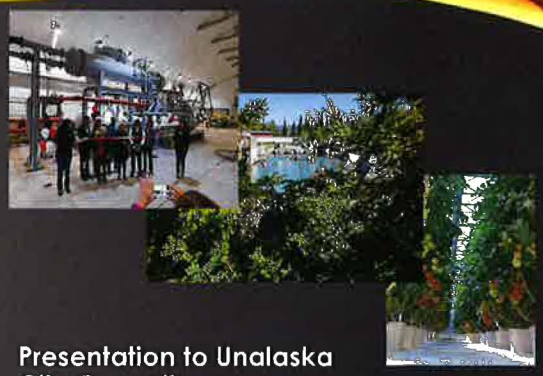
SUSTAINABLE CLEAN ENERGY FOR UNALASKA

THE MAKUSHIN GEOTHERMAL PROJECT



Presentation to Unalaska City Council

OCCP, LLC

6PM, February 25, 2020

Unalaska, AK

OUNALASHKA CORPORATION

CHENA POWER

With Vision and Passion

OUNALASHKA CORPORATION

CHENA POWER

The future of Chena was decided 20 years ago...

Clean Power, Heat, Food, Tourism, Sustainability, and Prosperity

Sustainable and Affordable

- Accomplished:
  - Assembled a top-notch technical team
  - Findings: larger load commitment equates to a larger power plant and lowers consumer costs
  - However, in the future power plant can be expanded
- Why OCCP?
  - Non-recourse loan
  - Ounalashka Corp owns lease, is project lead
  - New, proven innovative technology

We've done this before

We can do it again!

Chena Hot Springs Resort (An isolated 2,000-acre property)	Makushin (An isolated 7,000-acre property)
20 Miles of Road	10 Miles of Road
4 Bridges	3-4 Bridges
20 Miles of Pipeline	10 Miles of Pipeline
12,200 Ft. of Wells Drilled	16,000 Ft. of Wells to drill
115,000 Sq. Ft. of Buildings Heated	> 1M Sq. Ft. of Buildings Heated
11,400 Sq. Ft. of Greenhouses	1 Acre of Greenhouses
1 Hot Springs	1 Hot Springs

* water utility in Unalaska not considered

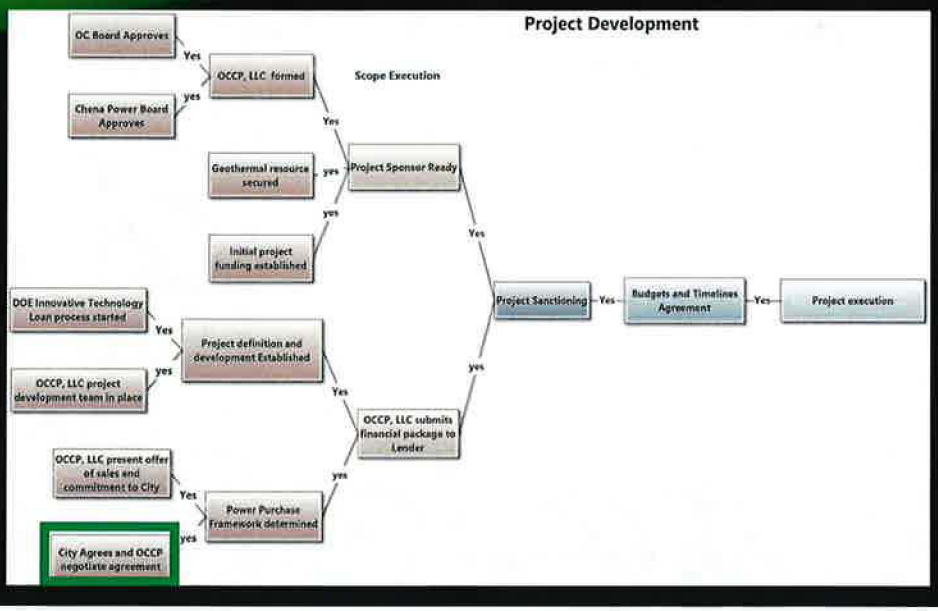
Makushin's Resource Is Verified

ST-1 well test looking from the north. Camp is visible in the distance to the south by exploration well E-1.

- In 1981 the Alaska Power Authority (APA), contracted with Republic Geothermal, Inc. to explore the vicinity of Makushin Volcano for geothermal resources.*
- Stratigraphic Test Well No. 1 (ST-1) was spudded on July 2, 1983*
- A production well should be capable of flow rates of 1.25 to 2 million lb/hr at a wellhead pressure of 60 psia.*
- The reservoir appears likely to be confined to an approximately two-mile-wide zone trending northeast from Glacier Valley to Driftwood Bay valley.*

*From: Development Potential of the Makushin Geothermal Reservoir of Unalaska Island, David Berng-Chakroff, John W. Reeder, and Michael J. Economides. GRC Transactions, Vol 9, Part 1, August 1985.

MGP Initial Development Decision Tree



All decisions are linked to future decisions in a logical manner called a decision tree

Before Project Sanctioning (loan is approved), several project tasks need to be completed

Project Plan

- A road will be built from Broad Bay to the plant.
- A geothermal power plant will be installed near discovery well ST-1 sufficient to meet Unalaska's electrical and heating needs.
- Other production and injection wells drilled in the vicinity.
- Power plant technology is new, innovative and very efficient.
- Power transmission and fiber optic communications lines will be installed
- Transformer station will link to Unalaska's grid.
- Option - Residential and industrial and commercial heat pumps will be supplied and installed to replace existing diesel systems.

Project Plan and Schedule

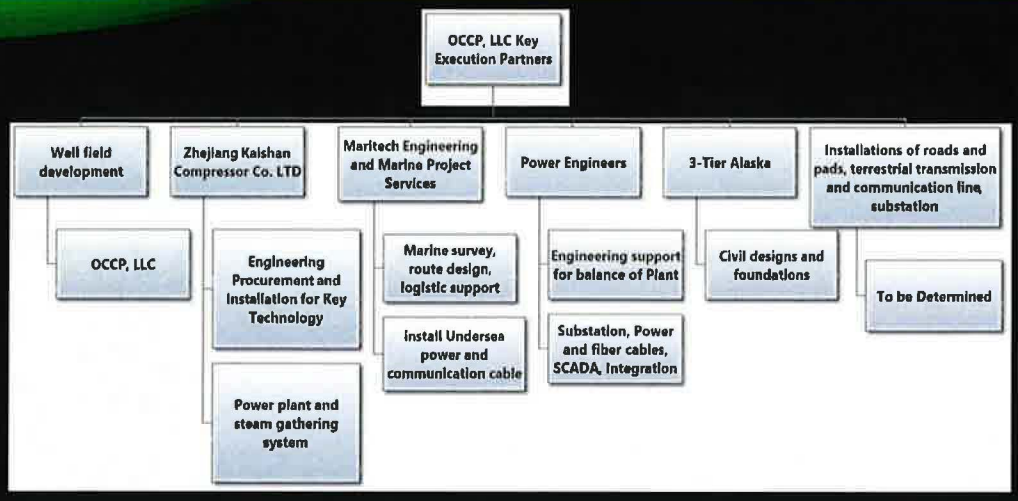
Task	Duration	Start	Finish
Power Purchase Agreement with Unalaska	110	12/12/19	3/31/20
DOE Phase 1 application process	342	4/3/19	5/5/20
Summer 2020 engineering definition work	76	6/1/20	8/15/20
Permitting and environmental work	313	12/16/19	12/14/20
DOE Phase 2 application process	153	5/7/20	10/31/20
2021 Summer Season work	120	4/1/21	8/18/21
Equipment Procurement	125	9/9/21	2/21/22
Equipment Manufacturing	365	5/18/21	7/16/22
Shipping and Transport	40	3/29/22	5/13/22
2022 Work Season work	148	5/11/22	10/29/22
Commissioning and verification testing	120	7/6/22	11/22/22
Commercial Operation	1	12/14/22	12/14/22

Total Project Duration 3.6 years

Three mobilizations in '20,'21, and '22

Project major tasks include planning, permitting, PPA acquisition, engineering, drilling, construction and commissioning

MGP Key Partner Relationships



Under OCCP leadership several partners are either already or soon to be working. Wellfield development TBD

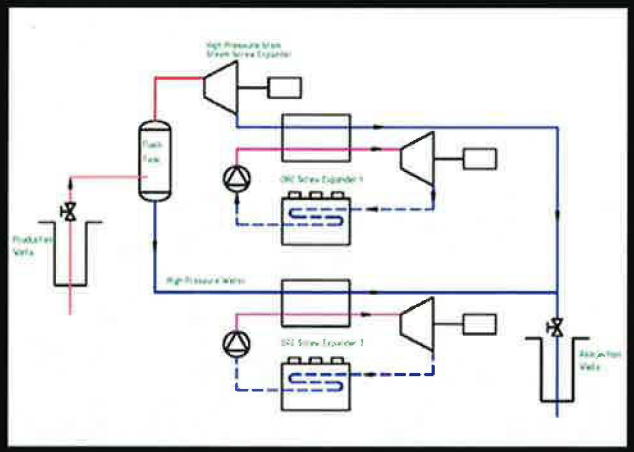
Partners include: Kaishan, Maritech, Power Engineers and 3-Tier. Installation of roads, pads, terrestrial transmission line and communication line are TBD.

Kaishan Will Build the Power Plant

Kaishan geothermal power plant in Indonesia

Kaishan has over 500 MW of geothermal power plants in operation or development world-wide.

"Over the last sixty years Kaishan has steadily grown to become a significant diversified engineering company, developing high value equipment for industrial use worldwide."

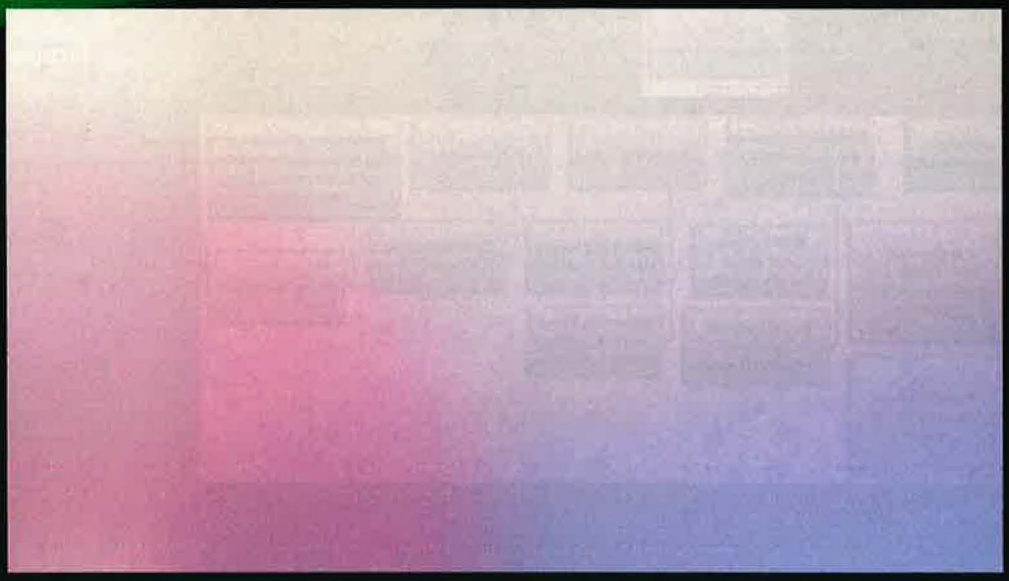


Preliminary schematic of proposed 18MWe Kaishan power plant

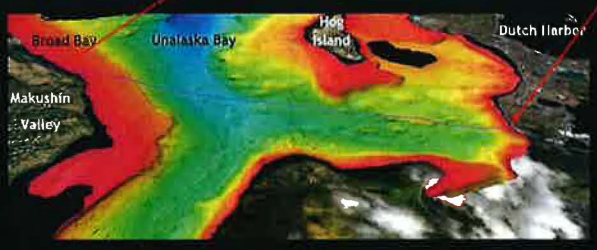
One steam expander and two ORCs*

*Organic Rankine Cycle

Modular Construction



Transmission Line and Road Routes



- A road will be built from Broad bay to the plant site.
- The power plant is approximately 14 miles from Unalaska, subsea transmission and communication line portion is approximately 3.2 miles.
- The land portion of the line will be underground and follow the road. Engineering and installation will be contracted separately.
- Maritech Engineering & Marine Project services will be utilized to design the subsea route and to assist with this contract in the selection of the cable manufacture.

Summer Field Program

OCCP 2020 field season

1. Update project environmental compliance.

Looking north at Malushin Valley

2. Select route for the 10-mile road to plant site.
3. Investigate temporary Dock and infrastructure site.
4. Survey undersea power and communication cables.
5. Well field resource testing.

Looking east from ST-1 up Malushin Valley

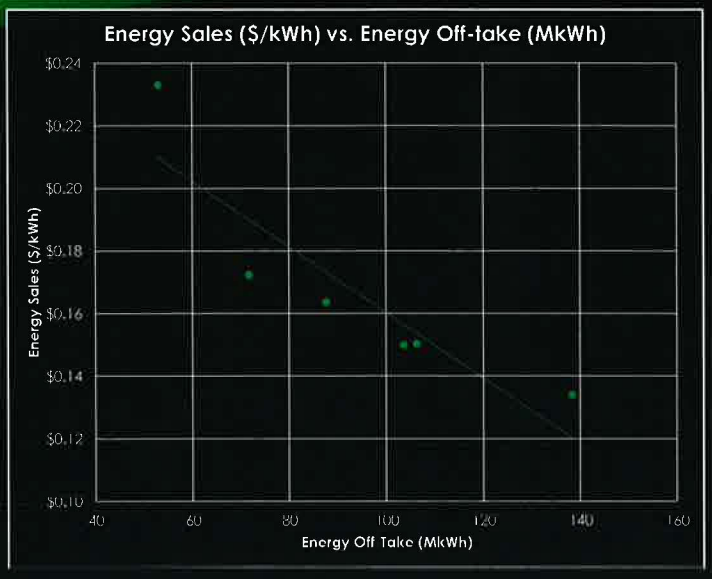
NEPA Process for MGP Launched

OCCP has initiated actions with DOE starting NEPA process for MGP

- A request for approval from DOE of our 2020 environmental work activities in order to initiate meaningful evaluation of potential environment affects of MGP
- A summary will be prepared to address environmental impact categories identified in DOE code of federal regulations
- Discussion with Agencies will begin (ADF&G, USFG&WS, BLM, NOAA, EPA, DEC), with federal recognized Alaska Native Tribes, and other interested parties
- Meetings will be held with affected parties for their comments and level of support
- Evidence and analysis will be prepared to determine if EIS, EA, or no significant impact findings are appropriate
- Your participation and support is requested

Looking west up Malushin Valley

Project Costs and Energy Take-Off

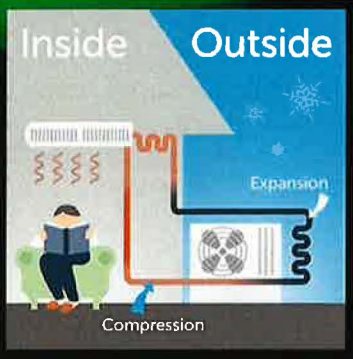


- All six options are plotted illustrating the relationship between energy sales price and energy off-take.
- Larger energy off-take commitments decrease energy sales price.

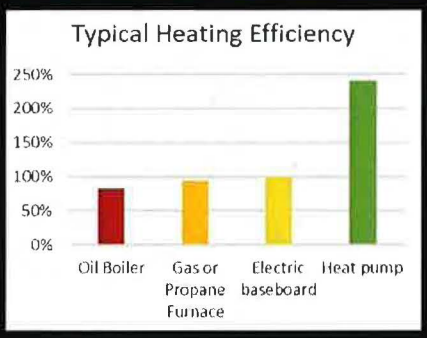
PPA Options 30-Year Projection

- Calibrated M. Hubbard 10-yr projection comparison between current utility fuel plus variable O&M and OCCP Option 1.2 (page 14) to 30-yr years
- To calibrate fuel costs 15.8 cents/kWh with $2.46/kWh and a 15.6 kWh/gal generating etticiency trom City's Production Power Report, Monthly Operations Overview (June 1, 2019 to June 30, 2019) Fiscal Year values

What Are Air Source Heat Pumps?



An air source heat pump (ASHP) works by harvesting heat energy from the air and push that energy into your home, even when it's below zero there's still heat in the air.*



An ASHP effectively extracts heat from the cold outdoors, concentrates it, and delivers it inside to keep you warm all winter. According to the laws of physics, *a lot less energy is required to move heat than to create it.**

- ASHPs heat a home at efficiencies of well over 100% in cool weather.
- For comparison, conventional heating systems that run on gas, oil, or propane have efficiencies between 80- 97%.
- But when the heat pump efficiency is calculated, the useful heat delivered is much larger than the energy you buy at the meter.
- In a cold climate, the average efficiency for an entire winter is typically in the 200-250%.
- That translates to dollars saved!*

* From Northeast Energy Efficiency Partnerships (NEEP), ***Air Source Heat Pump Buying Guide***

ASHPs Meet All Your Heating Needs

ASHPs can meet all your home's heating needs no matter what your current's systems configuration.

ASHP Myth #1: *Heat pumps don't work below freezing*

ASHP Fact: Today's cold-climate units have enhanced heating capacity in cold weather and should be left running under all outdoor conditions.*

ASHP Myth #2: *Heat pumps are expensive to operate.*

ASHP Fact: Most cold climate heat pumps have high heat output and don't even have electric backup heaters.*

Ducted and ductless ASHPs can be custom-designed, mixed, and matched to meet your home's heating and cooling needs.

ASHPs can heat water to power hydronic floorboard systems and meet your domestic hot water needs too.

ASHPs can heat individual rooms, be configured to your work with your forced-air system.

* From Northeast Energy Efficiency Partnerships (NEEP), ***Air Source Heat Pump Buying Guide***

Sustainable and Affordable

- Accomplished:
  - Assembled a top-notch technical team
  - Findings: larger load commitment equates to a larger power plant and lowers consumer costs
  - However, in the future power plant can be expanded
- Why OCCP?
  - Non-recourse loan
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  - New, proven innovative technology

THANK YOU!

BACKUP SLIDES

Makushin Heat Resource is Huge

Cumulative evidence collected since '80s in the Makushin geothermal area indicates presence of a widespread (>15 sq mi), commercial temperature (385°F), geothermal system centered along a northeast-trending structure. The heat source driving this system is probably a partially molten to molten intrusive body.

Geologic setting
Makushin is an active volcano, young (30 to 15 mybp) active, convergent (7 cm/yr), volcanic arc, since 1760 with 24 eruptions, latest 1995

Geothermal surface manifestations
Numerous fumaroles, warm and hot springs and faults, mostly vertical with small displacement, control fumarole locations, N50°W strike

Well tests
Three temperature gradient holes (1982) had temperatures around 385°F at 1,500'
ST-1 was drilled in 1983 and encountered a steam zone at 675' in mafic, crystalline rock (diorite) and a large fracture at 1,950'. Fluids encountered were moderately saline with low-bicarbonate and at 385°F at ~500 psi. A 34-day flow test through a 3" wellbore, achieved 63,000 lbs/hr.

Surveys - geological, geophysical (gravity, self-potential, resistivity, seismicity), and water and whole rock geochemical analyses

Geochemical thermometers - geochemical analysis of subsurface geothermal waters suggest temperatures ~420°F at depth

*From: Evaluation of the Makushin Geothermal Reservoir, Unalaska Island, 1985, PROCEEDINGS, Twenth Workshop on Geothermal Reservoir Engineering Stanford University, Stanford, California, January 22-24, 1985 SGP-TR-84

Mount Makushin Volcano, 2018

Bottomline: Based on prior information gathered and straightforward analysis the Makushin resource could likely sustain >50MW of electric generation for hundreds of years.*

ASHPs In Unalaska Buildings Saves $s

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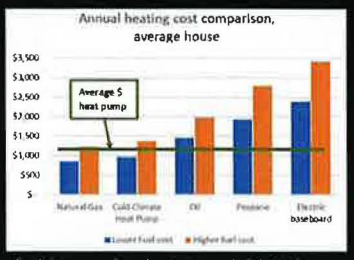
OCCP ASHP Plan:

1. WE will survey the City to determine the heating needs.
2. If you agree, we will right-size, buy, and professionally install an ASHP in your home or business for *free*.
3. Depending on your current heating system's configuration, and in most cases, you will be able to keep your old system as back-up and for auxiliary heating.
4. Once installed and running ASHP will raise your electricity bill – but lower your costs for other heating fuels.*



*For this comparison, the lower and higher prices used are $1.20 - 1.75/therm for gas; $0.14 - 0.20/kWh for electricity; $2.75 - 3.75/gallon for oil; and $2.50 - 3.60/gallon for propane.***

* For a typical household that uses 800 gallons of oil per year, a heat pump can reduce the amount of oil used by 300 gallons.

If oil costs $2.75 per gallon, the price per million BTU (British Thermal Units, the standard measure of heat in the US) would be $28.06.

To get the same amount of heat, 1 million BTU, from a heat pump with the current standard electric rate of 14.5 cents per kWh, it would cost you $14.71.

In other words, heating your home with a heat pump is equivalent to heating your home with oil for $1.44 per gallon, or for 48% less.

** From Northeast Energy Efficiency Partnerships (NEEP): ***Air Source Heat Pump Buying Guide***

Makushin Is Posed and Ready

OUNALASHKA CORPORATION

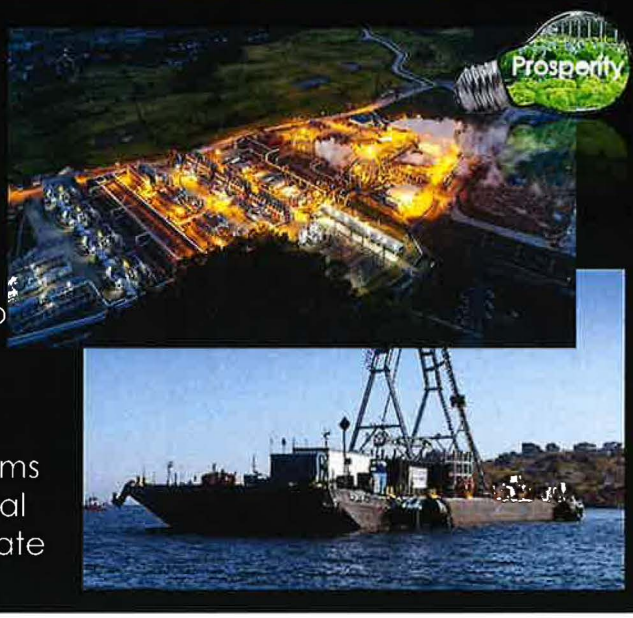
CHENA POWER

With vision and Leadership
AND
The Makushin Resource: YOUR Resource,
you can build a strong and
prosperous future!

Only World-Class Partners

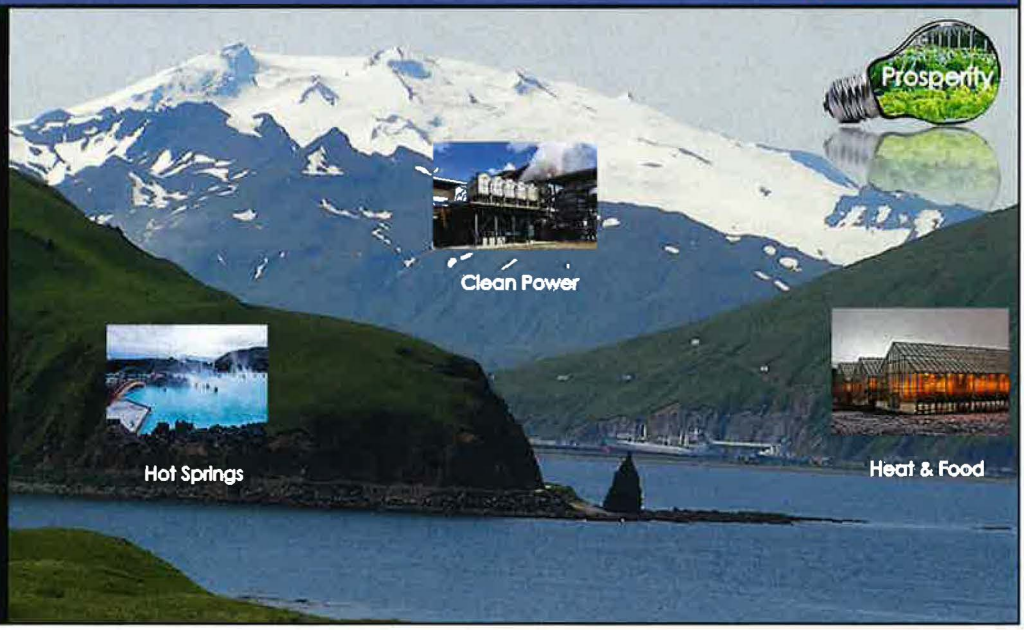
OCCP has partnered with other world-class companies to complete the project including:

- Kaishan for best-in-class geothermal power plant technology
- Maritech for turn-key subsea cab
- Power Engineers for buried land cable and other construction facilities
- Other specialty environmental firms
- And as the project proceeds local firms will be hired when appropriate



Unalaska has the same opportunity

Clean Power, Heat, Food, Tourism, Sustainability, and Prosperity



Geothermal Energy is the Key

OUNALASHKA CORPORATION

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And It Is Working Right Now At Chena Hot Springs Resort...

Clean Geothermal Power

Fresh Food All Year Long

Hot Springs and Tourism

Alaska's First Geothermal Plant

OUNALASHKA CORPORATION

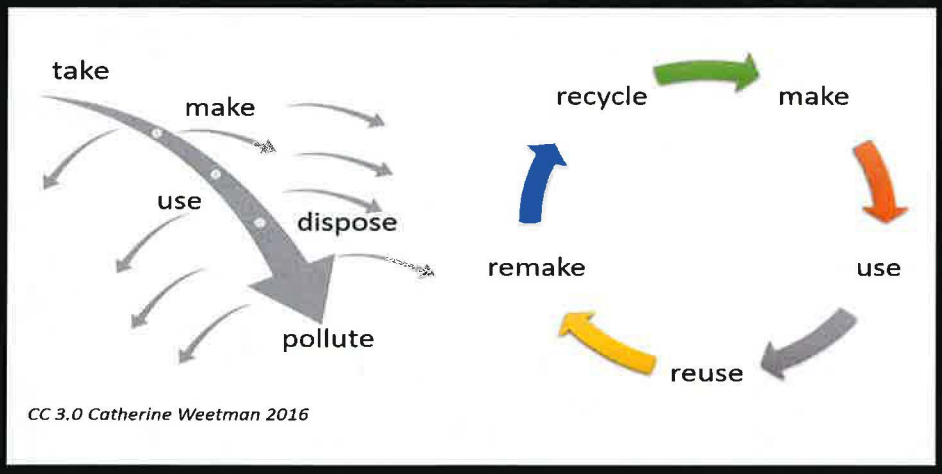
CHENA POWER

Vision and passion helped build the first geothermal plant in the world to make power from 165° F. water at Chena Hot Springs

Chena Hot Spring's power plant is the *lowest* temperature geothermal power plant in the world

Renewable Energy for Unalaska

Let geothermal energy be the genesis to move Unalaska from a linear toward a circular economy



Linear economy natural resources become waste, in circular economy everything is reused

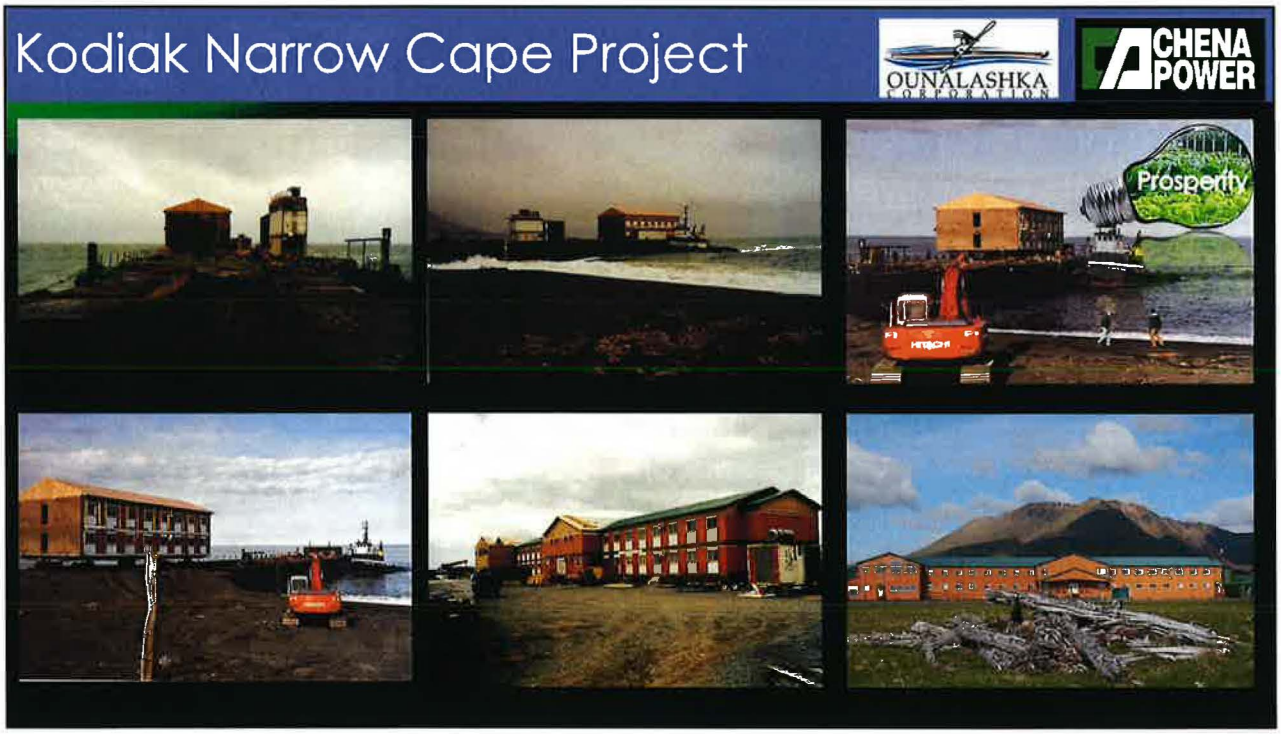
Other similar Projects

We're proud of what we've done and what we do!

- No other organization in Alaska is better at logistical performance than Chena Power. We have delivered and built major facilities on schedules, and in places that others would not.
- Our project execution is on time, on budget, and high quality. We are proud of our accomplishments.
- The following slides show pictures of difficult projects we have completed. We have many more, but the conditions shown are similar to those which will be encountered at Makushin.
- Simply put, we know what we are doing.

Sakalin Island, Russia Project

Kodiak Narrow Cape Project



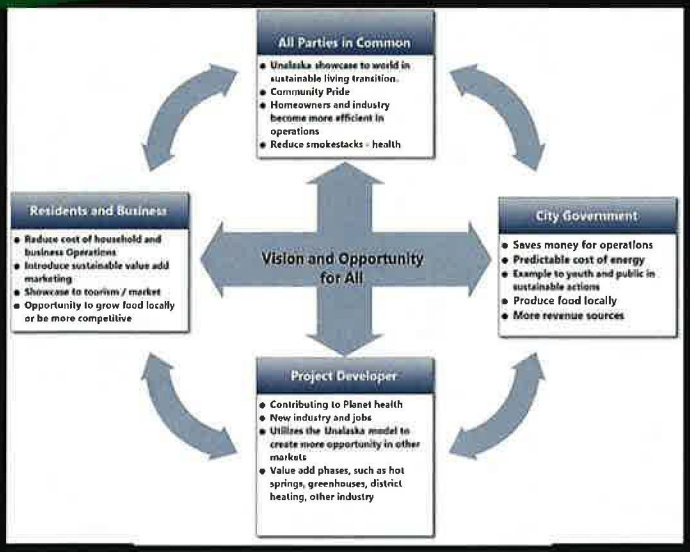
You have all the tools necessary

To help build a self-sustaining and prosperous community

Unalaska has:

- Energy source
- Delivered
- Food security
- Cheaper energy, and
- Economic prosperity

Sustainability and Reduced Emissions



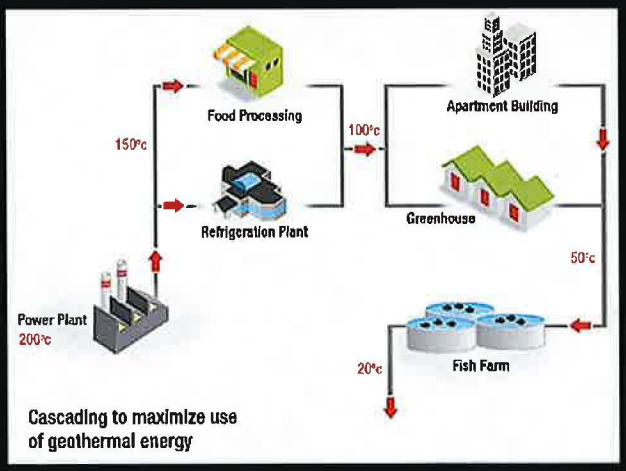
Geothermal Energy Reduces Greenhouse Gases and Provides for Sustainable Growth and New Possibilities

Geothermal Energy Empowers

OUNALASHKA CORPORATION

CHENA POWER

Geothermal energy availability can lead to many possibilities



- Cascading geothermal fluids through several different stages maximizes the utility
- For example: (let's make the fish farm visual a hot springs instead)

Prosperity

Kaishan Will Build the Power Plant

OUNALASHKA CORPORATION

CHENA POWER

Kaishan geothermal power plant in Indonesia

"Over the last sixty years Kaishan has steadily grown to become a significant diversified engineering company, developing high value equipment for industrial use worldwide."

Prosperity

Kaishan has six geothermal power plants in operation world-wide including Chena

Kaishan plant in Indonesia at night

Kaishan geothermal power plant in Hungary

Units can produce up to 100 Megawatts, can be configured to meet needs

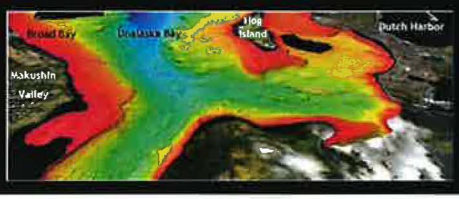
ORC Power Generation

Screw steam expanders

Maritech Could Install Subsea Lines

- Over 450+ installation projects in 100+ different companies
- Around 4,000 km subsea cable installed
- Fleet of Specialized Vessels and Installation equipment

Maritech is a turn-key Marine & Engineering Services company tailored to the subsea cable



Makushin Volcano is the Heat Source

"…studies conducted between July 1996 and August 2000 recorded some 176 minor earthquakes registering between 0.1 and 3.2 on the Richter Scale, occurring on average 2 to 3 times a month."*

- The Aleutian Arc consists of 76 major volcanoes
- 36 have erupted in the past 10,000 years (Coats, 1950)
- Makushin is one of the most active volcanoes in the Aleutian Islands, erupting at least two dozen times over the past several thousands years, the last in 1995.*
- Makushin Volcano is the highest point on Unalaska Island, standing at 6,660 ft

*[illegible]

PPA Offer Summary

Case #	Case Description	Power Plant Nameplate Capacity (MWg)	Heat Pump Capacity (MWg)	Power Plant Net (MWe)	Estimated Peak Load (MWe)	Average Load (MWe)	Utility Electric Energy Off-Take (MkWh)	Geothermal Electric Energy Sales ($/kWh)
CITY CASE with out Heat pumps								
1	Base Case, Plant 18MWe, Load 6MWe	18.4	-	17	12	6.1	53.0	$0.23
2	Base Case + (Alyeska + Westward = 1.9MWe) loads	18.4	-	17	16	8.2	71.8	$0.17
2	Base Case + (Alyeska + Westward = 1.9MWe) loads	22.4	-	20	16	8.2	71.8	$0.19
2	18 MW plant with 15 MW BESS	18.4		17	16	8.2	71.6	$0.19
4	Base Case + UniSea + (Alyeska + Westward = 1.9MWe) loads	24.4	-	22	24	11.8	103.6	$0.15
CITY CASE with HEAT PUMPS								
1	Base Case, Plant 18MWe, Load 6MWe + Heat Pump load, plus 15 MW BESs	18.4	4.0	17	21	10.0	87.7	$0.16
1	Base Case, Plant 22.4MWe, Load 6MWe + Heat Pump load, Plus 15 MW BESS	22.4	4.0	20	21	10	87.7	$0.18
2	Base Case + (Alyeska + Westward = 1.9MWe) loads + Heat Pump load, Plus 15 MW BESS	22.4	4.0	20	24	12.1	106.3	$0.14
2	Base Case + (Alyeska + Westward = 1.9MWe) loads + Heat Pump load, Plus 15 MW BESS	24.4	4.0	22	24	12.1	106.3	$0.15
2	Base Case 26.4 MW + (Alyeska + Westward = 1.9MWe) loads + Heat Pump load.	26.4	4.0	24	24	12.1	106.3	$0.15
4	Base Case + UniSea + (Alyeska + Westward = 1.9MWe) loads + Heat Pump load, Plus 15 MW BESS	30.4	4.0	27	32	16.8	138.3	$0.13

- Off-Take energy ranges from 53 to 138 MkWh
- Energy sales prices range from 13 to 23 cents/kWh

- A total of 11 options have been developed to accommodate the City's complex needs
- Power plant nameplate ranges from 18 to 30MWe
- A 15MW battery is also an option in some cases to handle peak loads
- Five options have an air source heat pump project added

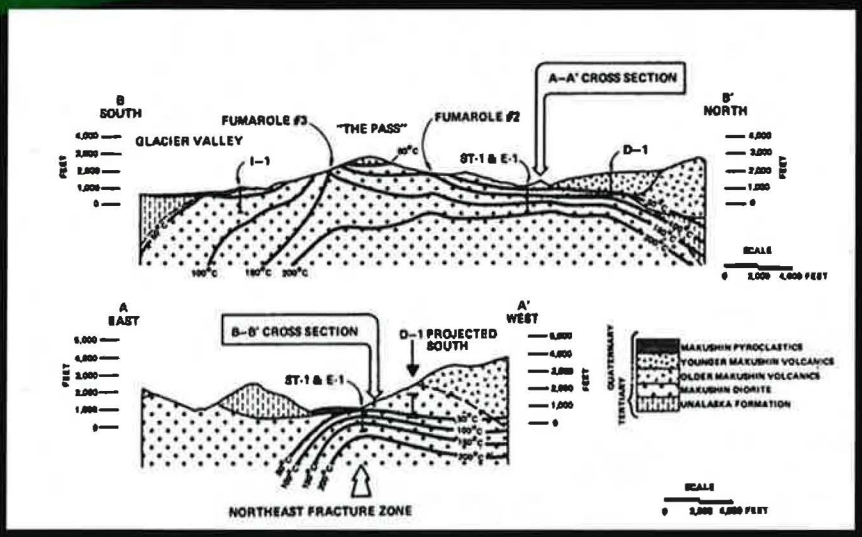
PPA Offer Details

	PPA Obligations with/out Heat Pumps	Electrical Charge in $/Kwh	Electrical Charge in $/kwh with Heat Pump addition	PPA Obligations with Heat Pumps	Scenarios
Option 1	The City commits to purchase 53,000,000 kwhr/year, (4,416,667 kwhr/month), paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount exceeding the minimum is billed at the next level rate (lower), any amount under the minimum is billed at the same rate. 30 year commitment	0.23	0.18	The City commits to purchase 53,000,000 kwhr/year electrical power and commit to purchase 34,650,000 kwhr/year in power to heat pumps for heating over 3 years. Year 1 = 64,550,000, Year 2 =76,100,000, Year 3 = 87,650,000. Paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount exceeding the minimum is billed at the next level rate (lower), any amount under the minimum is billed at the same rate.. 30 year commitment	Represents case where OCCP installs a 18MWg power plant to satisfy a 12MW peak load for electric only option and a 21 MW peak for the electric plus heat option. For the electric plus heat option, a 15MW BESS is added. that accommodates the Cities current demand and peak requirements, Plus City commits to add heat pump loads over 3 years at a rate of 33% per year.
Option 2	The City commits to purchase 71,600,000 kwhr/year, (5,966,667 kwhr/month), paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount exceeding the minimum is billed at the next lower rate, any amount under the minimum is billed at the next higher rate . 30 year commitment	0.17	0.15	The City commits to purchase 71,600,,000 kwhr/year electrical power and commit to purchase 34,650,000 kwhr/year in power to heat pumps for heating over 3 years. Year 1 = 83,150,000, Year 2 = 94,700,000, Year 3 = 106,250,000. Paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount exceeding the minimum is billed at the next lower rate, any amount under the minimum is billed at next higher rate. 30 year commitment	Represents case where OCCP installs a 18 MW power plant on the electric only option and a 24MWg power plant for the electric plus heat pump load option. Those plants satisfy a 16 MW electrical peak load and a 25 MW electrical and heat peak load respectively. A 15MW BESS is included if the electric plus heat option is chosen. This accommodates the Cities current demand plus the additional loads from current industrial customers currently unmet, plus City commitment to add heat pump loads over 3 years at a rate of 33% per year.
Option 4	The City commits to purchase 103,600,000 kwhr/year,(8,633,333 kwhr/month paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount over the minumum is billed as the same rate, and any amount under the minimum is billed at the next higher rate. 30 year commitment	0.15	0.13	The City commits to purchase 103,600,000 kwhr/year electrical power and commit to purchase 34,650,000 kwhr/year in power to heat pumps for heating over 3 years. Year 1 = 115,150,000 Year 2 =126,700,000, Year 3 - 138,250,000. Paid in equal monthly payments, with an annual escalation rate of 1%. End of year reconciliation where any amount over the minumum is billed as the same rate, and any amount under the minimum is billed at the next higher rate. 30 year commitment	Represents case where OCCP installs a 24 MW plant for the electric sales only option and 30 MWg power plant for the electric plus heat pump option. A 15 MW BESS is included on each option to accommodate 24 and 32 MW peak load requirements. (respectively). This accommodates Cities existing loads plus Unisea plus existing industrial customers unmet needs. Plus City commits to add heat pump loads over 3 years at a rate of 33% per year.

A total of 6 options have been down-selected in previous discussions between the City and OCCP

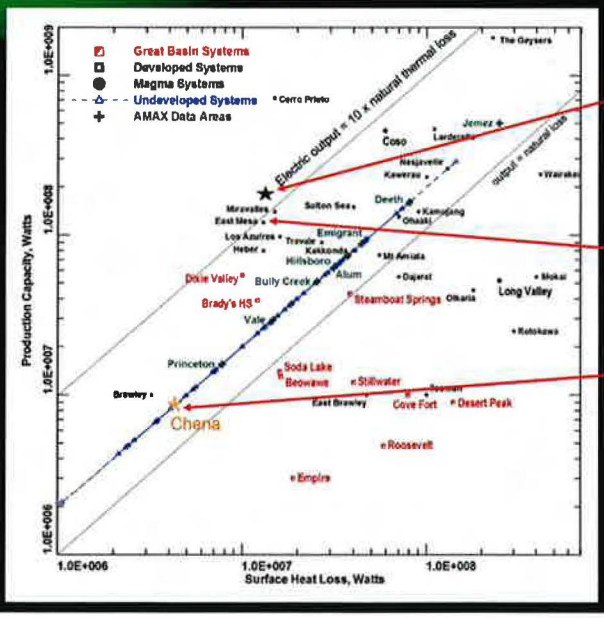
Energy sales prices range from 13 to 23 cents/kWh

What Does the Resource Look Like?



- A temperature model for the Makushin Resource was developed in 1983
- North/South and East/West cross-sections highlight the areal extent >15 Sq. Mi.
- Econonides and others (1985) provided an estimate of reserves for 12 MW of electric power) for over 500 years.

Makushin is a world-class reservoir

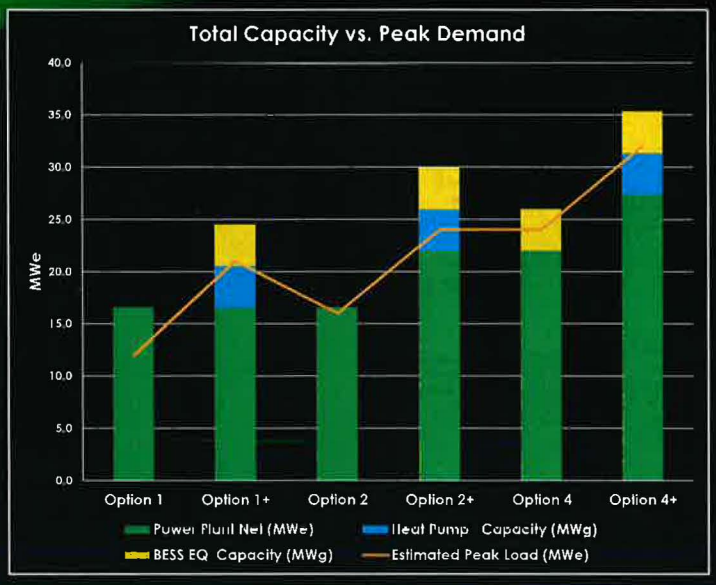


Based on prior information gathered and straightforward analysis the Makushin resource could likely sustain >50MW of electric generation for hundreds of years.*

On this plot, East Mesa had the potential to sustain 100MW, but was produced in 1985 at 50 MWg for 20 years

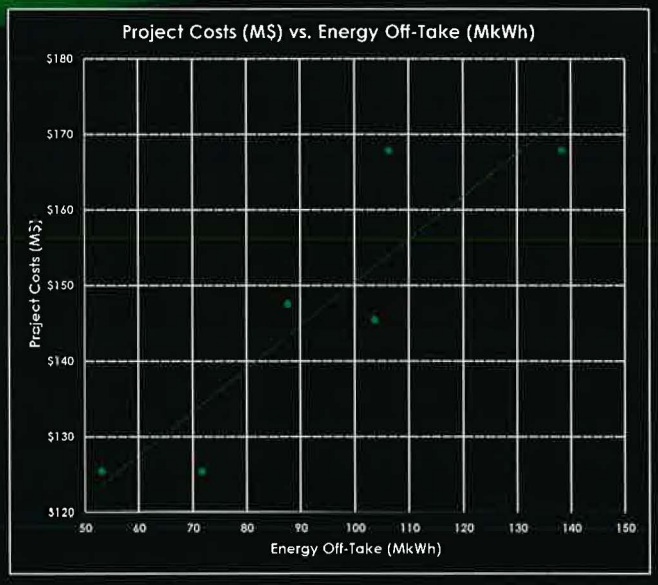
"Based on heat flow estimates and history of geothermal development at other sites, it was determined that Chena Hot Springs could likely sustain 5MW of electric generation..."**

Total Capacity, Peak Load and BESS



- All six options are plotted illustrating the relationships between peak demand, ASHP capacity and BESS.
- When the ASHP load is added to the City electric load then to manage peak load a BESS is sometimes necessary.

Project Costs and Energy Take-Off



- All six options are plotted illustrating the relationship between project costs and energy off-take.
- Larger energy off-take commitments increase project costs.