

Data Driven Project Development and Delivery for EE Projects



2018 Rural Energy Conference
Fairbanks, Alaska

Cady said to talk about this:

Presentation Outline:

- What data did we start with?
- How did we decide the project Scope of Work?
- What data will we use to measure/define success?

Community Scale Data:

- Utility: type, stability, view of renewables, policies, etc.
- Historic Rate data: Alaska Energy Data Gateway
- <https://akenergygateway.alaska.edu/>
- Climate Threats to community
- Community Climatic data – NOAA, ASHRAE, etc.
- Future – AEA Community Profiles

Building Scale Data:

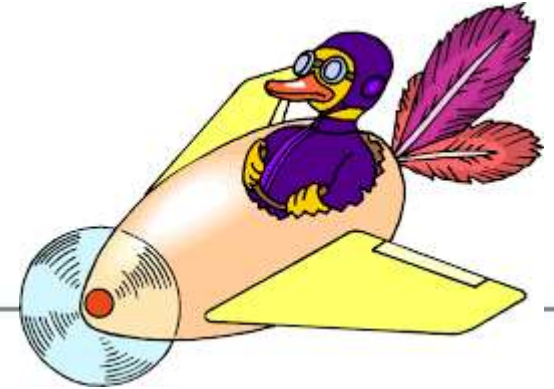
- Owner input!
- Ginormous box of drawings: 17"D, 13"T x 36"W
- 5 major projects from 1968 to 1993
- 2012 Audit by Johnson's Controls
- Utility bills and energy use benchmarking



System Scale Data:

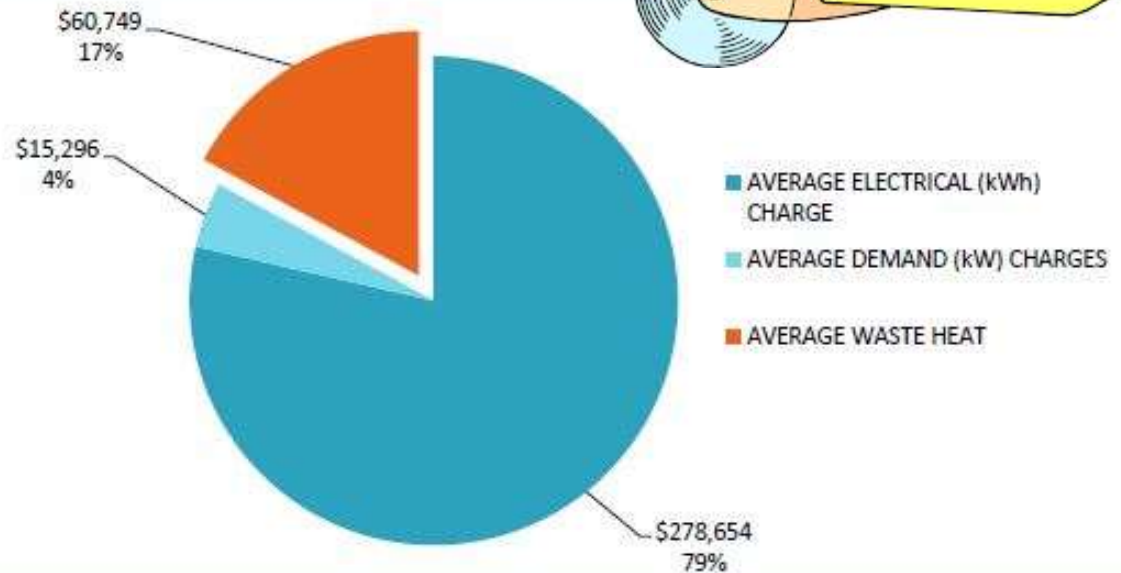
- On-site observations
- Code and Conditions Survey
- Operator/user input
- DDC Reports

- Service Contracts
- Workorder reports



Graphic 1

Existing
Average
Energy
Charge
Per
Year:
\$354,699



Determining Scope or Work:

- Set Project Goals with Owner:

Goals

- + Improve energy efficiency to reduce energy use and associated costs
- + Provide a better educational environment for students, staff and administrators
- + Provide better access and security to the building for community use
- + Extend the life of the facility
- + Reduce the costs of operations and maintenance

Conduct Site Visit/Code & Conditions Survey

- Architectural
- Mechanical
- Electrical
- Hazmat Testing
- Commissioning



Identify and Document Potential Work

- Life Safety & Code issues
 - How much you do determines how much of this you have to do
- Operations and Maintenance
 - Fixing these items will make things function better and make it easier to operate and maintain the building
- Energy Efficiency Measures
 - Modeled savings and estimated Construction and Project costs
- Current Conditions
 - Everything else plus the kitchen sink

Review Cost/Benefits of potential work with Decision Makers



Funding and Project Bundling:

- Revisit potential funding opportunities
- Divide project to fit funding amount or scope limits
 - Identify Immediate needs/threats
 - Prioritization
 - Synergistic Scopes
 - Create Additive Alternatives



Funding – *The Holy Grail to efficiency as Storage is to Renewables*

- Alaska Energy Authority VEEP
- Bristol Bay Borough VEEP match + additional funding
 - Borough stepped up for immediate needs
- Current project is first step:
 - Took care of most immediate issues including
 - Electrical use reduction
 - Life Safety Issues
 - Leaking Roof
- Much larger piece of Critical Infrastructure work remains:
 - Generator Replacement
 - Recovered heat line work
 - Back-up boilers
 - Siding/insulation replacement
 - Security & Access
 - Accessibility Issues
- Third straight year as #3 on State's Department of Education Capital Improvement List

Insert something
here to make
audience laugh or
wake-up!

Measuring Success

- Drawbacks:
 - Potential increased utility rates
 - School is largest user outside of fish processing season
 - Utility is undergoing several additions/renovations
 - Challenging to see \$180,000/year lost potential savings
- Positives:
 - School and Borough are aware of the above, knowledge is power
 - School is safer, warmer and brighter
 - Operator has been trained by on-site construction trades over last year of construction – Contractor has been awesome!!
 - Energy reduction will be tracked in AHFC's Aris and reported to AEA for VEEP reporting – helps make future decisions
 - We are making progress – future phases are defined/seeking funding
 - School/Borough has stuck with it, and us, and keeps going -

PATIENCE

Dena D Strait

Bettisworth North Architects and Planners

Energy Programs Manager

(907) 561-5780 dstrait@bettisworthnorth.com