Guidebook for Managing a PCE-eligible Electric Utility

Part 3: Planning for the Future

Alaska Energy Authority

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# Chapter 1: Introduction

## Goal of the guidebook

Utilities are not like other types of businesses: The State of Alaska authorizes one electric utility to provide service in any given area. Since the utility receives a monopoly over a geographic region, the utility’s customers do not have another choice for getting their electricity. In return for the service area monopoly, electric utilities are required to provide and maintain “adequate, efficient, and safe service and facilities”[[1]](#footnote-1) at a reasonable price.

Something about PCE here….

This guide aims to provide utilities with tools to track and analyze financial and operational information to improve the utility. Collecting and using more information will help the utility:

* consume less diesel fuel;
* be financially and operationally sustainable;
* increase safety for workers and the public;
* be better able to access loans to maintain and improve utility infrastructure; and
* identify ways to improve customer service.

## Big picture of what a utility manager should do

1. Financial management
   1. Collect enough $ to pay bills for utility operations
      1. Set rates fairly for all customers
      2. Meters read & customers billed properly
      3. Collect on bills
   2. Pay bills for operations on time
      1. Sufficient cash flow to pay for personnel, parts, contractors, insurance, etc.
   3. Perform required reporting for PCE—monthly and annually [do a. and b. will make this easy]
2. Operational management
   1. Safe, reliable, and affordable electricity to customers
      1. Track: efficiency, line loss, safety incidents, outages
      2. Lowest cost to generate and distribute electricity safely
   2. Assist operator with being able to be successful
      1. Manage personnel, inspections, routine maintenance, non-routine maintenance (work orders)
      2. Manage supplies & parts
      3. Know when to get help before too late
3. Plan for future
   1. Capital purchases
      1. Decide best options for current and future load
      2. Finance—savings, loans, grants
   2. Operational improvements
      1. Training,

## How to use the guidebook

The guidebook is intended to provide guidance for utility managers, consultants, regional energy managers, and government entities assisting utilities. The guidebook provides definitions, examples, and templates that can be used to identify, analyze, and develop plans to address financial and operational needs of the utility. Where possible, the guidebook uses existing reporting requirements, especially the *Utility Monthly Report* and the *Annual Power Cost Equalization Report for Nonregulated Utilities* (generally known as the PCE Annual Report), which are submitted to the Alaska Energy Authority (AEA) and the Regulatory Commission of Alaska (RCA), respectively, as the starting point for all of the examples. The required reports include almost all of the operational and financial data that needs to be tracked to successfully manage a small rural utility. Along the way, this guide will also explain how to successfully collect and submit the information to maximize PCE reimbursement. This guidebook focuses on the utilities that are not economically regulated, and uses the associated RCA forms.

Collect, Report, Analyze

A utility manager must make difficult decisions with limited resources. By understanding and bridging the financial and operational needs of the utility, the manager can effectively steer the utility towards success. The manager does not need to be a master mechanic or accountant to run the utility, but needs to understand how to ensure that the necessary resources exist to support the operator and the utility clerk to be most effective in their jobs.

Figure 1, which is also included as Appendix H, is a checklist of weekly, monthly, quarterly, and annual tasks that the manager can reference to keep track of the financial and operational aspects of the utility. The rest of the guidebook will help to perform each of the tasks included on the checklist.



Figure 1: Utility Manager Checklist

While the ultimate purpose of this guide is to develop a multi-year utility improvement plan (covered in Chapter 8), the guidebook builds up the skills and resources to develop the plan in Chapters 3 through 7.

**Chapter 2-8** financial management.

**Chapter 9-12** includes a range of resources to manage the long-term maintenance of the utility’s infrastructure. The inspection and maintenance logs can be used as the basis for the utility’s preventive maintenance plan for the generation and distribution facilities. The chapter also goes over how a work order system could be instituted so that the manager has sufficient information to understand what types of investment are or will be needed in the utility.

**Chapter 13** brings together the concepts from the rest of the guidebook to create a multi-year utility improvement plan.

# Chapter 13: Planning for the Future—*Budgeting and the Utility Improvement Plan*

The concluding section of this guidebook uses the operational and financial information presented earlier to develop a utility improvement plan. Because of the important role that the electric utility plays in any community, the utility has a duty to customers and the community to be financially and operationally sustainable 10, 20, and 50 years into the future. In order to achieve long-term sustainability, the utility improvement plan must balance the customers’ need to have reasonable cost power with the utility’s need for adequate revenue to pay for operational and capital costs. By developing a method to make investment, policy, and procedural decisions, and using data to help make decisions, the utility can better respond to changing needs of the community.

Chapter 8 presents a decision-making and budgeting process that can be used by utilities to make short- and long-term decisions.

It should be noted that the material presented in Chapter 8 does not require a detailed analysis of the utility’s generation and distribution system. For utility’s that are interested in a much more detailed, engineering-driven planning process, please see the USDA Rural Utility Service Bulletin 1724D-101A “Electric System Long-Range Planning Guide.”[[2]](#footnote-2)

## Goals

1. Identify financial and operational needs
2. Identify and evaluate improvement projects to address utility needs
3. Prioritize improvement projects and develop utility budget to implement a comprehensive improvement plan

## Identify needs and improvements

The previous chapters of this guidebook have described ways to improve the utility management by identifying needs through evaluations of metrics and processes. Common needs include: improving generation efficiency, decreasing line losses, increasing utility revenue, reducing outages, accurately accounting for expenses, etc. Suggestions for how to address utility needs in this chapter , but the utility manager will also need to work with the clerk, operator, customers, and governing board to clearly understand the potential impact of any project or policy being considered.

The work order system should be one of the primary sources of potential utility improvements. As explained in Chapter 6, a work order should be created for any maintenance, repair, or replacement that requires additional time or money to be spent outside of the usual operational tasks.

It is unlikely a utility will have enough money to address all needs at the same time, so choices must be made. This chapter will assist in identifying and choosing potential improvements to include in a comprehensive plan and budget.

Choosing the utility improvements will be based on the strengths and weaknesses of the utility. All improvement projects should benefit customers, either in the short-term or long-term by improving service and/or cost of service. By working through the previous chapters, the utility manager should be able to identify a number of improvements, organized into the four following categories: new policies and processes, staff training, and/or upgrading existing infrastructure.

1. *Policies* can include guidance on how to make decisions, such as increasing bill collection, creating a safe work environment, or how to set rates.
2. *Processes* can include more specific steps for utility personnel: the steps to maintain financial controls, implementing a work order system, following a preventive maintenance plan, setting up an effective inventory management system, and/or tracking fuel volume and consumption.
3. *Training* for staff can include both internal policies/processes or job-specific skills (such as bookkeeping/accounting or diesel mechanics).
4. *Infrastructure* can include the repair and replacement of existing infrastructure (rebuilding engines, upgrading transformers, etc.) or purchase of new infrastructure (new engines, renewable energy systems, new controls, etc.).

If a utility manager cannot define exactly what needs to be done, the improvement plan should include a study to determine the cause of issues and recommend the most cost effective solution. External assistance from state and federal agencies, as well as private contractors are available to provide this assistance.

Developing a utility improvement plan is not as a one-time activity. Like all other utility activities, improvement is about setting up routines—daily, weekly, monthly, and yearly—with the goal of providing safe and reliable service to customers at a reasonable cost.

## Improvement projects

After the utility has identified the needs and types of potential improvements, more specific project plans need to be developed. In the beginning, the improvement project plans should be kept short, just one to two pages so that they all can be evaluated and prioritized. Early on, the manager should be flexible about what is in each improvement project and which projects will be chosen. If, after weighting all of the options, an improvement project plan is chosen to be implemented, it is likely that a much more robust plan will be needed for construction. The USDA Rural Utility Service Bullet 1724D-101B “System Planning Guide, Construction Work Plan” can be used a guide for the more detailed planning that will be needed to bring a project to construction. For non-construction projects, other resources may be available from state and federal sources. Since there are numerous resources for project management—books, websites, courses, and certifications—this guidebook will not try to recreate best practices for project management.

Figure 20 includes an Improvement Project Plan Template that can be used to write up the improvement plans. Since there may be multiple potential improvement projects to address the utility’s needs, they should be numbered. If a work order (see Chapter 6) has been written up for a potential project, it is not necessary to recreate all of the steps that are included on the Improvement Project Template below.

The box at the top right of the template is for the end of the process to help keep track of the improvement projects that have been accepted or rejected. A space is provided to write a short note about why a project was rejected. These notes can be useful if there is turnover at the utility so that people do not repeat something that has already been done.

**Summary***:* Include two to three sentences that explains 1) what will be done, 2) why the project is needed, and 3) what benefits are expected. As much as possible, the benefits should be specific and put in numbers. The expected benefits (especially if they affect the generation performance or revenue) can be used in the budgeting process and should be a conservative estimate: Try not to overestimate the expected benefit.

Example:

* Do top-end rebuild of engine #1 because the oil consumption has increased and the generation efficiency has dropped below acceptable levels. It is expected that the rebuilt engine will increase the average generation efficiency from the current 12.5 kWh/gallon to 13.5 kWh/gallon. If generation and fuel costs stay the same, this will save the utility $15,000 in fuel per year.



Figure 20: Improvement project template (Appendix F)

### Project Description

The project description part of the template, shown in Figure 20, includes seven sections to describe the details of the project and how progress will be measured, tracked, and reported. The seven sections are: (1) Scope, (2) Personnel responsibilities, (3) Additional resources needed, (4) Schedule, (5) Budget, (6) Metrics to track, and (7) Accountability.

1. **Scope***:* This section should include specific actions needed to finish the project. The actions will still be at a high level at this point, but there should be enough of a description to be able to do the rest of the proposed improvement project.
2. **Personnel responsibilities***:* For each part of the scope, it should be clear which tasks are the responsibility of utility staff along with an estimate of how many hours each task is expected to take. Some tasks can be taken care of by existing staff, but other tasks may require additional funding either for casual labor or overtime pay. Any additional hours and/or new employees or casual labor should be included in the budget. For tasks carried out by contractors other non-utility personnel, their tasks should go under “Resources needed”.

Examples:

* Manager is responsible for Task X and Task Y. Task X will take 50 hours in Year 2 and 100 hours in Year 3. The manager has sufficient time to complete these tasks and no new funding is needed
* Utility operator is responsible for Task A and Task B. Task A will take an additional 200 hours in Year 1-4, and Task B will take an additional 100 hours in Year 3. The additional hours will need to be included in the budget.
* A new employee will need to be hired to do Task C at 800 hours per year for 3 years.

1. **Additional resources needed***:* Include all resources that the utility does not currently have to complete the project scope. Resources may include operator or clerk training, contractors and consultants, parts and materials, and infrastructure. A rough estimate of the cost should be included.
2. **Schedule***:* At the early stage of planning, the schedule should be done on a yearly basis. This will allow for a budget estimate to be made, but still keep it at a high-level.

Although this is a high-level schedule, the manager needs to identify the relationships between different tasks that affect the schedule [for example, “A” must be finished before “B” can be started]. Examples of possible relationships to consider include: procuring new resources, building new skills in employees, writing and approving new policies and/or ordinances, qualifying for financing, receiving a permit, and other legal, procurement, procedural, or other requirements.

The schedule should include deliverables and milestones. A deliverable is a product that the utility receives through the process—it might be a study or report or completed wind farm. A milestone is a checkpoint that allows the project manager to keep track of what has been done and what still needs to be done. Each deliverable and milestone should have an expected date for completion.

The schedule can be shown simply as a list of activities with expected start and finish dates, or by using computer programs to create a Gantt chart, a bar chart for when tasks are expected to start and finish.

1. **Budget:** Based on the Personnel responsibilities, Additional resources needed, and Schedule, a rough budget should be created. To make integration with the utilities budget easier, using the budget categories used for reporting to the RCA might be simplest. The budget for each improvement project should include only new spending that is needed to carry out the improvement plan.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Budget category | Year 1 | Year 2 | Year 3 | Year 4 |
| Training |  |  |  |  |
| Personnel |  |  |  |  |
| Outside professional services |  |  |  |  |
| Depreciation/amortization |  |  |  |  |

Before the budget is accepted and the project started, a more detailed budget, including a budget by milestone and deliverable will be needed.

1. **Metrics to track to measure success**: It is important to begin thinking early on about how an improvement project’s success will be measured. If the project saves the community money or improves service, it is important to be able to show the success. On the other hand, if the project does not go as planned, it is important to know what did not work so that it can be improved.

Metrics should be simple. For instance, if the expected benefit is an increase in generation efficiency to 14 kWh/gallon, then generation efficiency should be a metric that is tracked.

The frequency of tracking is also important to think about because depending on the answer, it may require different types of equipment. The interval, or frequency, of measuring metrics should be meaningful and give time to make corrections if the project is not working as expected. It is also possible that a project will be tracked more frequently early on so that things can be tweaked and improved.

1. **Accountability**: Making sure that someone holds the utility accountable for improvement projects and the overall improvement plan can be an important part of the success. The utility board is the most likely body to hold the utility accountable. The utility’s customers should be informed so they can help hold the utility accountable.

The utility manager should have a plan for when to provide updates and what the updates will include. The schedule for updating stakeholders, including the board and customers, should be realistic both for the utility and for others’ schedules.

Examples:

* Twice-yearly meeting and presentation to utility board on progress to reduce outages
* Monthly email to customers or a utility website on efforts to reduce fuel costs through generation efficiency improvements

## Implementing improvements: Developing a multi-year budget

The utility will develop several individual improvement plans that may spread out over several years. It is likely that the utility will not be able to implement all of the plans, either due to a lack of time or resources. The utility will have to prioritize improvement in the multi-year budget, doing the most important first and moving on from there.

For many PCE-eligible utilities, a public budget process is required. In cities, budgets are approved after public hearings and the budget plan is approved by the city council/assembly. Likewise, most tribes and non-profits have budget plans that must be approved by the governing body.

It can be complicated and time consuming to develop and pass a budget, enough time must be allowed for the budget-making process. The amount of time needed is different for each organization, but it can take several months from start to finish. It is important to give enough time to go through all of the required steps.

### General principles for developing budget

In preparing a budget, the utility should follow a few general principles.

1. *Priorities*: The budget should reflect the priorities of the utility to provide safe, reliable, and reasonably priced electricity to customers.
2. *Balanced budget*: The budget should include enough revenue to cover expenses. The budget should be conservative in its expectations for revenue and expenses.
3. *Cost-based rates*: Rates should be set to provide a balanced budget, and distribute the costs of generating and delivering power to customers equitably and fairly (See Chapter 4). If the utility is not economically regulated and chooses to not set cost-based rates, it should be able to explain to customers why this is the case. When possible, rates should be changed slowly so as to limit rate shock to customers.
4. *Factor in improvements*: If the improvements include operational/performance changes (line loss reductions, generation efficiency improvements, a new revenue source), those changes need to be reflected in the budget.

An Excel workbook is included in the appendix as an example of how different options can be financially evaluated and a multi-year budget can be adopted to implement the utility’s improvement projects. The Excel workbook uses the terms in this guidebook and the information that the utility should have on hand. The workbook is based on the RCA Annual PCE Report and will help the user understand the potential effect of projects on customer rates and PCE.

The user will be required to provide most of the financial and operational information for the utility. To make the process easier, the workbook provides calculations to help the user see how budget changes will impact rates. The nine main tabs in the workbook walk through the steps required to create the budget and set a cost-based rate to cover the utility’s expenses. The rest of this chapter will provide a narrative on how to use the workbook.

A quick note on the colors used in the tables that follow:

* The light peach are cells that have calculations – do not enter data in these cells.
* All other colored cells are linked from another sheet in the workbook—the cell color is matched to the tab color. Do not enter data in these cells.
* The white (blank) cells require an input – this is where you enter the utility information.

The cells that are linked to other sheets and/or have equations in them have been locked to make it more user-friendly.

The Excel workbook can be found at:

The workbook cannot be used for everything. It does not cover cash flow, so the changes in a collections policy cannot be analyzed with it. It also does not include a way to develop multiple rate structures based on the different costs of delivering power to different classes of customers. The workbook also does not provide a pre-set way to compare multiple projects.[[3]](#footnote-3)

### Step 1: Review test year’s expenses

As in Chapter 3, this section will use the Income Statement to develop the budget. The idea and principals are the same for utilities that use budgets in other formats.

As was outlined in Chapter 3, the utility should review the expenses reported to the RCA and use these as a baseline for the next year’s budget. All utility expenses should be included, even if they were deemed ineligible for PCE reimbursement by the RCA. For example, RCA will not allow old fuel debt to be an eligible expense, but it still needs to be paid back by the utility. The Memorandum from the RCA on the PCE Annual Report should be examined. Under the “Analysis” section, the RCA explains all changes to the expenses the utility had reported (what the RCA calls “Adjustments”). The utility should examine all ineligible expenses to determine if they are needed and appropriate.

The adjusted test year’s expenses will form the foundation of the multi-year budget plan. In the “Budget template” tab, the adjusted budget will be included in the second column as the Test year—this should include all expenses for running the utility, even those things that were determined to be ineligible by the RCA.

If the utility had a budget for the previous year, the budget should be compared to the actual expenses for the year. By analyzing how accurate the budget estimates were, both for expenses and revenue, the next year’s budget can be improved. The manager should ask questions such as: Which expenses were not included in the budget? Were additional expenses oversights or one-time unexpected expenses? Were there planned activities that were not started or completed?

### Step 2: Budget improvement projects

After the budget is assembled, the improvement plans will be prioritized and incorporated into the budget. This may end up being an iterative process as the time and resources needed to perform the projects become more clear in the budget. The following resources, which are included in the appendix, can assist in understanding the effect of the improvement plans on the budget and customer rates.

Figure 21 comes from the “Budget template” tab in the Excel workbook that is used throughout this section.



Figure 21: Multi-year budget plan (See Appendix G)

##### Personnel Expenses

The “Total Compensation During Test Period” line item on the “Budget template” tab is linked to the tab “Personnel compensation”, Figure 12. The three most common utility employees (manager, clerk, and operator) are included, with additional spaces for other personnel. The “Rate” (in dollars/hour) and the number of “Hours worked per year” are used to calculate the “Total salary”. “Other compensation” can include performance incentives, health benefits, and other types of compensation covered in Chapter 3. There is a separate table for each budget year. The hours and personnel should include what was estimated from the previous year along with additional work that will need to be done with the improvement project(s).



Figure 22: Personnel expense budget (See Appendix G)

The table can also be used to determine if more employees are needed to perform the work, and check to see what will happen to rates if raises and incentives pay are provided to employees. The utility should expect that Personnel compensation should increase every year, as pay should keep up with inflation.

The other Personnel expenses (Employee Portion of Payroll Taxes and Workers’ Compensation) will need to be calculated and put into the “Budget template”.

##### Operating expenses

The main operating expense will probably be the fuel expenses; these are covered in a later section.

Other operating expenses (oil/filters, parts, maintenance) should include the baseline from the previous year’s budget plus any additional expenses for the improvement plan(s). Remember that most expenses that are greater than $5,000 or have a useful life greater than one year can be amortized or depreciated.

##### General and Administration (G&A) expenses

The most common additions for G&A expenses include new “Outside Professional Services” such as accounting assistance. If the utility does not currently have insurance, it should be purchased and the cost included as a G&A expense.

Training, for operators, clerks, and the manager, should be budgeted. If the training is required to be able to operate new infrastructure, the training expense can be rolled into the total cost of the infrastructure and included as a depreciation expense.

It is common for PCE-eligible utilities to have unreported bad debt (uncollected customer bills). In order to make sure that there is enough revenue to cover expenses, the utility needs to account for the uncollected bills. While this means that other customers end up paying more for power, it is the proper way to deal with uncollected bills. If bill collection is an issue for the utility, a new collection policy or installing prepaid meters should be one of the improvement projects.

##### Other expenses—Operating Expenses, G&A Expenses

The other expenses for operations and G&A are linked to a modified version of the Form 4A from the Annual Power Cost Equalization Report for Nonregulated Utilities, shown as Figure 23. The table is included as the “Other revenue & expenses” tab in the Excel workbook.

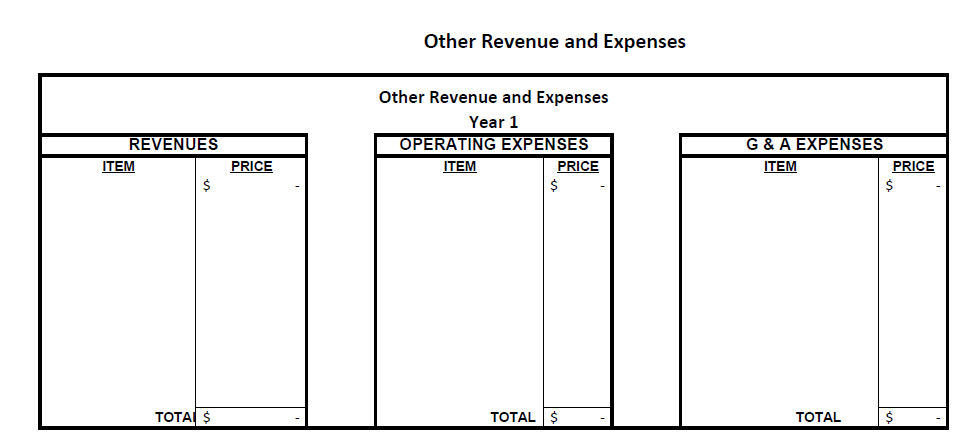


Figure 23: Other revenue and expenses budget (See Appendix G)

##### Interest expense

If the utility currently has a loan or expects to take out a loan to assist in paying for capital expenses, the interest should be calculated and included as an operating expense for each budget year on the “Budget template.”. With the exception of fuel loans, if needed, the utility should not take out loans to cover operating costs.

##### Depreciation & Amortization

If an improvement project includes a purchase that is greater than $5,000 and/or a useful life greater than one year, the item should be depreciated using the RCA-approved expected life. Figure 24 is a modified version of the “Schedule of Depreciation and Amortization” can be used to plan for future budget years. Based on the expected cost and expected life, the annual depreciation is calculated using the straight-line depreciation method. Straight-line depreciation assumes that assets worth decreases the same every year. While annual depreciation is calculated automatically, the value will need to be placed in the appropriate budget years by the user.

The “Total Accumulated Depreciation” calculated at the bottom of the form links back to the “Budget template” tab.



Figure 24: Schedule of Depreciation and Amortization (See Appendix G)

#### Expected sales

The utility needs to forecast electricity sales to estimate both the future sales revenue and fuel consumption.

Depending on what is going on in a community, there are several ways to forecast sales effectively. The tab “Expected sales” includes three methods of estimating future sales and also includes a table for utilities that choose to not use one of the three methods.

1. The easiest way to forecast is use the previous year’s sales. If sales have been consistent for several years, then this method could be fairly accurate.



Figure 25: Constant sales forecast (See Appendix G)

1. Another method is to take an average of the total sales over the past 5 years. This will balance out if the previous year was unusual for some reason. If the sales have been changing consistently over the past several years, either increasing or decreasing, the forecast might be too high or low.



Figure 26: Five-year average sales forecast (See Appendix G)

1. A trend in sales can be found by graphing the total sales over the past five or ten years. A program such as Excel can be used to graph the total sales for each year using a scatter plot. After the scatter plot is created, a trendline can be inserted by right-clicking onto any of the points. The trendline can be extended into the future by using the forecasting feature. If the forecast looks reasonable, this could be abb good way to develop the future sales estimate.

Figure 27: Expected sales using 5-year trend

1. If the user chooses to not use one of the above methods, the “Expected sales” tab also includes a space for user-defined values.

If a utility knows that there will be a change in the near future (a school is going to open, the cannery is expected to close) those changes should be included in the forecast by moving the forecast up or down. Also, if the utility expects to increase sales by fixing metering issues, those increased sales should be included.

Another resource for estimating future sales is available through the Alaska Affordable Energy Model (<http://www.akenergyinventory.org/energymodel>). By looking at the model results and finding the community from the dropdown list, the manager will be able to go the “Consumption” page under the “Summary” tab. Scrolling down will bring a person to the “Electricity Consumed” chart. Each forecast is based on historical consumption trends and population forecasts for the utility.

If a utility has multiple rate classes, it is useful to do a sales forecast by customer class so that the revenue forecast can be as accurate as possible. If the utility does not have multiple rate classes, there is probably no need to estimate sales by sector.

Whichever way is chosen to do the forecast, the manager needs to make sure that the results seem reasonable.

#### Fuel expense

With the expected sales forecasted in the previous section, the volume of fuel needed can be estimated.

The estimates will be made using the “Fuel Expense” tab in the accompanying workbook. After the sales estimate is developed, the total amount of electricity that needs to be generated can be calculated by using line loss and station service. Line loss is calculated by finding the difference between sales and generation. Without analyzing a system, it is impossible to determine if line loss is caused by metering issues (not recording sales properly) or by physical losses of electricity throughout the system. This section assumes that line loss is due to physical losses. If improvement projects are expected to reduce line losses, the changes should be included in the appropriate years. Since station service is removed from the calculation of line loss, it must be added back to determine the expected kWh generated.

After the Expected kWh generated is calculated, then the amount of fuel consumed can be found by including the generation efficiency and the amount of renewable energy generation. If improvements that are planned will increase diesel efficiency or increase the amount of renewable energy generated, the new efficiencies or generation should be included in the appropriate years.

This calculation is also included in the spreadsheet.

The last calculation is the Fuel expense, which includes the volume of fuel consumed in gallons and the cost per gallon of diesel. Unfortunately, the most difficult part of all of these to forecast is the cost of diesel, since it depends on world price of oil, which can change at any time. The Alaska Affordable Energy Model can help in providing an estimate based on historical values in a community and an estimate of the future price of oil. The fuel price estimate can be found on the “Financial and Demographic” page under the “Summary” tab.[[4]](#footnote-4)



Figure 28: Fuel expense template (See Appendix G)

Prior to budgeting for more fuel, the amount remaining fuel should be counted so that fuel is not purchased unnecessarily. This illustrates why it is important to have an accurate fuel meter to track fuel consumption.

If fuel costs end up being higher than expected, then the utility will need to pass the extra expenses to customers. Having a reserve account with sufficient funds to cushion a cost increase or cover higher than expected fuel costs can be very useful. The State of Alaska’s Division of Community and Regional Affairs offers the Bulk Fuel Loan Program, which can provide a community or utility with a loan if they do not have enough cash to pay for fuel.[[5]](#footnote-5)

#### Reserve account

As mentioned in the previous section, a reserve account can be a useful cushion to cover higher than expected fuel costs. The reserve account can also be used to cover the cost of unexpected breakdowns or to smooth out cash flow throughout the year. As explained in Chapter 3, deposits into a reserve account are not eligible for PCE reimbursement until the money is actually spent. Keeping this in mind, the utility should consider how building up a reserve fund will affect its ratepayers.



Figure 29: Reserve account (See Appendix G)

#### Other revenues

Besides revenue from ratepayers, utilities may have other sources of revenue. These are reported under “Other Revenues” on the “Budget template”. The most common types of other revenue includes Grants, Pole rentals, Wasteheat In-kind, and Other (which is linked to the appropriate places on the tab “Other revenue & expenses”).

Other revenue sources can help to reduce cost to customers. The total of these four revenue sources are summed and included as “Total non-sales revenue” on the “Customer rates” tab. “Other revenue” plays an important role in determining the cost-based rate for the utility.

### Step 3: Determine customer rates

All customer rates should start from the cost-based rate, which is the rate based on the actual cost of producing and delivering electricity to customers. This means that the cost-based rate includes those actual costs, but also other sources of revenue. Since the other sources of revenue contribute to the finances of the utility, covering some of the costs of the utility, the ratepayer does not have to be charged as much for the utility to break even.

The example that is worked out here, and provided under the “Customer rates” tab in the workbook assumes the same rate for all electricity sales. Any changes to this rate, either for different customer classes or consumption block, need to be justifiable and based on the cost of delivering service to those customers. Rates should be non-discriminatory—giving one customer class a rate lower than cost-based means that other customers are paying more or there is insufficient income to cover the utility’s expenses.

Total expenses and Non-sales revenue (the sum of all other revenue on the Income Statement) both come from the “Budget template” tab. If there are monthly customer charges and/or connect/disconnect fees, these can be included in the “Customer charge revenue ($)” line as a sum for all customers. The Expected sales comes from the “Expected Sales” tab.



Figure 30: Cost-based rate template (See Appendix G)

If the utility does not have a sufficient reserve account (“Rainy day fund”), a yearly deposit should be made until it reaches the desired amount. The amount of the reserve account should be decided by the policy-making board and be enough to cover unexpected breakdowns and/or a steep increase in fuel costs.

The rate calculation also assumes that there are no demand charges. If there is a demand charge, it can be included in the “Customer charge revenue”, or added as another row.

The cost-based rate calculates one rate for all classes. It is possible that a utility will have multiple rate classes and/or rate blocks. Utilities that are not economically regulated do not have to get rates approved by the RCA, but the utility and customers should still understand how the rates were determined. Rates should be based on the cost to deliver the service to customers and should be fair to all customers. No matter how a utility decides to determine its rates, the utility has a duty to its customers to ensure equity for all customers[[6]](#footnote-6), that no customer classes are discriminated against, and that one or multiple customer classes do not unnecessarily subsidize another customer class. If the utility and the utility’s policy-making body decide to provide subsidies across customer classes, those decisions should be made openly and explained to all customers, including the effect of the decision on their bills and level of service.

#### PCE effective rate

While the Power Cost Equalization program does not directly provide a subsidy to utilities, PCE is very helpful in reducing the cost of electricity for eligible customers and provide steady cash flow from the state.

The PCE floor is determined by a weighted average of the cost of power in Juneau, Anchorage, and Fairbanks. The maximum level, or ceiling, that PCE will cover is $1.00/kWh. Any portion of a rate above $1.00/kWh will not be subsidized by PCE.

In Table 14, which comes from the “PCE rates” tab in the workbook, the Total expenses and Non-rate revenue comes from from the “Budget template” tab. The Total sales are linked from the “Expected sales” tab. The Ineligible expense line includes expenses not incurred in current period (old fuel debt, reserve account, profit), but that are actual expenses the utility had. Please refer to the RCA’s Memorandum to the utility’s PCE Annual Report for expenses that had been determined to be ineligible. The Ineligible expenses are manually entered into the worksheet.

The PCE cost-based rate is different from the cost-based rate from the previous section in that it only includes eligible expenses—i.e. it does not include expenses such as contributions to a reserve account, profit, and old fuel debt.

The calculation for the PCE cost-based rate is:



Figure 31: PCE-eligible customer rates (See Appendix G)

The cost-based rate calculated on the previous page is included in the row “Rate (Pre-PCE including reserve account payment)”. If the user would like to be able to test other rates, there is a section on the tab “Customer rates” where a user-defined rate can be used. The Rate row on the “PCE rates” tab is programmed to pull the user-defined values first, if they are available.

The calculations assume that there is only one rate block for the first 500 kWh sold to residential customers. If the PCE cost-based rate (PCE CBR) is less than the Residential rate, then the PCE effective rate is calculated by:

If the PCE cost-based rate is greater than the Residential rate, then the PCE effective rate is calculated by:

The PCE effective rate is the rate that customers will actually pay. The calculation for community facility works the same way, except that the number of kWhs subsidized is limited by the number of people in the community. The allotment of community facility electricity sales is calculated as 70 kwh/month multiplied by the number of people in the community.

### Step 4: Evaluate all improvement plans

Before deciding on which improvements to do when finalizing a budget, the each option should be tried in the budget planning tool. It is important to know if a plan will increase or reduce rates for customers before it is chosen. For some projects, the benefits will not be seen in reduced customer rates, even if they are necessary to improve the level or safety of service. The non-financial benefits of any project should also be weighed before making a final decision.

1. AS 42.05.291 [↑](#footnote-ref-1)
2. <https://www.rd.usda.gov/files/UEP_Bulletin_1724D-101A.pdf> [↑](#footnote-ref-2)
3. Another example of how to compare improvement projects can be found through the USDA Rural Utility Service’s “Engineering Economics Computer Workbook Procedure” (https://www.rd.usda.gov/files/UEP\_Bulletin\_1724D-104.pdf) and the accompanying “Economic Analysis Worksheet” (<https://www.rd.usda.gov/files/UEP_Bulletin_1724D-104_EconWorksheet.xls>). [↑](#footnote-ref-3)
4. <http://www.akenergyinventory.org/energymodel> [↑](#footnote-ref-4)
5. <https://www.commerce.alaska.gov/web/dcra/BulkFuelLoanProgram.aspx> [↑](#footnote-ref-5)
6. 3 AAC 48.510(a)(3) [↑](#footnote-ref-6)