Aleut Community Store

Refrigeration Efficiency Retrofit

2019 DOE Program Review
Presenter Patrick Baker, Executive Director

Project Summary Goals

- Replace refrigeration equipment and display cases with an energy efficient refrigeration system.
- Lower cost of energy and maintenance for Aleut Community Store by $44,385 per year.
- Lower cost of Chill and Freeze goods by 10%

Budget

Federal funds requested: $491,623

Cost-share proposed: $514,740

Total Project Costs: $1,006363

Project Location

Project Location

Tribal Government of Saint Paul

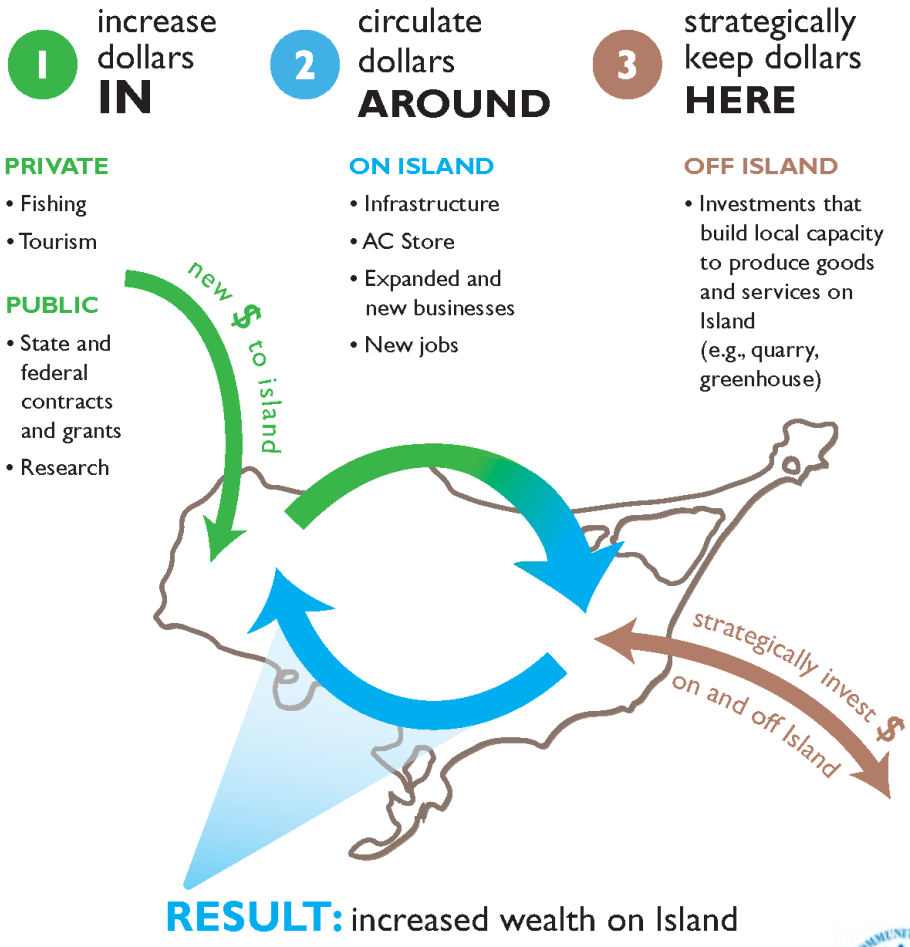
Tribal Stats	
Local Members	390
Annual Budget	$12M
Employees	65
Total Assets	$25M
Offices	St. Paul & ANC
Development Model	Self-Gov/Self-Dir
Diesel, $/gallon	$3.65
Electric, $/Kw	$0.55

"Healthy Resilient People Working Together"

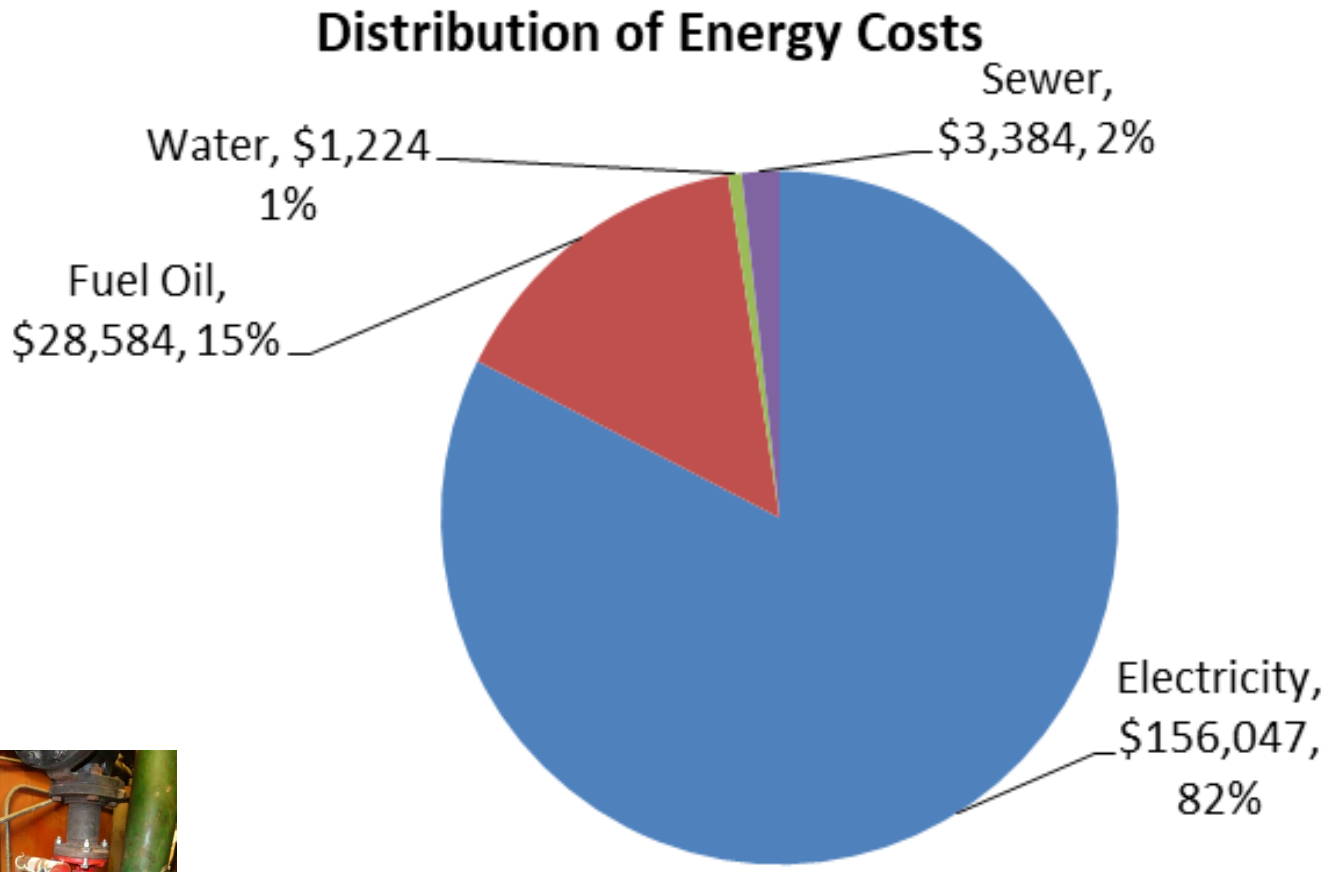
Store - Mission

- Self-Determination
- Increase Tribal Self-Sufficiency
- Coordination with Other Community Programs
  - Greenhouse, Reindeer, Food Bank
- Economic Development
- Business Diversification
- Growth
  - Expansion into Grocery, Hardware, Fishing Supplies
- Retain Economic Values
  - Jobs, Administration, Assets, and Earnings
- Improve Quality of Life
- More Product Offerings
  - Health and Home Improvement Sections
- Enhance the Facility & Shopping Experience
- Jobs with Benefits and Career Opportunities
- Building Customer Service and Community Pride

3 STEPS for BUILDING a POWERFUL LOCAL ECONOMY



Aleut Community Store – Energy Audit



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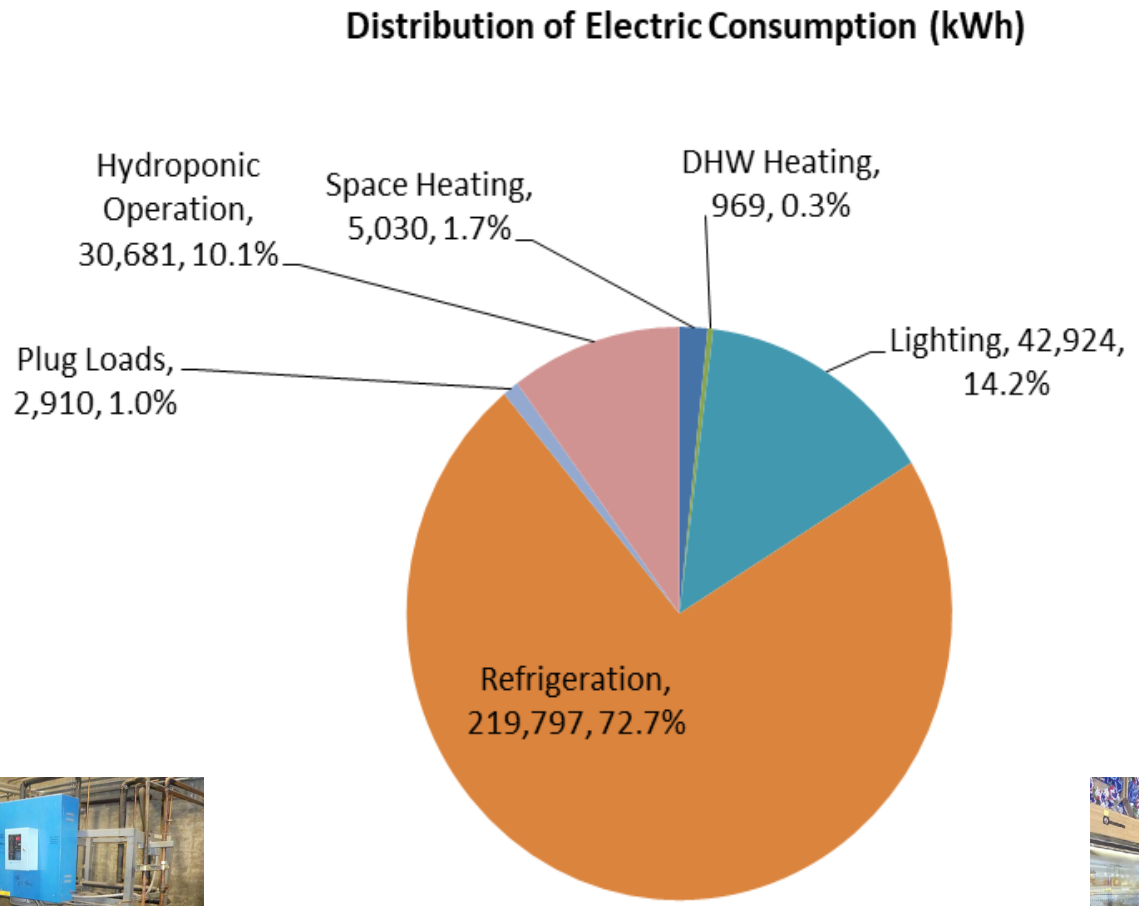
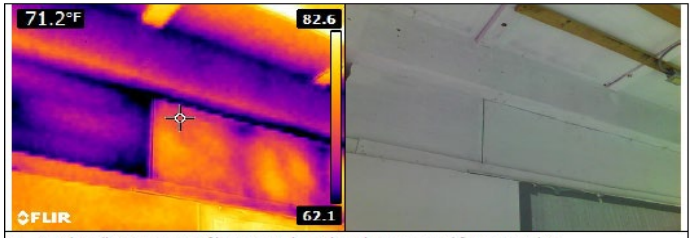


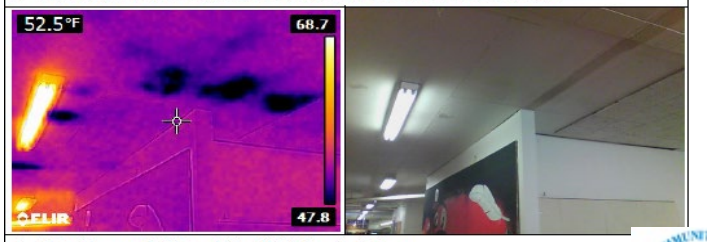
Aleut Community Store – Infrared Analysis

1. Very high boiler standby losses are evident here

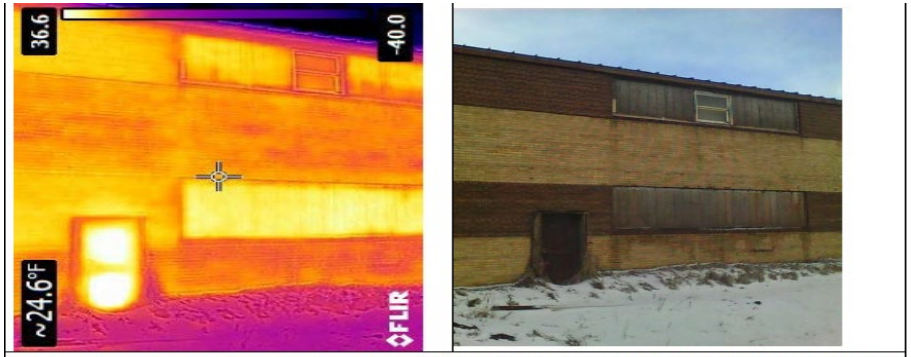
7. Most of the heat loss here is through the section above door; doors themselves look good



3. North wall in NE corner of basement shows heat losses around former window

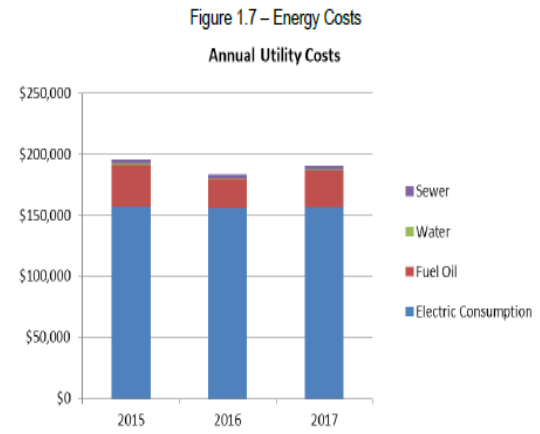


4. Typical damaged attic insulation; this is in entry hallway

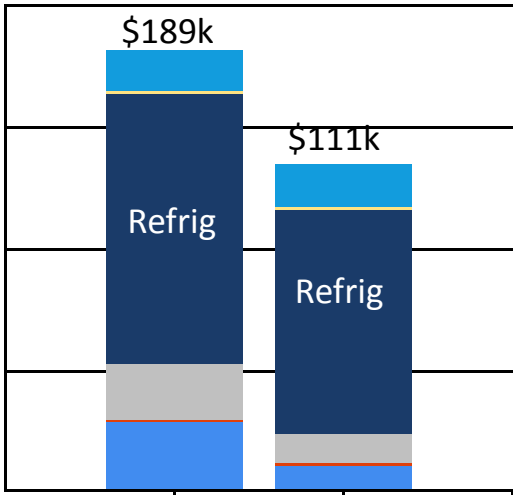


5. Door shows significant heat loss; boarded up windows show a surprising little amount of heat loss

Aleut Community Store – Retrofit Cost/Benefit



Baseline Utility Data			
		Consumption	Annual Cost
Aleut Community Store	Electricity (kWh)	302,132	$156,047
	Fuel Oil (gallons)	7,405	$28,584
	Water	< 120,000 gal	$1,224 min.
	Sewer	not measured	$3,384
		Building Total	**$189,239**



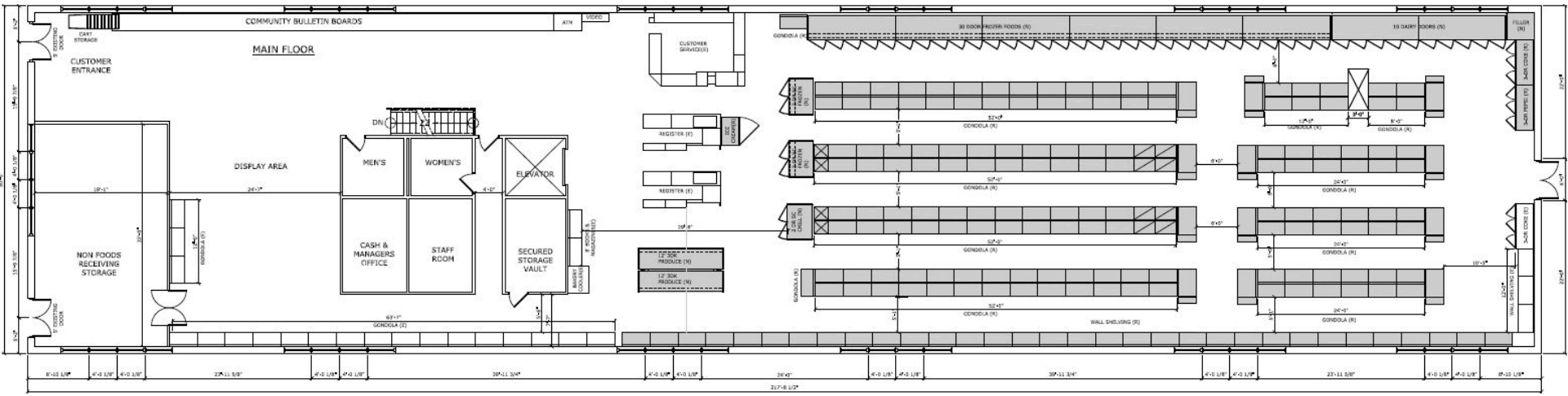
	Installed Cost	Energy & Maint. Savings	Simple Payback (yrs.)
HVAC related	$133,800	$13,020	10.3
Lighting	$23,349	$9,654	2.4
Envelope	$90,966	$6,831	13.3
Refrigeration	$814,270	$48,319	16.9
Totals	$1,062,385	$77,824	13.7


Qalgadam Tagadaa
yay! for SNOW DAYS
ALEUT COMMUNITY OF ST. PAUL
TRIBAL GOVERNMENT


Frozen Meats
2
Frozen Foods
Dairy & Cheese
Deli & Fresh Meat
XTRATUF
clubparis
BIGIGS

Status of Project

Store Transition Plan	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Priority 1 - Strengthen Food/Grocery Sections	X	X	X	X									
Priority 2 - Strengthen General Merchandise				X	X	X	X						
Priority 3 - LED Light Replacement				X	X	X	X						
Priority 4 - New Refrigeration													
Priority 5 - New Windows & Flooring													
Priority 6 - Expansion into Downstairs													



Challenges: Logistics

Energy & Econ Development

Active Strategy

Invest in Conservation Efforts

Develop Where Energy is Cheaper

Find Opportunities with Lower Energy Dependence

Conservation Efforts

80 Homes Updated with New Roof, Windows, Doors, and Efficient Heating Systems

Conservation Efforts

LED Lighting and Variable Speed Motors at St. Paul Health Center

Investing Around Cheap Energy

Hydroponic Growing Moving to Wind Farm

VH HYDROPONICS

Ludy's
Qalgadam Tagadaa

Wind Powered Airport Facilities

Hangar Space = 28,000 sqft
Runway Length = 6,500 feet

Opportunities with Less Energy Inputs

Investing in the Blue Economy & Technology



Community Based Ecological Monitoring: The BeringWatch App

Dr. Lauren Divine
Aleut Community of St. Paul Island ECO

Bruce Robson
Community and Ecology Resources, LLC

App Components

- BeringWatch 2.0 Online Database:
- Suite of Mobile Data Collection Apps
- Communication Tools
- Training Materials

Types and Functions of Information

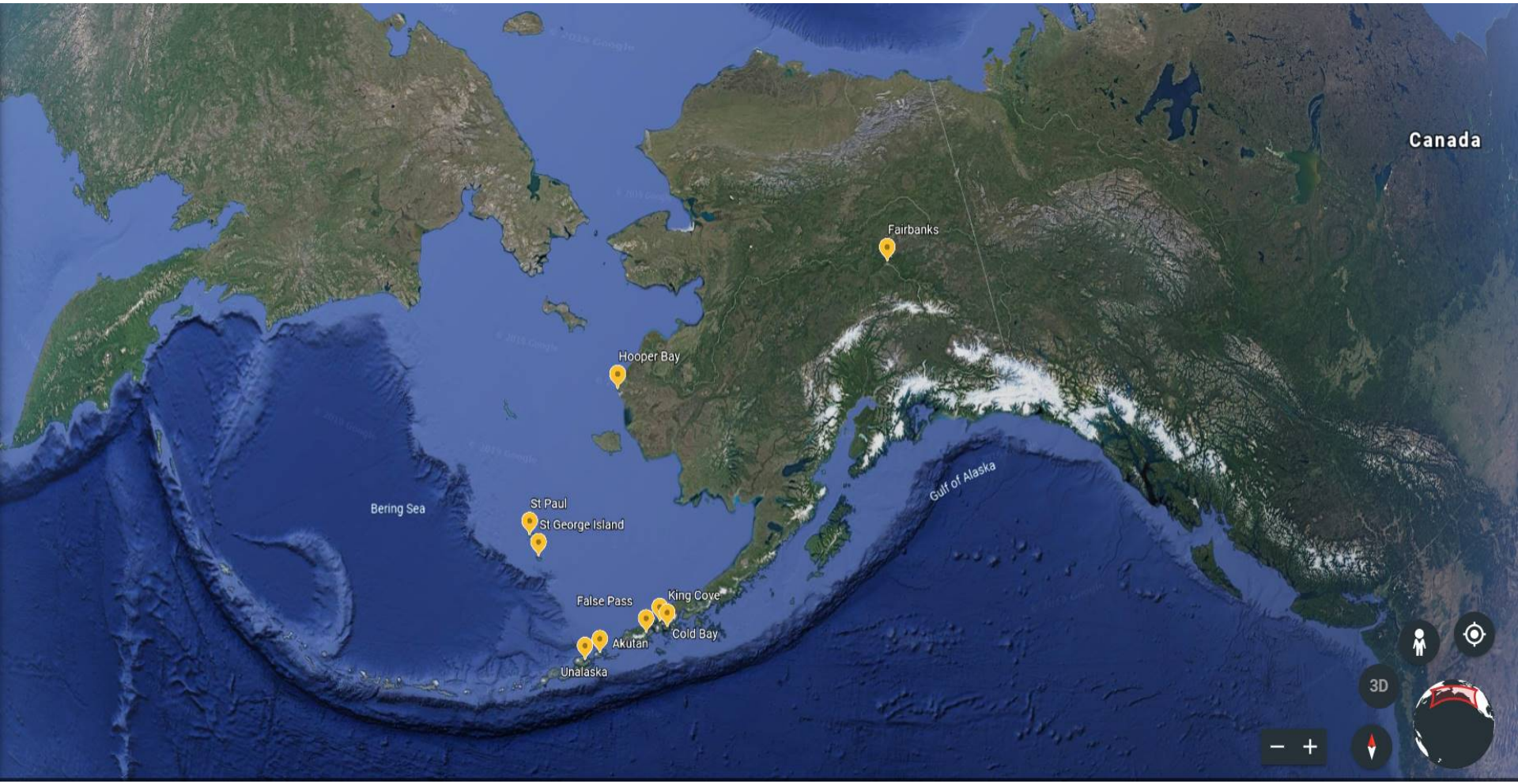
Physical and biological data for conservation, science and education

Physical

Biological

Education

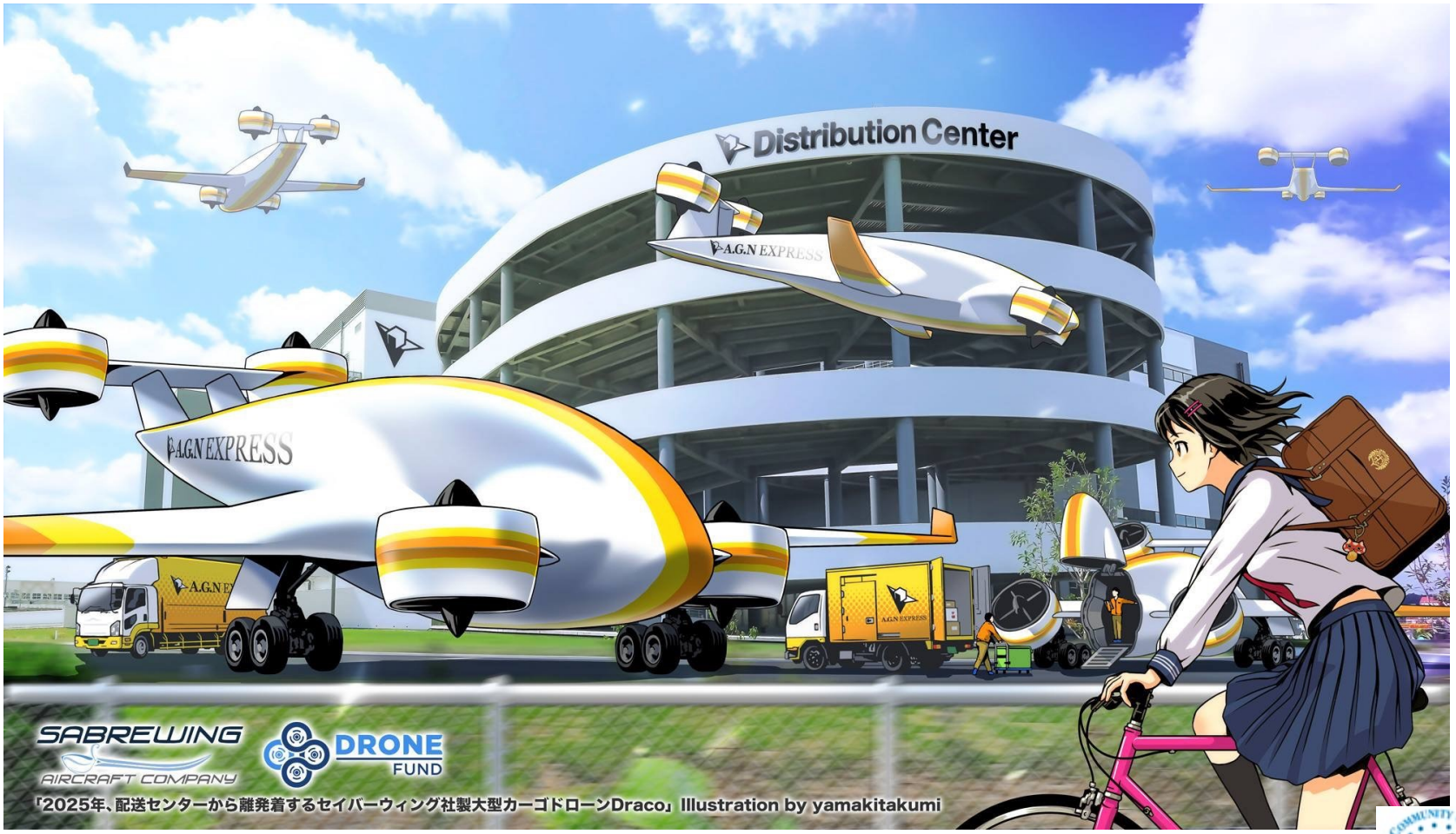
User Network



2020 Scalable SaaS Upgrade

- **Platform**. Multi-tenant SaaS platform that customers can purchase license for and setup autonomously online.
- **Ownership.** Customers are able to have their own branded license of Indigenous Sentinels Network including a web application interface, mobile application interface, and database.
- **Customization.** Customers are able to create programs from predefined protocols available in the platform or create custom programs and protocols for their users to collect data.
- **Data Security.** Customers are able to choose to share their data with the platform, or keep it contained to their own database on a project-by-project basis.
- **Data Collection.** Users are able to log observations under the applicable program from either the mobile application or the web application.
- **Actionable Insights.** Users are able to create, and export reports based on data their community has collected and any other data that is made available to them through the platform.

Sabre-St. Paul UAV Project



Sabre-St. Paul Teaming Agreement

What is created through this partnership?

Rhaegal – 800lb Capacity
Wyvern – 4400lb Capacity

- Creation of **S**t. **P**aul E**X**perimental **T**est **R**ange (SPXTR)
- Develop, Test and Evaluate Rhaegal/Wyvern Cargo UAS
- UAS aircraft for field testing featuring >500 lb payload with 360 nautical mile range at 180 knots cruise speed
- STEM UAS pilot training program in coordination with the University of Alaska
- New Business Model for Cargo and DoD Logistics

We propose the Cargo UAS and SPXTR Test Range to enable pilot training UAS research and development and testing with emphasis on long-range, heavy-lift, remotely operated UAS that can fly anywhere regardless of weather, and for the economic development and security of remote Alaska communities.

AK Proposal: Sabre-St. Paul SPXTR Arctic Plan

"Putting Alaska at the technology forefront of Search and Rescue, Disaster Relief, Emergency Response, Hazmat Response and Interdiction through the use of long-range, heavy-lift, remotely operated UAVs that can fly to and deliver cargo to any location in Alaska …regardless of weather"

How

- Creation of SPXTR* Complex for air vehicle testing
- Build-up of SPXTR Complex telemetry capabilities
- Testing of aircraft up to 14 CFR Part 23, Amendment 64
- Teaming agreement with heavy-UAV manufacturer to bring jobs
- Utilize St. Paul capacities and unique location
- Utilize Alaska's trained and experienced UAV workforce
- Utilizes Alaska's excess capacity (St. Paul USCG/Airport Facilities)
- Utilization of SPXTR Complex demonstrates safe operation of UAVs in National Airspace (NAS)
    - Will lead the US in safe integration into NAS
    - Will keep Alaska in the forefront of UAV technology

Why:

- **Creates jobs in Alaska to build the Alaskan economy**
    - Creates a STEM educational environment
    - Creates skilled labor jobs (jet engine mechanics, technicians, etc.)
    - Brings high-tech, aerospace jobs to Alaska
    - Provides adjunct jobs and businesses like logistics and operations
    - Retains and expands military presence in Alaska
    - Provides a retention path for military retirees
    - Provides a means of relieving pilot shortage (UAA)
- **Increases Alaska's cargo capacity & all-weather capability**
    - Removes weather as an impediment to all-condition cargo delivery
    - Opens most remote locations to reliable air cargo service
    - Provides life-giving food, medicine and essentials to all of Alaska
    - Provides all-weather emergency response – even in the Arctic
    - Opens the Arctic to new markets & services
- **Decreases Alaska's dependency on EAS**
- **"Right Sized" security presence to serve, protect, and secure U.S. Sovereign territory**

*SPXTR: "**S**t. **P**aul E**X**perimental **T**est **R**ange"

St. Paul Experimental Test Range (SPXTR)

1) Support - Creation of Range

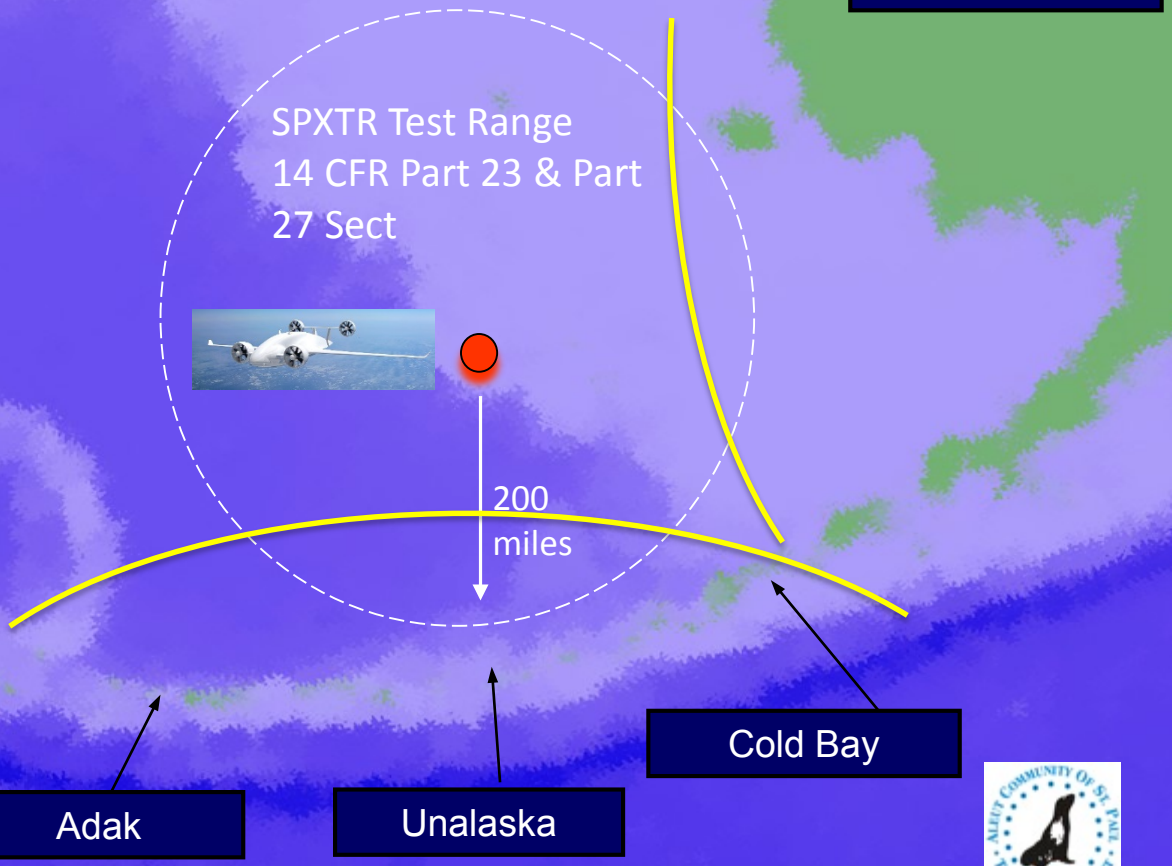
2) Support - R&D Funding for Range

Russia

Alaska

St. Paul Airport

SPXTR Assets	
Airstrip	6500 feet
Hangar	28,000 ft^2
Range	126,000 mi^2
Pilots	5
Housing	30 beds
Port	Ice Free
Tribal Staff	80
Tribe Annual Budget	$10-15M



The Rhaegal – Sabre-St. Paul (SPXTR) Arctic Plan

Rhaegal UAS VTOL (ROAS)
Mass: 2,319 Gross Weight with Payload and fuel (payload: 800 lbs.)
Volume: 64 Cu.Ft.
Max Altitude: 22,000 Ft.
Max Airspeed: 200 KTS
Cruise Speed: 180 KTS
Max Endurance (Full Fuel): 15 Hours

Questions/Contact Info

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