



# Electric Department–Path and Challenges

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## SITKA ELECTRIC DEPARTMENT –

- **Work Focus**

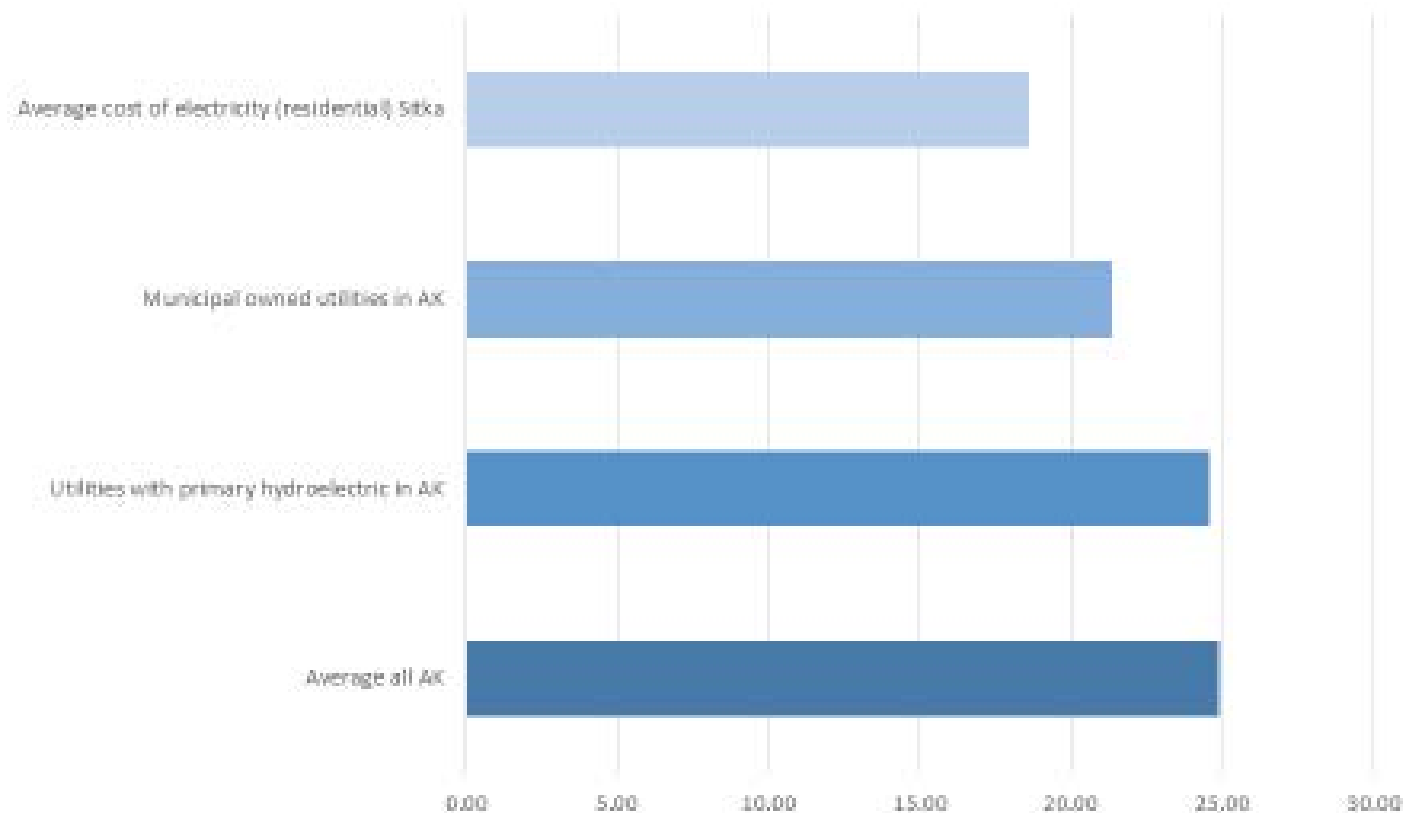
- Preventive Maintenance and Planning–Asset tracking, Life cycle costs and Planned replacement*
- Manage contracts*
- Recruitment and Retention*
- Technical Information Management–Properly Update, Catalog, Scan & Update all Files and Drawings*
- 10 Year Capital Plan Implementation – ongoing. Need financial plan to determine how to meet need for capital investment.*
- Regulatory Compliance*
- Develop a long-term load-based Generation Expansion Plan*

- **Challenges**

- Growing the Capital Fund – Construction costs are increasing at 2X the Consumer Price Index (CPI)*
- Planning and funding future Capital projects – T&D line builds, Green Lake Phase 2 & 3, & Relicense*
- Retirements – knowledge and experience leaving, replacements are difficult to find*
- Reactive work due to old Infrastructure – Industry and local data indicates high probabilities of failure*
- Regulations – Compliance, Permits, etc.*
- External Overhead Costs – Federal, etc.*
- Sitka is an Island Grid – No outside backup/High initial cost of regulatory compliance if that were to change*
- SEARHC– future load growth could present revenue and need for planned generation growth*
- The cost to provide power to small islands around Sitka is unprofitable and the infrastructure is failing*

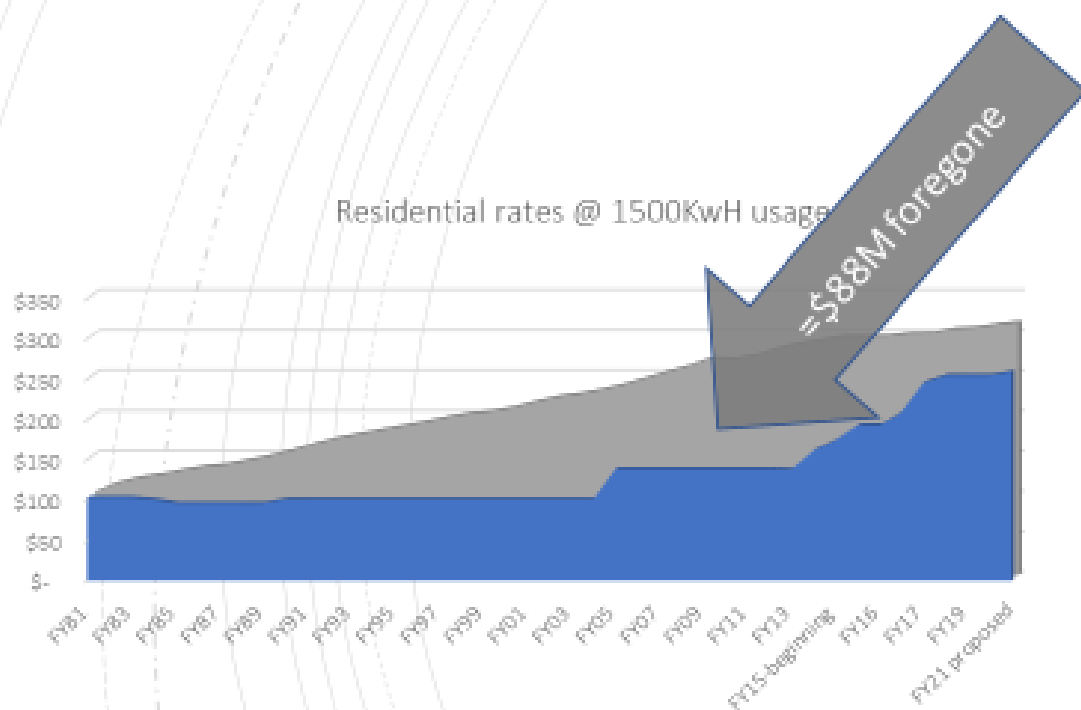
# Rates within Alaska

Average prices of residential electricity in the state of Alaska in 2019 (cents/kWh) (data from U.S. Energy Information Administration-utilities with over 700 customers)

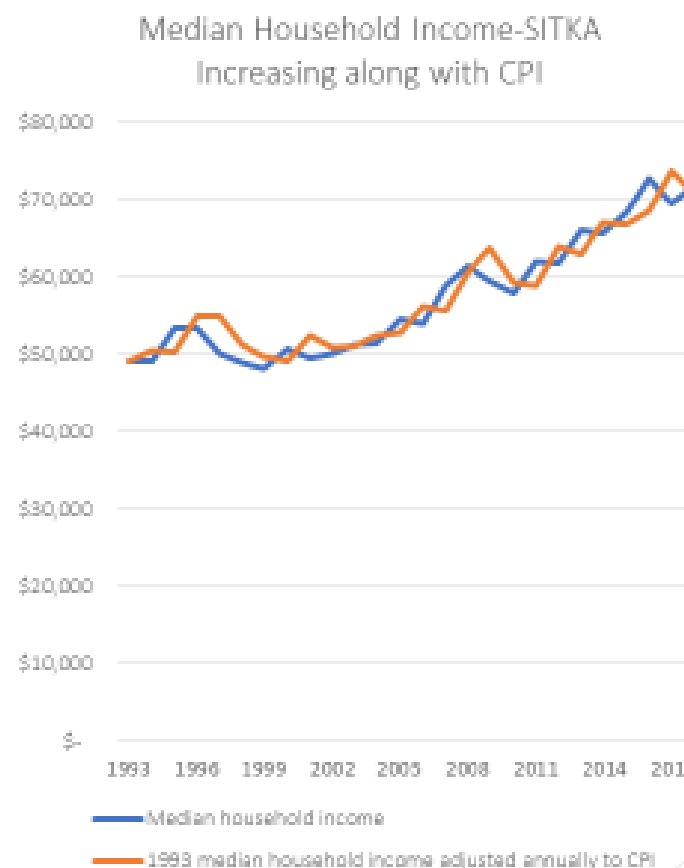




Long periods of stagnant rates result much more stepped rate increases as well as a significant amount of lost revenue that could be used finance capital investments with less debt



Annual increases with inflation can help generate revenue for capital as well as reduce the need for controversial large increases.





# Electric Department – Finance

## Department Budget Status

- 25 Full Time Personnel + 6 Relief Operators = 31 Total
- FY20 Operations Expenditures – \$8.4M
  - Salaries-\$4.4M, Insurance-\$750K, Utilities/fuel \$94K
  - Repairs/Maintenance \$214K Supplies/Contracts \$1.1M,
  - IT \$145K, Admin/Finance fees \$870K,
  - Vehicles (includes future replacement) \$306K, Misc. Expenses \$384K,
  - Utility subsidization (covered by GF) \$71K
- FY20 Interest and Principal Payments - \$7.9M  
(down to \$7M FY21 due to refunding-possibly more if advance refunding takes place)
- Total Annual Expense (Operations + Debt) - \$16.3 M
  - Labor & Benefits – 27%
  - Materials, Contracts, & Repairs – 1.5%
  - Admin/Finance/IT charges – 6%
  - Insurance – 5%
  - Debt – 49%
  - Vehicles – 2%
  - Other Exp –3% (including utility subsidy)
- Total Annual Net Operating Revenue Requirement –  
\$16,982,718  
(FY2020-exceeded by \$95,000)

## Capital Status

- Working Capital @ end of FY2020 \$9.1M
  - Amount appropriated for Capital, but unspent \$5.2M
  - Unrestricted cash in F200 \$6.9M
  - Receivables \$1 M
  - Inventory \$1.2M
  - Less current liabilities -\$5.3M  
(Additional \$10.9M restricted for debt service)
- Bond covenants
  - Requires that operating revenue (includes interest earned) to meet or exceed 125% of operating expense and bonded debt service. If we don't meet it we must transfer funds from the rate stabilization fund or the General fund. Ensures that the fund is generating funds to invest in its infrastructure.
  - ~1.2M generated in FY20 after factoring non-bonded debt
- Due to refinancing in early FY21 and additional \$3.3M available for Capital

## Rates

Current rates (increased 2% as of 7/1) summer seasonal increase changed from April-September to May-October) in 2020 no increase until July due to COVID. 2%/inflation increases anticipated in near term.

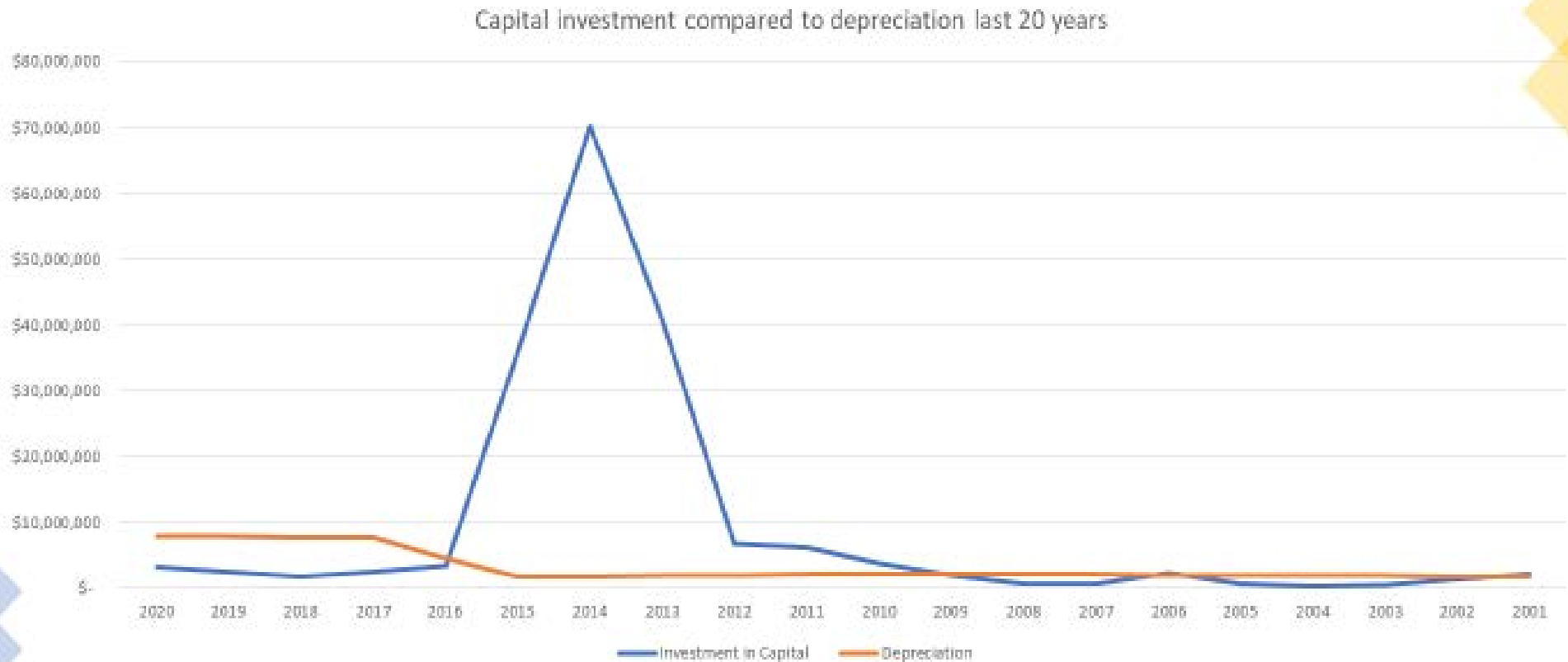
Monthly fee: 20.48

Summer/KwH: .1958 (May through October)

Winter: .1224 (November through April)



# Depreciation





# *Electric Department – Key Distribution Challenges*

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## **PRESENT SITUATION:**

- 3 Substations – Marine Street, Jarvis, Industrial Park
- Jarvis Street and Industrial park are currently adequate for needed loads
- The New Marine Street Substation will serve 80% of Sitka Customers
  - New Marine Street Substation is nearing completion
  - Some added capacity is part of the new design

## **Old Marine Street Station**

- Once complete, the Old Substation at Marine Street will need refurbishment of the electrical structure and pole, the addition of an oil containment system, and at least partial transformer replacement
- The restoration of the old portion of the Marine Street Substation will allow for redundancy as well as for planned maintenance which was not possible previously without sustained outages
- ALTERNATE 1 – Do nothing. The switchyard will soon fail, and redundancy will be lost. This will limit the capability to maintain the new system, and provide no backup
- ALTERNATE 2– Run to fail. The risk to the Transmission system would be greater as the type of failure would be unpredictable. Replacement costs will rise. Environmental risks are higher without containment. Replacement could be unscheduled and would result in the loss of redundancy during the process.
- **ALTERNATE 3 – Repair/replace the old transformers and add oil containment. Replace the existing pole, and refurbish the structure**



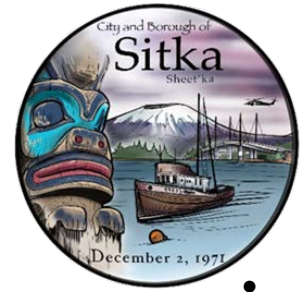
# ELECTRIC DEPARTMENT – Key Transmission Challenges

## 69KV Transmission Line from Blue Lake Powerhouse to Thimbleberry Trailhead on SC Road –

- Steep Grade, Extensive Tree growth close to the line, extensive pole age and damage.
- Critical line Segment to get both GL Power and BL power to Town
- ALTERNATE 1 – Do Nothing, brownouts during normal system failures or transmission line work. Potential for extended outages is High.
- ALTERNATE 2 – Extensive tree trimming program coupled with complete pole inventory coupled with targeted pole replacement.
  - ✓ Environmental Issues makes tree clearing and trimming costly and not timely
  - ✓ Access for maintenance and emergencies is costly, slow and dangerous
- ALTERNATE 3 – Replace Fairbanks Morse Diesels with similar to offset outage risk
- ALTERNATE 4 – Mitigate failure risk with replacement *overhead* transmission (Blue lake power plant to Thimbleberry Trailhead).
  - ✓ Would reduce long term costs of maintenance.
  - ✓ Significant increase in safety and reliability
  - ✓ Fewer, less costly and faster repairs
  - ✓ Would reduce fossil fired emissions from Jarvis
  - ✓ Would reduce scope of Oil Release best practices (amount of stored fuel)
- ALTERNATE 5 – Mitigate failure risk with *underground* cable transmission (Blue lake power plant to Thimbleberry Trailhead) Costly
- ALTERNATE 6 – Mitigate failure risk with *marine* cable transmission (Blue lake to Thimbleberry Trailhead) Costly

## 69KV Transmission Line from Green Lake Powerhouse to Blue Lake Substation

- Easier access compared to Blue Lake Segment, Growth rate of trees is high
- ALTERNATE 1 – Do Nothing, rolling blackouts during normal system failures or transmission line work a possibility
- ALTERNATE 2 – Extensive tree trimming program coupled with targeted pole replacement.



# ELECTRIC DEPARTMENT – Key Generation Challenges

- **Fuel Release and Back-up Fuel**

- 200,000-gallon tank and containment last overhaul 15+ years ago. Spill 8/2015
- ALTERNATE 1 – Remove existing 200,000-gallon tank and containment
- ALTERNATE 2 – Engineer Piping and Instrumentation, Tank Overhaul, Generate operations and clearance procedures
- ALTERNATE 3- If 69KV SMC Trans line is approved, reduce scope to one additional 40,000 gallon above ground day tank.
  - Heart Lake Transmission Line requires 7 days of fuel - Absolute worst-case scenario
  - SMC 69KV line would reduce this requirement to 3 days (with two tanks existing and adding one more tank)

- **40+ Year Old Green Lake Plant Overhaul Phase 2-3**

- Will be 50 years old in 2030, old equipment with lots of running hours and extensive cycling
- ALTERNATE 1 – Do nothing, regular maintenance converting to large scale, expensive, long unplanned failures
- ALTERNATE 2 – Define scope of individual units, Overhaul of Turbine Generators and Balance of Plant, \$15-30M

- **3 Fairbanks Diesels –**

- 40+ years old
- Winter Jarvis St capacity without Fairbanks is 12mw + 4.0mw = 16 mw (about 6 mw below winter peak capacity)
- ALTERNATE 1 – Do Nothing, brownouts during normal system failures or transmission line work
- ALTERNATE 2 – Replace old machines with similar Diesel Generation (Air permit issues & High Cost \$15M+)
- ALTERNATE 3 – Reduce the need for the Fairbanks Morse machines by mitigating failure risk with new 69kv transmission line (Blue lake PP to Thimbleberry Trailhead)
- ALTERNATE 4 – Refurbish old machines as needed to maintain emergency back-up capability





# Electric Department – 10-year Plan & Risk Mitigation

## SUMMARY –

- **Key Capital Projects –**

- ✓ Expand Marine Street Substation (Marine St Backup) \$6M, FY17-FY20
- ✓ Jarvis St Fuel Storage \$1.5M, FY22-23
- ✓ Green Lake Phase 2&3 Overhaul FY-TBD \$15-30M
- ✓ Green Lake Waterway Overhaul in FY21-FY22, \$4.8M
- ✓ Sawmill Creek Road 69KV line \$4M, TBD

- **Rates –**

- ✓ Capital Improvements can stabilize the long-term rate
- ✓ Other Revenue Opportunities (SEARHC, USCG, Interruptibles)
- ✓ New Capital Needed by 2030 (Green Lake unit overhauls, GL permit, etc.)





# DISCUSSION

