Alaska Center for Energy and Power

Power Cost Equalization Program: Addressing Problems and Inefficiencies through Software to Automate and Optimize Filing

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Introduction

Background

There are many facets of rural life in Alaska that make providing energy difficult. A particular problem is the disproportionate cost of electricity for rural areas compared to urban ones. Electricity in rural areas can be three to four times as expensive as in their more urban counterparts [1]. The state of Alaska developed the Power Cost Equalization (PCE) Program in 1985 in an attempt to make Alaska's energy access more equitable across the state. PCE support takes form as a discount (cents per kWh) or rebate to the utility. In other words, participating PCE utilities will bill customers at its established rate minus the eligible PCE credit, then will be compensated by the PCE program for the amount that was discounted to customers. The program involves two filing processes carried out with two state organizations. The funding is distributed through the Alaska Energy Authority (AEA) while the review and approval process is the responsibility of the Regulatory Commission of Alaska (RCA).

Purpose

This project aims to capture more subsidies for rural communities who may have the potential for a higher PCE level and increased savings, but are stunted by the complexity and rigor of this reporting process. The project was initially proposed as a "TurboTax for PCE." TurboTax is an attractive model for the PCE program because it makes filing taxes much more user friendly without compromising effectiveness. It could be suggested that first-time tax filers would have a lower chance of error if they used TurboTax to file taxes.

In the context of PCE, there is a need for a tool to help minimize administrative errors that result in lost funding, especially among rural independent utilities. In addition to the value of an administrative tool, there are also areas where PCE data could be analyzed to both help work towards a higher PCE level as well as encourage better overall utility maintenance.

Methodology

The approach to this project focused on reaching out to individuals surrounding the PCE program as well as taking a very close look at the data needs of the PCE reports. Fifteen interviews were done with community members who had various levels of involvement with the process. For a comprehensive list of interviews and key takeaways, see *Appendix 1*.

Power Cost Equalization Specifics

PCE Calculation

PCE applies to both residents as well as community facilities. Each household in participating PCE communities can receive PCE credit on electricity consumption up to 500 kWh. AEA defines community facilities as buildings that are not operated for profit, are not federally/privately funded, and are open to the general public. Community facilities have a PCE allowance of 70 kWh per person in the community.

The PCE rate is calculated using the following formula:

$$\left[\frac{\left[Fuel\ used\ (gal) * RCA\ approved\ Fuel\ Price\right] + nonfuel\ costs}{Total\ kWh\ sold} - base\ rate\right] * 95\% = PCE\ rate$$

Equation 1: PCE rate formula

There are two efficiency standards that must be met to be eligible for PCE. The first standard is a Line Loss ≤ 12.5%. The other standard is a Generation Efficiency which must be greater than 8.5-13 kWh per gallon (standard relative to community's generation capacity). If either of these standards are not met, RCA will calculate a utility's fuel cost *as if* the efficiency standard was met, which in turn results in a lower PCE rate.

Alaska Energy Authority

Participating utilities must file a **Monthly Report** with AEA in order to be refunded for the PCE credit given out to customers. This report is focused on operational metrics. It includes data such as: number of customers, kWh generated and purchased, fuel use, powerhouse consumption, kWh consumed, peak demand, and rate structuring. This report is an integral part of the process because it is the means by which the actual money is exchanged.

AEA also oversees the billion dollar PCE endowment which sources the PCE subsidy. Over the past three years, PCE payouts across Alaska have averaged about thirty million dollars each year [2]. AEA also publishes comprehensive reports detailing PCE statistics each year both by community and by utility.

Regulatory Commission of Alaska

The RCA oversees the determination of a utility's PCE rate and approved fuel price. Every year, each utility must file an **Annual Report** with the RCA which consists of a comprehensive financial summary as well as operational information such as rate schedule, generation, and consumption. Annual reports undergo a meticulous review process every three years (Brenda Cox). This review is important because it establishes what figures will be used in the calculation of each year's PCE rate. While the review (usually) occurs on a three-year cycle, utilities can request a review at any time for a fee of $471 [3].

In addition to the Annual Report, all participating utilities must file a **Fuel Report** with the RCA. The frequency of this report corresponds to how often a utility orders fuel for its powerhouse generator(s). For smaller communities, the Fuel Report is usually filed once per year. The Fuel Report consists of a complete list of all fuel invoices and a summary of fuel costs. This step in the reporting process is what establishes the RCA Approved Fuel costs to be used in the PCE formula. It is important to note that unregulated utilities and regulated utilities have different ways to file for PCE. The focus of this report is on independent, unregulated utilities, so the information provided is tailored to the PCE experience of those utilities.

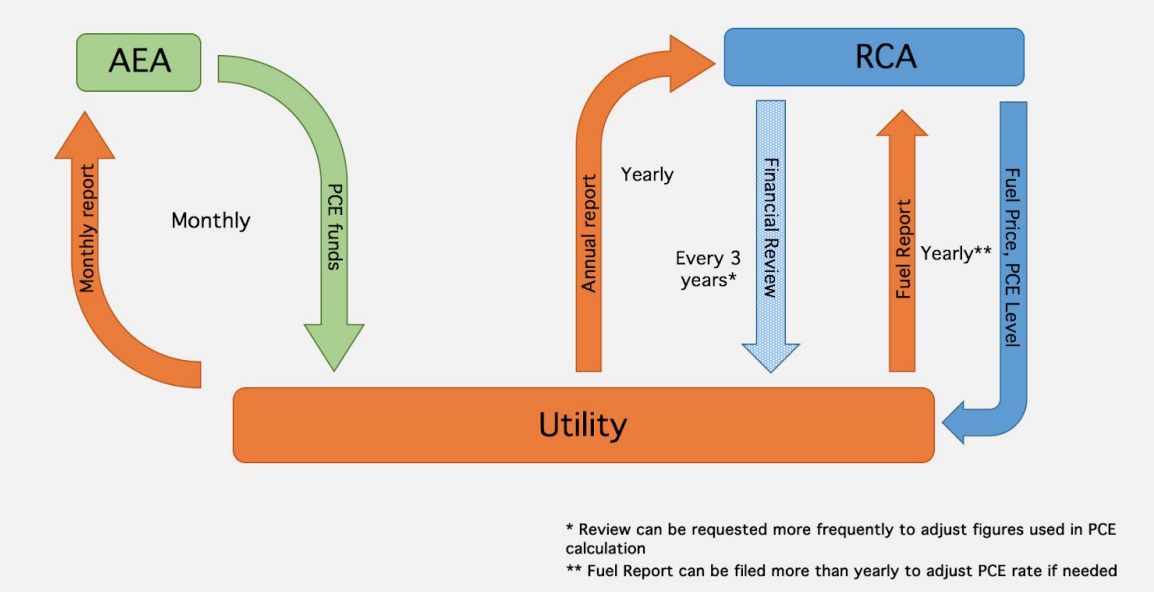

Figure 1: Overview of PCE reporting lifecycle with AEA and RCA

Problem Areas

Administrative Mistakes

It is evident from conversations with utility administrators that administrative errors happen in the PCE reporting process at utilities of all sizes. However, small independent utilities are much more susceptible to administrative errors due to the fact that much more of the record keeping is done by hand. That being said, even Alaska Village Electric Co-op (AVEC), a large rural utility cooperative servicing over 50 communities, mentioned that at times they have meter readers taking readings by hand due to malfunctioning automatic meters.

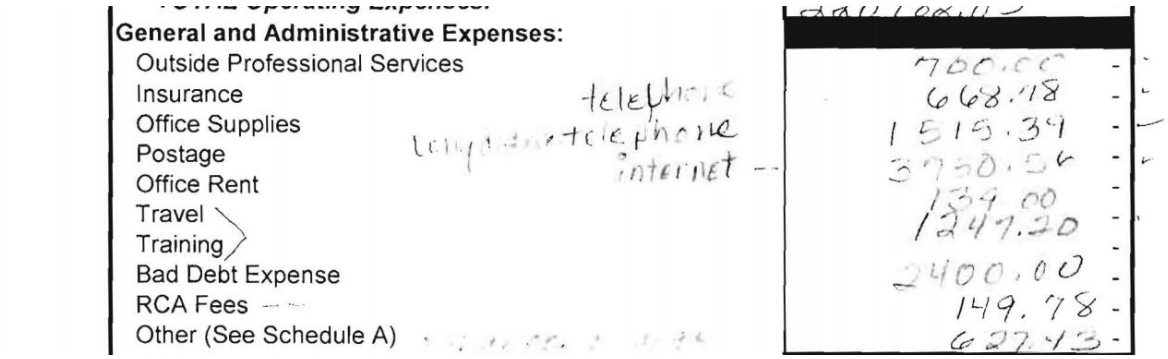

Figure 2: Hand-written RCA Report showing increased risk of error

Access to Resources

PCE filing processes vary significantly depending on a utility's access to resources. Large entities like Alaska Power and Telephone (AP&T) or Alaska Village Electric Cooperative (AVEC) have well-established internal PCE procedures and often outsource RCA work to an external consultant (see Paul Jones in *Appendix 1*). On the other hand, small utilities often face disadvantages with PCE filing compared to larger ones. For one, the structure of some independent utilities simply may not allow for delegation of the different PCE components. Not all utilities have a separate accounting department, which means that finances must be processed by someone who may not have a finance background. Furthermore, there can be a lack of training or learning materials regarding how to properly file for PCE.

Line Loss

Line loss is energy that is wasted during the transmission or distribution across power lines (Connie Fredenberg). Line loss is calculated by RCA with the following formula:

$$\frac{(kWh\ Generated - Station\ Service) - kWh\ Sold}{kWh\ Generated} = Line\ Loss$$

Equation 2: Formula for calculation of line loss

As mentioned in the PCE Calculation section, line loss above 12.5% results in penalty from RCA. Even without penalty, a consistently high line loss is indicative of some sort of issue. The source of high line loss can be very difficult to pin down, as high line loss can result from the generation side, distribution side, or even metering side. Some common sources of high line loss that have been identified in interviews include: administrative mistakes, theft, non-collection of payment, or just system inefficiencies. Even something like tree branches growing onto and over distribution lines can cause a significant difference in line loss. Because of the diversity of potential sources of a high line loss, it is very difficult to fix a line loss problem with software. That being said, it has become evident that not every administrator is calculating line loss every month which results in an increased probability of outliers going unnoticed.

By calculating, notifying, tracking, and comparing line loss statistics for an individual utility on a more frequent basis, utilities could identify potential outliers which could in turn help isolate potential problems sooner. Since line loss is a calculated field on the AEA monthly form, every month there should be a line loss review about the status of that month's line loss in comparison to both line loss for that month last year as well as a year-to-date (YTD) summary. Furthermore, since reviews of PCE metrics happen on a three-year cycle, it is entirely possible for a utility who does not meet line loss standards on a review year to be penalized for the following three years until it is reviewed again. For that reason, it may be similarly important to notify a participating utility that it would be eligible for a non-penalized PCE rate in the event that it meets the standard after being reviewed as not meeting the standard.

Non-Fuel Expenses

Non-fuel expenses can essentially be classified as overhead. As part of the PCE equation, non-fuel expense is an area that could result in lost PCE for a community if not reported in full. Putting together the annual report is the most work-intensive part of the PCE process. The financial part of this form requires a balance of accounts and an income statement. There is very little support in clarifying which expenses are eligible for PCE and which are not. A non-fuel expense is considered eligible "if it would be allowable in a rate case" (Paul Jones). There are no specific publicly available resources detailing how expenses are determined eligible or ineligible. This leaves quite a large potential for some expenses to go unreported. It is quite common for the RCA to deem huge portions of what is reported on the Annual Report ineligible. Furthermore, it

is much more difficult for a representative of an independent utility to refute an eligibility decision made by RCA to prove an expense's validity.

PCE Report Builder

Some of the problem areas mentioned in this report can at least partially be addressed through software in the form of an administrative tool. A successful iteration of this tool would output downloadable reports that are ready to be submitted to AEA and RCA. A report building tool for PCE should have three components: utility profiles, aggregation/auto population, and manual entry. These components are described in more detail in the following paragraphs.

Utility Profiles

Much of the data needed for PCE forms is not likely to change from one report to another. There are obvious candidates for this category like utility name, address, etc. but there are also many areas like street lights or eligible community facilities that are unlikely to change on a month to month basis. Upon first use of the tool, the user would need to enter in all of this information for it to be stored as part of the utility profile. Below is a list, for each form, of what can be used as part of a utility's profile. Some of the profile data are prone to infrequent changes. For that reason, some fields have different intervals with which the user will have to confirm that they have not changed.

	Monthly Report	Annual Report	Fuel Report
Confirm on a monthly basis	-No. of customers -Residential rate -List of eligible Community facilities -Street lights (number and wattage of bulbs)		
Confirm on a yearly basis	-RCA approved fuel price -Fuel price approval date -Contact name -Email	-Rate schedule -Certified officer and title	-Fuel storage capacity -Last approved fuel cost/gal -Contact name -Title
Indefinite	-Address -Phone No. -Regulated (Y/N)	-Utility name -Address -Operating hours	-Utility name -Telephone

Table 1: Utility profile data

Manual Entry

In order to fill out the necessary reports to file for PCE, a certain amount of the data will need to be manually entered. This information is what is needed to both fill in the gaps as well as enable the aggregation of other fields in the report.

Monthly Report	Annual Report	Fuel Report

• Billing period (dates)
• Meters read (date)
• Bills mailed (date)
• kWh generated
  ○ Diesel
  ○ Hydro
  ○ Wind
  ○ Natural Gas
  ○ Other
• kWh purchased and vendor
• Fuel used (gal)
• Non-fuel expenses ($)
• Station service (kWh)
• Peak demand (kWh)
• Total kWh sold
  ○ Residential
  ○ Commercial
  ○ Community Facilities
  ○ Federal/State
  ○ Unbilled
• PCE eligible kWh
  ○ Residential
  ○ Community Facility
	• Reporting period
	• Balance Sheet
	• Income Statement
	• Schedule A
	• Depreciation and Amortization
	• Cost of purchased power (ONLY IF power was purchased)
		• Reporting period
		• Beginning fuel inventory
		• Reporting period purchases
		  ○ Invoice #
		  ○ Delivery date
		  ○ Gallons
		  ○ Cost/gal
		  ○ Delivery/markup
		• Cost of purchased power (ONLY IF power was purchased)

Table 2: Data fields remaining for manual entry

Autopopulation and Aggregation

Both the Annual Report and Fuel Report have data needs that could be filled by manipulating certain inputs from the monthly form.

Monthly Report

- No. of Days :
    - Logical considerations:
        - No. of Days = Billing period upper bound – billing period lower bound

Annual Report

- Average Class Rate (Page 1): Requires analysis of rates reported on monthly form
    - Logical considerations:
        - IF >1 rate tier → fill a row for each tier
        - IF >1 rate schedule → fill a table for each schedule based on

- Community Facility Average Rate (Page 2)
    - Logical considerations:
        - IF community facility rate is equal to residential rate → copy values from Page 1
        - ELSE follow logic for Average Class Rate (Page 1)

- Operational Metrics Table (Page 5): rows of table indexed by month
    - Logical considerations:
        - Fill in corresponding row in annual report upon completion of the respective Monthly Report

- Purchased Power Questions (Page 5):
    - Logical considerations:
        - Store a running sum of kWh Purchased updated upon completion of each Monthly Report. Sum should be set back to zero upon completion of Annual Report
        - IF sum > 0 → check YES ; total kWh = sum

Fuel Report

- Purchased Power Questions (Page 5):
    - Logical considerations:
        - Store a running sum of kWh Purchased updated upon completion of each Monthly Report. Sum should be set back to zero upon completion of Annual Report
        - IF sum > 0 → check YES ; total kWh = sum

Opportunities for Optimization

Line Loss Tracking

According to many of the PCE experts spoken to, high line loss is the most common source of PCE funding loss. It is the biggest problem facing a community's ability to maximize PCE, and also the most elusive to solve. High line loss can be a result of many different factors including: theft, inefficiency, non-collection of payment, mismatch of read/generation windows, or misread meter multipliers. It was also pointed out by two different interviewees (Bobby and Lynette) that overgrown trees resting on power lines can be a big source of high line loss. It has become clear that identifying where high line loss is coming from is a difficult task to solve with software. However, there is certainly value in knowing there is a problem to solve.

Despite the fact that line loss is a field that automatically calculates on the Monthly Report, not all utility administrators take a close look at line loss each month. This allows for line loss outliers to fall through the cracks quite easily. It would be useful to include some form of line loss tracking to prevent a penalty from RCA when filing for PCE. It is likely that looking at this month's line loss alone is not enough to point out anomalies. What would be most useful is looking at this month's line loss compared to the same month's line loss in the previous year. Furthermore, it would be useful to look at Year-to-Date (YTD) line loss to see a bigger picture of line loss for the year. Lastly, looking at current YTD compared to YTD last year would provide a more comprehensive picture of how line loss is looking this year compared to last.

It would also be important for a line loss tracking feature to notify the user of any activity surrounding RCA's 12.5% standard. If a user was approaching the 12.5% cutoff, it would be useful to know that a penalty might be incurred. Perhaps more importantly, however, is notifying users when the standard is met if it previously was not met. In a situation where a utility does not meet the 12.5% standard on a review year but makes improvements to meet the standard it would be very important to know if and when that standard is met so that the utility is advised to request a review. A utility which does not meet a line loss standard on a review year will be penalized until reviewed again which is most often a three year cycle.

Income Statement Automation

The Income Statement section of the Annual Report is perhaps the most labor intensive part of the filing process. It involves meticulous compilation and categorization of financial records to establish the figure used for non-fuel expenses in the PCE equation.

It would be useful to have a feature of the report builder that could take a Profit and Loss detail exported from a user's bookkeeping software and fill in as much of the income statement as possible. This was initially seen as a primary objective for the entire project, but was mostly cut down by the variation in bookkeeping software used. Also, the presence of administrative mistakes makes tracking down string matches a tricky task. Note the misspelling in *Figure 3* "Total Equiptment Rental" which caused a first attempt at automation to miss that figure entirely. That being said, this feature would really serve to add significant value to the software tool. There are options to explore to circumvent the challenges presented by automation.

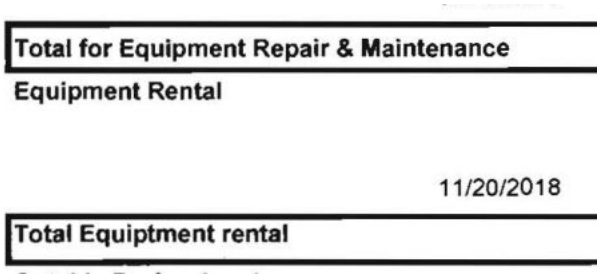

Figure 3: Misspelling on RCA supporting documentation

First, a string matching library like FuzzyWuzzy could be used to address potential administrative mistakes through misspellings. FuzzyWuzzy allows the developer to do analysis on the ratio of string matches. In other words, the "Total Equipment Rental" error above could be easily caught by setting a lower threshold for a string to be considered a match. Furthermore, FuzzyWuzzy effectively removes the need for case consideration, which could be deceptively hard to work around otherwise.

Second, a suggestion given by Lynette Ampadu who seemed particularly optimistic about the possibility of this feature was the use of Rural Utility Service (RUS) codes to categorize expenses. RUS codes offer an easy distinction for many different types of operational and maintenance expenses that would need to be accounted for on the income statement. The standardization of RUS codes among independent utilities is uncertain but would be worth looking into further.

Standardization

RCA encourages utilities to attach supporting documentation with the Annual Report each year to back up financial figures claimed in the report. It is most common to see an applicant append a Profit and Loss detail to backup the Income Statement section of the Annual Report. Bigger utilities sometimes even have their own format for the annual report which strays from the RCA template. Looking at a wide range of utility's Annual Reports reveals that some utilities are submitting very different documentation each year. For example, Cordova Electric's 2019 Annual Report was 48 pages long, while Birch Creek Electric's report was 10 pages long. The length of a report seems to correspond to a utilities size or access to resources; the more resources a utility has, the longer its report will probably be. Just as it is possible that Birch Creek did not

provide sufficient supporting documentation, it is also possible that Cordova Electric need not provide 48 pages for its report.

Since the PCE process involves a work-intensive financial review, it might be in the reviewer's (RCA) best interest to standardize exactly what documentation must be submitted with each report. That way, resources are not wasted on parsing through unnecessary information or reaching out to a utility for supporting documentation. Speaking with Brenda Cox from RCA about what documentation is necessary and what is unnecessary could help save time for RCA as well as provide more clarity to the applicant. This feature of the administrative tool could come about as a checklist of documents that need to be uploaded before the form can be downloaded.

Training Materials

One way of providing assistance with the PCE process is equipping participants to help themselves. There is a lack of consolidated and public resources for PCE concerns. The best materials received over the course of this project were shared by private entities. Smaller independent utilities could benefit from having easier access to consultation or training resources, especially in the event of a new employee filling a PCE-relevant role. Beyond just PCE, there would also be a benefit of access to financial resources. This does overlap with PCE due to PCE's heavy financial demands, and could result in a representative being able to better refute an expense ineligibility or understand what relevant supporting documentation needs to be provided with the Annual Report.

Integration into 60Hertz Platform

The concept of an administrative PCE tool fits very well within Anchorage startup 60Hertz software platform. 60Hertz essentially provides adaptable asset maintenance routines for rural utilities. One reason 60Hertz is a promising choice for the integration of this tool is that it has momentum with customers in Alaska. Forty five communities are currently using 60Hertz and growing. Furthermore, the 60Hertz platform involves capturing many operational metrics that are required on the Monthly Report such as kWh generated, peak demand and more.

The administrative tool would fit well into the 60Hertz administrative dashboard. A mockup of a simple Monthly Report user interface can be seen below in Figure 4.

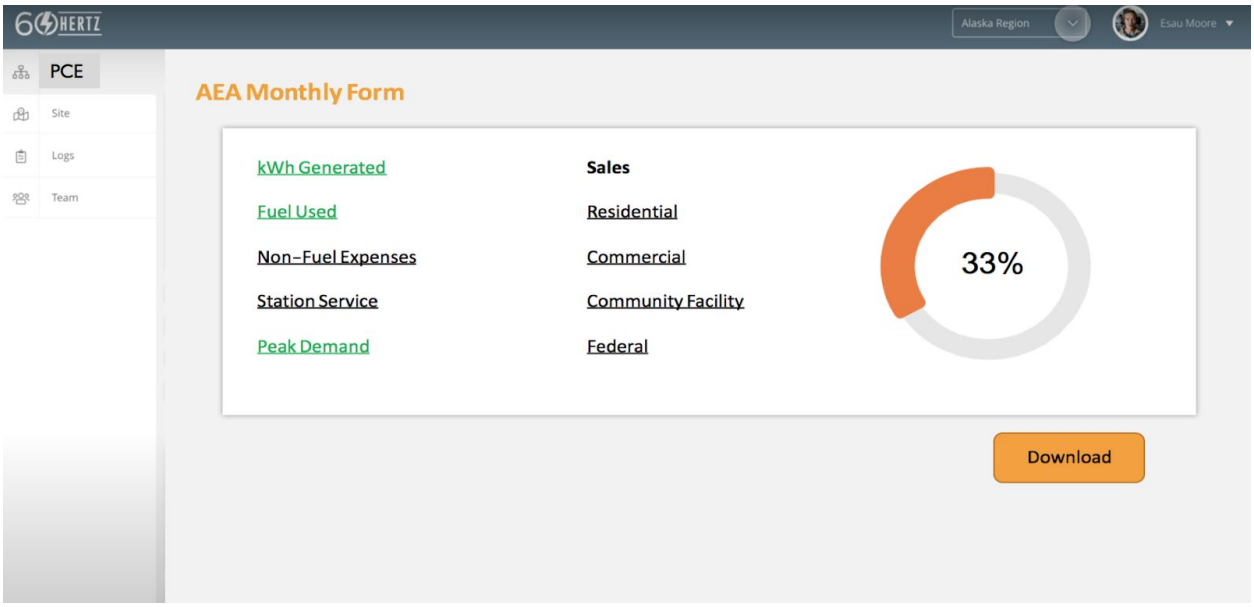

Figure 4: Mockup of AEA completion UI in 60Hertz dashboard

60Hertz also has potential opportunities for the line loss tracking feature. On the mobile tablets used by PPOs, there is a dashboard displaying certain operational statistics. This would be a good place to keep a running YTD line loss calculation. The line loss tracking feature would also integrate well with the administrative dashboard. An administrator could go in and take a closer look at trend data.

Future Explorations

PCE-Specific Accounting Suite

The idea of seeking out a PCE-specific accounting suite was brought up to me by Emma Merritt from Cordova Electric. This idea came about as a result of the discussion relating to both the huge variation in bookkeeping software used by independent utilities as well as the lack of bookkeeping resources available to some. Having some sort of unified accounting suite designed for smaller independent utilities would not only open up doors for financial report automation on the RCA annual report, but might also serve to make offering bookkeeping training easier and more accessible for the user. Emma suggested reaching out to PCS to inquire about this possibility.

Consolidated Management of PCE

As mentioned earlier, PCE is managed by two state entities RCA and AEA. RCA handles PCE review and calculation while AEA handles the fund distribution as well as more consolidated reporting. According to AEA's "FY19 Basic Financial Statements" [2]

report, AEA withdrew $444,000 for internal administration and $102,000 for RCA administration from the PCE endowment. It might be worth exploring if any redundancies exist between RCA and AEA's PCE process that could be consolidated resulting in potential savings for the endowment.

Another factor in support of consolidation is the disparity in reported statistics. AEA has an excellent year-end report that presents community data very succinctly while RCA on does not seem to have any consolidated reporting. Due to the monthly nature of AEA's side of the PCE management, the accuracy of some of the reporting in this year-end summary suffers. For example, on the AEA year-end report about 11% of communities report $0 for non-fuel costs in 2019. Furthermore, 44/178 have no line loss reporting while 33/178 have line loss above (in some cases significantly) the RCA standard [4]. Both line loss and non-fuel expenses are statistics that must be reported accurately to RCA in order to receive a correct PCE rate, so RCA is likely to have more accurate numbers for those categories. When looking at what is used by RCA in certain communities' PCE calculations compared to what is reported by AEA for those same communities, there is definitely a disparity. There are reasons why the numbers show up differently from monthly reporting, however. Both high non-diesel generation as well as mismatched read/generation dates can result in a high line loss appearing on the AEA report when it shouldn't. Furthermore, AEA does not require communities to report non-fuel expenses on the monthly form, which is why it shows up as $0 for so many. While there may be reasons for inaccuracies on the AEA year-end report, having PCE processing take place with one entity would most likely mitigate the possibility of misrepresenting these statistics.

Conclusion

There are many different potential avenues for this project. While a useful administrative tool may involve a massive software development effort, there are steps that can be taken to mitigate PCE reduction without a full on new undertaking. The best ways to help communities maximize their PCE potential are through a line loss review/analysis as well as an increased availability of PCE resources. Ultimately, many PCE problems can be boiled down to limited resources - especially relating to bookkeeping and administration. Hiring a consultant for PCE can be very costly, but something that could be very useful for those seeking PCE help would be somewhere to find free and intuitive training materials.

The PCE process certainly has its flaws, but it is an essential part of rural life in Alaska. It is a very delicate program. PCE may benefit from some internal change, but many prefer keeping PCE how it is to avoid opening up the door to unintended change. That said, the state of Alaska has much to be proud of considering its efforts to protect rural life in Alaska.

References

[1] Alaska Energy Authority. (2019). *Power Cost Equalization Program Guide.* http://www.akenergyauthority.org/Portals/0/Programs/Power%20Cost%20Equalization%20(PCE)/Reports%20&%20Publications/PCEProgramGuide100319.pdf

[2] Alaska Energy Authority. (2019). *AEA Basic Financial Statements - FY19.* http://library.akenergyauthority.org/Portals/0/Publications/FY19AEABasicFinancialStatement.pdf

[3] Alaska Energy Authority. (2019). *Guidebook for Managing a PCE-Eligible Utility.* http://www.akenergyauthority.org/Portals/0/Programs/Rural%20Energy%20Assistance/utilitymanagementguidebook.pdf

[4] Alaska Energy Authority. (2019). *Power Cost Equalization Program Statistical Report FY19.*http://www.akenergyauthority.org/LinkClick.aspx?fileticket=qgKDRJywe2M%3d&portalid=0

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Appendix 1: List of Interviewees

Interviewees are listed in order of date of interview. Key learnings are noted below for applicable interviewees.

Connie Fredenberg
PCE Consultant

- It would be possible to fill in all of page 5 of the RCA report with the AEA Monthly data.

- Having a monthly expense review could serve to break up the time consuming bookkeeping work at the end of the year and could also improve accuracy of non-fuel expense reporting.
- The Fuel Report filed with RCA is what really initiates a PCE level change.

Matt Bergan - Kotzebue Electric
Project Engineer
- Kotzebue has a problem with wind-generated kWh increasing line loss on high generation months.
- Non-fuel expense field on monthly form left blank every month.

Daisy Weinard - Ipnatchiaq Electric
General Manager
- Matching read/generation dates is critical for an accurate line loss reading.
- AEA report takes 6 minutes, RCA report takes about a day.
- Experiencing problem with community facilities going over the allowance

Stacey Smith - AVEC
Administrator
- Big problem with larger utilities is the need to check for double dipping on PCE.
- AVEC could find use in an offline metering form software, as meter readers still have to use pen and paper in the event of smart meter malfunction.

Kelsey Richter - AP&T
Billing Specialist
- Home based businesses can qualify for PCE.
- AP&T also experiences problems with name duplicates (correctly identifying “double dipping”).
- PCE does not apply for temporary residents.
- AP&T does not fill in the non-fuel expense field.

Terri Harper - INN Electric
Accounting Manager
- Excellent PCE resource - managed PCE for 11 years with AEA
- Stressed the idea of a monthly summary/review with an emphasis on line loss.
- PCE ceiling was raised to $1.00 in 2008 to accommodate troubled economy, but was never ratcheted back which has resulted in an increased dependence on high PCE levels for some.

Brenda Cox, Jed Drolet - RCA
PCE Administrators
- Often experiences a problem of invoices not being provided on RCA reporting
- Outliers are almost always reporting errors.
- Flagging outliers with a monthly review could be easiest through range validation for each applicant.

- No comprehensive summary of expense eligibility for PCE

Paul Jones - Kemppel, Huffman, and Ellis
Attorney (PCE Consultant)
- Non-fuel costs are eligible if they are costs that would be allowed in a rate case.
- Paul is a rate setting expert.

Grace Oomittuk
PCE Consultant
- Line loss is not always calculated every month.
- Believes that there are eligible costs not being reported on RCA annual reports.
- Grace will only request a review if there is a huge expense in a year.

Margaret Hansen
PCE Consultant
- Something that would be very useful to small independent utilities is consultation/training resources for PCE and accounting help.

Emma Merritt - Cordova Electric
Manager of Admin and Finance
- Negative line loss as reported on the monthly form occurs when the read period is longer than the generation period.
- When doing a review of line loss, it would be ideal to look at year-to-date line loss.
- It would be useful with this review to make sure generation numbers are correct: compare kWh produced with runtime hours, compare kWh produced per gallon of fuel used per unit
- Emma suggested to reach out to PCS CSA for a PCE specific utility bookkeeping suite designed for small communities.

Roxanne Burkhardt - IPEC
Billing Clerk
- PCE team at AEA is understaffed, too much work to do for one person or a couple of people.

Lynette Ampadu - TDX
Manager of Regulatory Affairs
- Adak has been granted a certificate waiver, which excuses extremely high line loss. Adak would not receive PCE without this waiver.
- Trimming trees reduces line loss every year.
- Annual report takes 9-13 hrs per community.
- Lynete was interested in the idea of automating financial reports, and says they can be categorized by RUS codes.

Bobby Armstrong - NEA
Administrator

- Also noted that trimming trees resting on powerlines is an important line loss action.

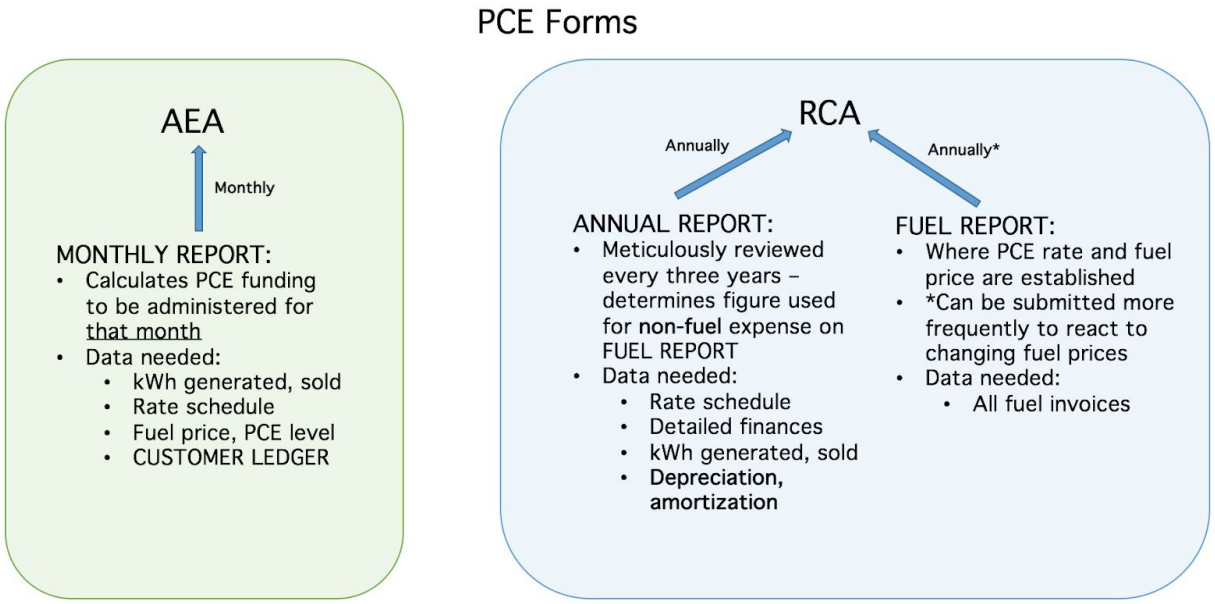
Appendix 2: Useful Resources

General PCE:

- AEA offers excellent reporting, and a good place to start with PCE is the *PCE Program Guide*, which is [1] in the *References* section of this report. All AEA resources listed there are also useful, specifically the by-community statistical report.

- Connie Fredenberg also has certain introductory materials she uses to teach clients about PCE. Her resources are great but are not public, so those would need to be accessed by request.

- Here is a rough PCE reporting graphic I made that outline key features of each report:



Sample RCA Reports

- Looking at past PCE reports with RCA is one of the best ways to take a closer look at how this process truly works on the RCA side. To look at a community's past RCA filings (which will include Annual Reports, Fuel Reports, and correspondences from RCA) follow these steps:

    1. Visit http://rca.alaska.gov/RCAWeb/Home.aspx
       Type in the name of the community you are looking for in the "Find and Entity (Company)" search bar on the bottom right side of the webpage.
    2. From the list of entities, click the one which matches the name of that community's utility and has a "Utility Type" of "Electric".
    3. Click over to the documents tab under the name at the top.
    4. Here will be listed all RCA correspondences. Besides Annual and Fuel reports, documents of type "Staff Memorandum" can be very helpful because they often break down the actual calculation of PCE rate on the second and third pages of the report.

- The Annual Report template itself can be found under "RCA Library" Tab → "Forms Library" → "PCE Annual Report Form".