Guidebook for Managing a PCE-eligible Utility

Part 1: Financial Management

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.

The Power Cost Equalization (PCE) program does …. Eligible utilities must provide information to the Alaska Energy Authority (AEA) and the Regulatory Commission of Alaska (RCA) on a monthly and annual basis, respectively. The required information can be key for tracking performance of utility.

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

* 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.
     2. Keep invoices, paid, etc.
  3. Is money spent productively?
  4. Track financial health
  5. Perform required reporting for PCE—monthly and annually [do a. and b. will make this easy]
     1. Lower costs to PCE-eligible customers
* 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
* 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,

To help out the manager, the guidebook is broken into six parts. The first three parts give overview of tasks that manager needs to oversee, perform and/or assist utility personnel. The last three parts specific to filling in reporting requirements and setting up the accounting system for the utility.

1. Financial management
2. Operational management
3. Planning for future
4. Filing the Utility Monthly Report
5. Filing the Annual Report
6. Setting up the accounting system for reporting purposes and tracking

## How to use the guidebook

The guidebook is intended to provide guidance for utility managers, consultants, regional energy managers, utility board, 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. The guidebook uses existing reporting requirements, especially for 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. The required reports include almost all of the operational and financial data that needs to be tracked to successfully manage a small rural utility. This guidebook focuses on the utilities that are not economically regulated.

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.

To be successful, manager must **collect** accurate information, **report** to AEA, RCA, Board, customers, and **analyze** information to improve the utility.

The rest of financial management covers five topics.

Chapter 2: Overview—includes key terms, purpose, how to get assistance

Chapter 3: Revenue—needed policies & procedures,

Chapter 4: Expenses

Chapter 5: Tracking financial health—profit & loss, balance sheet, cash flow

Chapter 6: Operational performance—accounting or physical issues?

Chapter 7: Setting customer rates, and PCE rates

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

# Chapter 2: Financial Management—*Overview*

## Introduction

Good financial management will help make sure that a utility have enough money to pay for the cost of producing and delivering safe and reliable power to their customers. Especially in small utilities, with small margins and limited staff, this is not always easy to do. This guidebook aims to help the utility manager to identify potential problems before they get serious, and to plan for the future.

Manager may be part-time or full-time, perform other duties at utility (bookkeeping, IT, etc.). Someone for every task—read meters, bookkeeping, reports to government, internal analysis.

Manager needs to make sure utility….collect money, spend it wisely on operations and investments, customers receive PCE reimbursement eligible for, rates fair and reasonable. Board should hold manager responsible, with clear and realistic expectations.

This guide does not require any experience in accounting or finance; it uses non-technical language where possible to explain accounting terms. This guide is meant to provide assistance with how to use and interpret the numbers produced by the utility accounting system. Provide some guidance on how to perform various functions.

If a utility needs help setting up or improving their accounting system, a number of potential resources are available to assist communities and utilities.

1. Part 5 of this guidebook goes into depth…
2. For communities that use Intuit’s Quickbooks, Alaska’s Division of Community and Regional Affairs (DCRA) has published a guide to using Quickbooks for water & wastewater utilities.[[2]](#footnote-2)
3. For nonprofit utilities, the Foraker Group (<https://www.forakergroup.org/>) can provide financial management assistant through its shared services support for partner organizations.
4. Several private accounting and bookkeeping firms can be hired to provide bookkeeping assistance or perform the utility’s bookkeeping.

Chapters 3-7 primarily rely on the information needed to file the *Utility Monthly Report* and the *Annual Power Cost Equalization Report for Nonregulated Utilities* (the PCE Annual Report) as the basis for understanding the utility’s finances; however, filing for the PCE program is not the primary purpose for these chapters. See Part 4 and Part 5 on step-by-step instructions for filling out reports. Here we focus on how to use the information.

## Key terms

## Ways to protect the utility’s finances

### Theft and fraud

### Insurance

### Audits

Formal audits are frequently required by granting agencies and lenders. Audits are generally required for the benefit of the lender or granting agency to verify that the bookkeeping practices of the business are proper, that funds have been properly used, and there is no theft. State and federal law requires that an organization have a single audit if it receives $750,000 in federal grant. The formal audits can be provided as supporting documentation to the RCA as part of the annual PCE report.

While the audit is required to safeguard the granting agency or lender, it can also be useful for the utility, as it provides an assessment from a professional, neutral third party. Each part of a formal audit can be used to improve the operation of the utility. If the utility acts on any of the suggestions contained within the management letter, the financial management of the utility can be improved. If the utility needs additional assistance in interpreting an audit and recommendations, the Alaska Energy Authority and other private and public agencies can help.

If a utility needs additional assistance with their books, but does not need a formal audit, accountants can be hired to do pre-audit assistance. An accountant providing pre-audit assistance can assist the utility in improving the utility’s books and procedures.

It is easy to fall into the trap of thinking that financial reports are just for reporting to outside groups. It is important to provide timely and accurate reports to many groups, internal and external, including the utility’s board or city council, and the Regulatory Commission of Alaska for participating in the PCE program. For nonregulated utilities, it is especially important the utility’s governing board play an active role in making rate-setting policy. The governing board needs timely and accurate reports to protect the interests of the utility’s customers.

Financial reports should be produced and analyzed on a monthly basis by the manager. By keeping close tabs on the utility’s financials the manager can identify potential problems, before they turn into a crisis. Financial reports alone will not say that expenses are prudent or if money would have been better spent in a different way. The utility manager must be able to take financial data and combine it with the operational data to develop a plan to maintain and improve the utility. The plan for every utility and community should meet the unique needs of the utility and the community it serves.

# Chapter 3: Financial Management—Determine Utility Sales and Revenue

## Introduction

Important: generating electricity to sell. If sales are not accurate, not collecting revenue. Some customers getting a good deal, others have to pay for it. Treat customers fairly.

How to set customer rates see in Chapter 7.

AEA and RCA care….

1. Reimburse for eligible sales
2. Line loss

## Checklist

* Collect monthly
  + Create meter map and meter reading sheet
  + Read and record all customer meters
  + Check meter readings for accuracy
  + Bill customers
  + Record sales in accounting system and on customer ledger
  + Follow utility’s collection policy
* Report
  + Monthly: PCE—UMR [See Part 5]
    - Submit UMR, Customer ledger
  + Yearly: RCA Annual revenue [See Part 4]
* Analyze monthly
  + Collection rate
  + Bad meters, misreading, missing customers
  + Trends in sales

## Rate revenue

Make sure that accounting system is appropriately set up. See Part 6 of Guidebook on how to do this.

### Read meters

Create a map, set up a sheet for reading meters, Read the meters, Record readings, Check for inconsistencies

#### Create a map

Make it easy. Not miss anyone.



* Use a map of the town that shows where customers and meters are located. Community maps from the DCRA or Google Maps (or similar service) will work well.
* Create a route for the meter reader to follow that limits travel time
* Include customer names/numbers or meter numbers on the map so the meter reader can follow the map and the meter reading sheet
* The route and customer/meter numbers can be handwritten or done on the computer
* Meter reading sheet will follow route

#### Set up meter reading sheet

See template in Appendix….Do in a spreadsheet. Allow to set up calculations [shown in section below]. Recorded on paper or in computer or tablet. Try to reduce the number of times numbers are written or typed in. Errors possible each time, switching order of numbers or wrong number.

Sheet provided to meter reader should:

* Be in the order that the meters will be read (consistent with map)
* Include a route # so that the sheet can be sorted for meter reading. In the current case it counts by ten. This would allow new customers to be added without renumbering all of the route numbers.
* Include customer #
  + Makes sure the reading is recorded under correct customer
* Meter #
  + Meter reader can make sure reading the correct meter. If there is a meter change in middle of month, both meters can be recorded separately
* Customer class will allow the meter reading sheet to be sorted to make it easier to fill in the customer ledger
* Location
  + Could be an address or other location information
* Notes
  + Additional information that will help the meter reader be accurate
* Meter multiplier

NOTE: Streetlights….

Sheet provided to meter reader should:

* Include any multipliers on the meter [may be labeled on face of meter or may be a CT ratio]
* kWh used in last period.
* Previous meter reading
* Date of previous meter read
* Any other information that may need be needed to bill customer correctly

List needs to be updated each month

Sheet should include blank spaces for the meter reader to record:

* Current date of meter read
* Current meter reading
* Number of days since the last meter read
* kWh used in current period

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Meter reads | | | | | | | | | | | | | |
| Route # | Customer # | Meter # | Customer Name | Customer address/location | Notes about meter location, other | Meter Multiplier | kWh used last period | Previous Date | Previous meter reading | Current Date | Current meter reading | Number of days in period | kWh used current period |
| 10 | 352 | 91654 | Patao, Preston | 14 Main Street |  | 1 | 217 | 1/1/2018 | 92092 |  |  |  |  |
| 20 | 146 | 4970878 | Bagley, Felicia | 24 Main Street |  | 1 | 266 | 1/1/2018 | 23534 |  |  |  |  |
| 30 | 472 | 8288190 | Water treatment | 42 Main Street | To left of washeteria meter | 1 | 1505 | 1/1/2018 | 48338 |  |  |  |  |
| 40 | 784 | 87402695 | Washeteria | 68 Main Street | To right of water treatment meter | 1 | 3695 | 1/1/2018 | 56151 |  |  |  |  |
| 50 | 268 | 23226130 | Mccook, Ranae | 88 Main Street |  | 1 | 546 | 1/1/2018 | 91491 |  |  |  |  |
| 60 | 781 | 58234867 | Village council | 30 Frost Street |  | 1 | 236 | 1/1/2018 | 19380 |  |  |  |  |
| 70 | 433 | 58849395 | US Post Office | 50 Frost Street |  | 1 | 598 | 1/1/2018 | 79614 |  |  |  |  |
| 80 | 274 | 62196874 | Bross, Polly | 82 Frost Street |  | 1 | 271 | 1/1/2018 | 65176 |  |  |  |  |
| 90 | 92 | 65795659 | Bruss, Rosario | 90 Frost Street |  | 1 | 284 | 1/1/2018 | 39443 |  |  |  |  |
| 100 | 194 | 34707414 | Rojas, Alyssa | 83 Spruce Street |  | 1 | 299 | 1/1/2018 | 98724 |  |  |  |  |
| 110 | 367 | 36254846 | Kiddy, Adrianne | 75 Spruce Street |  | 1 | 39 | 1/1/2018 | 37954 |  |  |  |  |
| 120 | 151 | 47859795 | Brinson, Tennie | 63 Spruce Street |  | 1 | 673 | 1/1/2018 | 75133 |  |  |  |  |
| 130 | 278 | 48643974 | Candy, Chanda | 33 Spruce Street |  | 1 | 58 | 1/1/2018 | 94924 |  |  |  |  |
| 140 | 585 | 42925745 | School #1 | 15 Spruce Street | On SW corner of school | 20 | 8700 | 1/1/2018 | 2923 |  |  |  |  |
| 150 | 585 | 53169183 | School #2 | 13 Spruce Street | On NE corner of school | 10 | 250 | 1/1/2018 | 8259 |  |  |  |  |
| 160 | 203 | 56888693 | Cadle, Lydia | 22 Spruce Street |  | 1 | 315 | 1/1/2018 | 69874 |  |  |  |  |
| 170 | 31 | 67850176 | Boehm, Sheldon | 44 Spruce Street |  | 1 | 229 | 1/1/2018 | 94251 |  |  |  |  |
| 180 | 196 | 68151075 | Degroff, Melinda | 13 Frost Road |  | 1 | 564 | 1/1/2018 | 84428 |  |  |  |  |
| 190 | 53 | 77112727 | Dambrosia, Vida | 5 Frost Road |  | 1 | 459 | 1/1/2018 | 42857 |  |  |  |  |
| 200 | 269 | 78544302 | Bump, Stephen | 63 Main Street |  | 1 | 212 | 1/1/2018 | 55283 |  |  |  |  |
| 210 | 444 | 83790941 | Telephone utility | 43 Main Street |  | 10 | 2500 | 1/1/2018 | 1696 |  |  |  |  |
| 220 | 171 | 91456558 | Judge, Alva | 33 Main Street |  | 1 | 348 | 1/1/2018 | 28819 |  |  |  |  |
| 230 | 606 | 94164794 | Native Store | 13 Main Street |  | 1 | 2400 | 1/1/2018 | 34368 |  |  |  |  |
| 240 | 571 | 23360131 | Streetlight | 1 Main Street | 15 streetlights based on one meter | 15 | 35 | 1/1/2018 | 32366 |  |  |  |  | |

### Read the meters

Reading different depending on type of meter: analog, odometer, digital, multipliers.

Record in ….

Double-check that reading makes sense with previous meter reading. Double-check wrote down correct number.

##### Analog

* Read the dials like a clock, except each dial rotates in different direction—follow numbers clockwise or counterclockwise from the smallest to largest number. [Red arrows were added to the photo show rotations for each dial]
* Record the numbers starting from the right.
* If the dial not on a number, round down to previous number
* For instance, the rightmost dial is almost to 5, but not quite. Record the number as 4.
* If the dial is between 9 and 0, record the number as 9. If the dial is between 1 and 0, record the number as 0.
* If look like it is almost on a number, look to the dial to the right. If the number to the right has not reached zero, then it has not reached the number yet. For instance, the second digit from the left in the above example looks like it is almost 6. Since the digit to the right is 8, you should record the number as 5 instead of 6.
* The reading on this meter is: 55874

##### Odometer-style

* Read left to right, like a car’s odometer
* If between numbers, use lower value
* The meter to the left should be read as: 30816

Meter serial numbers are generally 8 digits



##### Odometer-style with multiplier

* Read left to right, like a car’s odometer
* If the dial is between numbers, use the lower value
* This meter includes a “Multiply by 10”
* This meter should be recorded as 7915.

Multipliers should be applied after the meter has been recorded. If done in Excel or other spreadsheet, the multiplication can be automated to reduce errors.

##### Digital

Read the meter left to right. Make sure that it is displaying kWh. Some digital meters display other data as well, such as the photo to the right.

The meter below displays the highest power in kilowatts (kW) that the meter had registered since it had last been reset

### Calculate kWh used during period

Best to set up in a spreadsheet program (Excel, Numbers, Google Sheet, etc.)

kWh = Meter multiplier \* (Current reading – previous reading)

[screen shot from Excel with cell reference equations]

### Check meter reads for accuracy

1. Are there any meters with a reading of zero?
   1. Did the meter reader take a reading?
   2. Was the customer disconnected?
   3. Out of town?
   4. Does the meter appear to be tampered with?
2. High or low readings?
3. Is this normal for the customer?
4. Does it seem reasonable for the type of customer?
   1. School or utility consume ~ residence?
5. Did the meter reader write a number down wrong?
6. Was the customer disconnected? Out of town?
7. Is the meter bad?

## Bill customers

The customer bill should include:

* Customer name and address
* Utility contact information
  + Name
  + Address
  + Telephone number
  + Email
* The date of meter reading and the number of days in billing period
* The date payment is due to the utility
* Previous balance
* Any payments received (including the date of receipt)
* Amount of owed in current billing period
  + Owed for current consumption
    - The amount of kWh consumed, including the previous and current reading
    - The rate(s) in $/kWh
    - Total amount due
  + Other customer charges
  + PCE credit
    - PCE credit rate in $/kWh
    - # of eligible kWh
    - Total PCE credit
  + Current charges
    - Including previous unpaid balance, current energy charges, other customer charges, and PCE credit

**PCE credit notice**

* “For the current billing period, the utility will be paid under the State of Alaska’s Power Cost Equalization Program (AS 42.45.100) to assist the utility and it’s customer in reducing the high cost of generation of electric energy.”

**Fuel efficiency notice**

* “For the reporting period that ended 1/31/2018 under State of Alaska’s Power Cost Equalization Program, this utility’s actual fuel efficiency for your community was xx.xx kilowatt-hours per gallon. The acceptable fuel efficiency set out in regulations for the PCE program is xx.x kilowatt-hours per gallon.”



What to do on collection….Goes into accounting by…..

## Assemble customer ledgers

Purposes: Utility, PCE

See template as Appendix xxx.

Accounting systems don’t do this very well. Spreadsheet—limit the number of errors (make sure it is set up properly). Database….

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Customer Ledger** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| Utility Name: | | Seal City Electric Coop | | |  | | Customer class | |  | Rate | PCE credit | Customer charge |  | | Certified population | | | 154 |
| Month: | | January 2018 | | | Residential | | R | $0.75 | $0.40 | $5.00 | Total eligible Community Facility kWh/month | | | 10,780 |
| Date meters read: | | 1/31/2018 | | | Commercial | | C | $0.75 | $0.00 | $25.00 |
| Number of days in period: | | 31 | | | Community facility | | CF | $0.75 | $0.40 | $10.00 | Total Community Facility kWh | | | 5,254 |
|  | | | | | State/federal | | S/F | $0.75 | $0.00 | $30.00 |  | | | |
|  | | | | | | | | | | | | | | | | | | |
| Customer Name | Customer # | Meter # | Rate Class | Meter Reading | | kWh Used | | Charges | | PCE Credits | Current activity | Old balance | Payments | Amount due | Past due | | | |
| Current | Previous | Total | PCE eligible | Energy | Other | 30 day | 60 day | 90 day | 90+ day |
| Bagley, Felicia | 146 | 4970878 | R | 23534 | 23534 | - | - | $0.00 | $5.00 | $0.00 | $5.00 | $93.10 | $46.55 | $51.55 | $0.00 | $0.00 | $0.00 | $46.55 |
| Boehm, Sheldon | 31 | 67850176 | R | 94381 | 94251 | 130 | 130 | $97.50 | $5.00 | $52.00 | $50.50 | $80.15 | $40.08 | $90.58 | $0.00 | $0.00 | $0.00 | $40.08 |
| Brinson, Tennie | 151 | 47859795 | R | 75833 | 75133 | 700 | 500 | $525.00 | $5.00 | $200.00 | $330.00 | $235.55 | $0.00 | $565.55 | $0.00 | $0.00 | $235.55 | $0.00 |
| Bross, Polly | 274 | 62196874 | R | 66112 | 65176 | 936 | 500 | $702.00 | $5.00 | $200.00 | $507.00 | $94.85 | $0.00 | $601.85 | $0.00 | $94.85 | $0.00 | $0.00 |
| Bruss, Rosario | 92 | 65795659 | R | 39443 | 39443 | - | - | $0.00 | $5.00 | $0.00 | $5.00 | $99.40 | $99.40 | $5.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Bump, Stephen | 269 | 78544302 | R | 55310 | 55283 | 27 | 27 | $20.25 | $5.00 | $10.80 | $14.45 | $74.20 | $37.10 | $51.55 | $0.00 | $0.00 | $37.10 | $0.00 |
| Cadle, Lydia | 203 | 56888693 | R | 70036 | 69874 | 162 | 162 | $121.50 | $5.00 | $64.80 | $61.70 | $110.25 | $0.00 | $171.95 | $0.00 | $0.00 | $0.00 | $110.25 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | kWh Used | | Charges | | PCE Credits | Current activity | Old balance | Payments | Amount due | Past due | | | |
| Grand Total | Number of customers | Total | PCE eligible | Energy | Other | 30 day | 60 day | 90 day | 90+ day |
| Residential | 15 | 3,497 | 2,861 | $2,622.75 | $75.00 | $1,144.40 | $1,553.35 | $1,673.00 | $716.10 | $2,510.25 | $228.73 | $0.00 | $226.45 | $501.73 |
| Commercial | 4 | 13,087 | - | $9,815.25 | $125.00 | $0.00 | $9,940.25 | $4,931.15 | $4,364.33 | $10,507.08 | $41.30 | $525.53 | $0.00 | $0.00 |
| Community Facilities | 3 | 5,254 | 5,254 | $3,940.50 | $30.00 | $2,101.60 | $1,868.90 | $2,003.75 | $91.88 | $3,780.78 | $618.63 | $0.00 | $1,293.25 | $0.00 |
| State and Federal | 1 | 344 | - | $258.00 | $30.00 | $0.00 | $288.00 | $209.30 | $104.65 | $392.65 | $0.00 | $104.65 | $0.00 | $0.00 |
| Unbilled | 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** | **23** | **22,182** | **8,115** | **$16,636.50** | **$260.00** | **$3,246.00** | **$13,650.50** | **$8,817.20** | **$5,276.95** | **$17,190.75** | **$888.65** | **$630.18** | **$1,519.70** | **$501.73** |

### Collecting on revenue

Just because a utility has invoiced customers for sales and booked revenue it does not mean that the utility has actually received the money from those sales. In order to pay for utility expenses, the utility must be able to effectively collect revenue. Uncollected revenue makes it difficult for a utility to pay for the expenses needed to operate and improve the utility.

Anything about cash, debits, checks, credit, online payments….Trade-offs of each: costs, benefits.

What to do when get paid….

What follows is a brief overview of some strategies for improving collections. For a more comprehensive looks at other methods and strategies, please see the RUBA *Utility Collections Handbook* on how to increase collections.[[3]](#footnote-3) Although the guide focuses on water and wastewater utilities, it is also applicable to rural electric utilities.

Clearly written utility policies that explain how customers are billed and the steps that are available for the utility to collect on bills; the procedures must be clearly written and understandable for staff and customers. The staff must be instructed to follow these written procedures and understand this protocol allows sustainability of the utility’s health. Although it may be difficult in a small community, it is essential that all customers are treated equally, so that the rules apply to everyone fairly. Should a customer have a problem with the utility, the customer should create a written record and address their problem in writing to management. If the customer is not satisfied with the outcome, they may appeal directly to the policy-making body. Any and all policies providing for the collection of bills must be reviewed and accepted by the utility’s policymaking body.

The first thing that a utility must do to ensure that revenue is collected is to be able to provide a service at a price that customers are willing to pay. Given the high costs of producing power in rural Alaska, it is important that each utility work safely and efficiently to deliver electricity at a fair price. This includes maintaining high levels of generation efficiency and low levels of line loss, so that each gallon of fuel goes as far as possible. Utility customers also need power to be available reliably and at the frequency and voltage required. Proper operations and maintenance will help ensure that customers receive the services that they are willing to pay for. In a number of communities, the poor quality and high cost of power has led major consumers (such as the school or fish processor) to choose to self-generate. Losing large customers results in increased costs to the remaining customers.

The utility must keep accurate records of customers’ bills and receipts. To enforce any collection policy, the utility must be able to prove that payments were not made and that the utility followed its written procedures.

It is suggested that customers are billed on a monthly basis, with payment due within 15 or 30 days. The bills should be clear about what is owed and the source of the charges. If the customer is eligible for PCE reimbursement, the bill must contain the information requirements for that program. Customer notifications should be available in electronic and physical bills, depending on what is suitable for the community. Notifications of payment dates and late payments can be sent by mail, email, and/or text. Make sure that the utility has appropriate contact information for all customers so that bills are not lost. Delinquencies should be mailed (or emailed or texted) on a regular schedule (30, 60, 90, 120 days) and the consequences of not paying the bill should be clear to the recipient.

If it is possible, make it as easy as possible for customers to be able to pay the bill, taking a number of different types of payment—cash, checks, credit cards, online payments—and providing the method to pay the bill in the notification (for instance, an envelope for a check or cash). Providing a means for customers to prepay their bill, especially through a prepaid meter, has been shown to be effective in many rural Alaska utilities.

Policies for repayment plans should be clear for all customers. The utility should have a clear policy on how long it will wait before determining billed sales are unrecoverable. It is recommended that the utility expenses unrecovered customer accounts as Bad Debt (see Chapter 3) on a yearly basis.

In addition to setting up systems to make it easier for customers to be successful in paying bills, the utility has other means at their disposal. Discontinuing services should be used as a last resort, but should be enforced for all customers. Of course, utilities should consider the weather and the physical danger and not disconnect customers when conditions would be dangerous. Likely the last means on collecting on bills would be to turn the collection over to collection agencies or through small-claims court.

As an additional incentive for paying bills on time, customers must pay their monthly electric bill to receive PCE reimbursement credit from the utility. AEA does not reimburse for PCE if residential or community facility customers do not pay their portion of their monthly bill. Since PCE sometimes covers up to 70% of a customer’s bill, there is a strong natural incentive for customers to pay on time. It is important that customers understand this benefit and how it can adversely affect them. The utility should assist them with setting up a repayment plan, which will make them eligible for PCE reimbursement again, when they are behind on their bills.

## Other revenue sources

Find other revenue sources to reduce costs for ratepayers.

#### Customer Charge

If customers are charged a monthly fee, the customer charge should be included under sales revenue. How to determine appropriate charge…

#### Other types of sales revenue

##### Penalties

When customers fail to pay a bill on time, they increase the utility’s operating costs. The charges for recovering these types of costs are called penalties and should be charged to the individual customers. How to determine appropriate….

##### Connect/disconnect, other special

Electric utilities often provide additional services to customers, such as service hook-ups or disconnects, meter replacements and sale of other products. The costs of providing these services are recovered through service charges, which only apply to customers receiving the services. How to determine appropriate….

### Other revenues

Some utilities receive significant revenue from other sources besides sales of electricity. Grants, pole rentals, waste heat sales, and other revenue sources are common revenue sources across PCE-eligible communities. In addition to accounting for the revenue that is already coming into the utility, reviewing the list provides an opportunity for the utility to see if there are other sources of revenues to reduce the amount of money needed from customers.

**Grants** can come from a number of sources: the city, tribal, state and/or federal government, foundations, non-governmental organizations (NGOs), or other sources. Grants are defined as non-exchange transactions, where the grantor does not expect a service or good in return for providing the grant.

A grant can be provided to a utility as an operational or capital grant. If the grant provided operational revenue, then all expenses associated with the work performed through the grant should also be included as an expense and the grant included as revenue. On the other hand, if it was a capital grant, then any personnel or other operational expenses that were covered by the grant could be capitalized and not reported as operational expenses just as if the work had been performed for a non-grant-funded capital project. The only difference is that the grant-funded portion of a capital project cannot be depreciated. The portion of the project that was paid for by the utility is still eligible to be depreciated.

**Pole rentals** are often used for the use of electric poles. These are primarily for telephone wires.

**Waste heat In-kind** is the value of sales agreement for delivering excess heat from the power house’s heat recovery system to heat buildings. Heat recovery systems are generally quite cost effective, and sales revenue from the system both reduces the amount of rate revenue needed and provides an incentive for the utility to maintain the system. Remember that if revenues are being reported for the heat recovery system, that the operational expenses also need to be reported.

## Report

1. AEA. Section A, 2; Section C, 3; Section D, 2
2. Annual Report: Included on Page 5, KWH sold. Not broken out by customer class.

## Analyze

1. Accurate—internal and reporting
   1. Data is correct that is being submitted. Save time questions—not productive time.
2. Collections. Getting money. Check to make sure things make sense.
   1. Amount due
   2. Amount past due
3. Monthly—UMR.
   1. Chart—by customer class [especially if different rate classes].
      1. Growing? Shrinking?
   2. Excess cost from customer [fish processor], baseload, etc.
   3. Year to year changes. Customer base changing? Plan for this. Change rates?
   4. Customer class. Trends. Baseload? Large swings [extra cost to provide]?
   5. Per customer consumption. Trends. Month-to-month. Year to year.
      1. Help to know what’s “normal”
4. Plan to have cash for expenses, or loan. How does when revenue available fit with when expenses occur?
5. Look for new revenue sources to reduce costs to ratepayers. Understand how affect others. Make decision—tribe own electric and water utility. Heat recovery shift cost from electric utility customers to water customers. Can make sense, but no subsidy for water/sewer

# Chapter 4: Financial Management—*Recording and Reporting Utility Expenses*

## Introduction

The first step in developing a utility improvement plan is to begin by accounting for the current expenses. Expenses, also called expenditures, include such things as payroll, fuel, supplies, contractors, and depreciation. While a number of ways exist for accounting for expenses, this chapter will use the *Annual Power Cost Equalization Report for Nonregulated Utilities* (the PCE Annual Report) Income Statement (shown in Figure 1) since it is the most commonly form submitted annually to remain eligible for the Power Cost Equalization program.

Operation of utility costs money: fuel, personnel, parts, insurance, contractors, etc. Specifics will be covered in Part 2.

Expenses that will be recovered from customers through rates. Need to know how much it costs to provide power. If have different customers—track how to value the power.

Goal for utility to be able to pay for itself. Must know how much it costs.

Agencies more willing for grants & loans, track good expenses.

Why RCA cares

## Checklist

* Collect
  + Financial system codes
  + Policies and procedures: how $ is spent, who can spend it, what it can be spent on
  + Banking
  + Paying:
    - Records to be kept—how to keep it.
    - Simplify recurring
  + Record
  + Internal controls
* Report
* Analyze
  + Budget for expenses

## Collect

Internal controls—Fraud and theft:

* 1. Policies & procedures
  2. Procurement rules
  3. General utility rules
  4. Filing systems & tracking
     1. Financial system codes role up to PCE forms
        1. What else want to track—rates, fees, track infrastructure costs, etc.
        2. Customer class? Generation source?

Book expenses🡪pay expenses

## Report

RCA:

Board:

## Analyze

1. Check for accuracy—
   1. other people working? Other city/tribal employees? Give them a code to charge time to? Can be partially reimbursed by PCE, and
2. Trends? [can this be done in quickbooks or does it need to be exported?]
   1. Spending more or less on:
      1. Personnel
      2. Specific equipment
      3. Etc.
3. Check $ out against invoices.
4. Good value to customers?
   1. Compare with operational info?
   2. Doing useful work?
   3. Useful assets?
   4. Costs vs. benefits?
5. Different costs for different customers? Being fair?
   1. New sub-codes if need to track. Causing additional expense? Cost causer—cost payer
   2. Fees & fines? Appropriate for costs to utility?

**Budget to actuals**: This guide has not yet gone over how to create a budget, this will be covered in Chapter 8, but it is important that the manager set a budget and then track that budget throughout the year against the actual expenses of the utility—this is known as the budget to actuals report. Since the budget is an estimate of the costs the utility will experience during the year, it is important to check monthly that the budget is accurate. If the actual expenses are different from what was budgeted, the manager will need to evaluate what options might be available. If the actuals are higher than expected, can the expenses in future months be reduced, or does more revenue need to be made? Only by checking this regularly can the manager limit financial issues for the utility.

# Chapter 5: Financial Management—*Utility financial health*

## Introduction

A utility could see hundreds or thousands of individual revenue and expense transactions every month and year. With so many details, it would be easy to lose the big picture: Is the utility financially healthy? To assist managers and the governing board to understand the financial health, a number of financial reports are used to provide high-level summaries. The reports will still allow an interested party to dive into detail when needed, but the reports start with a broad, aggregated view of the utility’s finances.

While utilities are required to file financial reports with governing bodies (monthly. in the case of municipally-owned utilities) and report annually to the RCA, the power of financial reports is to assist the manager in analyzing the financial strengths and weaknesses of the utility, watch for impending financial issues, and plan a sustainable path for the utility.

Financial reports are organized into categories that should to be tracked, understood, and acted upon. For the purposes of this guide, we will continue to use the Annual Power Cost Equalization Report for Nonregulated Utilities as the template for reporting and analysis. In order for meaningful analysis to be captured over the years, it is imperative that a consistent format is used by the utility. The annual report will provide the necessary consistency.

* Interpret income statement to understand revenues and expenses during reporting period
* Interpret the balance sheet to understand how the utility’s financial health changes with time
* Use financial ratios to simplify the analysis and description of the utility’s financial health

## Checklist

* Collect
  + Profit & loss
  + Balance sheet
  + Cash flow
* Report
  + RCA
  + Board
* Analyze
  + Budget for expenses

## Collect

The annual report includes two financial statement: The Income Statement and the Balance Sheet. The necessary definitions and methods of the Income Statement were covered in Chapters 3 and 4. Some additional analysis of the Income Statement is included in this chapter. The other financial statement, cash flow statement, is not included in the annual report. Depending on the needs of the utility, an accounting program should be able to produce other financial reports that track information such as payroll summaries, schedule of transactions details, customer balance reports, schedule of depreciation etc.

In order to be used most effectively, utilities should not wait until the end of the year to create financial statements just to report, but they should be produced monthly so that the manager is able to adjust things as needed. Especially since the electric utility is vital for the success of the community, the manager has a special duty for ensuring that the utility is able to operate successfully for many years. To ensure the long-term sustainability of the utility, maintaining the financial health of the utility is just as important as maintaining the physical infrastructure of the utility.

With fewer grant dollars likely to be available in the future from state and federal sources, a utility’s financial health may affect a utility’s ability to access debt financing (loans) and match for grants for needed infrastructure upkeep and replacement.

### Income Statement

The Income Statement, also referred to as Statement of Revenues and Expenditures, is the first financial statement presented, as shown in Chapters 3 and 4.

**Net Operating Income**: As long as the utility has set up the accounts for the revenues and expenses, determining the net operating income is probably the easiest and most powerful equation that can be done on the Income Statement. The net operating income is just the difference between the operating income and the utility operating expenses:

**Net Operating Income = Operating Income – Utility Operating Expenses**

A positive net operating income means that the utility made money during the reporting period, whereas a negative number means that the utility lost money. If a utility has a negative operating income for too many months or years, the utility could have serious issues and go into bankruptcy.

The net operating income, also called net revenue, is essentially the profit or loss made in the reporting period. The net revenue can be viewed both as a dollar value and as well as a percentage of total revenue [the net margin]. The dollar value of the net revenue tells the manager how much additional money could be available for utility investments, or be a signal that rates can be reduced or need to be increased. Using the net margin instead gives the manager an idea of how efficient the utility is in producing net revenues. In order to deal with the volatility of sales revenue, which is generally much greater in a small than large utility, a smaller utility could expect to have a higher net margin as the occasional good period may need to balance a poor period. It is always important to remember that income does not equal cash—the utility must still collect on the bills that it has sent out.

**Trends in revenues and expenses**: After checking the net operating income, which will hopefully be positive, a manager should look for trends in the individual revenue and expense categories. In order to follow trends in revenues and expenses, it is important that things are categorized and presented the same way month to month and year to year. While there may be many ways to categorize expenses, the annual report provides a consistent format.

In some cases, it will be easy enough to look through the reports from one month to the next, or one year to the next, to see if there are any unexpected changes or anomalies in any of the revenues or expenses. Many people are able to see trends much better if they are shown in charts. Depending on the features available in the utility’s accounting program, the data may need to be transferred to a spreadsheet program, such as Microsoft Excel, to make the appropriate charts.

In most cases, a utility should expect that the revenues and expenses are fairly consistent from month to month and from year to year. Many utilities will see differences in consumption from summer to winter, with some communities consuming more in the winter and less in the summer or vice versa, but the changes should be similar from year to year. Any unexpected change in revenues or expenses out of the normal should be investigated. Fuel expenses will most likely be the most variable and hard to predict expense for the utility because of the changing cost of fuel.

This guide will provide just one example of how a utility could track trends for one factor. Tracking revenue is obviously important to ensure that the utility is metering and billing customers properly. The chart below shows an example of how a manager could track Commercial Revenues to see if there might be potential errors.

Figure 2: Example of trend analysis

Figure 6 plots an example of the revenue billed for commercial customers in a community. It can be seen in the example that the revenue is fairly consistent over the first seven months, but that the number of kilowatt-hours sold dropped in month 8, and then remained fairly consistent through month 12.

Since the reason behind this change is not obvious from the chart, the manager will need to need to investigate. What changed between months 7 and 8? Did the utility lose a customer? Did a customer or many customers do energy efficiency upgrades? Did a meter on a commercial customer fail and the customer is no longer being billed? Did the utility install a new meter but the utility personnel are not reading it correctly?

Many different explanations could explain this drop in revenue for the utility, but it is the manager’s responsibility to make sure that the utility is accurately metering and billing all customers. On the other hand, if the drop in revenue is the result in a permanent reduction in revenue from the commercial sector, the utility manager will need to make up the revenue that has been lost. This may mean that the manager will need to change the rates that customers are charged and submit the necessary paperwork to the RCA.

### Balance Sheet

The Balance Sheet complements the Income Statement. Whereas the Income Statement provides information about the revenue and expenses within a particular period, the Balance Sheet is a broader picture of the utility’s financial position at a particular point in time.

Balance sheets should be prepared along with the Income Statement at the end of the month and the end of the year to report to the RCA.

The Balance Sheet really does help us answer a number of very important questions, such as:

* How much does the utility own?
* How much does the utility owe to others?
* How much do others owe the utility?

The Balance Sheetshows the balance in all the asset, liabilities, and fund equity accounts. [[4]](#footnote-4)It is developed on the “fundamental accounting equation”

*(Value of things the utility has = Amount of assets the utility owns + What the utility owes)*

It is possible to scan the summary information presented on assets, liabilities and equity/fund balance and determine fairly quickly whether the utility is financially healthy.

An **asset** is something of value, particularly something that will create future revenue for the utility. Assets can be the power house, cash, supplies, inventory, fuel, generators, receivables, etc.

**Owner’s equity/fund balance** is the part of your assets that the utility owns. Equity can be in the form of stocks (if it is an investor-owned utility), paid in capital, or retained earnings. It is referred to as owner’s equity, if it is a business, or fund balance if it is a government or non-profit.

A **liability** is something that you owe someone else. Liabilities can be loans, accounts payable, taxes payable, etc.

For many, the balance sheet is not intuitive to understand or interpret. A simple example should help to make it clear. Suppose a utility purchased a new engine and generator for $100,000. The utility had $20,000 cash on hand that it was able to pay for part of the generator, so it also had to take out a loan for $80,000. The asset is the engine ($100,000), the invested cash is the equity ($20,000), and the loan is the liability ($80,000). To put these values into the Balance Sheet:

**Assets = Equity/Fund Balance + Liabilities**

$100,000 = $20,000 + $80,000

$100,000 = $100,000

In all cases the balance sheet should balance. If it does not balance, then the assets, equity, and/or liabilities are not being accounted for correctly. This is not just math equation, but is important because the assets, equity, and liabilities are financial basis of the utility and are indicators of the utility’s financial strength or weakness. The balance sheet should be seen as a diagnostic tool for understanding how the utility is doing financially. Especially by tracking the balance sheet over time, the manager will be able to see if the utility is taking on too much debt, is collecting from customers adequately, or has sufficient liquid assets to pay the bills. By splitting things into their appropriate accounts, the manager will be able to see specifically what is helping and hurting the utility’s finances.

#### **Compiling and interpreting the Balance Sheet**

The Balance Sheet is included in the *Annual Power Cost Equalization Report for Nonregulated Utilities* on Page 3. The form that the RCA provides in the annual report includes a selection of the accounts developed by *Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act.* The left side of the form has included the account number. What follows are non-technical definitions of the accounts based on the language in the aforementioned system. If a more in-depth description is needed, a number of resources are available that would be appropriate for accountants and other financial professionals.[[5]](#footnote-5) Utilities are not required to use the Balance Sheet provided by the RCA, other formats are allowed if they fit the needs of the utility better than the supplied form. Especially as the Balance Sheet template provided by the RCA may not include all relevant accounts for the utility, the utility may choose to use an accounting program to create its own balance sheet.

#### **Assets**

If the utility has not already done it, an inventory of assets should be performed. Assets that should be inventoried include the fuel necessary for generating power, storage tanks, generators and the supplies needed to operate the utility both in the field and in the office, including items such as spill response supplies, engine oil, gauges, paper and pencils, computers and printers and much more. Aside from merely knowing what the utility has and does not have, it is important for determining the amount of insurance needed to cover a potential loss.

The inventory should be updated yearly, although some consumable items should be updated more frequently.

The Assets section is usually divided into two parts: Current Assets and Long-term Assets. Unfortunately, the RCA form does not have such a clear distinction in its structure.

***Long-term assets*** include assets that won’t easily convert to cash within a year, and generally include tangible properties or equipment, such as equipment used by a utility to generate and distribute power. Periodically, the utility should inventory all plant, property and materials to assess the long-term assets of the utility, and also determine if/when they need to be replaced. Long-term assets include:

* securities - overall one year
* accounts and notes receivable - over one year
* plant and equipment
* land and buildings
* accumulated depreciation [included as a contra, or negative, asset]

***Current assets*** create cash or turn into cash within the next year. Knowing how much current assets you have is important - it will help you determine if there are sufficient funds available to cover bills. It is also important to know the total of cash in the various bank accounts. Management needs to be alert to any negative numbers in the bank accounts. A negative number indicates an overdrawn account. Current assets include:

* cash
* securities
* accounts receivable
* inventories
* prepaid expenses

#### **Equity**

**Liabilities**

Liabilities are what the utility owes others—creditors, customers, and vendors. While many utilities are reluctant to carry debt, if the debt is being used for productive purposes, such as improvements to the power system that increase reliability or efficiency, the investment will be useful for customers and the utility and can actually reduce costs to customers. Utility’s need to be careful in incurring debt for non-fuel operational expenses, as this is a sign that insufficient revenue is being generated and/or collected: Operational expenses should be covered by operational income, not by incurring debt.

***Long-Term liabilities*** are liabilities that are due after one year or more. Long-term liabilities include:

* notes and loans over one year
* bonds

***Current liabilities*** are short-term obligations, usually payable within the next year. Current liabilities should be less than current assets - otherwise the utility will not have enough money to pay the bills that are coming due. Current liabilities include:

* accounts payable
* notes payable - the portion due within the year
* taxes owed
* prepayments by customers
* lines of credit

### Statement of Cash Flow

Although the RCA does not require that the utility provide a statement of cash flow as part of the annual report, it is incredibly important for planning purposes and probably the most straightforward report for non-accountants to understand, as it is very similar to how many people manage their household budget. A utility’s accounting program should be able to produce a statement of cash flow. The statement of cash flow report converts all revenues and expenses into cash received or spent (inflows and outflows).

The statement of cash flow also separates all cash inflows and outflows into three types: those that come from operations, those that come from financing; and, those that come from investing.

Table 2: Statement of Cash Flow

|  |  |  |
| --- | --- | --- |
| Sector | Inflow | Outflow |
| Operations | Cash from sales | Payroll, fuel, other operating expenses |
| Financing | Cash from loan | Loan repayment |
| Investing | Investment income | Purchase fixed assets |
| Totals | Total cash into utility | Total cash leaving utility |

Understanding how cash is either made (inflow) or spent (outflow) can be a valuable way to understand how and why a utility is making or losing money. Except when a utility is doing a large capital project, operations should be the source of the majority of cash; if it is not and loans are propping up the utility cash flow, the utility will eventually have issues covering its expenses.

Unlike the income Statement, the Statement of Cash Flow includes actual cash that is spent or received by the utility. This means that someone does not have to be able to interpret the Balance Sheet’s Account Receivable to know if Accumulated Provision for Uncollectible Accounts to know if the utility is successful in collecting revenues.

The Statement of Cash Flow does not provide the level of detail needed for a manager to make detailed decisions, but it does provide a quick and easy way to evaluate the state of the utilities finances that many people will be able to understand. Below is one example of what a Statement of Cash Flow might look like.

Table 3: Example of Statement of Cash Flow

|  |  |  |
| --- | --- | --- |
| **Sector** | **Inflow** | **Outflow** |
| **Operations** | $80,000 | $120,000 |
| **Financing** | $50,000 | $10,000 |
| **Investing** | $0 | $0 |
| **Totals** | $130,000 | $130,000 |

The first that can be seen is that the inflow does equal the outflow, but that cash received (inflow) from operations are not covering the cash being paid out for operational expenses (outflow). In this case, it appears that financing is providing cash (inflow) to cover operational outflows. While this can be sustained for some time in emergencies, using financing inflows to cover operational outflows will eventually cause the utility to go bankrupt. The utility will need to figure out how to increase operational inflows—it may be that the rate needs to be increased or that a better collections policy needs to be implemented—or that the operational costs need to be decreased.

## Analyze

For people who are not accountants or financial professionals, the Income Statement, Balance Sheet, and Cash Flow Report can be overwhelming. As can be seen from the material presented in Chapters 3, 4, and 5, a lot of detail goes into the individual line items, detail that is difficult to track if they do not have specialized training. While it is important for the manager to be able to understand, and depending on the staffing at the utility, maybe even produce, the financial reports, in some cases it is much more useful to focus on a fewer subset of metrics that can give a fairly clear picture of a utility’s financial health. The metrics provided below are frequently used by financial institutions to investigate the terms that would be required for a loan.

### Interpreting the Balance Sheet

Since the balance sheet only provides a snapshot of the utility, is important that the manager monitor the utility’s accounts on a monthly and yearly basis to see how things are changing. In a best-case scenario, a utility should have stable account balances over time: The utility collects revenues from customers, pays utility’s personnel and fuel expenses, incurs new loans to build/repair infrastructure, and makes a modest yearly profit that increases the utility’s equity. If any of these become skewed, the utility may have difficulty paying for the utility’s needs.

Below is one scenario of how the balance sheet can be used to evaluate the utility’s financials. The scenario includes the Cash and Customer accounts receivable over an eight-month period. Since Cash and Customer accounts receivable are both assets, the total amount of assets does not change, but how the two accounts change over time is very important to the utility’s ability to cover its costs.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | January | February | March | April | May | June | July | August |
| Cash | $55,452 | $61,849 | $55,196 | $42,849 | $40,824 | $30,499 | $31,856 | $34,355 |
| Customer accounts receivable | $20,802 | $22,422 | $24,102 | $32,039 | $31,754 | $40,642 | $44,796 | $41,817 |

While someone may be able to follow the trend between these two assets by looking at the values in the table, it is sometimes easier to see a chart:

Here it is easier to see that the amount of Cash held by the utility decreases and the Customer Accounts Receivable increases over the eight-month period. What this means is that for some reason the utility is not doing as well in collecting from customers, converting the revenue into cash. If the trend continues, the utility may not have enough cash to pay employees, contractors, loans, and other necessary expenses.

Current Ratio comes from information that can be found on the Balance Sheet. The Current Ratio provides a snapshot on the utilities ability to pay for its current liabilities with the assets that could be liquidated quickly.

A Current Ratio should be close to or greater than 1. Remember that current assets create, or turn into cash within the next year and current liabilities are the bills that are due within the period. If the ratio is below one, then that means that the utility does not have enough assets that it can liquidate to cover expenses if there was an emergency.

Quick Ratio is an easy way to determine if the utility has the means to pay for its expenses without having to sell assets. The Quick Ratio includes assets that are easily converted into cash to pay for bills.

Depending on if fuel was purchased by a loan, and is thus a liability, or if fuel was purchased with cash, the Quick Ratio should at least be 0.25. This means that the utility has enough cash on hand (or other accounts that can be quickly converted to cash) to cover three months of expenses without having issues.

One thing to note is that if the Accounts receivable is increasing over time and the utility is having difficulty in collecting from customers, the Quick Ratio will be artificially high, as it assumes that the utility will be able to collect the accounts receivable in the near future.

Write-off Ratio is a measure of how much revenue the utility has been unable to collect. Remember that Bad Debt in the equation below is not the utility’s bad debt, but the value of uncollected revenue. The utility can either use the Provision for Uncollectible Accounts from the Balance Sheet or the amount expensed on the Income Statement.

It is rare for any utility to not have uncollected revenue, so the Write-off ratio should never be zero. It would be particularly useful to track this over time to check to see if a collections policy is effective.

Accounts receivable days is another way to track the effectiveness of a collections policy. The equation provides a way to estimate the average collections in a given period. In a best case, the accounts receivable days should be the same as the billing period. So if customers are billed monthly, then the accounts receivable days should be close to thirty days.

It is likely that the value will change month to month based on the local economy, but over the entire year the value should be close to 30 days. If the value is much greater than 30 days, then the utility should reexamine its collection policies to see if there are ways to improve the collection of customer revenue.

Debt-service Coverage Ratio measures the ability of the utility to cover its current debt service with the available cash flow. This is used particularly in determining the ability of a business to get loan financing. The net operating income in the equation below is not the same as found on the Income Statement. The net operating income from the Income Statement does include interest and provides a provision for depreciation. In order to determine the net operating income for the debt-service coverage ratio, all expenses except for taxes, interest, and principal expenses should be subtracted from the operational income from the Income Statement.

The debt-service coverage ratio is frequently used to determine if a business is able to afford a new loan. A debt-service ratio should be great than 1.1; this means that there is more net operating income than is needed to cover the debt service from the loan.

# Chapter 6: Financial Management—*Operational Performance*

## Introduction

Fuel primary cost in most utilities. Operational performance has financial impact on customers. Need to track these. Operational metrics that RCA tracks, impacts PCE reimbursement, are not always physical. Line loss—high loss can be accounting as much as physical losses. Physical losses see Part 2.

## Checklist

* Collect
  + Generation
  + Sales
  + Fuel
  + Recovered heat
* Report
  + AEA
  + RCA
* Analyze
  + Accounting vs. physical
  + Savings by improving operational performance

## Collect data

* Daily logs
  + kWh generated (diesel/RE):
    - Need picture of meters.
      * Main bus
      * How to read meters/SCADA
  + Fuel
    - Need picture of meters.
  + Heat recovery
    - Btu meter
* Sales—See Chapter 3

## Report data

Utility monthly report. What AEA does with it. How it affects PCE

Where reported—form…

What the RCA does with the data—see Chapter 7—calculating PCE rates

## Analyze Operational Performance

Goal: least cost to customers

**Line loss** is calculated by AEA and the RCA as the difference between the kWhs generated and sold:

Station service is defined as the amount of electricity consumed in the production of electricity—this includes the electricity for the lights, fans, electronics, computers, etc. that are necessary for generating electricity. While the maximum allowable line loss for the PCE program is 12%, the line loss should be less than 6%. Line loss above 6% can indicate excess loss in the distribution system, improper metering or meter reading, or unsafe conditions. An analysis of the system is needed to determine the cause or causes of line loss. High line loss indicates that the utility is wasting electricity (and thereby wasting diesel) or losing much needed money, or both.

Fit with financial management

*What to do with info….*

**Generation efficiency** is a key to keeping low fuel expenses and maintaining reasonable customer rates. By maintaining a high diesel generation efficiency, customers can reap the benefit of lower operational costs.

*Diesel efficiency* is one of the key factors in determining how much customers pay for electricity. Diesel efficiency is calculated as:

For the diesel efficiency to be reliable, both the kilowatt-hours and volume of diesel consumed need to be metered accurately and timely. In addition to adequate and accurate metering, a utility should know the expected efficiency of its engines and compare its actual generation against that expectation. At a bare minimum, utilities should reach the standards set for the PCE program, outlined in Table 1.

Table 1: PCE program Minimum efficiency standards by kWh/year

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *<100,000* | *100,000 to 499,999* | *500,000 to 999,999* | *1,000,000 to 9,999,999* | *>10,000,000* |
| PCE minimum kwh/gal for >80% diesel generation | 9.5 | 10.5 | 11.5 | 12.5 | 13.5 |
| PCE minimum kWh/gal for <80% diesel generation | 8.5 | 10 | 11 | 12 | 13 |

Efficiency below these standards is a sign that the engines need better maintenance, need to be replaced, or need to be operated in a different way. It can also be a sign of inaccurate fuel metering or reporting.

Relate to financial management

*What to do with info….*

*Renewable energy* projects should perform close to the expected generation. This is calculated by the Performance Against Goal:

Ideally, Performance Against Goal should be 100%, which means that the renewable energy project is producing 100% of the energy it was designed to produce. In reality, there can be many reasons why a project may not meet goals, including random variations in weather. At a minimum, the PAG could be as low as 80%, if it less than that, then the manager should seek assistance to optimize the system so that utility customers’ can realize the full benefits of a true renewable energy project.

*Heat Recovery*

*What to do with info….*

# Chapter 7: Financial Management—*Setting* c*ustomer rates and the PCE rate*

## Introduction

As shown above, customer rate revenue covers the majority of utility expenses. This section will provide guidance on how a nonregulated utility can calculate the rates to charge customers. For regulated utilities, rates are set by the RCA for through a process defined by regulations and statutes. While the process below cannot be used to directly set rates, it can provide guidance on when it would be appropriate to request that a Cost of Service Study be performed to set the rates.

For nonregulated utilities, rates should be determined through a written utility policy and adopted by the policy-making body (council or board). The policy should be easy to understand and explain by personnel to customers. Especially since nonregulated utilities are exempt from rate regulation, it is important that the policy-making board balance the utility’s needs for revenue with the customer’s need for affordable power.

At a minimum, rates should be reviewed each year during the budget development process (see Chapter 8). Fuel surcharges should be reviewed whenever new fuel is purchased, and at the same time the utility should also review the expected generation efficiency and line loss efficiency so as to ensure that the expected fuel consumption is as accurate as possible for the expected kWh sales. Particularly if generation efficiency has decreased or line loss has increased, it is important to not underestimate the fuel cost per kWh of sales. Doing so will leave the utility with insufficient revenue to cover expenses and reduce the PCE reimbursement to eligible customers.

Set cost-based rates

Not maximize PCE reimbursement, fair rates for all customers.

## Checklist

* Collect
  + Expenses
    - Collection rates
  + Non-rate revenue
  + Financial health—need to make up deficits? Making too much profit? Made savings goal?
  + New investments?
  + kWh
* Report
  + RCA
* Analyze

## Collect

### Cost-based rates

Customer rates should be based on the utility’s actual expenses—developing what is known as a cost-based rate. This guide will focus on the method for developing a single rate for all kWhs sold to all customers, but will provide some guidance on how additional rate classes can be determined.

As the rates charged by nonregulated utilities are not approved by the RCA, the utility can choose to charge any rate—either above or below the cost-based rate. If the utility chooses a rate other than cost-based, it should set the rate with the knowledge that it is not cost-based and that a compelling reason exists for making the decision. A utility should realize that if it chooses to charge a rate below the cost-based rate it will not have sufficient revenue to meet expenses and PCE-eligible customers’ reimbursement will be limited by the customers’ rate and not the total eligible expenses.

### Single rate for all customers

**Develop cost-based rate**: The simplest example of setting cost-based rates is a single rate for all kilowatt-hours sold in the utility. In this case, the utility’s operating expenses will be spread out over all kWh sold evenly. Since the utility might have other sources of operating income, the cost-based rate only includes the revenue the needs to be raised by the customer’s rates to cover the difference between the operating expenses and other sources of income including customer charges.

The basic steps for determining a cost-based rate are:

1. Identify expenses that need to be recovered [including to be incurred]
2. Identify all non-rate utility revenue sources
3. Estimate the kilowatt-hours to be sold for the year
4. Develop the rate(s) based on utility policy

**Identify expenses**: The Total Utility Operating Expenses determined through the process laid out in Chapter 4 will be the basis for the cost-based rate. Include all actual expenses to the utility, even if they might be considered ineligible by the RCA, such as old fuel debts. Expenses paid for by grants or gifts should not be included; only expenses paid for by the utility should be included.

**Identify non-rate revenue**: Using the values reported on the Income Statement under Total Operating Income, the total cost that will need to be recovered is the difference between the Total Utility Operating Expenses and Total Operating Income.

**Estimate kWh sales:** In developing a rate for the coming year, it is important that a reasonable forecast of the number of kWh that will be sold by the utility be made. Relatively modest over- or under-estimates lead to the utility gaining excess profits or being unable to cover the operating expenses.

Before estimating future power sales, it is a good time for the utility to make sure that current sales are accurate. The utility should ensure that all customers are metered, that the meters are working, and that the meters are read properly. Unfortunately, there is not an easy, guaranteed way to identify metering issues. Some things that the utility manager can look for in searching for issues are:

1. Are there any customers billed for unreasonably high or low kWh sales? Are the customers that likely are the biggest consumers in the community (schools, stores, other utilities) the largest consumers?
2. Have there been big changes from month to month or year to year for any customers, particularly after a meter has been changed?
3. A close visual inspection of meters may show excessive corrosion or other issue indicative of a problem.
4. If probable issues with individual meters are found, the meters should be checked for accuracy.

If the utility determines that there were errors in previous billing periods, the utility has up to a year to collect on any utility errors. The new information may also require to change historical sales, which will be important to estimate future sales. If the utility does not have accurate historical sales records, the utility’s filings to AEA for the PCE program are publicly available.

After the manager has determined an accurate reading for historical sales, the manager will need to estimate the sales for the next year. While many, particularly smaller, utilities experience sales volatility from year to year, some methods can be used to more accurately forecast sales.

1. Determine any trends in sales by customer class. Over the past decade, most utilities have seen a drop in the amount of electricity consumed by residential customers, likely due to improvements in the energy efficiency of consumer products. Utilities can likely expect that efficiency of lights, computers, appliances, and other consumer products are likely to improve in the future. Because of the wide variety of non-residential customer types, it may be more difficult to see trends in non-residential sales.
2. Change in population/customers: Increases and decreases in a community’s population will affect utility sales. It is expected that increased population should increase utility sales, just as decreased population will decrease sales
3. The utility needs to plan for major changes in the community, either new loads such as a new or expanded industrial load or the closing of a community school.

If a utility needs additional help in forecasting sales, AEA has tools that can assist.

Where

For example, given the following utility data:

|  |  |
| --- | --- |
| Total utility operating expenses | $1,000,000 |
| Total utility operating income | $100,000 |
| Number of customers | 500 |
| Customer charge per customer per month | $5.00 |
| Total expected kWh | 4,000,000 |

The cost-based rate will then be:

Cost-based rate = $1,000,000 - $100,000 – 500 customers \* $5/customer/month \* 12 months

4,000,000 kWh

Cost-based rate = $1,000,000 - $100,000 – $30,000 = $870,000

4,000,000 kWh 4,000,000 kWh

Cost-based rate = $0.218/kWh

This is the method that the RCA uses to determine the PCE rate, although the RCA may find certain expenses ineligible, based on the rules discussed in Chapter 3. In setting the customer rate, it is best to be conservative on the values (the expenses should be estimated high, the other revenue should be estimated low, and the expected sales should be estimated low) so as to not put the utility in jeopardy of not being able to cover the expenses.

### Other rate classes & schedules

In order to ensure fair rates for all customer classes, regulated utilities frequently have different rates for all customer classes. Since the costs to generate and distribute power to customers are not uniform, different customer classes allow a utility to distribute costs based on the cost causer-cost payer model. Regulated utilities will perform a Cost of Service study to determine how these costs should be allocated by customer class. Performing a Cost of Service study is beyond the scope of this guide. Alaska’s regulation require that the cost causer should be the cost payer.[[6]](#footnote-6) Some factors that could be used to determine different rate classes include:

1. The cost of additional generation capacity needed to meet the power needs of the customer class. This is generally captured as a demand charge or as peak rates, but neither of these are common in rural Alaska
2. The cost of additional infrastructure needed—higher voltage, more robust transformers, etc.—to deliver power to the customers.
3. The cost of additional operations expenses both because of issues, such as brownouts or blackouts caused in part by the customer class, and/or the additional maintenance due to having additional generation capacity to cover peak loads.
4. Rates could be lower for certain classes if they bring benefits to utility, such as interruptible power purchases, that allows the utility to reduce the need for the additional capacity.
5. Rates could also be lower if customers are able to accept excess power that would otherwise be wasted, such as a run-of-river hydro plant that would spill water at night or wind power that must be diverted to a secondary load in order maintain system stability. Currently, RCA rules do not allow for excess kWhs generated to be treated differently than other generation, and thus all kWhs are included in the sales when calculating the cost-based rate.

No matter how a utility decides to determine its rates, the utility has a duty to its customers to ensure equity for all customers[[7]](#footnote-7), 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 decides 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.

## Steps after changing rate

After the utility has updated the rates, the utility must inform the customers about the new rates. The manager should ensure that all customers are billed properly with the new rates.

For PCE-eligible utilities, the utility must also inform the RCA about the new rates. If the utility does not report the rate change to the RCA, the utility’s PCE level will be refundable. Once the RCA has recalculated the PCE level using the new rates, a new permanent PCE level will be established. If the new PCE level is less than the prior level, AEA will collect back the overpayment. Except for regulated utilities, the RCA does not require utilities to report the rates for customer classes that are not PCE-eligible.

In addition to the informing RCA about the new rate, the Annual Power Cost Equalization Report for Nonregulated Utilities requires the utility provide rate information by class of customer and to compute average rate per kWh. Page 1 of the annual report, shown below as Figure 5, includes the required information for residential customers and Page 2 is for community facilities. The average class rate is calculated for the first 500 kWh per month consumed for a residential customer. The weighted average rate includes the customer charge.

## PCE rate

* Cost based
* Rate
* Imputations
  + Generation efficiency
  + Line loss

## PCE Effective rate

**Effective rate** is the cost per kWh that PCE eligible customers pay after the PCE subsidy (level) has been applied. An effective rate should be no greater than $0.05/kWh above the PCE base rate. For instance, if the base rate is $0.17/kWh, then the effective rate should not be more than $0.22/kWh. If the effective rate is significantly more than this, it is an indication that the utility is 1) not setting rates properly, 2) not reporting expenses correctly, 3) has some old debt to pay, or 4) any combination.

Chart w/ spread.

How to see.

What to do….

### 

1. AS 42.05.291 [↑](#footnote-ref-1)
2. <https://www.commerce.alaska.gov/web/Portals/4/pub/Intro_to_QB_for_Sanitation_Utilities_2007.pdf> [↑](#footnote-ref-2)
3. <https://www.commerce.alaska.gov/web/Portals/4/pub/Utility%20Collections%20Handbook.pdf?ver=2016-10-07-112921-043> [↑](#footnote-ref-3)
4. NOTE: An account is a means of tracking the financial elements of the utility, they do not have to be a bank account. Everything that contributes to the financial picture of the utility will be in an account. So the dollar value of physical objects, such as an engine, will be in an account, just as cash in a bank account will be in a different account. [↑](#footnote-ref-4)
5. <https://www.law.cornell.edu/cfr/text/18/part-101> [↑](#footnote-ref-5)
6. [3AAC 48.510(a)(1)](http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://wwwjnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5bJUMP:%273+aac+48!2E510%27%5d/doc/%7b@1%7d?firsthit) [↑](#footnote-ref-6)
7. 3 AAC 48.510(a)(3) [↑](#footnote-ref-7)