *How generation has changed*
         - *Reliability issues—outages, voltage issues, fuel shortages, etc.*
         - *Fuel insecurity*

# 2 Project and Operational Finances

## 2.1 Expected savings to customers

*For electric utilities, the renewable energy project should stabilize or decrease customer rates. These should be consistent with expenses and revenues shown in the next section (2.2)*

*Rates must still be able to cover all of the utility costs and the rate for all customers should be fair—all customers' rates should reflect how much it costs to deliver power to them. Use the table below to show rates and expected savings. Modify the table if needed to make it simpler or more complicated based on your particular circumstances. You can use Table 1 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 1: Expected utility customer savings*

| | Current Pre-PCE Rate ($/kWh) | Expected Pre-PCE Rate ($/kWh) | Current Post-PCE Rate ($/kWh) | Expected sales (kWh) | Expected Customer Savings ($) |
|---|---|---|---|---|---|
| Residential | | | | | |
| Community facilities | | | | | |
| Commercial | | | | | |
| State/Federal | | | | | |
| Other customers | | | | | |
| Total | N/A | N/A | | | |

*For heat projects, the total cost for heating facilities and/or buildings should decrease. Use the following table to estimate the customer savings for the renewable energy heating project. You can use Table 2 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 2: Heating costs for buildings*

| Customers | Current/expected cost | Expected Renewable Energy cost | Expected Savings |
|---|---|---|---|
| **Building 1** | | | |
| **Building 2** | | | |
| **Building 3** | | | |
| **Building 4** | | | |
| **Total** | | | |

## 2.2 Expenses and Revenue

### 2.2.1 Capital costs

*Use the table below to compile the total project costs. For each phase, indicate how you expect to pay (or did pay, if already complete) for the project. If there are multiple sources of funds, it might be useful to provide a short description of where the funds come from and if there are any requirements that need to be planned for (reporting, repayment, etc.). You can use Table 3 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 3: Total project costs*

| Phase | Total cost ($) | Grant funds ($) | Loans ($) | Equity ($) |
|---|---|---|---|---|
| **Reconnaissance** | $ - | $ - | $ - | $ - |
| **Feasibility/ Conceptual Design** | $ - | $ - | $ - | $ - |
| **Final Design** | $ - | $ - | $ - | $ - |
| **Construction** | $ - | $ - | $ - | $ - |
| **Total** | **$ -** | **$ -** | **$ -** | **$ -** |

### 2.2.2 Operating Expenses and Revenue

*Describe the change in expenses due to the project. For construction projects, the estimates should be based on detailed operational information. Fill in table below. You can use Table 4 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 4: Annual expenses*

| Expense category | Current Annual Expense ($) | Expected Annual Expense ($) | Change in Annual Expense ($) |
|---|---|---|---|
| Fuel expenses | $ - | $ - | $ - |
| Non-fuel Operating expenses | $ - | $ - | $ - |

| | | | | | | |
|---|---|---|---|---|---|---|
| Interest expense | $ | - | $ | - | $ | - |
| Principal payments | $ | - | $ | - | $ | - |
| Other expenses | $ | - | $ | - | $ | - |
| **Total** | **$** | **-** | **$** | **-** | **$** | **-** |

*The annual expenses included in Table 4 above will need to be paid for by revenue. Describe the sources of revenue and how the rates will be determined. These should be as specific to the project as possible. For construction projects, the sales should be based on detailed system modeling. Fill in the table below. You can use Table 5 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 5: Operating Revenue*

| Source of Revenue | Volume (Btu, kWh, etc.) | Expected rate ($/kWh, $/Btu, $/customer, etc.) | Total Annual Revenue |
|---|---|---|---|
| Sales (electricity) | | | $ - |
| Sales (heat) | | | $ - |
| Customer charges | | | $ - |
| Other (grants, etc.) | | | $ - |
| **Total** | | | **$ -** |

### 2.2.3 Net Revenue

*Describe the change in net revenue (profit) due to the project. If net revenue is not positive, then look again at the expenses and revenues to determine how the project can at least break even. Fill in table below. You can use Table 6 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

### *Table 6: Net revenue*

| | Current | Expected | Change |
|---|---|---|---|
| Total expenses | $ - | $ - | $ - |
| Total revenue | $ - | $ - | $ - |
| **Net revenue (Profit)** | **$ -** | **$ -** | **$ -** |

# 3 Project Information

## 3.1 Pre-project readiness

*Describe what had been to prepare for the project. Including:*

1. *Electric infrastructure installed and/or improved before project:*

A. *Generation efficiency, controls, distribution upgrades, demand-side management, storage*

2. *Thermal: Building energy efficiency measures*
   A. *List measures taken, dates of any measures completed and/or path forward for increased EE.*

## 3.2 Project activities

### 3.2.1 Pre-construction documents

*[Where someone can find documents. Also provide a short summary of what was determined. This is not necessarily a complete list, and your project may not require all of the documents listed below]*

1. *Feasibility documents*
2. *Conceptual design*
3. *Permitting & Site Control—anything continuing?*
   A. *Site control – lease and easement agreements*
   B. *Fire Marshall approval*
   C. *40CFR63 NESHAP Rule (large projects)*
   D. *State Historic Preservation Office*
   E. *Forest Practices and Resources Act*
   F. *Insurance for wood harvesters*
   G. *Local ordinances if applicable*
   H. *Grant agreements*
4. *Final design documents*
5. *As-builts*

### 3.2.2 Physical infrastructure

*For electric generation projects give a general description of what will be built for generation, controls, storage, transmission, and distribution. Where applicable, include make, model, and specifications.*

*For thermal generation projects give a general description of what was or will be built for thermal generation, back-up heating, district heating, and harvest equipment (for biomass). Where applicable, include make, model, and specifications.*

# 4 Facility Management and Operation Plan

## 4.1 Training

*Identify any training that will be needed to ensure that the project is able to operate successfully. Training should include both the business and operations functions of taking care of the renewable energy infrastructure. Safety for employees and the public should be a top priority for any training.*

1. *Inspections & maintenance*
2. *Operations*
3. *Bookkeeping to track expenses and revenue*
4. *Business management training plan*

## 4.2 Operations planning

### 4.2.1 Safety considerations

*Safety Plan? Do you have a safety plan, or attach your safety plan to this document?*

### 4.2.2 Expected output

*Where generation will go—electric and/or heat. Total expected to produce over year. Expected capacity factor (if electric generation)*

*You can use Table 7 in the accompanying Excel workbook to do the calculations and then copy and paste into this template.*

#### *Table 7: Expected generation & Sales*

| Month | Electric Generation (kWh) | Thermal Generation (Btu or kWh) | Expected Electric Sales (kWh) | Expected Thermal Sales (Btu/kWh) | Excess generation |
|---|---|---|---|---|---|
| January | | | | | |
| February | | | | | |
| March | | | | | |
| April | | | | | |
| May | | | | | |
| June | | | | | |
| July | | | | | |
| August | | | | | |
| September | | | | | |
| October | | | | | |
| November | | | | | |
| December | | | | | |
| **Annual Total** | | | | | |

### 4.2.3 Operations, resource & fuels planning

1. *For construction projects, include specific manuals and step-by-step instructions needed for safe and efficient operations. Make sure that there are troubleshooting guides and contact information for getting assistant from the manufacturers, designers, and/or mechanics.*
2. *Reservoir management (hydro)*
   a. *Include known Min/max water levels in reservoir and Flow restrictions by week, month, season per permits*
3. *Wind or solar curtailment, secondary load integration, etc.*
4. *Non-hydro storage [batteries, capacitors, etc.]*
   a. *Charge/discharge planning*
5. *Wood Fuel Sourcing Management and Operation plan*
      I. *Harvest Plans*
      II. *Harvest and processing capacity*
      III. *Wood Processing and Storage*

## 4.3 Inspections & Maintenance

### 4.3.1 Inspections

*Proper and timely inspections are key to maintaining infrastructure.*

1. *What is the schedule for inspections?*
2. *Who is responsible?*
3. *How will manager make sure inspections are done?*
4. *For construction projects, a project specific template for collecting inspection information should be available.*

### 4.3.2 Maintenance

**Routine Maintenance Planning [Quarterly or more frequently]**

1. *What types of maintenance are expected?*
2. *Who is responsible [job position and/or person]: what they do with info. If split ownership (such as a heat exchanger or electric boiler in building owned by someone else), be clear about who is responsible for what (this should also go in heat sales agreement)*
3. *For construction projects, a specific template for collecting routine maintenance data should be available.*

**Non-routine Maintenance Planning**

1. *Include planned major maintenance, repair, and replacement of high value parts over the expected life of the infrastructure.*
2. *Explain your policy and procedures for unplanned major maintenance (i.e. things break unexpectedly). There should be a process for how issues identified in routine inspections and maintenance are fixed. How are requests and/or work orders made, who processes the requests and decides if a fix will be made, gets quotes, and procures services and/or materials to make the required fix.*
3. *For construction projects, a specific template for collecting non-routine maintenance data should be available.*

### 4.3.3 Inventory management

1. *Inventory requirements*
    a. *For pre-construction projects, the inventory will be a general list of the types of inventory that will be needed*
    b. *For construction projects, the inventory will specific parts, part numbers, and vendors*
2. *When levels of supplies and materials will be checked—who is responsible, how frequently it will be done, how management will be notified*
3. *Who is responsible for purchasing new supplies and materials*

# 5 Financial Management

## 5.1 Agreements

### 5.1.1 Sales agreements

1. *Power sales agreements, if selling to a utility.*
    A. *General terms required for pre-construction*
    B. *Signed agreements required for construction, attached in appendices*
2. *Heat sales agreements with all customers.*
    A. *General terms required for pre-construction*
    B. *Signed agreements required for construction, attached in appendices*

### 5.1.2 Purchase agreements

1. *Provide signed purchase and supply agreements (attached in appendices)*
    a. *Timber purchase agreement, if buying from other entity*
    b. *Other fuels*

### 5.1.3 Other financial agreements – attached in the appendices

1. *Leases—land, equipment, infrastructure*
2. *Employee sharing*
3. *Other*

## 5.2 Insurance/Risk Management attached in the appendices

1. *General Liability*
2. *Work Comp*
3. *Unemployment – if required*

## 5.3 Bookkeeping and budget

*Describe your accounting system. What program is used? How long has it been used? Do you use cash or accrual system? If entity has multiple businesses or enterprises, how do you separate the businesses/enterprises in the accounting system?*

*How will this renewable energy project be integrated with the existing bookkeeping system? Will this be a new business or an addition to an existing unit?*

### 5.3.1 Accounting codes

*Explain how new and existing accounting codes will be used to track the costs of operating the renewable energy project—this should include personnel, O&M, training, depreciation, etc.*

### 5.3.2 Budgeting process

1. *Explain the budgeting process*
    a. *When is the budget determined? What is the timeline from start to finish?*
    b. *Who is responsible for developing the budget?*
    c. *How is it finalized?*
    d. *Where is the budget kept? Is it in the accounting system, a separate spreadsheet, somewhere else?*
2. *Check budget-to-actuals, how frequently. Describe the process for budget amendments, and especially emergencies (such as unplanned maintenance and failures).*

### 5.3.3 Internal Budget Controls

1. *How do employees request purchases*
    a. *Small requests (parts, materials)*
    b. *Big requests (work order)*
2. *Who is in charge of getting cost estimates and purchasing?*
3. *Who decides if a purchase will be made?*
4. *Who pays invoices for purchases?*
5. *Who records invoices and payments?*

### 5.3.4 Revenue

1. *Rate setting*
    a. *Describe how rates will be set. Rates should be fair to all customers and based on the actual cost of delivering energy to the customers*
    b. *Describe when rates will be reevaluated.*
    c. *Adjustment clauses – should be in heat sales agreements*
    d. *Customer charges*
2. *Metering and billing*
    a. *How are sales metered (kWh, Btu)? If a customer receives energy at different rates, they must have different meters.*
    b. *Who is responsible for reading meters?*
    c. *If payment is late, what collection policies are in place to encourage payment?*
3. *Other revenue sources*
    a. *Grants*
    b. *Loans*

## 5.4 End of life planning

1. *Is there salvage value?*
2. *What is the decommissioning plan?*
3. *Will it be cheaper to buy new, than to retrofit an existing unit?*

# 6 Potential Problems

***1.*** *What are the challenges to keeping this project functioning as a sustainable business?*
A. *Common difficulties include:*
I. *Fuel supply & costs*
II. *Demand for energy (higher or lower than expected)*
III. *Personnel*
IV. *Disagreements with project partners*
V. *Environmental change*
VI. *Cost of alternative energy source*

***2.*** *What strategies will you put in place to overcome those challenges?*

# 7 Monitoring & reporting

## 7.1 Monitoring operational performance

***1.*** *Describe how the system's physical performance will be measured in general terms, including:*
A. *Meters to use*
I. *Inputs—fuel, resource base (wind speed, solar insolation, water flow, etc.)*
II. *Outputs—heat, electricity*
B. *Maintenance performance will be recorded through bookkeeping system*

***2.*** *Describe how the performance will be saved and analyzed*

***3.*** *Describe how you will identify and act on performance difficulties*

## 7.2 Reporting

*What operational and financial reporting is required by grant agreements, reporting agencies, and/or the board of directors?*

### 7.2.1 Board of Directors Reports

*In general, discuss how the board of directors (or whatever body creates policy for the grantee), will exercise over project operations. What types—such as operational and financial performance—and frequency of reporting will be required?*

### 7.2.2 External reporting

*Indicate project reporting timelines, who is responsible for reporting, where the info will come from, etc.*