

Unalaska City Council
UNALASKA, ALASKA

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July 21, 2020 Special Meeting

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Special Meeting
Tuesday, July 21, 2020
6:00 p.m.



Unalaska City Hall
Council Chambers
43 Raven Way

Council Members
Thomas D. Bell
Darin Nicholson
David M. Gregory

UNALASKA CITY COUNCIL

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Council Members
Dennis M. Robinson
Alejandro R. Tungul
Shari Coleman

Vincent M. Tutiakoff Sr., Mayor
Erin Reinders, City Manager

AGENDA

1. **Call to order**
2. **Roll call**
3. **Pledge of allegiance**
4. **Recognition of visitors**
5. **Adoption of agenda**
6. **Public testimony on agenda items**
7. **Work session**
 - a. Disclosures by Mayor and Council Members
 - b. Discuss Power Purchase Agreement with Ounalashka/Chena Power, LLC
8. **Executive Session**
 - a. Discuss Power Purchase Agreement with Ounalashka/Chena Power, LLC
9. **Adjournment**

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MEMORANDUM

TO: Erin Reinders
City Manager

FROM: Brooks W. Chandler
City Attorney



DATE: July 6, 2020

SUBJECT: Geothermal Project Conflict of Interest Ruling

We previously provided rulings on OC shareholders and employees participating in discussion of a potential power purchase agreement for geothermal power between the City and OCCP (a limited liability corporation (“LLC”) in which OC holds a 51% ownership interest). (March 4, 2020 and November 25, 2019 memoranda). The purpose of this memorandum is to provide the city attorney ruling required by UCO 2.88.040(C) as to whether council member Tungul’s employment by Petro Star Inc. d/b/a North Pacific Fuel (“NPF”) is a “substantial financial interest” precluding participation in discussions about a power purchase agreement and voting on whether to approve a power purchase agreement between the City and the LLC. In our opinion the answer is no.

FACTS

According to his most recent APOC disclosure form council member Tungul is employed full time by NPF as its assistant terminal manager at a salary of between \$50,000 and \$100,000 per year. NPF is a trade name of Petro Star Inc. which in turn is a wholly owned subsidiary of Arctic Slope Regional Corporation. Petro Star Inc. does business throughout Alaska.

NPF has¹ sold diesel fuel to the City's electric utility. Those sales could be significantly reduced if the electric utility switches from diesel fuel to geothermal fluid for generation of electricity².

ANALYSIS.

Unalaska's conflict of interest ordinance applies both to City employees and elected officials. UCO 2.88.030(a) prohibits a City Council member from voting on any question in which the Council member "has a substantial financial interest".

A substantial financial interest in the making of "[a] contract" does not include being an employee of the person with whom the contract will be made where the "remuneration of employment will not be directly affected" by the contract. UCO 2.88.020(B)(1). The city is not making a contract with council member Tungul's employer. It is making a contract with a different business. Assuming the same rule applies in this more indirect situation, the issue is whether council member Tungul's pay "will not be directly affected" by any power purchase agreement between the City and OCCP.

Based on a review of summary sales tax information (the details of which are confidential by ordinance) it is clear that sales to the city, while significant, are a relatively small component of NPF's overall revenue generated from fuel sales made in Unalaska. There is little reason to conclude a conversion to geothermal generation of electricity would impact council member Tungul's continued employment or the amount of his salary. He may vote on whether to approve a power purchase agreement between the City of Unalaska and OCCP.

This ruling is specific to discussions of the potential purchase of geothermal power from the LLC including votes on whether to approve a power purchase agreement. This ruling does not mean that a ruling is required or if so what that ruling would be on any other matters coming

¹The City typically solicits bids for the supply of fuel for its generators each year. There is competition in the local fuel business. North Pacific is not always the city's fuel supplier. But for the purposes of this analysis we have assumed North Pacific would always be the low bidder.

²The City's most recent solicitation for diesel fuel indicated the City anticipated purchasing a little more than 3,000,000 gallons of diesel fuel for electric generation purposes. If the geothermal contract is signed generators would only be operated 8 hours per month and total fuel consumption would drop to 103,488 gallons per year. Thus replacing diesel generation with geothermal generation would result in a loss of potential fuel sales of 2,896,512 gallons each year.

Geothermal Project Conflict of Interest Ruling

July 6, 2020

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before the city council directly involving North Pacific Fuel or Petro Star, Inc..

If you, or council member Tungul have any questions regarding this ruling please let me know.

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MEMORANDUM

TO: Erin Reinders
City Manager

FROM: Brooks W. Chandler
City Attorney



DATE: March 5, 2020

SUBJECT: Geothermal Project Conflict of Interest Rulings

We previously provided general advice on the above-referenced matter. (See November 22, 2019 memorandum). The background facts and analysis discussed in that memorandum will not be repeated here. In summary we recommended formal disclosures by Mayor Tutiakoff and two council members related to ownership of shares in and payments received from Ouhnalashka Corporation (“OC”) whether as an employee or as a corporate director. In our opinion stock ownership and employment constituted a “financial interest” in a potential contract between the City and an LLC 51% of which is owned by OC. Those disclosures have been made and reviewed. The purpose of this memorandum is to provide the city attorney ruling required by UCO 2.88.040(C) as to whether the financial interest is a “substantial financial interest” precluding participation in discussions about a power purchase agreement and voting on whether to approve a power purchase agreement between the City and the LLC.

OC has a 51% ownership interest in an LLC which is proposing to sell geothermal power to the City. OC has 26,900 issued shares of stock. Mayor Tutiakoff owns 70 shares (.26% of the corporation). Council member Robinson owns 75.89 shares (.28% of the corporation). Council member Gregory’s immediate family members own a total of 115 shares (.42% of the corporation). This ownership interest of less than one half of one percent is well below the 5% ownership threshold which city code defines as a “substantial financial interest” in a contract with the City. UCO 2.88.020(B)(3)(b). The Mayor and council members are not precluded from participation and voting on a power purchase agreement between the City and the LLC by

reason of stock ownership in OC.

Mayor Tutiakoff and council member Robinson are members of the OC Board of Directors. Mayor Tutiakoff serves as the chair of the OC Board. Neither the Chair nor Directors are paid by OC. Therefore there is no substantial financial interest in the potential power sales agreement resulting from serving on the OC board or as chairman of the board of directors. The Mayor and council member Robinson are not disqualified from participation and voting on a power purchase agreement between the City and the LLC by reason of their serving as members of the OC board of directors.

Council member Gregory is employed by OC as its lands manager. He is eligible for and has received annual bonus payments in addition to his regular salary. Neither his salary nor bonus payments are directly tied to the success of any particular OC investment, operation or project including the geothermal power project. Therefore by definition his employment by OC does not constitute a substantial financial interest in the geothermal project or potential power purchase agreement between the City and the LLC. UCO 2.88.020(B)(1)(no substantial financial interest unless salary payments “directly affected” by proposed contract).

Similarly, the fact OC pays discretionary dividends from general funds of the corporation does not constitute a disqualifying conflict of interest for either council member or the Mayor. Such dividend payments are not directly tied to the geothermal project. The theoretical possibility dividends could be increased by an unknown amount should the geothermal power project be profitable is not sufficient to establish a “substantial financial interest”.

This ruling is specific to discussions of the potential purchase of geothermal power from the LLC including votes on whether to approve a power purchase agreement. This ruling does not mean that a ruling is required or if so what that ruling would be on any other matters coming before the city council involving OC.

If you, council member Robinson, council member Gregory or Mayor Tutiakoff have any questions regarding this ruling please let me know.

February 10, 2020

To: City Clerk, City of Unalaska

From: Vincent M. Tutiakoff, Sr., Mayor, City of Unalaska

Regarding: Disclosure Statement

To Whom it May Concern:

I'm writing to you and the Council regarding my involvement as a City of Unalaska representative concerning the negotiations of a Power Purchase Agreement between the Ounalashka Corporation/Chena Power, LLC (OCCP) and the City of Unalaska.

I am a Shareholder of the Ounalashka Corporation (OC) and own 70 shares of OC stock representing 26,900 of the outstanding shares of OC stock. I am also a Director on the OC Board and also serve as OC's Chair. I do not receive a bonus as the Chair or Director of OC. The OC Board historically has declared a discretionary quarterly dividend, which I receive as an OC shareholder. I am also a Trustee and Beneficiary of the Ounalashka Settlement Trust, from which I receive quarterly distributions.

Although OC owns a majority of OCCP, I am neither a Director nor Officer of the OCCP.

As for fiduciary duty to the corporation, it is to protect the assets of the shareholders. As to the fiduciary duty to the city, it is as a resident and voter, I will vote for what is good for the city as a whole.

Vincent M. Tutiakoff, Sr. -2-10-2020



2/10/2020

Declaration of Financial Interest

Marjie,

I am writing this in response to Brooks regarding a potential conflict with the Makushin Geothermal project.

I am a shareholder of The Ounalashka Corporation (OC). I own 75.89 shares of stock.

I also sit on the board of directors of OC.

Ounalashka Corporation is the majority owner of Ounalashka Corporation/Chena Power LLC. (OCCP) of which I do not serve as a director.

OC has 26,900 outstanding shares of stock.

I do not receive any bonuses on the performance of OC.

Regarding my fiduciary duty and my belief in how I handle myself when the matter comes up.

When I am at a duly convened meeting of the City of Unalaska my fiduciary duty is to the City of Unalaska as a City Council member. I am one of six Council members

When I am at a duly convened meeting of The Ounalashka Corporation my fiduciary duty is to the shareholders of The Ounalashka Corporation. I am one of nine board members.

Dennis Robinson



TO: Unalaska City Clerk – Marjorie Veeder
FROM: Councilman David M. Gregory
DATE: February 19, 2020
REF: Declaration of Financial Interest

With respect to my involvement with the OC/CP LLC I offer the following.

I am an employee of The Ounalashka Corporation, my title is Lands Manager, I am a salaried employee.

My wife Okalena Patricia Lekanoff Gregory is a shareholder in the Corporation and owns 95 shares of OC Stock out of a total of 26,900 total shares available. She is also a Director on the OC Board.

My Son, James Gregory and my daughter Delores Gregory are both Shareholders who own 10 shares of OC stock each.

I work for the Ounalashka Corporation which is the majority owner of the OC/CP LLC developing the Makushin Geothermal Project.

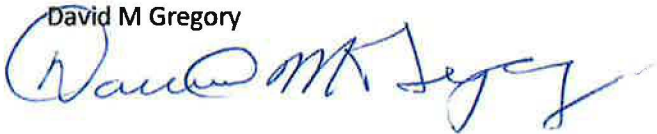
As an employee of the Ounalashka Corporation I am eligible for an annual bonus and have received bonuses in the past from OC.

I regard my fiduciary duty to the City of Unalaska as my number One duty while sitting as a Council Member during Council Meetings. I am one of six members of the Unalaska City Council.

In my role of Lands Manager for OC I am called upon to provide support to the OC/CP LLC in the form of providing maps, Drone Imagery, exhibits and expertise on the use of OC lands.

I am not involved in any final decision making in either the OC/CP project or other OC projects.

David M Gregory



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MEMORANDUM

TO: Erin Reinders
City Manager

FROM: Brooks W. Chandler
City Attorney



DATE: November 25, 2019

SUBJECT: Geothermal Project Conflict of Interest

At Mayor Tutiakoff's request, we have examined whether either his status as a shareholder or his role as chairman of the Ouhnalashka Corporation ("OC") creates a conflict of interest prohibiting his participation in Council consideration of matters pertaining to a geothermal project being pursued by Ounalashka/Chena Power, LLC ("the LLC") including a potential power purchase agreement between the LLC and the City. Based on our understanding of OC's involvement with the LLC, general information about the OC shareholder dividend program, the conflict of interest provisions of the Unalaska Code of Ordinances and relevant Alaska Supreme Court decisions on conflict of interest we have concluded no OC shareholder, employee or board member on the City Council including Mayor Tutiakoff has a disqualifying conflict of interest. However, because city code requires "declaration" of "any" financial interest a declaration should be made by the Mayor and Council members Gregory and Robinson prior to participating in council discussions about the project. This memorandum supplies the reasons for this recommendation.

FACTS.

The Unalaska City Council is being asked to support and will be asked to approve a negotiated contract for the purchase of energy from a geothermal power project ("the Project"). The Project will be developed and owned by the LLC. OC owns 51% of the LLC.

Should the LLC successfully develop the Project some of OC's LLC distributions would

potentially be added to the principal held in an OC fund called the Ounalashka Shareholder's Trust¹ ("OST"). Earnings from OST are distributed to unit holders in the trust. The recently announced 2019 distribution was \$19 per unit. Mayor Tutiakoff and council member Robinson are unit holders as is council member Gregory's wife. Future contributions to the Trust from OC's share of LLC profits are contingent on overall development and operating costs associated with the Project. They can fairly be described as speculative.

Council member Gregory is currently employed by OC at a middle management level. His pay may include an annual bonus based on how well OC performs financially. Council member Robinson is a member of the OC Board of Directors as is the Mayor. Members of the Board are not paid other than stipends for attendance at each board meeting. Board member payments are not tied to OC's annual profit.

There will be two types of anticipated city council action within the next three months: 1) issuing a general letter of support for the Project and; 2) a vote on whether to approve a power purchase agreement.

ANALYSIS.

Unalaska's conflict of interest ordinance applies both to City employees and elected officials. UCO 2.88.030(a) prohibits a City Council member from voting on any question in which the Council member "has a substantial financial interest".

A substantial financial interest in the making of "[a] contract" does not include being an employee of the person with whom the contract will be made where the "remuneration of employment will not be directly affected" by the contract. UCO 2.88.020(B)(1). Accordingly, a Council member who is an OC employee will have a substantial financial interest in the negotiated purchase of electricity from the LLC only if their OC salary is "directly affected" by the amount of profit OC will realize from the LLC. Any profit is likely years in the future. It is unlikely a bonus based on corporate income will be immediately impacted by a contract for the sale of power from the Project.

Owning shares in a company contracting with the City only constitutes a "substantial financial interest" when the council member owns more than 5% of the outstanding shares.

¹ Contributions to OST principal are generated from six other OC subsidiaries whose primary historical business has been real estate development and leasing (Aleutian Development Co, Dutch Harbor Aggregate, Dutch Harbor Development, FDOC, Inc., Little Brazil Corp. , Uknadax Corporation and OC Communications, Inc.). The amount of such contributions is not fixed in stone but is dependent on profitability from year to year.

UCO 2.88.020(B)(3)(b). Since OC only owns 51% of the LLC a council member would need to own more than 10% of the outstanding OC shares in order to have more than a 5% interest in the LLC. It is extremely unlikely OC share ownership constitutes a “substantial financial interest” in any contract between the City and the LLC². However, as discussed below, all three city officials should declare a financial interest.

The conflict of interest ordinance anticipates a two step process. The first step is for the council member to “make known”; “any financial interest” the Council member has in a contract or matter being voted on. UCO 2.88.040(a). The second step is a determination by the city attorney regarding whether the council member may vote or participate³ in the matter. UCO 2.88.040(c). Thus, the ordinance anticipates the city attorney making the determination regarding whether a declared financial interest is a “substantial” financial interest “direct or indirect”.

The requirement of a “declaration” of a “substantial” financial interest is required by state law. AS 29.20.010. State law does not mandate declarations of “any” financial interest, but the City is free to have stricter conflict of interest requirement than the minimum requirements established by state law. Unalaska has chosen to do so. Any financial interest in a City Council action must be declared. This also extends to any financial interest the spouse of a City Council member has in a matter being considered by the City Council.

In our opinion, City Council members who are OC employees, and who have in the past received annual bonus payments based in part on OC’s annual income or profit, have some financial interest in the purchase of electricity by the City from the LLC. Similarly, elected officials who are OC shareholders have “some” financial interest in the commercial success of the LLC.

For these reasons, OC employees or shareholders who are elected officials should declare the fact they are OC employees or shareholders, and also identify how frequently they have received bonus payments from OC based on OC’s financial performance (OC employee), the

² It is our understanding that the “standard” number of OC shares held by those eligible to be OC shareholders is 100 shares. Shares can be acquired through inheritance or gift. Per the original articles of incorporation OC is authorized to issue up to 100,000 shares. We do not know if OC limits the total number of shares that may be held by any one eligible shareholder. As a practical matter it is virtually impossible for one individual to accumulate an ownership interest of 10% in OC.

³ Participation includes a broader range of activities than voting. Participation would include discussions related to the proposed contract and the Project that occur at City Council meetings.

Geothermal Project Conflict of Interest Memorandum

November 25, 2019

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number of OC shares they own and the total number of issued OC shares (shareholders). This disclosure can be made orally at a public meeting or in writing directed to the City Clerk. Once the declarations have been made we can finalize the opinion required by UCO 2.88.040(C).

There is another issue related to the conflict of interest question. This involves the legal concept of fiduciary duty. Council members owe a fiduciary duty to Unalaska residents. OC board members owe a fiduciary duty to OC shareholders. In some instances what is in the best interest of OC shareholders (such as the LLC receiving a high price for electricity sold to the City) will not be in the best interest of city residents (who are customers of the city's electric utility). This is not addressed by city code provisions or Title 29. It is a matter for individual consideration of each official as to what is "right". Presumably the contract will be negotiated at arm's length and will result in an agreement being recommended for approval by city staff. Nevertheless, OC board members who also serve the public as elected officials will need to think long and hard as to whether there is a conflict in their fiduciary duties which requires them to request to be excused from voting on an LLC-City contract for purchase of energy from the Project.

If you, the Mayor or the City Council have any questions about this topic, please let me know.

MEMORANDUM TO COUNCIL

To: Mayor and City Council Members
From: Erin Reinders, City Manager
Date: July 21, 2020
Re: Geothermal PPA

SUMMARY: The City team has worked cooperatively with the OCCP team to develop the Draft PPA being discussed this evening. Our attorney has included a summary of the agreement, and our consultant has provided an economic analysis. This memo serves to set the context and timeframe of the PPA and its evolution. There are two topics where OCCP and City teams have not yet reached agreement. These will be discussed in executive session this evening.

PREVIOUS COUNCIL ACTION: The City continues to look to support with reliable and cost effective alternate energy sources, including geothermal. City Council has identified this support as a federal priority. To this end, during the fall lobby trip to Washington in 2019, City representatives sat alongside representatives from the Q-tribe and OC in a meeting with Department of Energy demonstrating support for a geothermal project on our island.

November 26, 2019

- Work Session, Presentation from Ounalashka/Chena Power, LLC regarding their Geothermal Project

January 30, 2020

- Special Meeting for a Work Session for an Update on Ounalashka/Chena Power, LLC geothermal project (standalone meeting)

February 25, 2020

- Work Session, Report from Ounalashka/Chena Power, LLC regarding their Makushin geothermal project

March 10, 2020

- Reports, City Attorney conflict of interest opinion related to Ounalashka/Chena Power, LLC
- Executive Session,
 - Discussion regarding potential Power Purchase Agreement between City of Unalaska and Ounalashka/Chena Power, LLC
 - Discussion regarding potential Power Sales Agreements between City of Unalaska and local seafood processing facilities

May 26, 2020

- Directive to the Manager, *“Report back to the City Council by June 16, 2020 for possible action committing to a PPA with OCCP at the Council Meeting on June 23, 2020 a cos/benefit/risk analysis for a potential Power Purchase Agreement concept that commits Unalaska for the purchase of 100MkWhr/year, at \$0.16/kWh, for 30 years*

taking into account the probability of securing sufficient load sources by fall of 2023 within the Unalaska City Limits.”

June 23, 2020

- Work Session, Presentation and discussion of the financial feasibility and potential risks and rewards related to OC/Chena Power’s proposed Makushin Geothermal Power Project
- Directive to the Manager, *“Negotiate and work cooperatively with OCCP LLC to develop a Power Purchase Agreement that enables the City Council to act on such agreement at the Council Meeting on July 14, 2020. Initial loads to be negotiated should be between 80mkwhr and 100mkwhr. Costs and rates to be negotiated within the Power Purchase Agreement.”*

BACKGROUND: City staff began working with the OC/CP LLC team in late 2019 in addressing project planning and development questions and in the drafting of a Power Purchase Agreement. City staff team consisted of City Manager, Assistance City Manager JR Pearson, Public Utilities Director Dan Winters and Deputy Director Steve Tompkins. We have enlisted the support of Mike Hubbard, long time City Consultant with a strong background in public utilities project and analysis. Our attorney was brought on to our City team as well. Both Brooks and Mike have been involved with previous Makushin geothermal efforts. We have the right people engaged to help position this project for success and to develop an agreement that is in the best interests of the citizens of Unalaska.

On January 15 and 16, 2020, the City team met with OCCP representatives for a working meeting in Anchorage. The focus of the meeting was developing framework of general concepts that OCCP can take to its potential lenders to determine if financing can be obtained.

Following this meeting, discussions and work continued. Focus was on the PPA, understanding the project, identifying challenges, mitigating risks, expanding opportunities, identifying what would need to be done should the project move forward, and refining displaced costs. OCCP communicated that they planned to proceed with their fieldwork and research, which will help reduce the number of uncertainties and assumptions. We reached out to processors to garner their interest in the project and encourage them to attend the February 25, 2020 Council meeting, where OCCP would be presenting on their project. The City team, including Brooks Chandler and Mike Hubbard, met with the OCCP team while they were in town that week. Given travel and weather challenges, this meeting was not as in-depth as planned.

City staff met and talked with processors throughout March and April. At that time, processors were unable to make a long term commitment. Mike Hubbard followed up met with processors to ensure they had an understanding of the overall concept of the project and potential agreements. The City team held a conference call with OCCP on April 24, 2020 and communicated the feedback we were getting from the processes. This was not done in person due COVID related challenges. The next step was for OCCP, along with the City to meet with the processors.

Those meetings were never held, but OCCP provided a detailed document outlining several concepts for consideration to the City on May 19, 2020. We responded with some initial thoughts and questions in a timely fashion.

On May 26, 2020, City Council issued a directive to provide a report and cost/benefit/risk analysis regarding a PPA at a particular commitment level. Our focus then shifted to the

Council Directive issued on May 26, 2020 to provide. Our long time consultant, Mike Hubbard, prepared the formal report and analysis. Brooks Chandler, our City Attorney, provided a memo related to non-recourse financing as another component of the risk assessment. This material was presented to Council at the June 23, 2020 Council Meeting. At the end of that meeting Council issued a directive to negotiate and work cooperatively with OCCP LLC to develop a Power Purchase Agreement for loads between 80mkwhr and 100mkwhr.

Given the complex nature of this topic and the time required to discuss it, a stand-alone special meeting has been scheduled for tonight, July 21, 2020. This date was selected in coordination with OCCP.

DISCUSSION: OC has united forces with Chena Power to create OCCP. OCCP requires a PPA with the City of Unalaska to obtain financing for the Geothermal Project. There is much excitement and interest in the potential for a geothermal project and what it might mean for our community. Indeed, this is a very exciting opportunity, but not an opportunity that can be taken lightly.

For the past 6 months, your City team has been doing its job in working to come to a tentative agreement to share Council that we believe would be in the best interest of the community and the rate payers. We have made every effort is to provide you with relevant, unbiased, and objective information to help you in this deliberative process. As always, the City Council's responsibly to evaluate this information, weigh the potential risks and benefits, and to ultimately make the decision you feel is best for the community as a whole.

Since the most recent directive was issued on June 23, 2020, OCCP and City teams very much worked intensively and cooperatively to develop a PPA. This process included over 17 hours of meetings between City and OCCP:

- 2 plus hours reaching an agreement on the approach for modeling
- 5 hours reviewing the PPA and preparing for the meeting with the self-generating processors
- 1.5 hours with self-generating processors
- 9 hours of negotiating the PPA details

These times do not include all the work and internal group meetings taking place behind the scenes, by all parties, to prepare for these discussions.

The PPA is a comprehensive document with a magnitude of its impacts, and the amount of time required in developing the PPA is not surprising. Mike Hubbard has provided and updated analysis and findings. Brooks Chandler has provided a memo summarizing the Draft PPA. All these materials are included in the packet.

The Draft PPA references exhibits that have not yet been finalized and includes two items in red within the Draft PPA. The items in red are the two remaining items which OCCP and City teams have not reached agreement. These points are outlined below.

- The City has proposed the current wording as one of the Conditions Precedent (Section 19, item d): *Purchaser shall have obtained commitments from seafood processors that currently self- generate some or all of their electric power to purchase at least _____KWH per year of additional electric power above Purchaser's existing annual load of approximately 40,000,000 KWH or at least ___ percent of their requirements for electric power commencing at the Commercial Operation Date and continuing each year during*

the term of this Agreement by October 1. We continue to work with the self-generating processors to gain perspective on their level of interest in entering into a purchase agreement as well as a better understating for their concerns. This feedback may help us improve the wording of this precedent or may help us identify future actions.

- The City has requested a supply bond as part of the Insurance Requirements (Exhibit C, Item 3): *Seller shall procure and maintain a surety bond in the form substantially similar to that attached to this Exhibit in the penal sum of five million dollars (\$5,000,000) throughout the term of this Agreement.*

This is an ongoing negotiation for a PPA that could significantly impact the finances of the City of Unalaska. Outstanding points included in the draft will be discussed in Executive Session.

ATTACHMENTS:

- Draft PPA, with outstanding issues noted
- Memorandum dated July 17, 2020 from City Attorney Brooks W. Chandler regarding the Geothermal PPA
- Report dated July 17, 2020 from Michael D. Hubbard of the Financial Engineering Company
- PowerPoint Presentation of Michael D. Hubbard of the Financial Engineering Company
- Memorandum dated June 17, 2020 from City Attorney Brooks W. Chandler regarding Non-Recourse Financing

POWER PURCHASE AGREEMENT

BETWEEN

CITY OF UNALASKA, a first-class Alaska municipal corporation

AND

OUNALASHKA CORPORATION/CHENA POWER, LLC, an Alaska limited liability company

Parties

This POWER PURCHASE AGREEMENT, dated _____, 2020 (Agreement) is made between the City of Unalaska, a first-class Alaska municipal corporation (Purchaser) and Ounalashka Corporation/Chena Power, LLC (Seller) a licensed Alaska limited liability company duly organized under the laws of the State of Alaska.

Recitals

Whereas, the Purchaser owns and operates water, sewer and electric public utilities for the City of Unalaska;

Whereas, the Seller intends to develop and build a geothermal power system to generate electricity for sale to the Purchaser (Makushin Geothermal Project); and

Whereas, the Purchaser desires to purchase electric power from the Seller under the terms and conditions set forth herein; and

Whereas, upon complete satisfaction of the condition's precedent set forth in this Agreement, the Purchaser and Seller intend for this Agreement to become binding and fully enforceable on the Parties.

Now, therefore, the Purchaser and the Seller (jointly the Parties) in order to achieve the foregoing do agree and commit as follows.

Terms and Conditions

1. DEFINITIONS

- (a) **“Agreement”** means this Power Purchase Agreement.

- (b) **“Actual Project Capability”** means a Project Capability, as determined by an independent third-party engineer, that is less than the stated Project Capability and such that the Purchaser is unable to meet 100% electrical demand with Energy from the Facility.
- (c) **“City Distribution System”** means all city-owned equipment interconnected with the City distribution and transmission lines up to the Delivery Point.
- (d) **“Commercial Operations Date”** means the date on which the last of the following events occurs: 1) construction of the Facility and the transmission line from the Facility to the Delivery Point have been substantially completed in accordance with the terms and conditions of this Agreement and Applicable Laws and the Facility and transmission line possess all the other material characteristics necessary for delivery of Energy to the Delivery Point pursuant to this Agreement; 2) the Facility has successfully completed all tests which must be performed prior to commercial operation as required by applicable laws, start up and testing procedures required by the Engineering Procurement Construction Contract between OCCP, LLC and its manufactures and installers and has demonstrated as confirmed by an independent engineer retained by Seller in a written report consistent with Prudent Electrical Practices or the terms of the Interconnection/Integration Plan that the Facility is fully available to be operated and able to provide not less than the Project Capability to the Delivery Point and that output can be dispatched into the Purchaser’s system without disruption and on a commercial basis. 3) Seller has obtained all governmental approvals and Permits required to begin commercial operations and operate and maintain the Facility in accordance with this Agreement, and all such Permits and approvals are final and in full force and effect; and; 4) Seller and Purchaser have obtained the insurance specified in Section 17.
- (e) **“Commercial Operation Deadline”** means May 31, 2024 which is the date by which the Facility must have reached the Commercial Operations Date, or such other date as provided in this Agreement or as may be agreed to in a writing signed by both Parties.
- (f) **“Delivery Point”** means the interconnection point(s) between the Seller’s Facility and the City Distribution System. This may be comprised of a single point or points for transferring energy between the Seller’s Facility and the City Distribution System.

- (g) **“Energy”** means geothermal energy for electrical power generation expressed in kWh generated from the Facility and provided to Purchaser by Seller under this Agreement.
- (h) **“Equivalent Availability Factor”** means the ratio of hours the Facility is available for power generation at Project Capacity to the number of hours in a particular calendar month. The removal or derating of any operational component which would limit the ability to generate at Plant Capacity to the Delivery Point shall be considered Unavailable. An example of how Equivalent Availability Factor is calculated is attached as Exhibit D.
- (i) **“Facility”** means any Facility/facilities or component/components of/to the Makushin Geothermal Project used to produce Energy owned by the Seller including all electric power interconnection and transmission equipment located on Seller’s side of the Delivery Point. Facility includes an electric generating facility with a net output of 30 MVA at the Delivery Point, using geothermal fluid as the fuel source and located near the existing ST-1 well (“Project Site”). Additional capacity added to the Facility after the Commercial Operation Date shall not be subject to this Agreement unless the Parties have executed and approved an amendment to this Agreement.
- (j) **“Fixed Payment”** means the annual payment Purchaser and Seller agree will be paid for electrical energy which may be utilized during the initial Year of the Term and thereafter increased based on Article 5 requirements. The fixed payment shall be divided into 12 equal monthly payments.
- (k) **“Force Majeure”** means (a) any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, civil disturbances, sabotage, blockade, expropriation, confiscation, fire, unusual or extreme adverse weather-related events or natural disasters (such as lightning, landslide, earthquake, tornado, hurricane, storm or flood), pandemic, epidemic or any order, regulation or restriction imposed by any Governmental Authority, or (b) any other event of circumstance, which, in each case of clauses (a) and (b), (i) prevents a Party from performing any of its obligations under this Agreement, (ii) could not reasonably be anticipated as of the date of this Agreement, (iii) is not within the reasonable control of, or the result of negligence, willful misconduct, breach of contract, intentional act or omission or wrongdoing on the part of the affected Party (or any subcontractor or Affiliate of that Party), and (iv) which by the exercise of due diligence the affected Party is unable to overcome or avoid or cause to be avoided;

provided, nothing in this clause (iv) shall be construed so as to require either Party to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or labor dispute in which it may be involved. A Force Majeure does not include any of the following: (1) events arising from the failure by Seller to construct, operate or maintain the Facility in accordance with this Agreement; (2) any increase of any kind in any cost; (3) delays in or inability of a Party to obtain financing or other economic hardship of any kind; or (4) any changes in the financial condition of Purchaser, Seller, or any subcontractor or supplier affecting the affected Party's ability to perform its obligations under this Agreement.

- (l) **“Initial Synchronization”** means the date upon which the Facility is first synchronized at the Delivery Point with Purchaser's system.
- (m) **“Interconnection / Integration Plan”** means the document agreed by parties that represent requirements for system interconnection and integration of power to the Purchasers existing system. The plan shall consider city, state, federal codes and standards, in conjunction with the geothermal plant design basis and shall incorporate Prudent Electrical practices to integrate the City distribution System taking into account methodology to improve Purchasers Electrical System Integrity to the extent agreed in Article 11, or as mutually agreed in the actual plan which is to attached as Exhibit B, when completed.
- (n) **“kWh”** means a kilowatt-hour of electric energy.
- (o) **“Local Tax”** means ad valorem real and personal property taxes levied by the City of Unalaska on the Facility.
- (p) **“Metered Energy”** means the Energy delivered to Purchaser by Seller at the Delivery Point as measured by the Purchaser's supplied Meter at the Delivery Point.
- (q) **“Metering Equipment”** means equipment required to provide a complete metering circuit including; cabinets, potential transformers (PT's), current transformers (CT's), raceway and interconnection wiring.
- (r) **“Month”** means a calendar month.
- (s) **“Outage”** means a duration of time in which the facility cannot provide 100% of required demand, requiring the Purchaser or self-generators to run additional generation, interrupt loads, or reduce loads. Outages shall be measured in hours. An outage of any period of time up to 60 minutes shall be equal to 1 hour. A sum of all single outage less than 60 minutes, in a 24-hour period shall be a maximum of 24 hours.

- (t) **“Peak Capacity”** has been reached when a measurement of power in MVA or KW has exceeded 1.5% for any duration of time, i.e., 30 MVA Peak Capacity = 30.405 MVA.
- (u) **“Permits”** means all applications, permits, licenses, franchises, certificates, concessions, consents, authorizations, approvals, registrations, orders, filings, entitlements, and similar requirements of whatever kind and however described that are required to be obtained from a Governmental Authority with respect to the development, siting, design, acquisition, construction, equipping, financing, ownership, possession, start-up, testing, operation or maintenance of the Facility, the production and delivery of Energy or any other transactions or matter contemplated by this Agreement (including those pertaining to electrical, building, zoning, environmental, and occupational safety and health requirements).
- (v) **“Plant Availability”** means that the Facility is operating at a capacity such that all power requirements of the Purchaser are met up to the Project Capability.
- (w) **“Plant Reliability”** is defined as the Facility ability to load follow demand, up to Project Capability.
- (x) **“Project Capability”** means the installed capability of the Facility to maintain Plant Reliability at the Delivery Point at Peak Capacity.
- (y) **“Project Finance”** means a loan from the Department of Energy or third-party lender sufficient to pay for and/or reimburse Seller for construction and initial operations costs and expenses associated with the Makushin Geothermal Project.
- (z) **“Project Site”** means the real property shown on the attached Exhibit A.
- (aa) **“Prudent Electrical Practices”** means those standards of design, engineering, construction, workmanship, operation, care and diligence normally practiced by internationally recognized engineering and construction firms and prudent operators of electric generation facilities similar to the Facility and electrical transmission systems in the Western United States during the relevant time period, which practices, methods and acts, in the exercise of prudent and responsible professional judgment in the light of the facts known at the time the decision was made, could reasonably have been expected to accomplish the desired result consistent with good business practices, reliability and safety. Prudent Electrical Practice is not intended to be the optimum practice, method or act to the exclusion of all others, but rather is intended to be any of the practices, methods and/or actions generally accepted in the Western United States during the relevant time

period. Prudent Electrical Practice includes taking reasonable steps to ensure that: (a) equipment, materials, resources, and supplies are available to meet the Party's needs; (b) sufficient operating personnel or control procedures are available at all times and are adequately experienced, trained and licensed as necessary to operate the Facility or Purchaser's system properly and efficiently, and are capable of responding to reasonably foreseeable emergency conditions; (c) preventive, routine, and non-routine maintenance and repairs are performed on a basis that ensures reliable long-term and safe operation, and are performed by knowledgeable, trained, and experienced personnel utilizing proper equipment and tools; and (d) appropriate monitoring and testing are performed to ensure equipment is functioning as designed.

- (bb) **“Purchaser”** means the City of Unalaska through its Public Utilities Department.
- (cc) **“Purchaser’s Electric System Integrity”** means operation of Purchaser’s electric power and transmission system in a manner that minimizes risks of injury or damage to persons and/or property and enables Purchaser to provide reliable electric power service to its customers.
- (dd) **“Seller”** means the Ounalashka Corporation/Chena Power, LLC, an Alaska limited liability company.
- (ee) **“Startup Period”** means the period that begins at Initial Synchronization and ends at the Commercial Operations Date.
- (ff) **“Year”** means each twelve (12) month period during the Term commencing on the Commercial Operation Date or the anniversary of such date.

2. GENERAL

- (a) During the Startup Period and continuing through the term of this Agreement, Seller shall deliver to Purchaser, and Purchaser shall receive from Seller electric energy output from the project Facility/facilities in accordance with the terms and conditions of this Agreement.
- (b) Subject to 2 (c) and (d) below, Seller shall sell exclusively to Purchaser; provided, however, that minimum payments are made by the Purchaser, as described in Section 5 of this Agreement.

- (c) Purchaser shall have the exclusive right to provide electric service to all new and existing customers within Purchaser's existing service area at the City's then existing tariff rates. Purchaser shall have the right of first refusal to provide electric service to all new customers located outside Purchaser's existing service area that may request electric service from the Project, including to any operations owned and/or controlled by Seller and new customers owned in whole or in part by Ounalashka Corporation, Chena Power LLC or any subsidiary or affiliated entity at a rate equal to the City's cost of city purchased or city generated power plus applicable standard customer charges. The first right of refusal period shall expire thirty (30) days after Purchaser is provided written notice of such new customer ("Refusal Period"). At the expiration of the Refusal Period Seller shall have the exclusive right, in its sole discretion, to provide electrical service to new customer(s) under a separate agreement, the terms of which shall be negotiated exclusively between Seller and such third-party(ies). Any such Agreement between Seller and such third party(ies) shall not reduce Seller's obligation to provide 30 MVA to the Purchaser at the Delivery Point.
- (d) Seller shall convey title to and risk of loss of all energy delivered to the Purchaser at the Delivery Point.

3. FACILITY CONSTRUCTION AND COMMERCIAL OPERATION

- (a) Seller shall use reasonable commercial efforts to construct the Facility and achieve the Commercial Operation Date by the Commercial Operation Deadline. Seller shall provide Purchaser with periodic reports about the progress of the Facility construction and completion.
- (b) Seller shall provide Purchaser with at least 70 days advance notice of the date when Seller anticipates achieving Initial Synchronization.
- (c) Seller shall provide Purchaser with at least 45 days advance notice of when Seller anticipates beginning to demonstrate Commercial Operation has been achieved. Purchaser shall be allowed to observe the Facility during demonstration or testing required to establish Commercial Operation. Purchaser shall accommodate or allow reasonable correspondence and collaboration with Purchaser customers to facilitate adequate loading of Facility to allow completion of all tests required to complete the "start-up" process.

- (d) Energy exchange during the Start-Up Period shall be at no cost to the Purchaser or customers of the Purchaser.
- (e) Seller shall provide Purchaser written certification of Commercial Operations when Seller believes that all requirements under this Agreement for achieving Commercial Operation Date of the Facility, including the conditions precedent specified in the definition of “Commercial Operation Date” in Section 1, have been satisfied. If Purchaser rejects certification of Commercial Operations, Purchaser shall state in detail the reasons for its rejection. The Parties shall immediately meet and confer to address Purchaser’s concerns. Commercial Operation shall be deemed to have occurred on the date that the requirements for Commercial Operation are satisfied, which date may be earlier or later than the date on which Purchaser accepts Seller’s certification that Commercial Operation has occurred and/or the date on which any concerns that Purchaser expresses in connection with Seller’s notice are resolved; provided the Parties acknowledge or are deemed to have acknowledged, or it is determined through dispute resolution, that all such requirements for Commercial Operation have been satisfied on such earlier date.
- (f) Seller shall provide Purchaser with as built drawings of the Facility and all equipment placed at the Delivery Point within sixty (60) days after the date of Commercial Operations.
- (g) Purchaser may inspect the Facility during the term hereof upon reasonable advance notice to Seller.

4. TERM

- (a) Subject to Sections 4 (b) and (c) below, this Agreement shall become effective on the date it is executed and delivered by both Parties and shall continue in effect for a period of thirty (30) years after the Commercial Operation Date (Term).
- (b) The Term of this Agreement may be extended by mutual agreement of the Parties for an additional period, provided that the Purchaser or the Seller request in writing an extension of this Agreement not less than eighteen (18) months prior to the expiration of the initial Term. In the event an extension request is submitted by either party, Purchaser and Seller shall each negotiate in good faith using commercially reasonable efforts to agree on the terms, conditions, and length of an extended term.

- (c) Seller and Purchaser agree that the purpose and intent of this Agreement is dependent on the successful completion of the construction of the Facility/Facilities and the related achievement of the Commercial Operation Date by the Commercial Operation Deadline. As such, in the event that either; 1) Seller fails to obtain Project Financing by June 10, 2021; or 2) construction of the Facility/Facilities is at any time discontinued, abandoned or otherwise terminated by Seller in its sole discretion, or 3) Seller fails to provide written assurances to Purchaser that the Commercial Operation Deadline will be achieved in a form consistent with Prudent Utilities Practices, or 4) the Project fails to reach Commercial Operation by the Commercial Operation Deadline, then either Party may terminate this Agreement upon thirty (30) day's prior written notice to the other party. In the event that a party elects to terminate this Agreement pursuant to this Section 4 (c), neither Seller nor Purchaser shall have any further liability and/or obligations to the other hereunder after the termination date, except for obligations, liabilities and/or duties that accrued prior to such termination or that survive such termination by the terms of this Agreement.

5. FIXED PAYMENT

- (a) The Seller agrees to sell and the Purchaser agrees to purchase electrical energy which may be utilized immediately for a Fixed Payment of sixteen million three hundred thousand dollars per year (\$16,300,000.00). Each successive Year during the Term the Fixed Payment shall increase; 1) by one per cent (1%) plus; 2) by an amount equal to the total amount of Local Tax paid by Seller during the previous Year.
- (b) If Seller elects to construct the Project at a different location than the Project Site which decreases construction and operating costs by more than five per cent (5%), prices shall be revised downward to reflect the decreased construction and operating costs.
- (c) If Purchaser requests Seller to increase the generating capacity of the Facility above the Project Capability, the Fixed Payment shall be increased, via an addendum to this PPA in an amount to be negotiated by the Parties.
- (d) In the event the Facility fails to deliver Plant Availability at Project Capability the following adjustment to pricing and Seller actions are agreed. The intent of these adjustments are not to act as a penalty to the Seller, but to reduce Purchaser's

actual financial hardship and to place Purchaser in the same position as if the Facility delivered Plant Availability at Project Capability as agreed. Purchaser and Seller recognize that determination of the actual financial impact to Purchaser in such circumstances is not easily capable of precise calculation and have adopted these provisions for that reason. This subsection does not supersede Purchaser's or Seller's rights to declare a Default under section 15.

- (e) If in any month during the Term the Seller cannot provide the Plant Availability at the Delivery Point for reasons other than limitations within the Purchaser's Electric System Integrity and the Purchaser must either operate its generation equipment or generate power from its own facilities or purchase power from other sources to meet its load obligations or allow customers to self-generate power they otherwise would have been supplied by Purchase or reimburse customers for their cost of fuel used to self-generate power, Seller shall reimburse the Purchaser the sum of the following : ("Reimbursement Payment"):

The Reimbursement Payment or Increased Reimbursement Payment shall be treated as a deduction to the Fixed Price Payment made by the Purchaser in the following month.

- 1) the cost of Purchaser's fuel
- 2) the cost of fuel of customers who self-generate
- 3) one cent (.01) per kilowatt hour for each kWh of energy generated by Purchaser and self-generators that would have been supplied by the Facility ("Administrative Charge"). Each successive Year during the Term the Administrative Charge shall increase by one per cent (1%).

- (f) If at any period during the Term, Seller cannot provide the Project Capability at the Delivery Point for either a period of three consecutive calendar months, or six or more months in any Year, the Actual Project Capability will be determined and the Administrative Charge for those months shall be increased by .02 per kWh beginning with the next monthly payment ("Increased Reimbursement Payment").
- (g) After Actual Project Capability has been determined, Seller shall then undertake the necessary means and methods to restore the Facility to Project Capability. The applicable Increased Reimbursement Payment shall continue until Seller has restored Project Capability. However, if instead of restoring Project Capability Seller negotiates lower Project Finance payments the Fixed Price shall be reduced in proportion to Seller's lower Project Finance payments.

(6) METERING AND PAYMENT OF INVOICES

- (a) Meters shall be owned and operated per city code. Purchaser shall read Purchaser's meter at the Delivery Point on the last day of each month after Initial Synchronization and continuing through the month following the end of the Term, unless otherwise mutually agreed to by the Parties. Purchaser shall prepare and render to Seller within five (5) business days after the end of each month a statement detailing daily and hourly records of Metered Energy during the preceding month. Seller shall have the right to monitor and witness such readings at its own cost and expense. Within five (5) business days after receipt of the statement of Metered Energy Seller shall prepare and render to Purchaser an invoice for Seller's calculation of the payments due to Seller for such month.
- (b) Each Year, monthly payments due shall be equal to one-twelfth of the Base Price (less applicable credits)
- (c) Purchaser shall pay the undisputed amount of Seller's invoices within thirty (30) days after receipt of the invoice. If either the invoice date or payment date is not a Business Day, then such invoice or payment shall be provided on the next following Business Day. Payment shall be made at the office of the Seller, as designated in writing by the Seller. If Purchaser disputes the accuracy on an invoice, or Seller disputes the accuracy of the statement of Metered Energy, the Parties shall use commercially reasonable efforts to resolve the dispute. Any adjustments which the Parties may subsequently agree to make regarding any such invoice shall be made by a credit or additional charge on the next invoice submitted.
- (d) If any payment due from either party under this Agreement shall not be paid when due and payable to the other party, the offending party agrees to compensate the harmed party at the amount in arrears times a rate equal to two percent (2%) over the prime rate as published by the "Money Rates" section of the New York City edition of the *Wall Street Journal*, or mutually agreed upon alternative ("Interest Rate").
- (e) At any time during normal business hours, either party shall have the right, upon reasonable prior notice to the other party, to examine and /or make copies of the records and data of the other party relating to this Agreement (including all records and data relating to or substantiating any charges paid by or to either party and including without limitation metering records of energy delivered) for the period such records and data are required to be maintained. All such records and

data shall be maintained for a minimum of seven (7) years after the creation of such records for data.

(7) METER AND SUBSTATION LOCATION AND PROCEDURES

- (a) As a condition precedent the Parties agree to establish a mutually acceptable location for a new terminal switching station taking the undersea cable and fiber and converting to power acceptable for tie into the City Distribution System.
- (b) As a condition precedent the Parties agree to establish mutually acceptable locations for Metering Equipment locations.
- (c) Supply, operation, maintenance and ownership of revenue meters and all Metering Equipment shall be in accordance with paragraph 7(e), the Interconnection/Integration Plan and Operating Procedures adopted as required by Article 10.
- (d) Purchaser and Seller shall supply each other with easements as needed for installation, operation and maintenance of equipment by the responsible party.
- (e) After the date of Commercial Operations meters shall be maintained and read by the Purchaser. Purchaser shall maintain the Meter according to the manufacturer's suggested maintenance and testing recommendations. The manufacturer's maintenance recommendations and Purchaser's maintenance records for the Meter will be made available to Seller upon reasonable written request. Meters shall be furnished and installed by Purchaser.
- (f) Purchaser shall test and calibrate the meters by comparison with accurate standards at intervals satisfactory to the Parties. Purchaser shall make special meter tests at any time at Seller's request using an independent party selected by Purchaser. The costs of all tests shall be borne by Purchaser; provided however, that if any special meter test made at Seller's request discloses that the meters are reading accurately, Seller shall reimburse Purchaser for the cost of such test. Meters registering no more than two percent (2%) above or below normal shall be deemed to be accurate. The readings of any meter which shall have been disclosed by the test to be inaccurate shall be corrected, based on the inaccuracy at the time of testing, for the shorter of (1) the number of days since the meter being tested was installed, (2) the number of days since the last test indicating that such meters were performing

properly, or (3) the one hundred eighty (180) days prior to the current test, in accordance with the percentage of inaccuracy found by such test.

- (g) To the extent that the adjustment period covers a period of deliveries for which payment has been made by Purchaser, Seller shall use the corrected measurements to re-compute the amount due (which amount shall not include interest) for the period of the inaccuracy and shall subtract the previous payments by Purchaser for such period from such re-computed amount. If the difference is a positive number, such difference shall be paid by the Purchaser to the Seller, and if the difference is a negative number, such difference shall be paid by the Seller to the Purchaser. Payment of such difference shall be made by means of a credit or an additional charge on the next statement rendered.

(8) HEATING SYSTEM

Within one (1) month of executing this PPA, Seller will commission a feasibility study, at its cost, to survey Unalaska homes and business for conversion and use of air source heat pump (ASHP) technology. Assuming, feasibility proven to the mutual satisfaction of Seller and Purchaser (metrics for feasibility are less greenhouse gas emissions and air pollution to the community, and less net cost to consumers for heating), Seller will design, procure, and install to entities who wish to convert their homes and business to ASHP at no cost to consumers. Purchaser and Seller shall share equally in design and installation costs up to five million dollars each.

(9) DISPATCH, OPERATIONS AND MAINTAINENCE.

- (a) After the Commercial Operation Date, Purchaser (or a designee on behalf of Purchaser) shall dispatch the Facility as necessary to meet Purchaser's need for electrical energy, up to the Project capability.
- (b) Seller (or a designee on behalf of Seller) shall operate and maintain the Facility in accordance with Prudent Electrical Practices, Applicable Laws and Permits and in a manner that does not materially adversely affect Purchaser's Electric System Integrity. It shall be Seller's responsibility to provide suitable protective equipment as it concerns the Facility, such as fuses, circuit breakers, and relays, to adequately protect the Facility's and Purchaser's electric power equipment, and to ensure that the electric power interconnection for the Facility complies with all applicable legal, safety, and electrical code requirements.

- (c) To the extent not inconsistent with Prudent Electrical Practices and manufacturers' guidelines and recommendations generally applicable to the Facility, Seller shall cause the Facility to promptly comply with all dispatch orders issued by Purchaser or on behalf of Purchaser.
- (d) At least sixty (60) days prior to the estimated date of Initial Synchronization, Seller shall provide Purchaser with a maintenance schedule for the Facility for the Facility's first year of operation. Thereafter, Seller shall submit to Purchaser annual maintenance schedules for the Facility no later than October 1 of each year that cover the twelve (12) month period starting January 1 and ending December 31 of the succeeding year and a long-term maintenance schedule that will encompass the immediately ensuing four (4) maintenance years. Purchaser shall provide written notice of any reasonable objections to the proposed then applicable annual maintenance schedule within ten (10) Business Days of Purchaser's receipt thereof. Seller shall furnish Purchaser with reasonable advance notice of any change in the annual maintenance schedule. Reasonable advance notice of any change in the annual maintenance schedule involving any shutdown of the entire Facility is as follows:

Scheduled Outage	Expected Duration	Advance Notice to Purchaser
(1)	Less than 2 days	At least 24 hours
(2)	2 to 5 days	At least 7 days
(3)	Major overhauls (over 5 days)	At least 30 days

- (e) The Facility shall be designed to operate with 100% Plant Availability and 100% Plant Reliability.
- (f) The Facility shall obtain and maintain an average Equivalent Availability Factor of ninety-five percent (95).
- (g) Outages shall not exceed more than 87 hours in a 365-day period. If the number of Outages is exceeded, the Seller shall be required to install equipment to limit outages to less than 87 hours, provided same outages are a result of Facility.
- (f) Subject to the foregoing, Seller shall have the right to interrupt the supply of electrical power and energy for reasonable maintenance of lines, generation equipment and other facilities. Seller shall have no obligation or responsibility to Purchaser to provide standby generation in the event power delivery from the Facility is interrupted.
- (g) If either Seller's ability to supply available electric power and energy from the Facility or Purchaser's ability to receive and transmit available electrical power and energy from the Facility shall fail, be interrupted, or become defective

through an act of Force Majeure, the affected party shall be excused from performance of obligations under this Agreement to the extent such performance is prevented or delayed by such event or circumstance and the affected party shall not be liable therefore for damages caused thereby, provided the Party, as soon as practicable after becoming aware of the Force Majeure, declares the Force Majeure by giving a written notice (the "Force Majeure Notice") to the other Party and upon request by the other Party furnishes the other Party with a detailed description of the full particulars of the Force Majeure reasonably promptly (and in any event within fourteen (14) days after the request therefor), which shall include information with respect to the nature, cause and date and time of commencement of such event, and the anticipated scope and duration of the delay. The Party providing the Force Majeure Notice shall be excused from fulfilling its obligations under this Agreement until such time as the Force Majeure has ceased to prevent performance or other remedial action is taken, at which time the Party shall promptly notify the other Party of the resumption of its obligations under this Agreement. The relief provided by this section shall only apply if the affected party is taking commercially reasonable efforts to remedy such situation and such situation was not the result of the negligence or fault of the affected party. No event or circumstance shall be considered to excuse a party's obligations under this Agreement to the extent such event or circumstance could have been prevented, overcome or remedied if the affected party had exercised commercially reasonable efforts to do so, and shall expressly exclude a party's financial inability to perform.

- (h) Operations Log. Seller shall maintain an operations log, which shall include information on the actual average hourly, monthly and annual electric power output of the Facility, well availability and output, planned and unplanned maintenance outages, circuit breaker trip operations requiring a manual reset, partial de-ratings of equipment, and any other significant event related to the operation of the Facility. The operations record shall be available for inspection by Purchaser upon reasonable advance written request, and Seller shall make the data available on a real-time basis by remote access to Purchaser if Purchaser acquires the necessary equipment and software license to process the data by remote access.
- (i) Monthly Reports. If requested in writing by Purchaser, Seller shall provide to Purchaser an electronic monthly report, no later than thirty (30) days after the end of each calendar month identified in the written request, regarding the operations of the Facility that shall include: all reporting information maintained in the operations record and hourly electric power output of the Facility. The monthly report shall also include an estimate of monthly electric power output for the calendar year and such other information related to the operation of the Facility that Purchaser reasonably requests in writing.

(10) OPERATING COMMITTEE AND OPERATING PROCEDURES

- (a) Purchaser and Seller shall each appoint one delegate and one alternate delegate to act on matters relating to the operation of the Facility under this Agreement. Such delegates shall constitute the “Operating Committee”. The Parties shall notify each other in writing of such appointments and any changes thereto. The Operating Committee shall have no authority to modify the terms or conditions of this Agreement.
- (b) The Operating Committee shall, acting reasonably, establish mutually agreeable written operating procedures (“Operating Procedures”) in draft form no later than the Commercial Operations Date. Operating Procedures shall include: the method of day-to-day communications; metering, telemetering, telecommunications, and data acquisition procedures; operating and maintenance scheduling and reporting; operations log; and such other matters as may be mutually agreed upon by the Parties.

(11) SYSTEMS INTERCONNECTION AND INTEGRATION

- (a) Within twenty months (20) of executing this Agreement, the Parties Parties shall agree to the Interconnection/Integration Plan a copy of which shall be attached to this Agreement by reference as Exhibit B.
- (b) The Seller shall bear all cost of outside engineering, design and installation costs associated with the Interconnection and Integration requirements with the City Distribution System. The equipment necessary to interconnect at Project Capacity with the City system shall be approved to by the City consistent with Prudent Electrical Practice.
- (c) Purchaser shall commission an engineering study to determine reliability upgrades required for the City Distribution System to accept Energy from the Facility. The first two million dollars, (\$2,000,000.00) in cost, for the engineering study and resulting reliability upgrades to the City Distribution System identified in the Interconnection/Integration Plan will be borne solely by the Seller. The next ten million dollars (\$10,000,000) in cost for reliability upgrades identified in the Interconnection/Integration Plan, will be shared equally by Purchaser and Seller. Seller’s obligation to share costs are in addition to Seller’s cost obligations under paragraph 11(b).
- (d) All equipment interconnected with the City Distribution System shall be installed in accordance with applicable City of Unalaska ordinances and the Interconnection/Integration Plan including but not limited to installation of a

revenue grade meter(s) approved, installed and maintained by Purchaser, in equipment provided by the Seller at each Point of Delivery.

(12) TAXES

The Parties shall pay to the appropriate taxing authority when due all sales, use and similar taxes levied on Seller's sales, and Purchaser's purchase from or use, occupancy, or operation of the Facility/facilities during or for any part of the Term.

(13) COMPLIANCE WITH APPLICABLE LAW

The Parties shall comply with all local, state and federal laws, statutes, ordinances, rules, regulations, decrees, injunctions, orders and codes now or hereafter applicable to the Facility/facilities, regardless of whether they are of legislative, administrative or judicial origin or implement a new or changed governmental policy, including all of those which address planning, zoning, use, subdivision, occupancy, building, construction, maintenance, repair, health, safety, insurance, environmental conservation, environmental pollution and/or hazardous substances.

(14) RIGHT OF ACCESS

Duly authorized representatives of either party shall be permitted entry and/or access to premises, facilities and property of the other party, to the extent related to the Facility/Facilities, at all reasonable times in order to carry out the provisions of this Agreement.

(15) DEFAULT

- (a) Seller Events of Default. The following shall constitute an event of default on the part of Seller under this Agreement: 1) Seller shall fail to comply with any material provision of this Agreement, and such failure shall continue uncured for thirty (30) days after notice thereof by Purchaser, provided that if such failure is not capable of being cured within such period with the exercise of reasonable diligence, then such cure period shall be extended for an additional reasonable period of time (not to exceed one hundred and eighty (180) days) so long as Seller is exercising reasonable diligence to cure such failure; 2) Seller fails to achieve Commercial Operation by the Commercial Operation Deadline and such failure is not cured within ninety (90) Business Days after Notice from Purchaser; or 3) Seller abandons the Facility (i.e., ceased construction or operation of the Facility or the Facility has ceased production and delivery of the Energy for a consecutive sixty (60) day period and such cessation is not a result of an event of weather or

Force Majeure) and such abandonment is not cured within sixty (60) Business Days after Notice from Purchaser.

- (b) Purchaser Events of Default. The following shall constitute events of default on the part of Purchaser under this Agreement:
- (i) Purchaser shall fail to make payments for undisputed amounts due under this Agreement to Seller within ten (10) days after notice from Seller that such payment is unpaid when due;
 - (ii) Purchaser shall fail to comply with any material provision of this Agreement (other than the obligation to pay money when due), and such failure shall continue uncured for thirty (30) days after notice thereof by Seller, provided that if such failure is not capable of being cured within such period of thirty (30) days with the exercise of reasonable diligence, then such cure period shall be extended for an additional reasonable period of time (not to exceed one hundred and eighty (180) days) so long as Purchaser is exercising reasonable diligence to cure such failure.
- (c) With Respect to Either Party. The following shall constitute events of default on the part of either Party under this Agreement: 1) a Party assigns this Agreement or any of its rights hereunder for the benefit of creditors other than a collateral assignment by Seller with respect to the financing of the Facility; 2) a petition in bankruptcy or insolvency or for reorganization or arrangement under the bankruptcy laws of the United States or under any insolvency act of any state if filed against a Party and is not dismissed within sixty (60) days of such filing, or the Party voluntarily taking advantage of any such law or act by answer; or 3) a Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Party under this Agreement to which it or its predecessor was a party by operation of law or pursuant to an agreement reasonably satisfactory to the other Party;
- (d) Remedies for Default. If an event of Default occurs there will be no opportunity for cure except as specified in Sections 15(b). The Party claiming Default may, for so long as the Event of Default is continuing, (i) deliver a written notice which establishes a date (which date shall be no earlier than thirty (30) days after the Non-Defaulting Party delivers notice) on which this Agreement shall be terminated (Termination Date), (ii) withhold any payments due under this Agreement and (iii) pursue any other remedies available at law or in equity, except to the extent such remedies are expressly limited by this Agreement.

- (e) Survival. Expiration or termination of this Agreement shall not affect any rights or obligations which have arisen or accrued prior to such expiration or termination. In addition, all rights and obligations for indemnity under Section 16 shall survive termination of this Agreement.

(16) INDEMNIFICATION

- (a) Each Party shall indemnify, defend and hold the other and its officers, directors, affiliates, agents, employees, contractors and subcontractors, harmless from and against any and all Claims, to the extent caused by the negligence or willful misconduct of the indemnifying Party or the indemnifying Party's own officers, directors, affiliates, agents, employees, contractors or subcontractors. In the event that any loss or damage with respect to any Claim is caused by the negligence or willful misconduct of both Seller and Purchaser, including their respective officers, directors, affiliates, agents, employees, contractors or subcontractors, such loss or damage shall be borne by Seller and Purchaser in the proportion that their respective negligence or willful misconduct bears to the total negligence or willful misconduct causing such loss or damage.
- (b) An Indemnitee seeking indemnification under this Section 16 shall give notice to the Indemnitor within twenty (20) days of receipt of notice of the assertion of any action or claim (including discovery of any loss, damage or injury giving rise to any claim by the Indemnitee), or the commencement of any action, suit, or proceeding, in respect of which indemnity may be sought hereunder. Failure to give such notice shall not relieve the Indemnitor of any liability hereunder, except that the Indemnitor shall be entitled to relief from its obligations under this Section 16 to the extent such failure to give such timely materially prejudiced the Indemnitor. The Indemnitee shall give the Indemnitor such information regarding the claim, action or proceeding as the Indemnitor may reasonably request. If a claim for indemnification arises from any action, suit or proceeding, the Indemnitor shall, at its expense assume the defense of such action, suit or proceeding, with counsel of its choice, reasonably satisfactory to the Indemnitee and the Indemnitor shall conduct the defense actively and diligently. The Indemnitee shall have the right, but not the duty, to participate in its own defense and to employ at its own expense counsel separate from counsel employed by the Indemnitor. The Indemnitor shall be liable for the fees and expenses of counsel employed by the Indemnitee if the Indemnitor has not assumed the defense thereof. Whether or not the Indemnitor chooses to defend or prosecute any claim, the Indemnitees and the Indemnitor shall cooperate in the defense or prosecution thereof and shall furnish such records, information and testimony, and attend such conferences as are reasonably required. The Indemnitor will not consent to the entry of any judgment on or enter into any settlement with respect to a claim without the prior written consent of the Indemnitee, which shall not be unreasonably delayed, conditioned or withheld, unless the judgment or proposed settlement involves only the payment of money

damages by the Indemnitor and does not impose an injunction or other equitable relief upon the Indemnitee. The Indemnitee shall not consent to the entry of any judgment on or enter into any settlement with respect to any claim without the prior written consent of the Indemnitor, which shall not be unreasonably delayed, conditioned or withheld.

(17) INSURANCE

Within ten (10) days from the date of Seller's notice pursuant to section 3(b) and continuing through the entire Term, Seller shall obtain and maintain in force, insurance coverage in accordance with the requirements stated in Exhibit C, Insurance Requirements, which is attached hereto and incorporated into this Agreement.

Within ten (10) days from the date of receipt of notice from Seller pursuant to section 3(b) and continuing until the Commercial Operations Date, Purchaser shall obtain and maintain in force, insurance coverage in accordance with the requirements stated in Exhibit C, Insurance Requirements, which is attached hereto and incorporated into this Agreement.

Each party shall deliver to the other party an insurance certificate evidencing the required coverage, limits and additional insured provisions as required by Exhibit C.

(18) REPRESENTATIONS and WARRANTIES

On the Effective Date, each Party represents, warrants and covenants to the other Party that:

- (a) It has or will timely acquire all regulatory authorizations necessary for it to legally perform its obligations under this Agreement;
- (b) There is not pending, or to its knowledge, threatened against it or, in the case of Seller, any of its Affiliates, any legal proceedings that could materially adversely affect its ability to perform under this Agreement;
- (c) No Event of Default with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement;
- (d) It is acting for its own account and its decision to enter into this Agreement is based upon its own judgment, not in reliance upon the advice or recommendations of the other Party and it is capable of assessing the merits of and understanding, and understands and accepts the terms, conditions and risks of this Agreement.
- (e) It has not relied upon any promises, representations, statements or information of any kind whatsoever that are not contained in this Agreement in deciding to enter

into this Agreement;

- (f) It has entered into this Agreement in connection with the conduct of its business and it has the capacity or ability to make or take delivery of the Energy as contemplated in this Agreement; and
- (g) It shall act in good faith in its performance under this Agreement.

(19) CONDITIONS PRECEDENT

This Agreement is subject to the following conditions precedent, which shall be fully satisfied on or before the dates identified for each condition precedent:

- (a) Seller shall obtain a written commitment for Project Financing, by 6/10/2021.
- (b) The Parties shall negotiate in good faith to establish the Interconnection / Integration Plan” no later than 20 months after contract execution. The Interconnection/Integration Plan shall include but not be limited to; 1) a mutually acceptable Delivery Point; 2) a location for new distribution and transmission equipment required to connect to the Purchasers existing City Distribution System at Project Capacity, and 3) locations for metering equipment.
- (c) Seller shall have provided Purchaser a utility easement allowing placement, maintenance and operation of all equipment and connections at 1) the Delivery Point and 2) a location for new distribution and transmission equipment required to connect to the Purchasers existing City Distribution System at Project Capacity in a form reasonably satisfactory to Purchaser at no cost to Purchaser by 20 months after contract execution.
- (d) Purchaser shall have obtained commitments from seafood processors that currently self- generate some or all of their electric power to purchase at least ____KWH per year of additional electric power above Purchaser’s existing annual load of approximately 40,000,000 KWH or at least __ percent of their requirements for electric power commencing at the Commercial Operation Date and continuing each year during the term of this Agreement by October 1.**
- (e) Purchaser shall have either: 1) obtained an opinion from bond counsel that this Agreement is not subject to City of Unalaska Ordinance No. 2008-19 ; or 2) complied with any conditions set by Ordinance No. 2008-19 on entering this Agreement by October 1, 2020.

- (f) The Parties have required insurance in place by the dates specified in Section 17.

Termination Caused by Failure to Satisfy Conditions Precedent. This Agreement may be terminated by either party due to the failure of any such condition precedent to timely or fully occur through no fault on the part of such Party. If and when such a termination should occur neither Purchaser nor Seller shall have any further claims, rights or remedies against each other under this Agreement except for obligations, liabilities and/or duties that accrued prior to such termination or that survive such termination by the terms of this Agreement.

(20) Dispute Resolution

The Parties shall attempt in good faith to resolve all disputes arising out of or related to or in connection with this Agreement promptly by negotiation, as follows. Any Party may give the other Party written notice of any dispute not resolved in the normal course of business. Senior executives of both Parties shall meet at a mutually acceptable time and place within ten (10) days after delivery of such notice, and thereafter as often as they mutually agree, to attempt to resolve the dispute. The Parties further agree to provide each other with reasonable access during normal business hours to any and all non-privileged records, information and data pertaining to any such dispute. If the matter has not been resolved within thirty (30) days from the referral of the dispute to the Parties' senior executives, or if no meeting of the Parties' senior executives has taken place within fifteen (15) days after such referral, either Party may initiate legal action for resolution of the dispute. All negotiations pursuant to this Section 20 are deemed confidential hereunder. Transfers or assignments of the Facility shall not relieve Seller of any obligation hereunder except to the extent agreed to in writing by Purchaser.

21. GENERAL PROVISIONS.

- (a) Time of Performance. Time is of the essence of this Agreement. It is the express intention of all of the parties to this Agreement that no extensions or grace periods beyond the deadlines set forth in this Agreement shall be provided, because all intended extensions and grace periods have been taken into consideration in establishing such deadlines.
- (b) Parties Bound and Benefitted. The covenants, terms and conditions contained in this Agreement shall be binding upon and inure to the benefit of the assigns and successors of the respective parties hereto.

- (c) Amendment and Novation. No amendment or novation to or of this Agreement shall be effective unless it is completely and unambiguously contained in a writing executed by all of the parties to this Agreement. No such amendment or novation shall be effective unless and until it is supported by a resolution of the board of directors of each corporation, the council of each municipal corporation or the policy-making authority of each other entity that is a party or a successor or assign of a party to this Agreement, which has expressly approved such amendment or novation.
- (d) Marginal Titles and Headings. The marginal titles, subtitles, headings and subheadings of the paragraphs, subparagraphs, sections and subsections herein are intended to be for reference and for the sake of convenience only and shall not be construed to narrow or broaden the scope of or affect whatever interpretation or construction would otherwise be given to the plain and ordinary meanings of the words herein.
- (e) Entire Agreement. This written Agreement is fully integrated, constitutes the entire agreement between the parties with respect to the subject matter hereof, and supersedes all other prior and contemporaneous agreements, contracts, representations, promises, acknowledgments, warranties and covenants, oral or written, by and between the parties with respect to such subject matter which are not expressly included herein. In the case of any conflict or inconsistency between this Agreement and any other prior agreement between the parties relating to any property or easement conveyed or exchanged herein, this Agreement shall prevail.
- (f) Applicable Law. This Agreement and the respective rights and obligations of the parties hereunder shall be construed and interpreted as a contract under the laws of the State of Alaska, without regard to its conflicts of law principles.
- (g) Exclusive Jurisdiction/Venue. In the event that a question, dispute or requirement for interpretation or construction should arise with respect to this Agreement, the jurisdiction and venue therefor shall lie exclusively with the courts for the Third Judicial District for the State of Alaska, or, alternatively, with the United States District Court for the District of Alaska, at Anchorage, Alaska, unless a nonwaivable federal or Alaska state law should require to the contrary.
- (h) Limited Waivers. Any failure or delay by any party to object to a default or exercise any rights or remedies under this Lease shall not constitute a waiver of the right to do so in the future, unless such failure is accompanied by an express written waiver by such party.

- (i) Interpretation. The language in all parts of this Agreement shall be construed (a) according to its fair meaning and common usage and (b) not strictly for or against any party to this Agreement.
- (j) Counterparts. This Agreement may be executed in counterparts, so long as each of the parties to this Agreement executes at least one counterpart; and all such executed counterparts shall collectively constitute one and the same original document
- (k) Warranties of Authority. Each party and each natural person who executes this Agreement on behalf of such party acknowledges, warrants and represents for the benefit of the other party(ies) to this Agreement: (a) that such person is duly authorized and empowered to execute this Agreement on behalf of such party; (b) that, if a corporation, limited liability company, joint venture, trust, partnership, limited liability partnership or other entity (i) such party has been duly formed and organized and is in good standing and (ii) all necessary and appropriate resolutions and actions by such party's board of directors, general partner(s), manager(s), members or other policy-making authority authorizing such party to enter into, execute and perform this Agreement and the transactions contemplated by this Agreement have been obtained; and (c) that all steps have been taken and acts performed that are conditions precedent to making this Agreement valid, enforceable and binding against such party in accordance with its terms and conditions.
- (l) Independent Counsel. Each party to this Agreement acknowledges that it has enjoyed the advice and representation of competent independent legal counsel in negotiating, entering into and executing this Agreement or waived its right to do so. The fact that this Agreement may have been drafted in whole or in part by one such party's counsel shall not cause any part of this Agreement to be construed against such party.
- (m) Severability. In the event that any term or condition of this Agreement is declared by a court of competent jurisdiction to be void or unenforceable, the remaining terms and conditions shall nevertheless be valid and enforceable; and such void or unenforceable term shall be modified to the minimum extent necessary to be valid and enforceable to the fullest extent permitted by applicable law and enforced as such.

- (n) Survival. All of the representations, warranties and covenants of the parties shall survive any and all deadlines contemplated by this Agreement and shall remain in full force and effect unless and until otherwise satisfied, terminated or discharged.
- (o) Attorneys Fees and Legal Costs. All of the attorneys fees and legal costs incurred by the respective parties in negotiating and forming this Agreement shall be borne by the respective parties. All legal costs and attorneys fees actually incurred by any party to this Agreement to enforce any obligations of any other party under this Agreement or any instruments executed in connection herewith shall be paid to the prevailing party by the other party and shall bear interest at the legal rate.
- (p) No Third Party Beneficiaries. Nothing in this Agreement shall be construed to create any rights in, or grant remedies to, any third party as a beneficiary of this Agreement or of any duty, covenant, obligation or understanding established under this Agreement. Neither Party, by this Agreement, dedicates any part of the Facility to the public or to the service provided under this Agreement, nor affects the status of Purchaser as an unregulated utility enterprise of a municipal corporation, or Seller as an individual or entity.

22. NOTICES AND DEMANDS

Each notice required under this Agreement or by law shall: (a) be in writing; (b) contain a clear and concise statement setting forth the subject and substance thereof and the reasons therefor; and (c) be personally delivered, electronically transmitted (Email), or duly mailed by certified mail, return receipt requested, to each party to this Agreement at its address set forth below or to such other address as that party may have most recently given notice of to all of the other parties. All such notices shall be effective (a) when actually received by the recipient or an authorized representative or agent of the recipient or (b) three (3) business days after they are mailed, whichever occurs earlier.

23. MAILING ADDRESSES/POINTS OF CONTACT

OC/CP, LLC:

Attn: Natalie A. Cale
P. O. Box 149
Unalaska, Alaska 99685
Tel. No. (907) 581-1276

City:

City of Unalaska
Attn: City Manager
P. O. Box 610
Unalaska, Alaska 99685
Tel. No. (907) 581-1251

with a copy to:

Boyd, Chandler, Falconer & Munson
Attn: Brooks W. Chandler
911 West Eighth Avenue, Suite 302
Anchorage, Alaska 99501
Tel. No. (907) 272-8401

Formation

In witness whereof, Seller and Purchaser have duly executed, delivered and formed this Agreement through their authorized representatives, the effective date of which is _____, 2020 (“Effective Date”).

OC/CP, LLC:

By: OUNALASHKA CORPORATION, an
Alaska business corporation
Its Managing Member

Dated: _____, 2020

By _____
Christopher P. Salts
Its Chief Executive Officer

Dated: _____, 2020

By _____

Margaret A. Lekanoff
Its Secretary

CITY:

CITY OF UNALASKA, a first-class
municipal corporation

Dated: _____, 2020

By _____
Erin Reinders
Its City Manager

DRAFT

Exhibit A

Project Site

The project site is as generally depicted on the attached maps and drawings. Actual project site will be updated from me to time in order to reflect the as-built status

DRAFT

Exhibit B

Interconnection / Integration Plan

[to be provided by the Parties within 20 months of Agreement

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Exhibit C

Insurance Requirements

1. Within ten (10) days from the date of Seller's notice pursuant to section 3(b), Seller and Purchaser shall secure and maintain all insurance required.

2. Seller and Purchaser shall maintain in effect at all times specified by Section 17, insurance in accordance with the applicable laws relating to workers' compensation and employers' liability insurance, regardless of whether such coverage or insurance is mandatory or merely elective under the law.

3. Seller shall procure and maintain a surety bond in the form substantially similar to that attached to this Exhibit in the penal sum of five million dollars (\$5,000,000) throughout the term of this Agreement.

4. Insurance coverage and limits shall be at a level as reflected in Paragraph 8 for the risks associated with the Facility contemplated by this Agreement. Required insurance coverages are to be purchased by respective Seller and Purchase at their sole expense. Purchaser may increase the limits of required coverage each five (5) years during the term of the Agreement provided the increased limits are commercially reasonable coverage limits.

5. Seller and Purchaser shall notify one or the other of any reduction of the aggregate limits under any of the required insurance policies, and if requested in writing, purchase additional limits of coverage as may be deemed appropriate by Purchaser in order to satisfy Seller's insurance obligations.

a. Seller and Purchaser shall maintain such insurance in full force and effect at all times specified by Section 17 of the Agreement. Seller shall maintain completed operations coverage, for two (2) years after the expiration or termination of this Agreement.

6. Seller and Purchaser shall ensure that any policies of insurance that Seller/Purchaser or any of its subcontractors and suppliers are required to carry as insurance by this Agreement) shall:

a. Be placed with such insurers and under such forms of policies as may be reasonably acceptable to Seller/ Purchaser.

b. With the exception of workers' compensation and employers' liability,

(i) be endorsed to name Purchaser/Seller as an additional insured; and

(ii) apply severally and not collectively to each insured against whom claim is made or suit is brought, except that the inclusion of more than one insured shall not operate to increase Seller's / Purchaser's limits of liability as set forth in the insurance policy.

c. Include within automobile coverage(s), owned, non-owned, hired and borrowed vehicles.

d. Be primary insurance with respect to the interest of Seller/ Purchaser respectively as an additional insured with any insurance maintained by Seller / Purchaser as excess and not contributory insurance with the insurance required under this Agreement.

e. Include a waiver of the insurer's right of subrogation against Seller/ Purchaser. Seller/Purchaser also hereby waives all rights of subrogation against Purchaser/Seller.

f. Provide that the policies will not be cancelled, or their limits or coverage reduced or restricted without at least thirty (30) days prior written notice to Seller / Purchaser.

7. Seller / Purchaser shall instruct and require its insurance agent/broker to complete and return an insurance certificate, in an ACORD form, as evidence that insurance policies providing the required coverage, limits and additional insured provisions as outlined within this Exhibit D are in full force and effect. Seller / Purchaser shall be fully responsible for all deductibles and self-insured retention's related to their respective insurance provided herein. At least sixty (60) days prior to the Startup Period, the completed insurance certificate form is to be returned to Seller/ Purchaser in accordance with the notice provisions included in the Agreement.

8. The insurance requirements of the Agreement and acceptability to Seller / Purchaser of insurers and insurance to be maintained by Seller/Purchaser, its subcontractors/suppliers, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the insured under the Agreement. Seller /Purchaser is fully and solely responsible for the level of insurance coverage it requires of its subcontractors and suppliers. Purchaser/Seller will look to Seller/Purchaser and thereby Seller's /Purchaser's insurer for coverage for claims arising from the negligent acts or omissions of Seller/Purchaser or any subcontractor/supplier of Seller's /Purchaser's choosing.

9. Evidence of the following coverages shall be provided on an ACCORD Form or equivalent:

\$5,000,000 General Liability

\$10,000,000 Aggregate Liability

\$1,000,000 Automobile Liability

Statutory Worker's Compensation

BOYD, CHANDLER, FALCONER, & MUNSON, LLP

Attorneys At Law
Suite 302
911 West Eighth Avenue
Anchorage, Alaska 99501
Telephone: (907) 272-8401
Facsimile: (907) 274-3698
bcf@bcf.us.com

MEMORANDUM

TO: Unalaska City Council



FROM: Brooks Chandler

DATE: July 17, 2020

RE: Geothermal Power Purchase Agreement

Here is a summary of the proposed agreement between Unalaska and OCCP and a summary description of the terms on which agreement has not been reached. The PPA obligates the City to make monthly payments totaling around \$500,000,000 over a thirty year period. This is a one-half billion dollar obligation easily the largest contract in the City's history. As such, it merits extremely careful consideration by Council. This memo only partially addresses economics as that analysis is being done by Financial Engineering Company.

1. Construction

All OCCP's responsibility. City to approve design of that portion of Facility that ties into existing/upgraded distribution lines. Cost of upgrades to City's system shared up to a maximum. Facility to be ready by May 31, 2024. This includes the geothermal plant plus a transmission line from the geothermal plant to tie into the City's distribution system. OCCP can pull out between now and when plant is operating. Contingencies include OCCP obtaining financing.

2. Operation and Maintenance.

All OCCP's responsibility. They plan to contract out this work.

3. Operating Procedures

City and OCCP appoint representatives to work out technical details of dispatch and integration of geothermal power.

4. Rates

Flat annual payment of \$16,300,000 with an annual 1% escalation (Overly simplistic math means annual payment in year 30 will be about 33% more or \$21,679,000). Additional escalation allows OCCP to roll cost of paying city property tax into the flat rate. There is a price reduction provision triggered if the Facility is not producing enough electricity to meet demand and requires city to run generators. Details of this may be discussed in executive session.

5. Amount Purchased

Full capability of plant being purchased regardless of amount of electricity city actually needs. Based on projected 100,000,000 kWh capacity City is purchasing 60,000,000 kWh more than what is needed today. In dollar terms \$9,780,000 of the initial annual payment goes to buying electricity the city cannot sell unless seafood processors agree to buy electricity from City before May 31, 2024. This is independent of the cost of fuel risk assumed by the City. This is the reason the City has asked to include a contingency in the agreement keyed to getting commitments to buy power from the processors. OCCP so far has not agreed to the contingency. This will be discussed in executive session.

6. Term

30 years beginning from when power available in sufficient amounts as established by start up testing. Can be extended but future prices to be negotiated.

7. General Provisions.

Fairly standard provisions about metering, billing, insurance, indemnity, dispute resolution on disputed invoices, records to be kept, and force majeure. City requested OCCP provide a bond guaranteeing it will supply the electricity as promised. OCCP has not agreed to do this. This will be discussed in executive session.

July 17, 2020

City Council, City of Unalaska
Ms. Erin Reinders, City Manager
City of Unalaska
PO Box 610
Unalaska, AK 99685

Dear Councilmembers:

On June 16, 2020, the Financial Engineering Company provided the City with a written report summarizing the analysis and findings regarding the potential risks and benefits of the proposed Makushin Geothermal Project (the “Project” or “Makushin”). Since the time of the report, City staff and the developer of the Project (Ounalashka Corporation/Chena Power, or “OCCP”) have met several times to develop a Power Purchase Agreement (“PPA”) for the sale and purchase of Makushin power. City staff and OCCP also met with the processors who now self-generate to discuss the Project.

Negotiation of the PPA has focused solely on a 30-megawatt resource, and OCCP has increased the fixed payment by approximately 1.7 percent above that used in the June 16 analysis. Accordingly, this letter report provides an update of the June 16 analysis for the 30-megawatt resource using the updated cost numbers.

ASSUMPTIONS

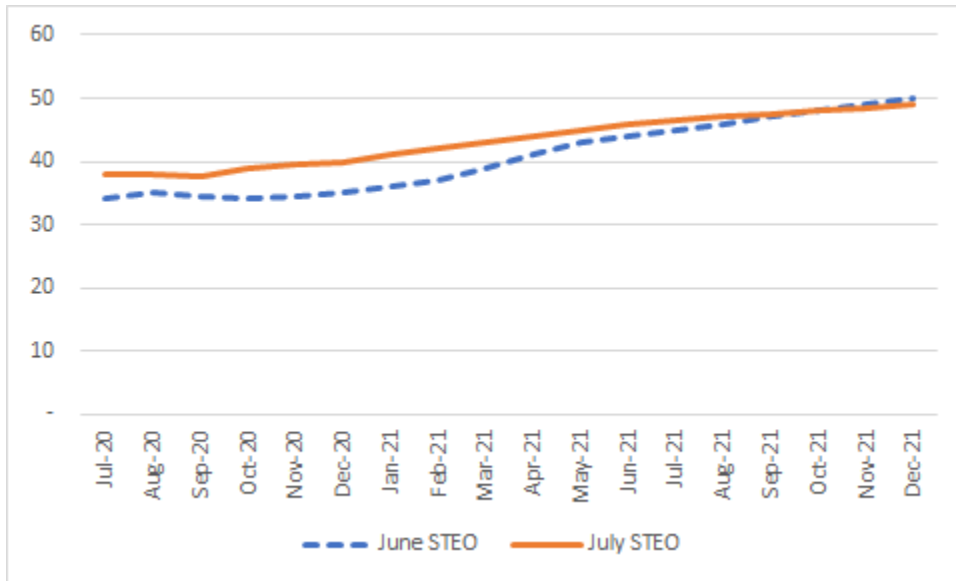
Many of the assumptions used in the June 16 analysis are used herein, but certain ones have been modified. The assumptions are re-capped here to facilitate the review of this report.

Losses (unchanged). 3.8 percent for the City core load and 2.0 percent for energy delivered to the processors.

Inflation (unchanged). Assumed to be 1.5 percent from 2020 – 2021, 2.0 percent for the next two years, and 2.25 percent thereafter.

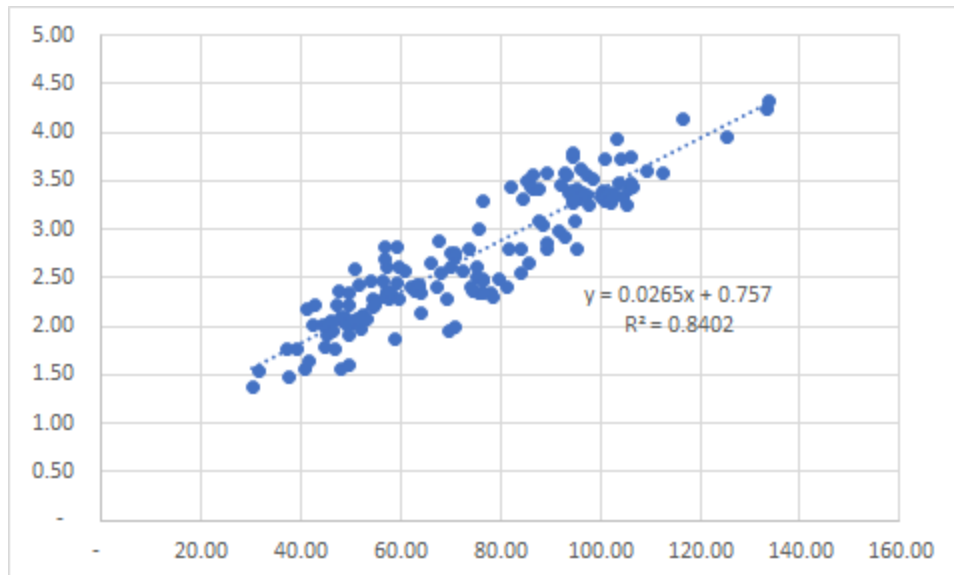
Fuel Prices (modified). The June 16 analysis used two fuel forecasts, one based on Nymex Futures and one based on the US Department of Energy Energy Information Administration’s Short-Term Energy Outlook June 9, 2020 (“STEO”). Since then, the EIA has released an updated STEO dated July 7, 2020, and this update forecasts oil to be higher in the near term but lower at the end of 2021 than that forecasted in the June 9 STEO (\$49/barrel as compared to \$50/barrel).

Figure 1
EIA STEO Forecasts of WTI
(\$/bbl)



Subsequent to the June 16 analysis, a regression was performed investigating the relationship between the price of diesel fuel and oil. That regression showed a strong correlation and is summarized in the following figure. Future oil prices are based on the July 7, 2020, STEO of \$49/barrel at the end of 2021 and escalated at the assumed inflation rate thereafter. Oil prices are then converted to generating fuel prices using the equation shown in the figure.

Figure 2
Diesel Fuel Price vs WTI



Fuel prices will play perhaps the most important role in the economics of the Project. Thus, the breakeven price of fuel is calculated for each year, and this breakeven fuel price is then converted to oil prices using the equation in the preceding figure.

Generating Efficiency (unchanged). 15.7 kWh (generated)/gallon for the City and 14.0 kWh (generated)/gallon for the processors.

Maintenance Fuel (unchanged).

	City	Westward	Alyeska	UniSea
Hours/Unit/Month	8	8	8	8
Gallons/Hour/Unit	215.6	125	50	125
Number of Units	5	3	6	6

Spinning Reserve (modified). No costs for spinning reserves are included in the analysis. The Project will provide some spinning reserve, and any amount required above that by the City or processors is considered outside the Project analysis.

City Costs (unchanged). The Project is assumed to allow the City to reduce staff supporting generation over a period of time as well as reductions in overtime, repairs, maintenance, and supplies.

Processor Variable O&M (unchanged). \$0.0275/kWh in 2021 dollars.

SCENARIOS RUN

The City’s present load is approximately 40 million kWh/year exclusive of any sales to self-generators. Three separate scenarios were investigated where the Project is assumed to provide for all of the City core load plus varying amounts of sales to the self-generators. The three assumed amounts of sales to the self-generators include:

1. Scenario 1: 60 million kWh/year, which represents nearly all of the self-generation loads.
2. Scenario 2: 30 million kWh/year
3. Scenario 3: No sales to self-generators

For Scenario 2, the maintenance fuel is assumed to a combined seven units for the processors; and Scenario 3 has no additional maintenance fuel for the processors.

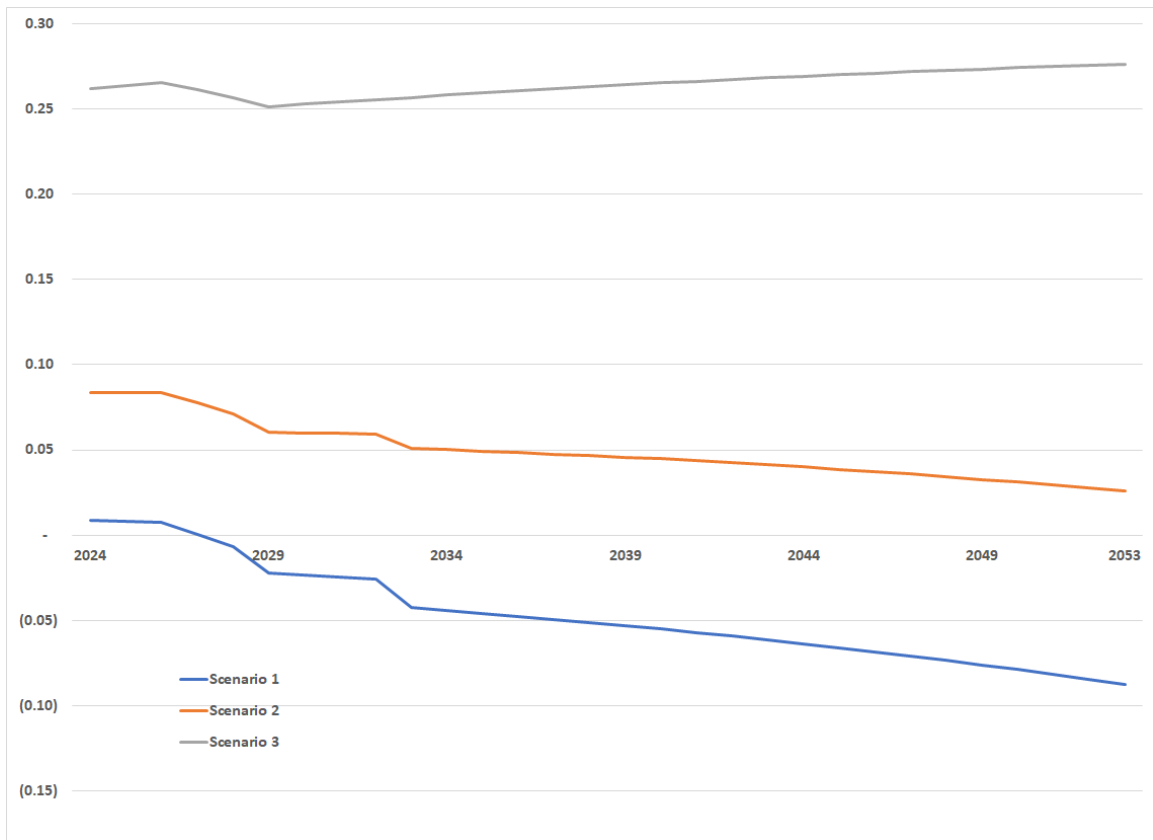
SUMMARY OF RESULTS

Table 1 provides a summary of the savings to the City and processors over the 30-year life of the Project. As expected from past studies, sales to the processors are key to the economics of Makushin. Figure 3 summarizes the effect Makushin is projected to have on City retail rates as compared to continued use of diesel generation.

**Table 1
Summary of Results**

Sales to Self Gen		Cumulative Combined Benefits (000)						First Op Yr w/ Savings
		5-yr	10-yr	15-yr	20-yr	25-yr	30-yr	
Scenario 1 60,000,000	City	\$ (680)	\$ 4,845	\$ 14,358	\$ 25,791	\$ 39,474	\$ 55,785	5
	Self Gen	4,214	8,399	12,528	19,429	29,635	43,753	1
	Combined	\$ 3,534	\$ 13,244	\$ 26,886	\$ 45,220	\$ 69,109	\$ 99,537	1
Scenario 2 30,000,000	City	\$ (16,001)	\$ (27,610)	\$ (37,306)	\$ (46,022)	\$ (53,472)	\$ (59,330)	>30
	Self Gen	(8,343)	(17,233)	(26,709)	(35,386)	(43,027)	(49,359)	>30
	Combined	\$ (24,344)	\$ (44,843)	\$ (64,015)	\$ (81,408)	\$ (96,499)	\$ (108,690)	>30
Scenario 3 0	City	\$ (52,325)	\$ (103,143)	\$ (155,250)	\$ (208,498)	\$ (262,710)	\$ (317,672)	>30
	Self Gen	-	-	-	-	-	-	>30
	Combined	\$ (52,325)	\$ (103,143)	\$ (155,250)	\$ (208,498)	\$ (262,710)	\$ (317,672)	>30

**Figure 3
Increase (Decrease) in City Retail Rates
As Compared to Without Makushin**

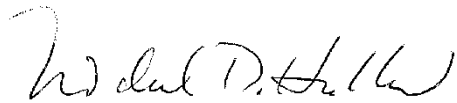


The results are, obviously, dependent on a number of assumptions regarding future events, most notably the cost of fuel. Therefore, the breakeven cost of fuel was calculated for each scenario to give a perspective on what the cost of fuel must be for the Project to provide benefits to the ratepayers. The breakeven costs in Figures 4 – 6 on the following pages are provided in both \$/gallon and in \$/barrel of WTI based on the regression analysis described earlier. If actual fuel prices are greater than the breakeven price, the Project would provide benefits to the ratepayers. Conversely if actual prices are less than the breakeven price, the Project would result in additional costs to the ratepayers.

Details of each scenario are provided in Attachments 1 – 3.

Very truly yours,

THE FINANCIAL ENGINEERING COMPANY

A handwritten signature in black ink, appearing to read "Michael D. Hubbard". The signature is written in a cursive, flowing style.

Michael D. Hubbard

Figure 4A
Breakeven Fuel Price for City
(Diesel Fuel - \$/gallon)

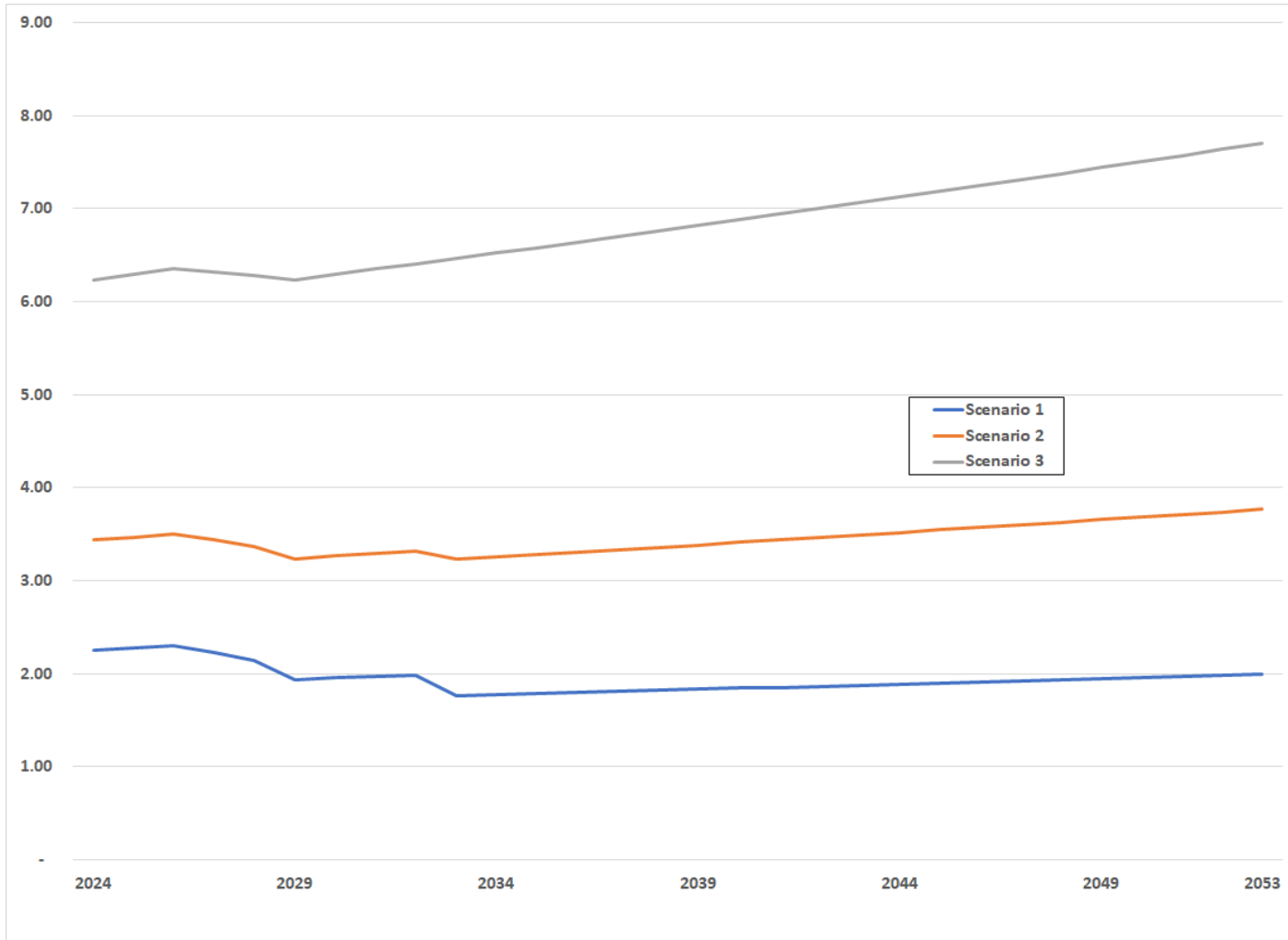


Figure 4B
Breakeven Fuel Price for City
(WTI Oil - \$/barrel)

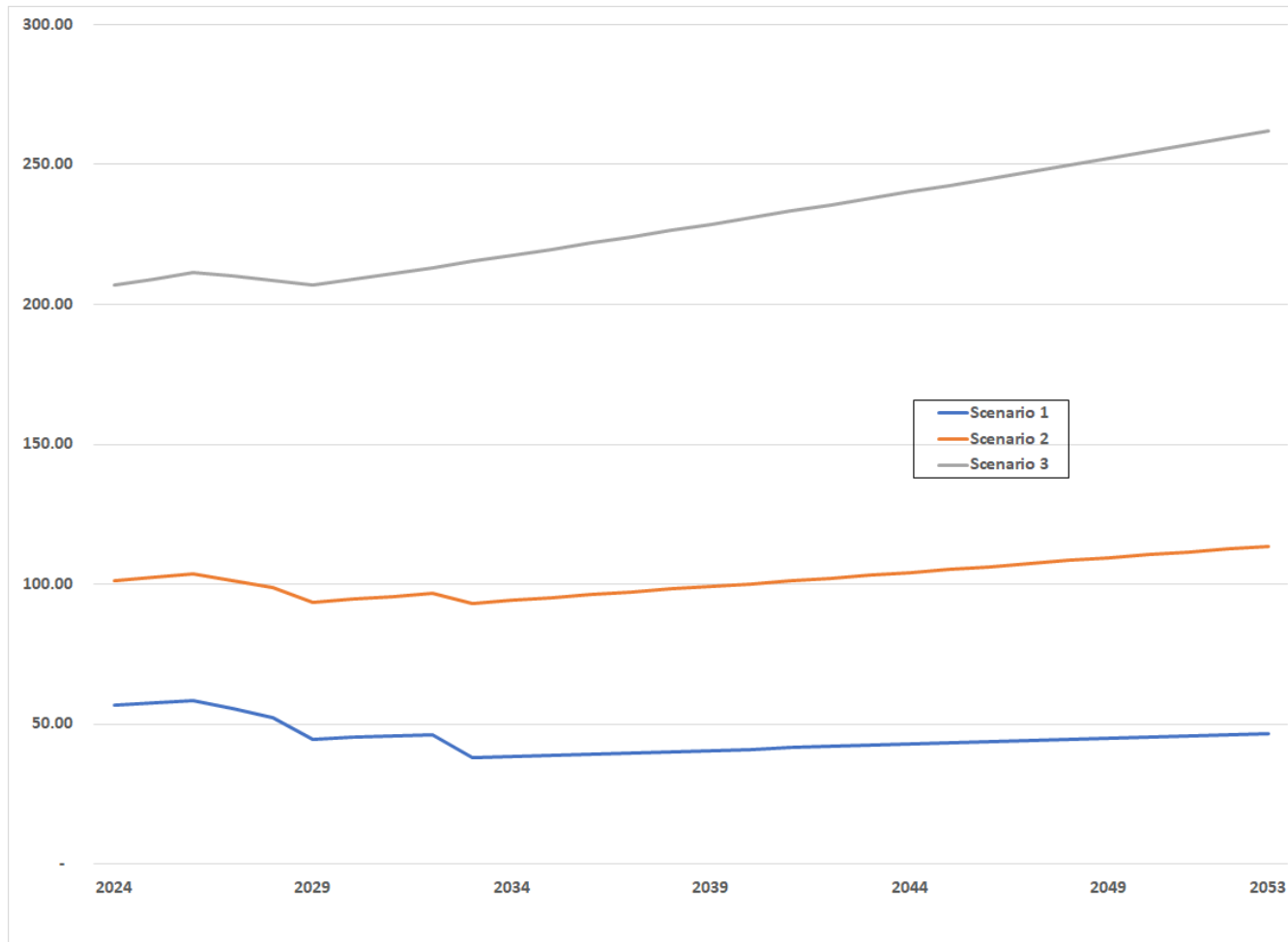


Figure 5A
Breakeven Fuel Price for Self-Generators
(Diesel Fuel - \$/gallon)

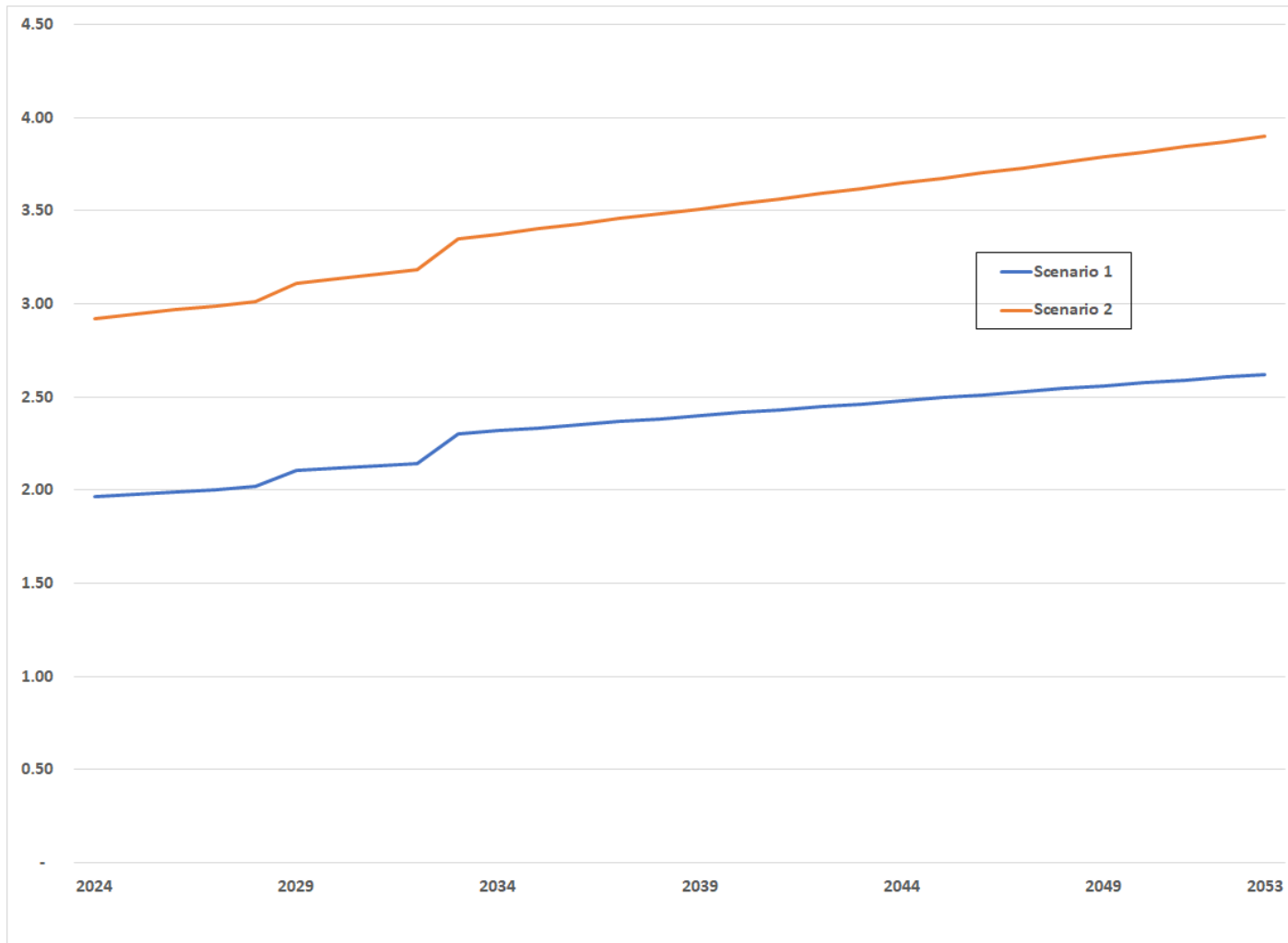


Figure 5B
Breakeven Fuel Price for Self-Generators
(WTI Oil - \$/barrel)

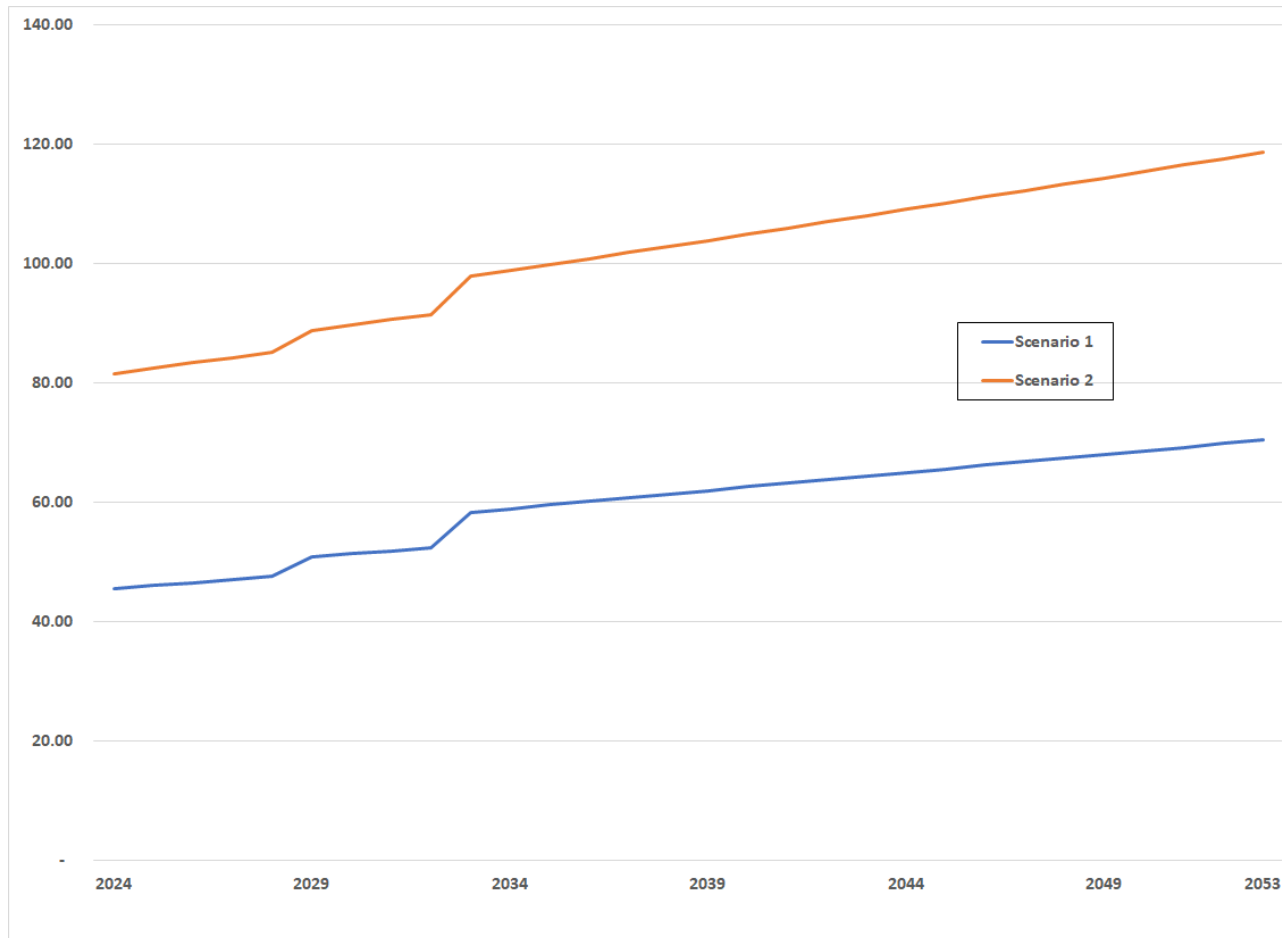


Figure 6A
Breakeven Fuel Price for Combined
(Diesel Fuel - \$/gallon)

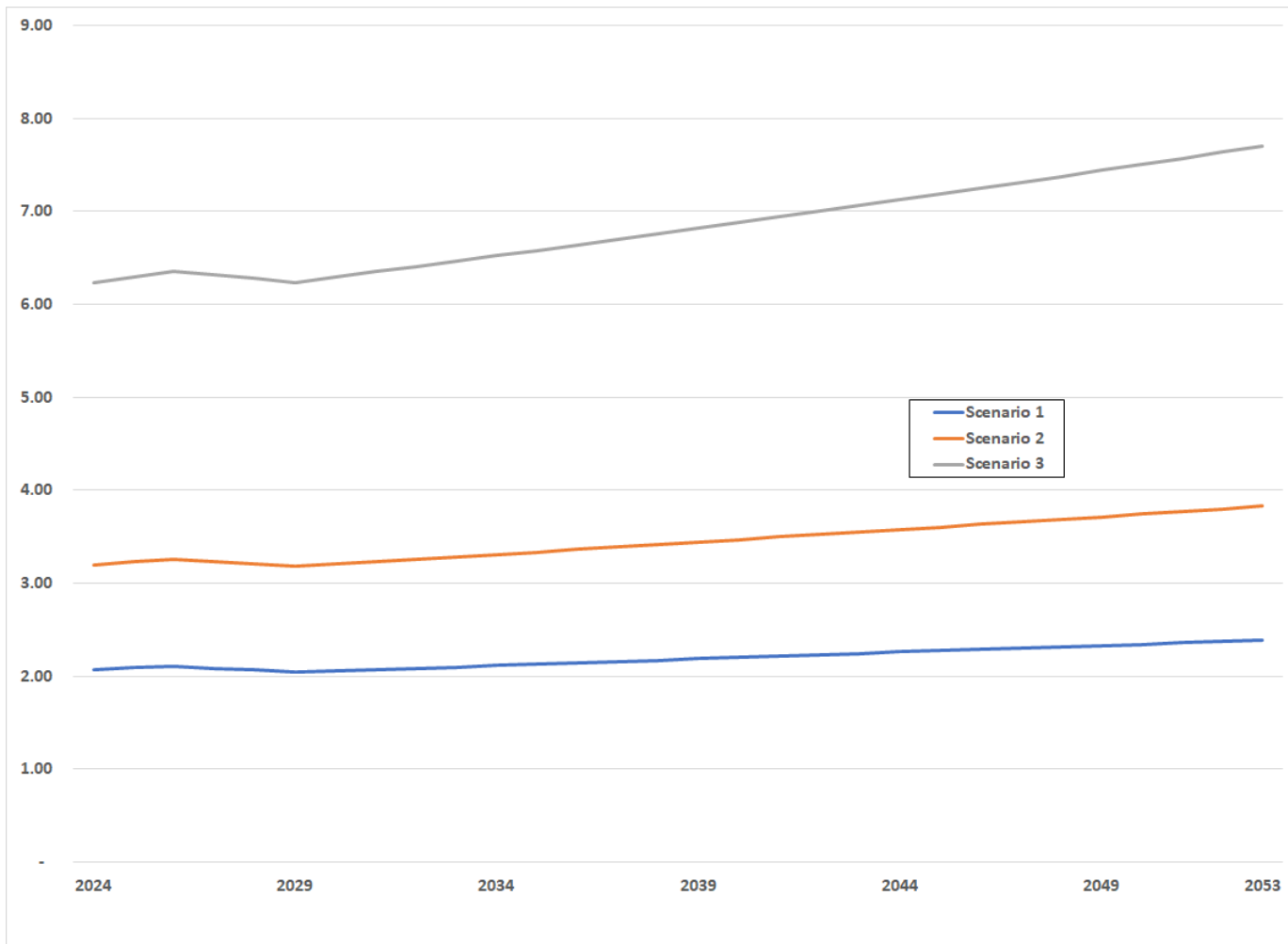
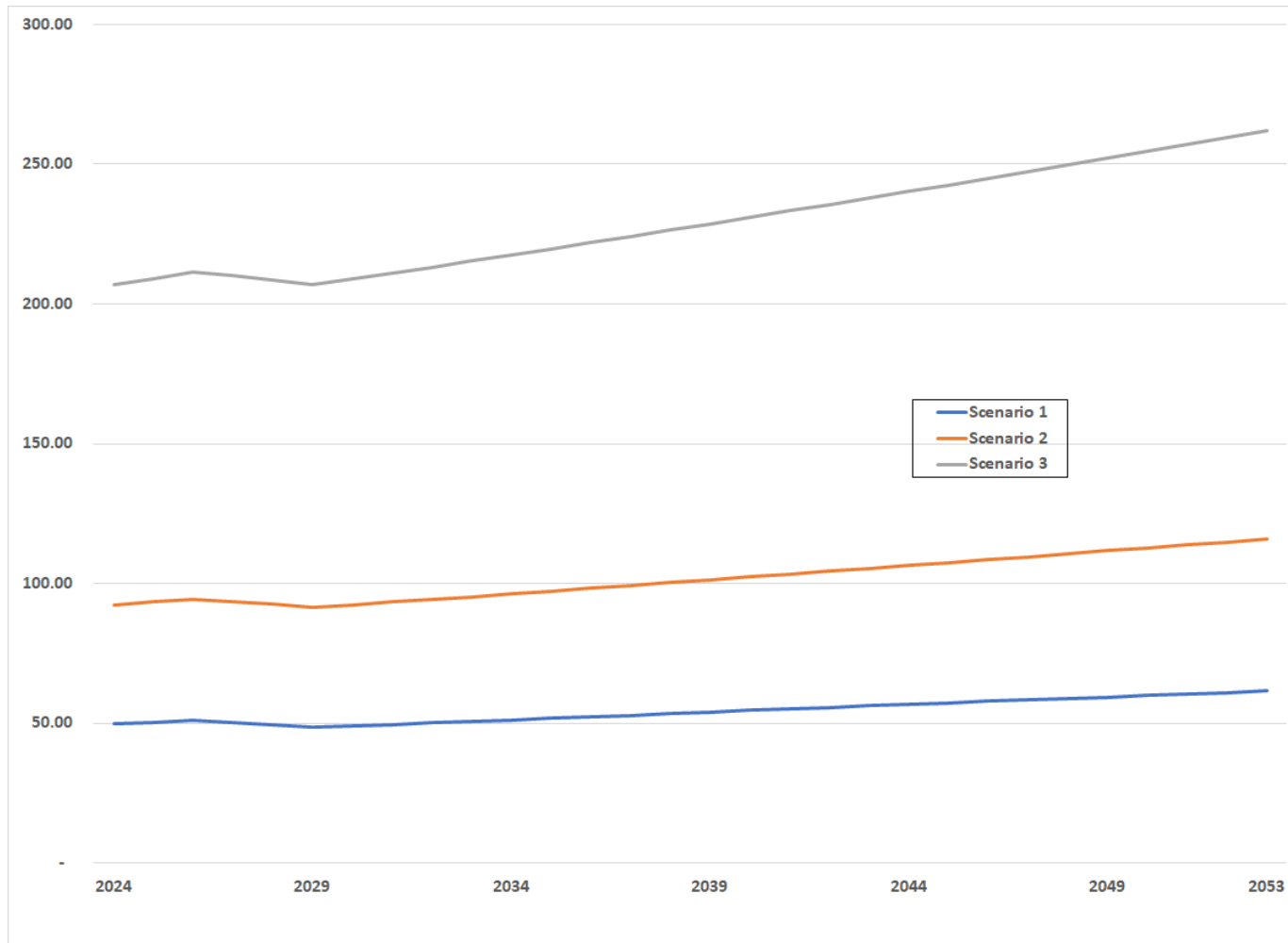


Figure 6B
Breakeven Fuel Price for Self-Generators
(WTI Oil - \$/barrel)



Attachment 1

Scenario 1: 60 million kWh Sales to Self-Generators

1																		
2	Makushin Size		30															
3	Fuel Forecast	EIA - Regression																
4	Fuel Price: Self Generator (Pct > City)		3.0%															
5	Sales to Self Generators		60,000,000															
6	Rate Esc		0.75%															
7	Gen Efficiency: City		15.7															
8	Gen Efficiency: Self Generator		14.0															
9	Self Gen VOM (\$/kWh - 2021)		0.0275															
10	SCENARIO 1																	
11	Breakeven Year																	
12	City		0	0	0	0	0	0	2028	0	0	0	0	0	0	0	0	
13	Self Generators		0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
14	Combined		0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
15						Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level		1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379
19	Cost of Fuel (\$/gallon)																	
20	City		1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54
21	Self Generators		2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62
22	Self Generator VOM (\$/kWh)		0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038
23	Fuel Efficiency (kWh/gal)																	
24	City		15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																	
27	City																	
28	Hours/Unit/Month		-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour		-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units		-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month		-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour		-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units		-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)		-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
37	Wheeling Rate (\$/kWh)		-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM (\$/kWh - 2021)																	
10	SCENARIO 1																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel (\$/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM (\$/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000)																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate (\$/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

10	SCENARIO 1																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	2028	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
38	Without Makushin (Dollars in Thousands)																
39	Loads (million kWh)																
40	City																
41	Sales																
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
46	Losses																
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
50	Self Generators	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
51	Costs																
52	City																
53	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
54	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
55	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
56	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
57	Production																
58	Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991
59	Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088
60	Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
68	Self Gen Costs																
69	Fuel	8,679	9,131	9,247	9,380	9,515	9,654	9,796	9,942	10,090	10,242	10,397	10,556	10,718	10,884	11,054	11,227
70	Variable O&M	1,650	1,675	1,708	1,742	1,782	1,822	1,863	1,905	1,947	1,991	2,036	2,082	2,129	2,177	2,226	2,276
71	Payments to City																
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	10,329	10,806	10,955	11,122	11,297	11,476	11,659	11,846	12,038	12,233	12,433	12,638	12,847	13,061	13,280	13,503
75	Total Costs	25,351	26,246	26,664	27,114	27,604	28,105	28,617	29,140	29,676	30,223	30,783	31,355	31,940	32,539	33,150	33,776
76	City Costs @ Production Level (\$/kWh)																
77	Production																
78	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.135	\$ 0.137	\$ 0.139	\$ 0.141	\$ 0.143	\$ 0.146	\$ 0.148	\$ 0.150	\$ 0.152	\$ 0.155	\$ 0.157	\$ 0.159	\$ 0.162
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074
81	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																
84	At Production Level	\$ 0.361	\$ 0.371	\$ 0.378	\$ 0.385	\$ 0.392	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.433	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.478	\$ 0.488
85	At Sales Level	\$ 0.376	\$ 0.386	\$ 0.393	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.432	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.477	\$ 0.487	\$ 0.497	\$ 0.507
86	Self Gen Costs (\$/kWh)	\$ 0.172	\$ 0.180	\$ 0.183	\$ 0.185	\$ 0.188	\$ 0.191	\$ 0.194	\$ 0.197	\$ 0.201	\$ 0.204	\$ 0.207	\$ 0.211	\$ 0.214	\$ 0.218	\$ 0.221	\$ 0.225
87																	

SCENARIO 1																		
Breakeven Year																		
City																		
Self Generators																		
Combined																		
Geo																		
2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053																		
38	Without Makushin (Dollars in Thousands)																	
39	Loads (million kWh)																	
40	City																	
41	Sales																	
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
46	Losses																	
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	
50	Self Generators	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	
51	Costs																	
52	City																	
53	Admin/Depr/Int	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129
54	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
55	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
56	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
57	Production																	
58	Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906
59	Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588
60	Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671
68	Self Gen Costs																	
69	Fuel	11,405	11,586	11,772	11,961	12,155	12,354	12,557	12,764	12,976	13,193	13,414	13,641	13,873	14,110	14,352	14,600	14,853
70	Variable O&M	2,327	2,379	2,433	2,488	2,543	2,601	2,659	2,719	2,780	2,843	2,907	2,972	3,039	3,107	3,177	3,249	3,322
71	Payments to City																	
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	13,732	13,966	14,205	14,449	14,699	14,954	15,216	15,483	15,756	16,035	16,321	16,613	16,912	17,217	17,529	17,848	18,175
75	Total Costs	34,416	35,070	35,738	36,422	37,121	37,836	38,567	39,315	40,079	40,861	41,660	42,477	43,312	44,166	45,040	45,933	46,846
76	City Costs @ Production Level (\$/kWh)																	
77	Production																	
78	Fuel	\$ 0.165	\$ 0.167	\$ 0.170	\$ 0.173	\$ 0.175	\$ 0.178	\$ 0.181	\$ 0.184	\$ 0.187	\$ 0.190	\$ 0.194	\$ 0.197	\$ 0.200	\$ 0.204	\$ 0.207	\$ 0.211	\$ 0.214
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108
81	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																	
84	At Production Level	\$ 0.497	\$ 0.508	\$ 0.518	\$ 0.528	\$ 0.539	\$ 0.550	\$ 0.562	\$ 0.573	\$ 0.585	\$ 0.597	\$ 0.609	\$ 0.622	\$ 0.635	\$ 0.648	\$ 0.662	\$ 0.675	\$ 0.690
85	At Sales Level	\$ 0.517	\$ 0.528	\$ 0.538	\$ 0.549	\$ 0.561	\$ 0.572	\$ 0.584	\$ 0.596	\$ 0.608	\$ 0.621	\$ 0.633	\$ 0.647	\$ 0.660	\$ 0.674	\$ 0.688	\$ 0.702	\$ 0.717
86	Self Gen Costs (\$/kWh)	\$ 0.229	\$ 0.233	\$ 0.237	\$ 0.241	\$ 0.245	\$ 0.249	\$ 0.254	\$ 0.258	\$ 0.263	\$ 0.267	\$ 0.272	\$ 0.277	\$ 0.282	\$ 0.287	\$ 0.292	\$ 0.297	\$ 0.303
87																		

SCENARIO 1																	
11	Breakeven Year								2028								
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	With Makushin (Dollars in Thousands)																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
95	Total City Sales	40.00	40.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
99	Total Generation	41.58	41.58	41.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58
100	Self Generators	60.00	60.00	60.00	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																
102	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	(9,824)	(9,923)	(10,022)	(10,122)	(10,223)	(10,326)	(10,429)	(10,533)	(10,638)	(10,745)	(10,852)	(10,961)	(11,070)
115	Other	-	-	-	(306)	(306)	(306)	(306)	(306)	(612)	(612)	(612)	(612)	(1,224)	(1,234)	(1,243)	(1,252)
116	Total City	15,022	15,440	15,709	16,330	16,621	16,918	16,971	17,019	16,755	17,059	17,369	17,685	17,395	17,714	18,040	18,373
117	Self Gen Costs																
118	Fuel	8,679	9,131	9,247	299	304	308	313	317	322	327	332	337	342	347	353	358
119	Variable O&M	1,650	1,675	1,708	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	9,824	9,923	10,022	10,122	10,223	10,326	10,429	10,533	10,638	10,745	10,852	10,961	11,070
122	Other	-	-	-	306	306	306	306	306	612	612	612	612	1,224	1,234	1,243	1,252
123	Total Self Gen	10,329	10,806	10,955	10,430	10,532	10,636	10,741	10,847	11,260	11,368	11,477	11,588	12,311	12,433	12,556	12,681
124	Total Costs	25,351	26,246	26,664	26,759	27,154	27,555	27,712	27,866	28,015	28,427	28,846	29,272	29,706	30,148	30,597	31,054
125	City Costs @ Production Level (\$/kWh)																
126	Production																
127	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.005	\$ 0.005	\$ 0.005	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006
128	Makushin	-	-	-	0.156	0.157	0.159	0.160	0.162	0.164	0.165	0.167	0.169	0.170	0.172	0.174	0.175
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate	-	-	-	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.015)	(0.015)	(0.029)	(0.030)	(0.030)	(0.030)
132	Total																
133	At Production Level	0.361	0.371	0.378	0.393	0.400	0.407	0.408	0.409	0.403	0.410	0.418	0.425	0.418	0.426	0.434	0.442
134	At Sales Level	0.376	0.386	0.393	0.408	0.416	0.423	0.424	0.425	0.419	0.426	0.434	0.442	0.435	0.443	0.451	0.459
135	Self Gen Costs (\$/kWh)	0.172	0.180	0.183	0.174	0.176	0.177	0.179	0.181	0.188	0.189	0.191	0.193	0.205	0.207	0.209	0.211

10

SCENARIO 1

11 Breakeven Year

12 City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Geo	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	

With Makushin (Dollars in Thousands)

89 Loads (million kWh)

90 City																		
91 Sales																		
92 City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93 City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94 City Sales to Self Gen	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
95 Total City Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

96 Losses

97 Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98 Self Gen	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
99 Total Generation	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58

100 Self Generators

101 City Costs																		
102 Admin/Depr/Int	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129	
103 Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715	
104 Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130	
105 Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293	
106 Production																		
107 Personnel	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	
108 Ops	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827	
109 Fuel	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348	
110 Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
111 Makushin																		
112 To OCCP	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752	
113 Payments from Self Gen																		
114 Makushin	(11,181)	(11,293)	(11,406)	(11,520)	(11,635)	(11,751)	(11,869)	(11,988)	(12,107)	(12,229)	(12,351)	(12,474)	(12,599)	(12,725)	(12,852)	(12,981)	(13,111)	
115 Other	(1,262)	(1,271)	(1,281)	(1,290)	(1,300)	(1,310)	(1,319)	(1,329)	(1,339)	(1,349)	(1,360)	(1,370)	(1,380)	(1,390)	(1,401)	(1,411)	(1,422)	
116 Total City	18,712	19,058	19,411	19,771	20,139	20,514	20,896	21,287	21,685	22,092	22,506	22,930	23,362	23,802	24,252	24,711	25,180	
117 Self Gen Costs																		
118 Fuel	364	370	376	382	388	394	401	407	414	421	428	435	443	450	458	466	474	
119 Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
120 Payments to City																		
121 Makushin	11,181	11,293	11,406	11,520	11,635	11,751	11,869	11,988	12,107	12,229	12,351	12,474	12,599	12,725	12,852	12,981	13,111	
122 Other	1,262	1,271	1,281	1,290	1,300	1,310	1,319	1,329	1,339	1,349	1,360	1,370	1,380	1,390	1,401	1,411	1,422	
123 Total Self Gen	12,807	12,934	13,062	13,192	13,323	13,455	13,589	13,724	13,861	13,999	14,139	14,279	14,422	14,566	14,711	14,858	15,007	
124 Total Costs	31,519	31,992	32,473	32,963	33,462	33,969	34,486	35,011	35,546	36,091	36,645	37,209	37,783	38,368	38,963	39,569	40,186	

125 City Costs @ Production Level (\$/kWh)

126 Production																		
127 Fuel	\$ 0.006	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	
128 Makushin	0.177	0.179	0.181	0.183	0.184	0.186	0.188	0.190	0.192	0.194	0.196	0.198	0.200	0.202	0.204	0.206	0.208	
129 Other Production	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056	
130 Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367	
131 Revenues from Self Gen Base Rate	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.032)	(0.032)	(0.032)	(0.032)	(0.033)	(0.033)	(0.033)	(0.033)	(0.034)	(0.034)	(0.034)	
132 Total																		
133 At Production Level	0.450	0.458	0.467	0.475	0.484	0.493	0.503	0.512	0.522	0.531	0.541	0.551	0.562	0.572	0.583	0.594	0.606	
134 At Sales Level	0.468	0.476	0.485	0.494	0.503	0.513	0.522	0.532	0.542	0.552	0.563	0.573	0.584	0.595	0.606	0.618	0.629	
135 Self Gen Costs (\$/kWh)	0.213	0.216	0.218	0.220	0.222	0.224	0.226	0.229	0.231	0.233	0.236	0.238	0.240	0.243	0.245	0.248	0.250	

SCENARIO 1																	
Breakeven Year																	
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	
15				Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16				2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Savings (Losses)																	
Dollars (000)																	
138	-	-	-	(337)	(314)	(290)	(14)	275	883	931	981	1,032	1,698	1,763	1,831	1,900	
139	-	-	-	692	765	840	918	999	778	865	956	1,050	536	628	723	822	
140	-	-	-	355	450	550	904	1,275	1,661	1,796	1,937	2,083	2,234	2,391	2,554	2,722	
141	\$/kWh																
142	-	-	-	(0.008)	(0.008)	(0.007)	(0.000)	0.007	0.022	0.023	0.025	0.026	0.042	0.044	0.046	0.048	
143	-	-	-	0.012	0.013	0.014	0.015	0.017	0.013	0.014	0.016	0.018	0.009	0.010	0.012	0.014	
144	-	-	-	0.004	0.005	0.005	0.009	0.013	0.017	0.018	0.019	0.021	0.022	0.024	0.026	0.027	
Breakeven Price																	
City	1.97	2.07	2.09	2.26	2.28	2.30	2.22	2.14	1.94	1.95	1.97	1.99	1.76	1.77	1.78	1.80	
SelfGen	1.97	2.07	2.09	1.96	1.98	1.99	2.00	2.02	2.10	2.12	2.13	2.15	2.30	2.32	2.33	2.35	
Combined	1.97	2.07	2.09	2.07	2.09	2.11	2.09	2.07	2.04	2.06	2.07	2.09	2.10	2.12	2.13	2.14	

SCENARIO 1																	
Breakeven Year																	
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Savings (Losses)																	
Dollars (000)																	
138	1,972	2,046	2,123	2,202	2,284	2,368	2,455	2,545	2,638	2,734	2,832	2,934	3,039	3,147	3,259	3,374	3,492
139	925	1,032	1,142	1,257	1,376	1,499	1,627	1,758	1,895	2,036	2,182	2,334	2,490	2,651	2,818	2,990	3,168
140	2,897	3,078	3,265	3,459	3,660	3,867	4,082	4,304	4,533	4,770	5,015	5,268	5,529	5,798	6,077	6,364	6,660
\$/kWh																	
142	0.049	0.051	0.053	0.055	0.057	0.059	0.061	0.064	0.066	0.068	0.071	0.073	0.076	0.079	0.081	0.084	0.087
143	0.015	0.017	0.019	0.021	0.023	0.025	0.027	0.029	0.032	0.034	0.036	0.039	0.041	0.044	0.047	0.050	0.053
144	0.029	0.031	0.033	0.035	0.037	0.039	0.041	0.043	0.045	0.048	0.050	0.053	0.055	0.058	0.061	0.064	0.067
Breakeven Price																	
City	1.81	1.82	1.83	1.84	1.86	1.87	1.88	1.89	1.90	1.91	1.93	1.94	1.95	1.96	1.97	1.98	1.99
SelfGen	2.37	2.38	2.40	2.42	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62
Combined	2.16	2.17	2.19	2.20	2.22	2.23	2.25	2.26	2.27	2.29	2.30	2.32	2.33	2.35	2.36	2.37	2.39

Attachment 2

Scenario 2: 30 million kWh Sales to Self-Generators

1																	
2	Makushin Size		30														
3	Fuel Forecast	EIA - Regression															
4	Fuel Price: Self Generator (Pct > City)		3.0%														
5	Sales to Self Generators		30,000,000														
6	Rate Esc		0.75%														
7	Gen Efficiency: City		15.7														
8	Gen Efficiency: Self Generator		14.0														
9	Self Gen VOM (\$/kWh - 2021)		0.0275														
10	SCENARIO 2																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379
19	Cost of Fuel (\$/gallon)																
20	City	1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54
21	Self Generators	2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62
22	Self Generator VOM (\$/kWh)	0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038
23	Fuel Efficiency (kWh/gal)																
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																
27	City																
28	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																
32	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	-	-	-	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
35	Makushin Rate																
36	Fixed Payment - 30 MW (000)	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
37	Wheeling Rate (\$/kWh)	-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM (\$/kWh - 2021)																	
10	SCENARIO 2																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel (\$/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM (\$/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000)																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate (\$/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

SCENARIO 2																	
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
38	Without Makushin (Dollars in Thousands)																
39	Loads (million kWh)																
40	City																
41	Sales																
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
46	Losses																
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
50	Self Generators	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
51	Costs																
52	City																
53	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
54	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
55	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
56	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
57	Production																
58	Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991
59	Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088
60	Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
68	Self Gen Costs																
69	Fuel	4,339	4,565	4,623	4,690	4,758	4,827	4,898	4,971	5,045	5,121	5,199	5,278	5,359	5,442	5,527	5,614
70	Variable O&M	825	837	854	871	891	911	931	952	974	996	1,018	1,041	1,064	1,088	1,113	1,138
71	Payments to City	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	5,164	5,403	5,477	5,561	5,649	5,738	5,830	5,923	6,019	6,117	6,217	6,319	6,423	6,530	6,640	6,752
75	Total Costs	20,186	20,843	21,187	21,553	21,955	22,367	22,787	23,217	23,657	24,106	24,566	25,036	25,517	26,008	26,511	27,024
76	City Costs @ Production Level (\$/kWh)																
77	Production																
78	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.135	\$ 0.137	\$ 0.139	\$ 0.141	\$ 0.143	\$ 0.146	\$ 0.148	\$ 0.150	\$ 0.152	\$ 0.155	\$ 0.157	\$ 0.159	\$ 0.162
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074
81	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																
84	At Production Level	\$ 0.361	\$ 0.371	\$ 0.378	\$ 0.385	\$ 0.392	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.433	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.478	\$ 0.488
85	At Sales Level	\$ 0.376	\$ 0.386	\$ 0.393	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.432	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.477	\$ 0.487	\$ 0.497	\$ 0.507
86	Self Gen Costs (\$/kWh)	\$ 0.172	\$ 0.180	\$ 0.183	\$ 0.185	\$ 0.188	\$ 0.191	\$ 0.194	\$ 0.197	\$ 0.201	\$ 0.204	\$ 0.207	\$ 0.211	\$ 0.214	\$ 0.218	\$ 0.221	\$ 0.225
87																	

SCENARIO 2																	
Breakeven Year																	
City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Without Makushin (Dollars in Thousands)																	
Loads (million kWh)																	
City																	
Sales																	
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Losses																	
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
Self Generators	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Costs																	
City																	
Admin/Depr/Int	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129
Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
Production																	
Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906
Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588
Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Payments from Self Gen																	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671
Self Gen Costs																	
Fuel	5,702	5,793	5,886	5,981	6,078	6,177	6,278	6,382	6,488	6,596	6,707	6,820	6,936	7,055	7,176	7,300	7,426
Variable O&M	1,163	1,190	1,216	1,244	1,272	1,300	1,330	1,360	1,390	1,421	1,453	1,486	1,520	1,554	1,589	1,624	1,661
Payments to City																	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Self Gen	6,866	6,983	7,102	7,224	7,349	7,477	7,608	7,741	7,878	8,018	8,161	8,307	8,456	8,608	8,765	8,924	9,087
Total Costs	27,550	28,087	28,636	29,198	29,772	30,359	30,960	31,573	32,201	32,843	33,499	34,170	34,856	35,558	36,275	37,009	37,759
City Costs @ Production Level (\$/kWh)																	
Production																	
Fuel	\$ 0.165	\$ 0.167	\$ 0.170	\$ 0.173	\$ 0.175	\$ 0.178	\$ 0.181	\$ 0.184	\$ 0.187	\$ 0.190	\$ 0.194	\$ 0.197	\$ 0.200	\$ 0.204	\$ 0.207	\$ 0.211	\$ 0.214
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108
Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
Revenues from Self Gen Base Rate																	
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
At Production Level	\$ 0.497	\$ 0.508	\$ 0.518	\$ 0.528	\$ 0.539	\$ 0.550	\$ 0.562	\$ 0.573	\$ 0.585	\$ 0.597	\$ 0.609	\$ 0.622	\$ 0.635	\$ 0.648	\$ 0.662	\$ 0.675	\$ 0.690
At Sales Level	\$ 0.517	\$ 0.528	\$ 0.538	\$ 0.549	\$ 0.561	\$ 0.572	\$ 0.584	\$ 0.596	\$ 0.608	\$ 0.621	\$ 0.633	\$ 0.647	\$ 0.660	\$ 0.674	\$ 0.688	\$ 0.702	\$ 0.717
Self Gen Costs (\$/kWh)	\$ 0.229	\$ 0.233	\$ 0.237	\$ 0.241	\$ 0.245	\$ 0.249	\$ 0.254	\$ 0.258	\$ 0.263	\$ 0.267	\$ 0.272	\$ 0.277	\$ 0.282	\$ 0.287	\$ 0.292	\$ 0.297	\$ 0.303

SCENARIO 2																	
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	With Makushin (Dollars in Thousands)																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
95	Total City Sales	40.00	40.00	40.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
99	Total Generation	41.58	41.58	41.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58
100	Self Generators	30.00	30.00	30.00	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																
102	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	(6,971)	(7,041)	(7,111)	(7,182)	(7,254)	(7,327)	(7,400)	(7,474)	(7,549)	(7,624)	(7,700)	(7,777)	(7,855)
115	Other	-	-	-	(153)	(153)	(153)	(153)	(153)	(306)	(306)	(306)	(306)	(612)	(617)	(621)	(626)
116	Total City	15,022	15,440	15,709	19,336	19,656	19,982	20,064	20,141	20,060	20,394	20,734	21,081	21,128	21,483	21,845	22,214
117	Self Gen Costs																
118	Fuel	4,339	4,565	4,623	140	142	144	146	148	150	153	155	157	160	162	165	167
119	Variable O&M	825	837	854	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	6,971	7,041	7,111	7,182	7,254	7,327	7,400	7,474	7,549	7,624	7,700	7,777	7,855
122	Other	-	-	-	153	153	153	153	153	306	306	306	306	612	617	621	626
123	Total Self Gen	5,164	5,403	5,477	7,264	7,335	7,408	7,481	7,555	7,783	7,858	7,935	8,012	8,396	8,479	8,563	8,648
124	Total Costs	20,186	20,843	21,187	26,600	26,992	27,390	27,545	27,696	27,843	28,252	28,669	29,093	29,524	29,962	30,408	30,862
125	City Costs @ Production Level (\$/kWh)																
126	Production																
127	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.005	\$ 0.005	\$ 0.005	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006
128	Makushin	-	-	-	0.224	0.227	0.229	0.231	0.233	0.236	0.238	0.241	0.243	0.245	0.248	0.250	0.253
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate	-	-	-	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.015)	(0.015)
132	Total																
133	At Production Level	0.361	0.371	0.378	0.465	0.473	0.481	0.483	0.484	0.482	0.490	0.499	0.507	0.508	0.517	0.525	0.534
134	At Sales Level	0.376	0.386	0.393	0.483	0.491	0.500	0.502	0.504	0.502	0.510	0.518	0.527	0.528	0.537	0.546	0.555
135	Self Gen Costs (\$/kWh)	0.172	0.180	0.183	0.242	0.245	0.247	0.249	0.252	0.259	0.262	0.264	0.267	0.280	0.283	0.285	0.288

SCENARIO 2																		
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo		
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
88	With Makushin (Dollars in Thousands)																	
89	Loads (million kWh)																	
90	City																	
91	Sales																	
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
95	Total City Sales	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
96	Losses																	
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
99	Total Generation	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58
100	Self Generators																	
101	City Costs																	
102	Admin/Depr/Int	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129
103	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
104	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
105	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
106	Production																	
107	Personnel	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519
108	Ops	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827
109	Fuel	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																	
112	To OCCP	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
113	Payments from Self Gen																	
114	Makushin	(7,934)	(8,013)	(8,093)	(8,174)	(8,256)	(8,338)	(8,422)	(8,506)	(8,591)	(8,677)	(8,764)	(8,851)	(8,940)	(9,029)	(9,119)	(9,211)	(9,303)
115	Other	(631)	(636)	(640)	(645)	(650)	(655)	(660)	(665)	(670)	(675)	(680)	(685)	(690)	(695)	(700)	(706)	(711)
116	Total City	22,590	22,973	23,364	23,762	24,168	24,582	25,003	25,433	25,871	26,318	26,773	27,238	27,711	28,193	28,685	29,187	29,698
117	Self Gen Costs																	
118	Fuel	170	173	175	178	181	184	187	190	193	197	200	203	207	210	214	217	221
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																	
121	Makushin	7,934	8,013	8,093	8,174	8,256	8,338	8,422	8,506	8,591	8,677	8,764	8,851	8,940	9,029	9,119	9,211	9,303
122	Other	631	636	640	645	650	655	660	665	670	675	680	685	690	695	700	706	711
123	Total Self Gen	8,734	8,821	8,909	8,997	9,087	9,177	9,268	9,361	9,454	9,548	9,643	9,739	9,836	9,934	10,034	10,134	10,235
124	Total Costs	31,324	31,794	32,273	32,759	33,255	33,759	34,272	34,794	35,325	35,866	36,417	36,977	37,547	38,128	38,719	39,321	39,933
125	City Costs @ Production Level (\$/kWh)																	
126	Production																	
127	Fuel	\$ 0.006	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008
128	Makushin	0.255	0.258	0.260	0.263	0.266	0.268	0.271	0.274	0.277	0.279	0.282	0.285	0.288	0.291	0.294	0.296	0.299
129	Other Production	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056
130	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
131	Revenues from Self Gen Base Rate	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
132	Total																	
133	At Production Level	0.543	0.553	0.562	0.571	0.581	0.591	0.601	0.612	0.622	0.633	0.644	0.655	0.666	0.678	0.690	0.702	0.714
134	At Sales Level	0.565	0.574	0.584	0.594	0.604	0.615	0.625	0.636	0.647	0.658	0.669	0.681	0.693	0.705	0.717	0.730	0.742
135	Self Gen Costs (\$/kWh)	0.291	0.294	0.297	0.300	0.303	0.306	0.309	0.312	0.315	0.318	0.321	0.325	0.328	0.331	0.334	0.338	0.341

SCENARIO 2																
Breakeven Year																
	2021	2022	2023	Geo 2024	Geo 2025	Geo 2026	Geo 2027	Geo 2028	Geo 2029	Geo 2030	Geo 2031	Geo 2032	Geo 2033	Geo 2034	Geo 2035	Geo 2036
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15																
16																
Savings (Losses)																
136																
137																
138	-	-	-	(3,344)	(3,349)	(3,354)	(3,107)	(2,847)	(2,422)	(2,404)	(2,385)	(2,364)	(2,035)	(2,005)	(1,974)	(1,941)
139	-	-	-	(1,703)	(1,687)	(1,670)	(1,652)	(1,632)	(1,764)	(1,742)	(1,718)	(1,693)	(1,972)	(1,949)	(1,924)	(1,897)
140	-	-	-	(5,047)	(5,036)	(5,024)	(4,758)	(4,479)	(4,186)	(4,146)	(4,103)	(4,057)	(4,007)	(3,954)	(3,898)	(3,838)
141																
142	-	-	-	(0.084)	(0.084)	(0.084)	(0.078)	(0.071)	(0.061)	(0.060)	(0.060)	(0.059)	(0.051)	(0.050)	(0.049)	(0.049)
143	-	-	-	(0.057)	(0.056)	(0.056)	(0.055)	(0.054)	(0.059)	(0.058)	(0.057)	(0.056)	(0.066)	(0.065)	(0.064)	(0.063)
144	-	-	-	(0.072)	(0.072)	(0.072)	(0.068)	(0.064)	(0.060)	(0.059)	(0.059)	(0.058)	(0.057)	(0.056)	(0.056)	(0.055)
Breakeven Price																
City	1.97	2.07	2.09	3.44	3.47	3.50	3.44	3.37	3.24	3.26	3.29	3.32	3.23	3.25	3.28	3.31
SelfGen	1.97	2.07	2.09	2.92	2.94	2.97	2.99	3.01	3.11	3.13	3.16	3.18	3.35	3.38	3.40	3.43
Combined	1.97	2.07	2.09	3.20	3.23	3.26	3.23	3.21	3.18	3.20	3.23	3.26	3.28	3.31	3.34	3.36

10 SCENARIO 2																	
11 Breakeven Year																	
12 City																	
13 Self Generators																	
14 Combined																	
15 Geo																	
16 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053																	
136 Savings (Losses)																	
137 Dollars (000)																	
138 City																	
139 Self Generators																	
140 Combined																	
141 \$/kWh																	
142 City																	
143 Self Generators																	
144 Combined																	
Breakeven Price																	
City																	
SelfGen																	
Combined																	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	
(1,906)	(1,869)	(1,830)	(1,789)	(1,745)	(1,700)	(1,652)	(1,601)	(1,548)	(1,493)	(1,435)	(1,374)	(1,310)	(1,244)	(1,175)	(1,102)	(1,027)	
(1,868)	(1,838)	(1,806)	(1,773)	(1,737)	(1,700)	(1,661)	(1,619)	(1,576)	(1,530)	(1,483)	(1,433)	(1,381)	(1,326)	(1,269)	(1,210)	(1,148)	
(3,775)	(3,708)	(3,637)	(3,562)	(3,483)	(3,400)	(3,312)	(3,220)	(3,124)	(3,023)	(2,917)	(2,807)	(2,691)	(2,570)	(2,444)	(2,312)	(2,174)	
(0.048)	(0.047)	(0.046)	(0.045)	(0.044)	(0.042)	(0.041)	(0.040)	(0.039)	(0.037)	(0.036)	(0.034)	(0.033)	(0.031)	(0.029)	(0.028)	(0.026)	
(0.062)	(0.061)	(0.060)	(0.059)	(0.058)	(0.057)	(0.055)	(0.054)	(0.053)	(0.051)	(0.049)	(0.048)	(0.046)	(0.044)	(0.042)	(0.040)	(0.038)	
(0.054)	(0.053)	(0.052)	(0.051)	(0.050)	(0.049)	(0.047)	(0.046)	(0.045)	(0.043)	(0.042)	(0.040)	(0.038)	(0.037)	(0.035)	(0.033)	(0.031)	
3.33	3.36	3.39	3.41	3.44	3.47	3.49	3.52	3.55	3.58	3.60	3.63	3.66	3.69	3.71	3.74	3.77	
3.46	3.48	3.51	3.54	3.56	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.79	3.82	3.84	3.87	3.90	
3.39	3.42	3.44	3.47	3.50	3.52	3.55	3.58	3.61	3.63	3.66	3.69	3.72	3.74	3.77	3.80	3.83	

Attachment 3

Scenario 1: No Sales to Self-Generators

1																	
2	Makushin Size				30												
3	Fuel Forecast				EIA - Regression												
4	Fuel Price: Self Generator (Pct > City)				3.0%												
5	Sales to Self Generators																
6	Rate Esc				0.75%												
7	Gen Efficiency: City				15.7												
8	Gen Efficiency: Self Generator				14.0												
9	Self Gen VOM (\$/kWh - 2021)				0.0275												
10	SCENARIO 3																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379
19	Cost of Fuel (\$/gallon)																
20	City	1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54
21	Self Generators	2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62
22	Self Generator VOM (\$/kWh)	0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038
23	Fuel Efficiency (kWh/gal)																
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																
27	City																
28	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																
32	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Makushin Rate																
36	Fixed Payment - 30 MW (000)	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
37	Wheeling Rate (\$/kWh)	-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM (\$/kWh - 2021)																	
10	SCENARIO 3																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel (\$/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM (\$/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000)																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate (\$/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

10	SCENARIO 3																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
38	Without Makushin (Dollars in Thousands)																
39	Loads (million kWh)																
40	City																
41	Sales																
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
46	Losses																
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
50	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	Costs																
52	City																
53	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
54	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
55	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
56	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
57	Production																
58	Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991
59	Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088
60	Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
68	Self Gen Costs																
69	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	Payments to City	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	Total Costs	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
76	City Costs @ Production Level (\$/kWh)																
77	Production																
78	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.135	\$ 0.137	\$ 0.139	\$ 0.141	\$ 0.143	\$ 0.146	\$ 0.148	\$ 0.150	\$ 0.152	\$ 0.155	\$ 0.157	\$ 0.159	\$ 0.162
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074
81	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																
84	At Production Level	\$ 0.361	\$ 0.371	\$ 0.378	\$ 0.385	\$ 0.392	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.433	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.478	\$ 0.488
85	At Sales Level	\$ 0.376	\$ 0.386	\$ 0.393	\$ 0.400	\$ 0.408	\$ 0.416	\$ 0.424	\$ 0.432	\$ 0.441	\$ 0.450	\$ 0.459	\$ 0.468	\$ 0.477	\$ 0.487	\$ 0.497	\$ 0.507
86	Self Gen Costs (\$/kWh)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
87																	

10	SCENARIO 3																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
38	Without Makushin (Dollars in Thousands)																	
39	Loads (million kWh)																	
40	City																	
41	Sales																	
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
46	Losses																	
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
50	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	Costs																	
52	City																	
53	Admin/Depr/Int	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129
54	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
55	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
56	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
57	Production																	
58	Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906
59	Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588
60	Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671
68	Self Gen Costs																	
69	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	Payments to City	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	Total Costs	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671
76	City Costs @ Production Level (\$/kWh)																	
77	Production																	
78	Fuel	\$ 0.165	\$ 0.167	\$ 0.170	\$ 0.173	\$ 0.175	\$ 0.178	\$ 0.181	\$ 0.184	\$ 0.187	\$ 0.190	\$ 0.194	\$ 0.197	\$ 0.200	\$ 0.204	\$ 0.207	\$ 0.211	\$ 0.214
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108
81	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																	
84	At Production Level	\$ 0.497	\$ 0.508	\$ 0.518	\$ 0.528	\$ 0.539	\$ 0.550	\$ 0.562	\$ 0.573	\$ 0.585	\$ 0.597	\$ 0.609	\$ 0.622	\$ 0.635	\$ 0.648	\$ 0.662	\$ 0.675	\$ 0.690
85	At Sales Level	\$ 0.517	\$ 0.528	\$ 0.538	\$ 0.549	\$ 0.561	\$ 0.572	\$ 0.584	\$ 0.596	\$ 0.608	\$ 0.621	\$ 0.633	\$ 0.647	\$ 0.660	\$ 0.674	\$ 0.688	\$ 0.702	\$ 0.717
86	Self Gen Costs (\$/kWh)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
87																		

SCENARIO 3																	
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	With Makushin (Dollars in Thousands)																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
100	Self Generators																
101	City Costs																
102	Admin/Depr/Int	\$ 6,024	\$ 6,115	\$ 6,237	\$ 6,362	\$ 6,505	\$ 6,651	\$ 6,801	\$ 6,954	\$ 7,110	\$ 7,270	\$ 7,434	\$ 7,601	\$ 7,772	\$ 7,947	\$ 8,126	\$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116	Total City	15,022	15,440	15,709	26,460	26,850	27,246	27,400	27,548	27,693	28,100	28,514	28,935	29,364	29,800	30,244	30,695
117	Self Gen Costs																
118	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
122	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124	Total Costs	15,022	15,440	15,709	26,460	26,850	27,246	27,400	27,548	27,693	28,100	28,514	28,935	29,364	29,800	30,244	30,695
125	City Costs @ Production Level (\$/kWh)																
126	Production																
127	Fuel	\$ 0.125	\$ 0.132	\$ 0.133	\$ 0.005	\$ 0.005	\$ 0.005	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006
128	Makushin	-	-	-	0.392	0.396	0.400	0.404	0.408	0.412	0.416	0.420	0.424	0.429	0.433	0.437	0.442
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate																
132	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
133	At Production Level	0.361	0.371	0.378	0.636	0.646	0.655	0.659	0.663	0.666	0.676	0.686	0.696	0.706	0.717	0.727	0.738
134	At Sales Level	0.376	0.386	0.393	0.662	0.671	0.681	0.685	0.689	0.692	0.702	0.713	0.723	0.734	0.745	0.756	0.767
135	Self Gen Costs (\$/kWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SCENARIO 3																	
Breakeven Year																	
City																	
Self Generators																	
Combined																	
Geo																	
2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053																	
With Makushin (Dollars in Thousands)																	
Loads (million kWh)																	
City																	
Sales																	
City Core																	
City Heat																	
City Sales to Self Gen																	
Total City Sales																	
Losses																	
Core/Heat																	
Self Gen																	
Total Generation																	
Self Generators																	
City Costs																	
Admin/Depr/Int																	
Line Repair																	
Vehicles																	
Facilities																	
Production																	
Personnel																	
Ops																	
Fuel																	
Spinning Reserve Fuel																	
Makushin																	
To OCCP																	
Payments from Self Gen																	
Makushin																	
Other																	
Total City																	
Self Gen Costs																	
Fuel																	
Variable O&M																	
Payments to City																	
Makushin																	
Other																	
Total Self Gen																	
Total Costs																	
City Costs @ Production Level (\$/kWh)																	
Production																	
Fuel																	
Makushin																	
Other Production																	
Other																	
Revenues from Self Gen Base Rate																	
Total																	
At Production Level																	
At Sales Level																	
Self Gen Costs (\$/kWh)																	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	\$ 8,496	\$ 8,687	\$ 8,882	\$ 9,082	\$ 9,287	\$ 9,496	\$ 9,709	\$ 9,928	\$ 10,151	\$ 10,379	\$ 10,613	\$ 10,852	\$ 11,096	\$ 11,346	\$ 11,601	\$ 11,862	\$ 12,129
	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519
	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827
	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	31,155	31,622	32,097	32,581	33,074	33,575	34,085	34,604	35,132	35,670	36,217	36,774	37,341	37,918	38,505	39,103	39,712
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	31,155	31,622	32,097	32,581	33,074	33,575	34,085	34,604	35,132	35,670	36,217	36,774	37,341	37,918	38,505	39,103	39,712
	\$ 0.006	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.007	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008	\$ 0.008
	0.446	0.451	0.455	0.460	0.464	0.469	0.474	0.478	0.483	0.488	0.493	0.498	0.503	0.508	0.513	0.518	0.523
	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056
	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.749	0.761	0.772	0.784	0.795	0.807	0.820	0.832	0.845	0.858	0.871	0.884	0.898	0.912	0.926	0.940	0.955
	0.779	0.791	0.802	0.815	0.827	0.839	0.852	0.865	0.878	0.892	0.905	0.919	0.934	0.948	0.963	0.978	0.993
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SCENARIO 3																
Breakeven Year																
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
11																
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15																
16	2021	2022	2023	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
Savings (Losses)																
136																
137	Dollars (000)															
138	-	-	-	(10,468)	(10,543)	(10,618)	(10,442)	(10,254)	(10,055)	(10,110)	(10,165)	(10,218)	(10,271)	(10,322)	(10,373)	(10,422)
139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140	-	-	-	(10,468)	(10,543)	(10,618)	(10,442)	(10,254)	(10,055)	(10,110)	(10,165)	(10,218)	(10,271)	(10,322)	(10,373)	(10,422)
141	\$/kWh															
142	-	-	-	(0.262)	(0.264)	(0.265)	(0.261)	(0.256)	(0.251)	(0.253)	(0.254)	(0.255)	(0.257)	(0.258)	(0.259)	(0.261)
143	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
144	-	-	-	(0.262)	(0.264)	(0.265)	(0.261)	(0.256)	(0.251)	(0.253)	(0.254)	(0.255)	(0.257)	(0.258)	(0.259)	(0.261)
Breakeven Price																
City	1.97	2.07	2.09	6.24	6.30	6.36	6.32	6.28	6.24	6.29	6.35	6.41	6.46	6.52	6.58	6.64
SelfGen																
Combined	1.97	2.07	2.09	6.24	6.30	6.36	6.32	6.28	6.24	6.29	6.35	6.41	6.46	6.52	6.58	6.64

SCENARIO 3																		
Breakeven Year																		
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	
11																		
12																		
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
Savings (Losses)																		
Dollars (000)																		
137																		
138	City	(10,471)	(10,518)	(10,563)	(10,608)	(10,651)	(10,693)	(10,733)	(10,772)	(10,809)	(10,844)	(10,878)	(10,910)	(10,940)	(10,968)	(10,994)	(11,019)	(11,041)
139	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140	Combined	(10,471)	(10,518)	(10,563)	(10,608)	(10,651)	(10,693)	(10,733)	(10,772)	(10,809)	(10,844)	(10,878)	(10,910)	(10,940)	(10,968)	(10,994)	(11,019)	(11,041)
141	\$/kWh																	
142	City	(0.262)	(0.263)	(0.264)	(0.265)	(0.266)	(0.267)	(0.268)	(0.269)	(0.270)	(0.271)	(0.272)	(0.273)	(0.273)	(0.274)	(0.275)	(0.275)	(0.276)
143	Self Generators	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
144	Combined	(0.262)	(0.263)	(0.264)	(0.265)	(0.266)	(0.267)	(0.268)	(0.269)	(0.270)	(0.271)	(0.272)	(0.273)	(0.273)	(0.274)	(0.275)	(0.275)	(0.276)
Breakeven Price																		
City	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.12	7.19	7.25	7.31	7.38	7.44	7.51	7.57	7.64	7.70	
SelfGen																		
Combined	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.12	7.19	7.25	7.31	7.38	7.44	7.51	7.57	7.64	7.70	

Makushin Geothermal Project Update

the **Financial Engineering Company**

July 21, 2020

Purpose of Presentation

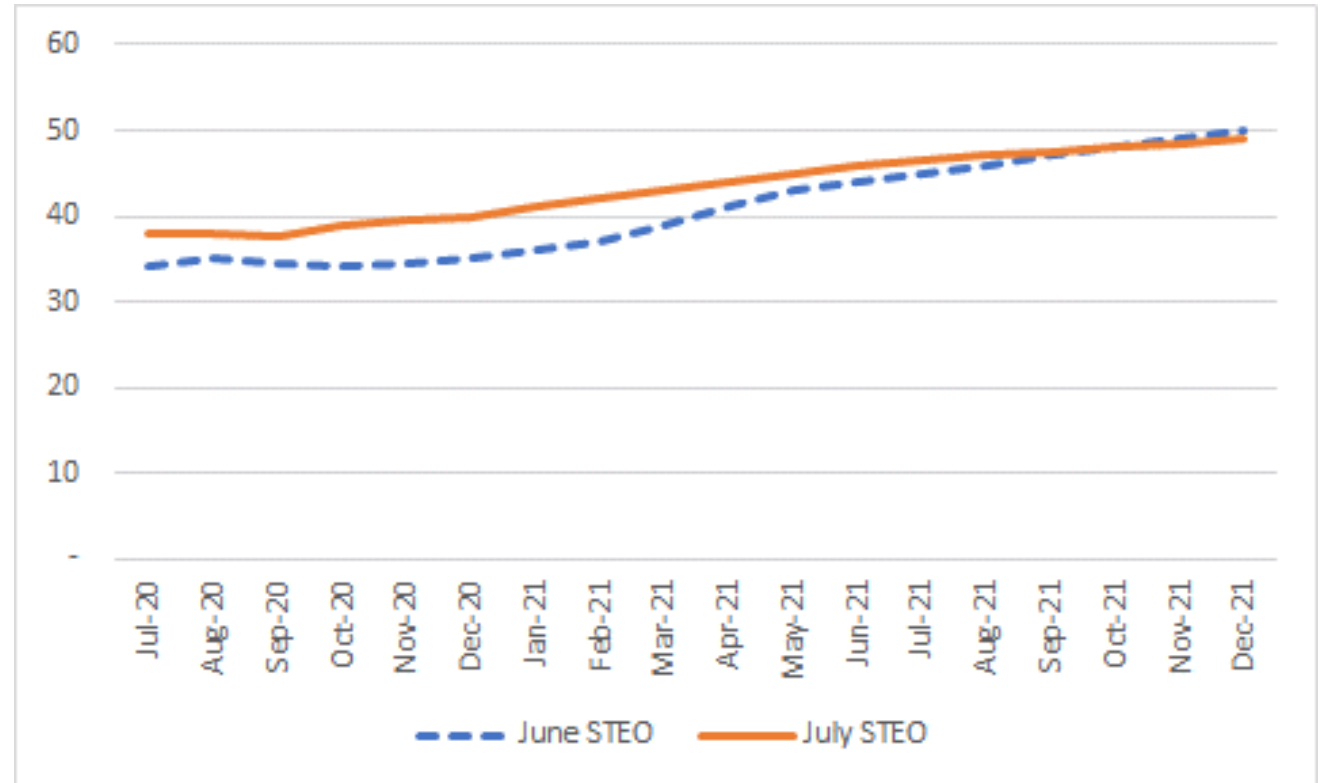
- City staff and OCCP have met to negotiate Power Purchase Agreement
 - Focused on 30-megawatt resource
 - Fixed Payment increased by 1.7 percent from previous analysis
- Presentation tonight provides updated analysis of Project benefits

Assumptions

- Most assumptions used in previous analysis the same
- Those modified are:
 - Costs of spinning reserves eliminated
 - Makushin will provide some spin
 - If processors want additional, outside scope of analysis
 - City fee charged to processors for delivering power over City infrastructure set to \$0.005/kWh for first five years, \$0.01/kWh for next four, \$0.02/kWh thereafter with 0.75% escalation
 - Fuel

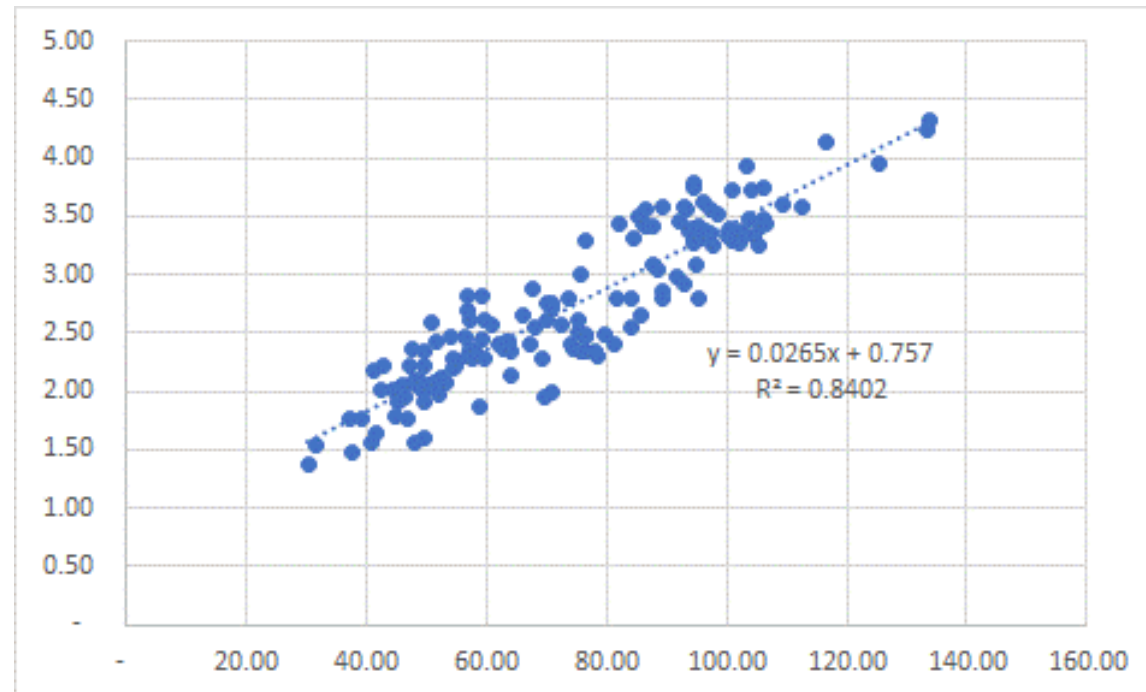
Fuel Assumption

- Actual fuel costs will differ from that assumed
- Therefore, breakeven fuel costs calculated
- US EIA updated short-term fuel cost projections
 - Higher in near term, slightly lower at end of projection (December 2021)



Fuel Assumption

- Relationship between oil land diesel fuel costs



Fuel Assumption

- Fuel assumption used in analysis
 - July STEO
 - Inflate at assumed inflation rate after 2021
 - Use formula developed in regression analysis to calculate forecasted fuel prices

Scenarios Run

- Scenario 1: City core of 40 million kWh + 60 million kWh to self-generators (nearly all of the present self-generator load)
- Scenario 2: City core of 40 million kWh + 30 million kWh to self-generators
- Scenario 3: City core of 40 million kWh

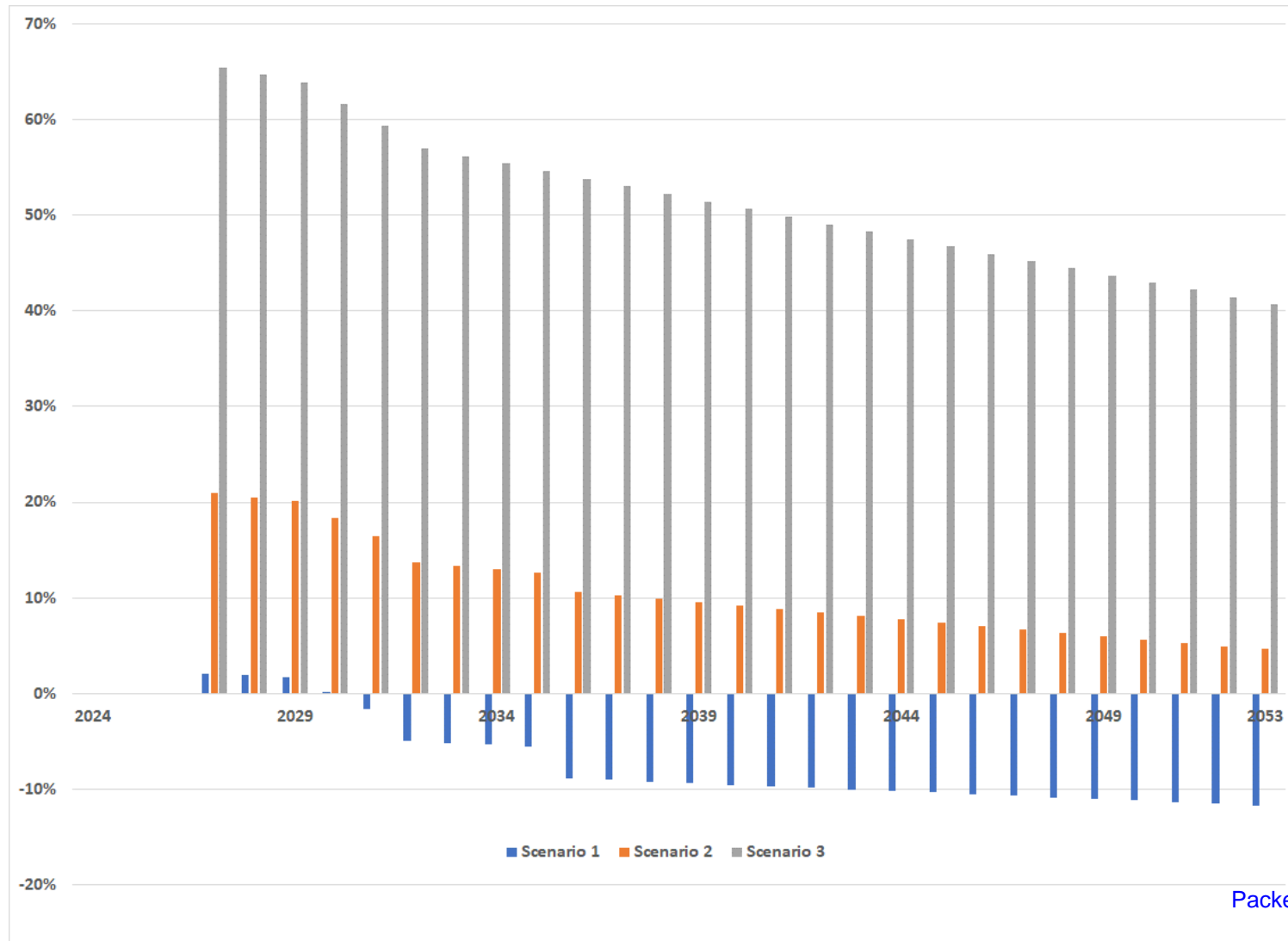
Results

- Savings
 - City
 - Self-generators
 - Combined
- Effect on City retail rates as compared to no Makushin
- Breakeven fuel prices
 - Diesel
 - WTI

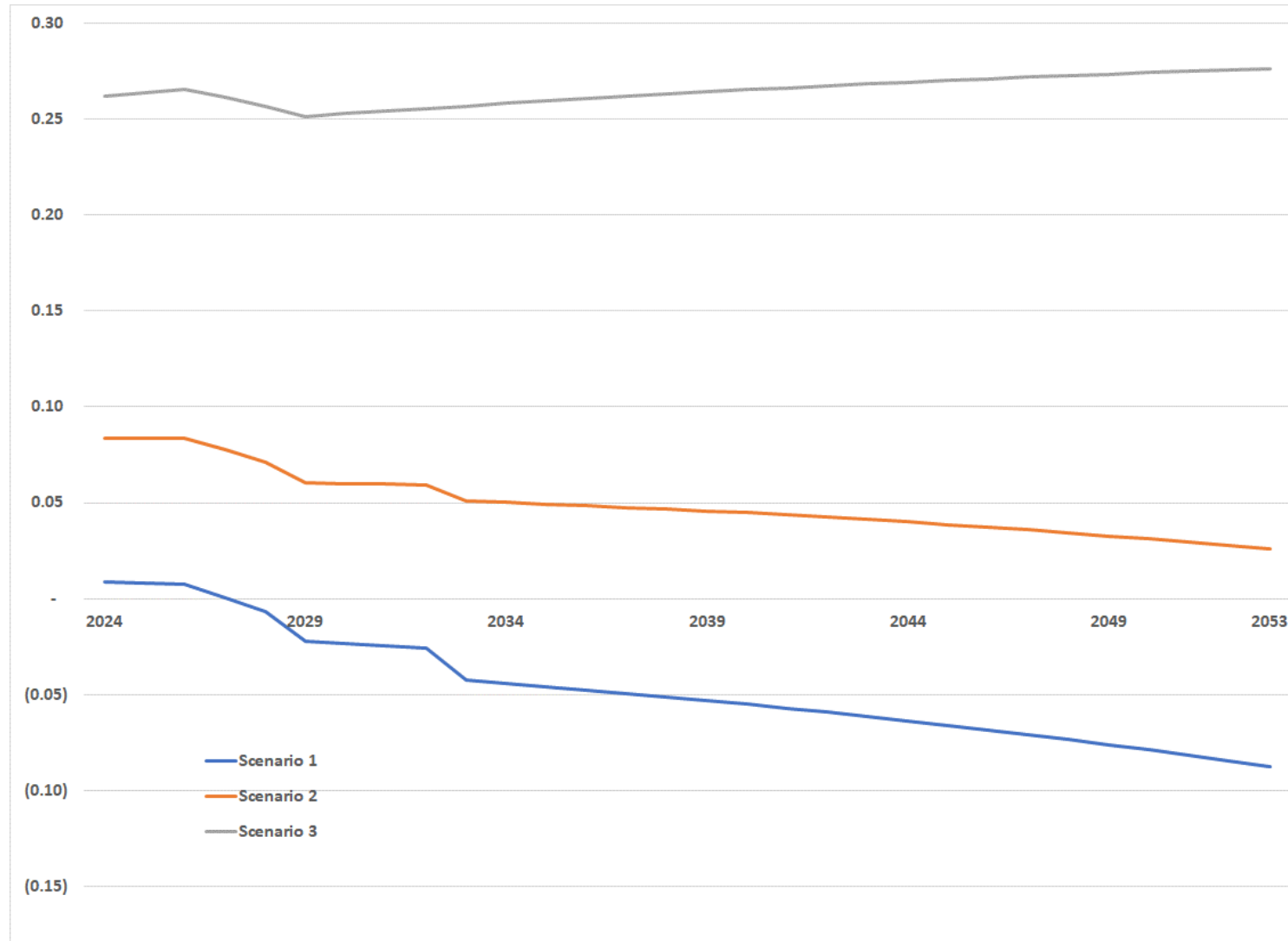
Savings

Sales to Self Gen		Cumulative Combined Benefits (000)							First Op Yr w/ Savings
		5-yr	10-yr	15-yr	20-yr	25-yr	30-yr		
Scenario 1 60,000,000	City	\$ (680)	\$ 4,845	\$ 14,358	\$ 25,791	\$ 39,474	\$ 55,785	5	
	Self Gen	4,214	8,399	12,528	19,429	29,635	43,753	1	
	Combined	\$ 3,534	\$ 13,244	\$ 26,886	\$ 45,220	\$ 69,109	\$ 99,537	1	
Scenario 2 30,000,000	City	\$ (16,001)	\$ (27,610)	\$ (37,306)	\$ (46,022)	\$ (53,472)	\$ (59,330)	>30	
	Self Gen	(8,343)	(17,233)	(26,709)	(35,386)	(43,027)	(49,359)	>30	
	Combined	\$ (24,344)	\$ (44,843)	\$ (64,015)	\$ (81,408)	\$ (96,499)	\$ (108,690)	>30	
Scenario 3 0	City	\$ (52,325)	\$ (103,143)	\$ (155,250)	\$ (208,498)	\$ (262,710)	\$ (317,672)	>30	
	Self Gen	-	-	-	-	-	-	>30	
	Combined	\$ (52,325)	\$ (103,143)	\$ (155,250)	\$ (208,498)	\$ (262,710)	\$ (317,672)	>30	

Percentage Increase in City Costs (Fuel + Base)

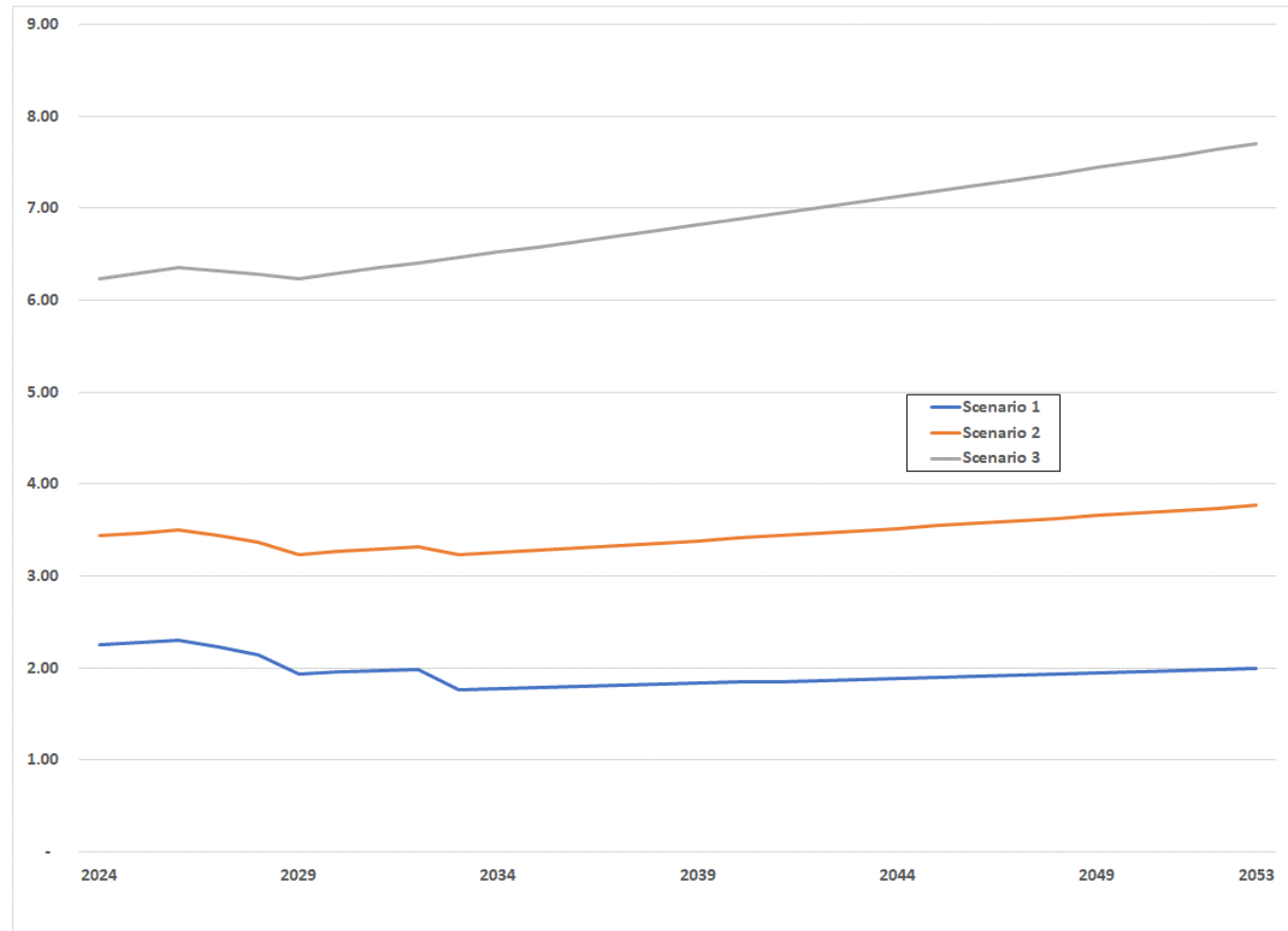


Effect on City Retail Rates (\$/kWh)



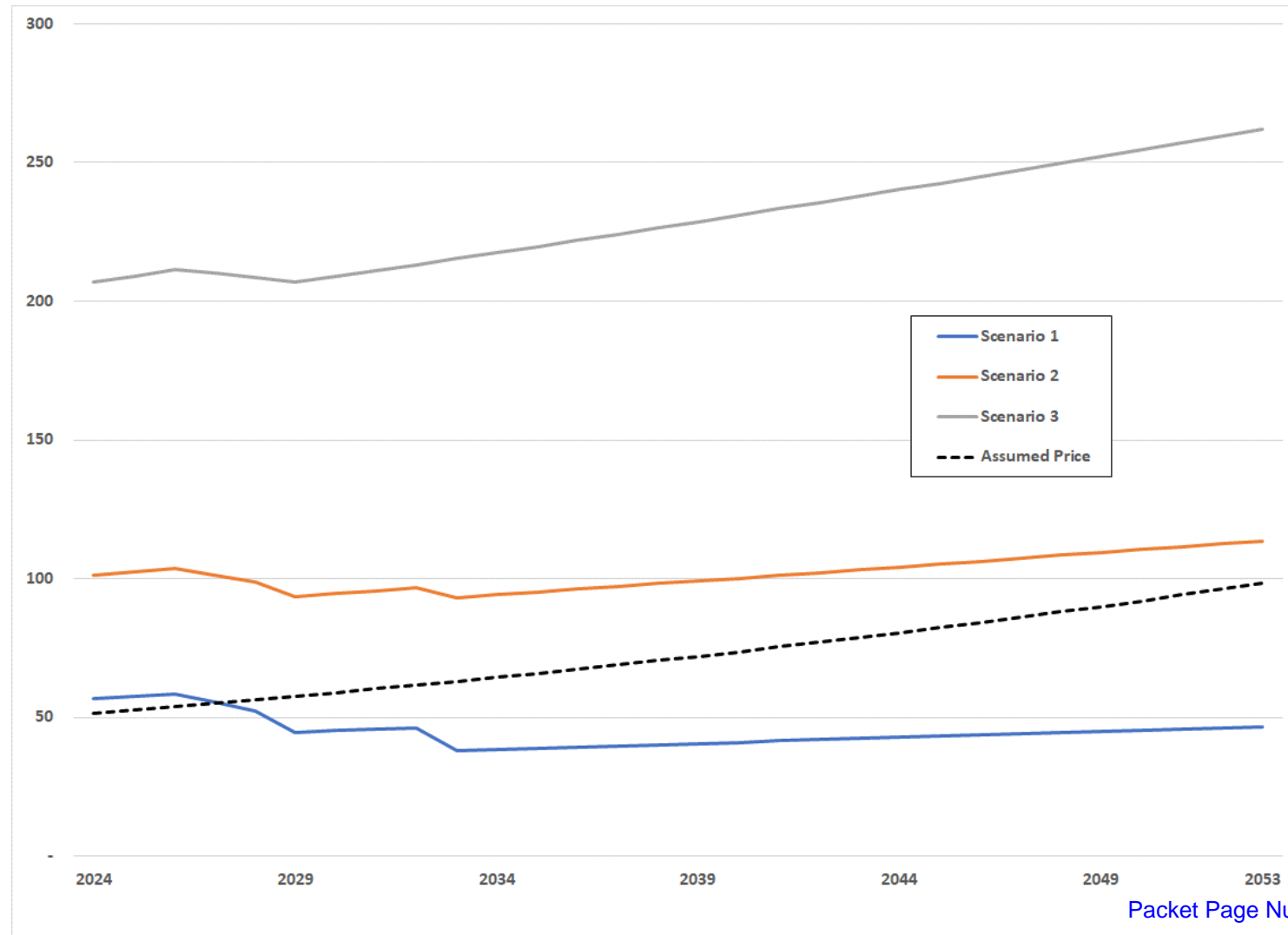
Breakeven Fuel Price (City Portion Only)

- *Diesel Generating Fuel (\$/gallon)*

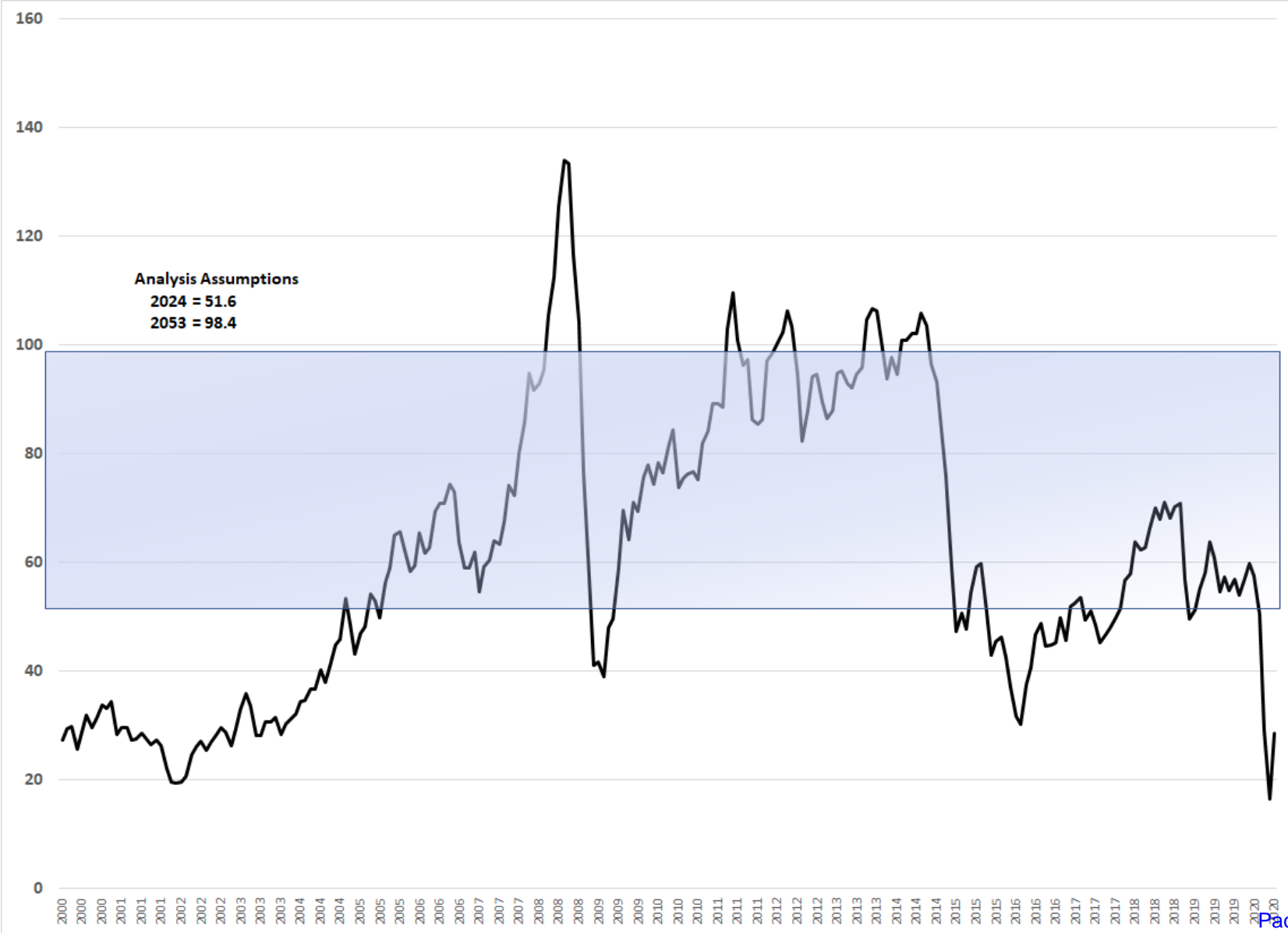


Breakeven Fuel Price (City Portion Only)

- *WTI (\$/bbl)*




Historical WTI



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MEMORANDUM

TO: Erin Reinders



FROM: Brooks W. Chandler

DATE: June 17, 2020

SUBJECT: Non-Recourse Financing

You asked us to examine whether the potential availability of non-recourse financing to OCCP for construction of a geothermal power plant would reduce the City's legal risk in entering into a fixed price thirty year contract to purchase electricity from OCCP. The answer is NO given the current proposed language of the PPA as explained in greater detail below.

Non-Recourse Financing

Non-recourse financing is a type of commercial lending that limits the legal remedies available to the lender in the case of a default. The City has been told OCCP has access to non-recourse financing but has not been provided information as to how the prospective lender would limit its remedies should OCCP default on the loan.

One standard limitation is for a lender to agree that the only source for loan repayment would be the revenues generated by the project. Another possible limitation would be for the lender to agree to secure the loan only with a deed of trust against the plant and the real estate on which it is constructed and to not pursue other assets either of OCCP or the members of OCCP i.e. no personal guarantees. In either case, the city should anticipate that any PPA it signed with OCCP would be assigned to the lender as collateral for the loan. If the PPA is assigned to the lender as collateral, should OCCP default the lender would step into OCCP's shoes and be able to enforce the terms of the PPA against the City and apply that money to reduce the balance owed on the loan.

PPA Obligation of the City

The current draft of the PPA obligates the City to make a fixed payment to OCCP each year for 30 years. Like a mortgage except what is being bought is electricity not real estate. There is no “non-recourse” provision in the PPA. Everything owned by Unalaska- all the city’s money; all the city’s physical assets is “at risk”. If the City failed to make the payments as promised OCCP would be able to obtain a judgment against the City equal to what OCCP was owed and collect that judgment from any available city funds. The City’s obligation to pay OCCP under the PPA is not impacted by OCCP’s non-recourse financing.

Best Case Scenario

There is one scenario in which risk to the City is potentially impacted by OCCP’s non-recourse financing. The City’s obligation to pay OCCP for electricity depends on OCCP actually producing electricity. It is theoretically possible that the City’s failure to pay OCCP could result in OCCP shutting down the power plant and then defaulting on its loan. In order to continue to generate annual payments from the City the lender would then be obligated to take over operation of the plant (most likely by hiring a third party operator) and continue to generate electricity. If the lender failed to do that the City would be able to claim it was no longer obligated to make the annual payments because no electricity was being produced.

But the lender would have a fairly strong argument that the City’s original failure to make payments is what caused the plant to shut down thereby prohibiting the City from using the shutdown of the plant as an excuse for non-payment. Needless to say- the resulting legal mess would take years to resolve with a strong likelihood of an unfavorable outcome for the City. This “best case” scenario should not be considered to significantly reduce the risk to the City of a thirty year commitment to OCCP.

Conclusion

A decision on whether to approve a 30 year contract to buy electricity should not be based on an assumption the city could “get out of” the contract if it did not need or was unable to resell all the electricity it promised to buy. Instead, the decision must be based on how much money the city is obligated to pay by the terms of the contract as written, an assessment of the likelihood the city would be able to use or sell all the electricity it is obligated to purchase and an assessment of the risk to city finances if the city was unable to do so.