



CITY OF NORTH POLE
Regular Meeting
May 15, 2023
City Hall Chambers
125 Snowman Lane, North Pole, Alaska
www.northpolealaska.com

Monday, May 15, 2023
Committee of the Whole: 6:30 PM
Regular City Council Meeting: 7:00 PM

MAYOR

Michael Welch
907-488-8584

CITY CLERK

Melissa Dionne
907-488-8583

COUNCIL MEMBERS

Jeffrey Jacobson – Mayor Pro Tem	907-460-7733
DeJohn Cromer – Deputy Mayor Pro Tem	907-347-2808
Anton Keller – Alt. Deputy Mayor Pro Tem	907-987-2548
Chandra Clack	907-460-3767
Aino Welch	907-488-5834
David Skipps	907-750-5106

1. Call to Order/Roll Call
2. Pledge of Allegiance
3. Invocation
4. Approval of Agenda (Pgs. 1-2)
5. Approval of the Minutes from 5/1/2023 (Pgs. 3-12)
6. Communications from the Mayor
7. Council Members Questions of the Mayor
8. Citizens Comments (Limited to five (5) minutes per Citizen)
9. Communications from Department Heads, HR, City Clerk and the Borough Representative
10. Ongoing Projects Report
 - a. Combined Heat and Power Plant Update (Pgs. 13-28)
 - b. Strategic Plan Update (Pg. 29)
11. Unfinished Business

None

12. New Business

- a. Meritain Renewal Decision Points (Pg. 30)

13. Council Comments

14. Adjournment



**Committee of the Whole – 6:30 P.M.
Regular City Council Meeting – 7:00 P.M.**

A regular meeting of the North Pole City Council was held on Monday, May 1, 2023, in the North Pole City Hall Chambers.

CALL TO ORDER/ROLL CALL

Mayor Welch called the regular City Council meeting of Monday, May 1, 2023, to order at 7:00 p.m.

Present:

Mayor Welch
Jeffrey Jacobson – Mayor Pro Tem
DeJohn Cromer – Deputy Mayor Pro Tem
Anton Keller – Alt. Deputy Mayor Pro Tem
Chandra Clack – Via Zoom
Aino Welch

Absent/Excused:

David Skipps

PLEDGE OF ALLEGIANCE TO THE U.S. FLAG

Led by Melissa Dionne

INVOCATION

Given by Mr. Keller

APPROVAL OF AGENDA

Mr. Jacobson *moved* to approve the agenda of May 1, 2023

Seconded *by* Ms. Welch

Mr. Jacobson *moved* to amend the agenda of May 1, 2023, to consent the following items:

Unfinished Business

- a. Ordinance 23-07, An Ordinance of the City of North Pole Amending the User Fee Schedule and Title 15

New Business

- b. NPFD Request to Purchase Command Vehicle
- c. NPPD Approval of Contract for Accreditation
- d. Saigon Garden Restaurant Request to Approve Liquor License

Seconded *by* Ms. Welch

On the Amendment

DISCUSSION

None

PASSED

Yes: 6 – A. Welch, Clack, Jacobson, Cromer, Keller, Mayor Welch

No: 0

Absent: Skipps

On the Agenda as Amended

DISCUSSION

None

PASSED

Yes: 6 – A. Welch, Clack, Jacobson, Cromer, Keller, Mayor Welch

No: 0

Absent: 1 - Skipps

APPROVAL OF MINUTES

Ms. Welch *moved* to approve the minutes from the 4/17/2023 meeting

Seconded by Mr. Cromer

On the Minutes

DISCUSSION

None

PASSED

Yes: 6 – A. Welch, Clack, Jacobson, Cromer, Keller, Mayor Welch

No: 0

Absent: 1 - Skipps

COMMUNICATIONS FROM THE MAYOR

- The Mayor shared that since we met last he has been very busy, along with Mr. Wallace working on the combined heat and power project. The next meeting with the combined heat and power group will be May 9. They are meeting on the 2nd and 4th Tuesday of the month. They met with our attorney today to talk about a power purchase agreement with GVEA. That is the next cog in the wheel.
- He said that the Mayor's Giving Gala that was held this last Saturday night at the Carlson Center was very good. He was joined at his table by his wife, Mr. and Mrs. Howard Rixie, and Mr. Keller and his wife. He said that he does not know how much the United Way made that night but he feels like they did very well.
- On May 11 he will be attending the Senior Games award ceremony and luncheon at the Carlson Center.
- He reminded everyone that May 20th is the Cruisin with Santa event at the NP mall as well as the Torch Run at Chena Lakes.
- Later that same weekend he will be heading to the governor's sustainability conference and will be in Anchorage that entire week.

COUNCIL MEMBER QUESTIONS OF THE MAYOR

- None

CITIZENS COMMENTS – (Limited to Five (5) minutes per Citizen)

- None

COMMUNICATIONS FROM DEPARTMENT HEADS, BOROUGH REPRESENTATIVE AND THE CITY CLERK

Police Department, Chief Dutra

- Hiring applicants have exploded and prospects look good.
- I have placed a request to present the idea of a public safety specialist on a trial basis.
- We have started our Chena Lakes coverage effective today.
- North Pole VFW has started a raffle to raise funds for Operation Glow. Tickets for chainsaw and weed whacker/blower are on sale at NPPD for \$10 a piece. Check out our Facebook.
- Reminder to attend the Torch Run on the 20th at Chena Lakes (donate to me see Facebook), starting at 1000. Also, Police Memorial Day is on the 19th at 11:00 at Memorial Park.
- Reminder I am heading to Anchorage tomorrow to present ITF range/evoc facility to state APOA Annual meeting.
- Stats – were given out to everyone prior to the meeting.

The Mayor asked why there was a sudden large interest in applicants for the department.

- Chief Dutra said for sure 2 of the new applicants became more interested after the pay scale increase. They have been doing a lot of outreach at the Army base too. He said they have been having a lot of good response to the recruiting app that they are now using.

The Mayor asked if there had been any luck finding someone to work the Chena Lakes contract and he also asked about Officer McBroom's retirement party.

- Chief Dutra said no that Officer Knutson is working that contract and that Officer McBroom did not want a retirement party so they just did something little for him at the office.

Fire Department, Chief Heineken – AC Tod Chambers was with us tonight

- Chief Heineken is out of town on the final inspection of the new department truck.
- They recently wrapped up firefighter 1 testing, they had 2 of their volunteer members in that group, they all passed.
- Immediately following they held a fire service instructor certification and had 3 of their staff attend and successfully complete.
- Rescue 21 continues to have an air system problem; it came back from the shop marginally better but not enough to have it consistently in service. They will continue to trouble shoot it and keep the Council updated with it.
- Firefighter Marino, the newest fire department employee unfortunately had some family issues that she had to take care of. AC Chambers said that she was a great find and had come out of the Ester volunteer fire department and was fitting in very well, he said that both he and Chief Heineken support her putting

family first and she will continue to be on the part time roster. Her last day with the department will be May 8. After the last round of hiring, they did have a wait list for positions and were able to go to the next person on the list, they have a few more steps to complete but they will be coming onboard soon.

- The fire department open house is officially scheduled for July 29th. The new engine will be here by then and they will be able to share it with the community and have a ceremony.

The Mayor asked about the award that Captain McGilvery was just given.

- AC Chambers shared that Cpt. McGilvery was awarded as the EMS instructor of the year. AC Chambers said that the Captain is an amazing asset to the department. Although Cpt. McGilvery does not do all the classes for the department, but a lot of the training on his shift and he is the liaison to FMH and their physician sponsored position and is the one coordinating it all and he is a tremendous asset. AC Chambers also shared that they received the award for EMS service of the year award.
- AC Chambers also shared a bit about the intern position that Chief Heineken is working on in coordination with NPHS. They feel like there just isn't a lot of local feed into the fire science program at CTC and they are hoping through this program they will get some local interest in coming on board and staying in Alaska.

Ms. Welch asked if they were working with the high school so that the interns get credits for their effort in school. She said that she would love to help support the program.

- AC Chambers said that yes that is the plan, and they will be working out details in the coming weeks.

Finance, Tricia Fogarty

- Ms. Fogarty was not with us tonight.

Director of City Services, Danny Wallace

Special Topics

- Summer Hires
 - We had applicants for all positions (7 for the intern position, 3x seniors and 4x college students). We did interviews for the internship last week and PW will do their interviews for two positions tomorrow. We chose Owen Luo, NPHS grad and current University of Minnesota undergraduate.
- Combined Heat and Power Project
 - Our application with the department of Energy is being reviewed
 - We also are considering applying for a Defense Department Infrastructure grant - still working the details on that.
 - We also met with Zane Wilson today on the next step which should include a Power Purchase Agreement
- HC Contractors Continue to Dispute Payment for Snow Removal in April 2022
 - HC Contractors (Bill Hoople) continue to dispute the City's snow removal bill from last year.
 - The City paid HC \$413,280 for snow removed based on the number of loads reported by HC; HC is seeking the full contract price (\$628,170)

- HC claims that the snow is compacted when loaded (in a 3 to 1 ratio) and should be paid for the amount of snow on the ground, rather than the amount of snow hauled
- The City disagrees, but, on the advice of Zane Wilson, attended a demonstration in Fairbanks. We are awaiting the report from HC on this event
- The City's position on this remains unchanged, as per the contract, HC will only be paid for the amount of snow that it hauled.

Building Department

- The Wescott Pool project is on hold - we received word that it is going back out for bid
- For the natural gas rate changes, we've gotten great support from our building inspector, Charlie Jeanette. We have solid processes in place if this is approved.

Public Works Department

- We finalized the Street Sweeping contract and we anticipate sweeping streets in the next couple of weeks when the snow melts in the ditches.
- We've established the summer projects list (on screen).
- The glass dividers in the Chambers were removed and are in storage.

Utility Department

- We had one major water main break in the last two weeks behind the Hotel NP.
- We're had some queries from Design Alaska regarding Matt Gavoras property. We're planning to support their efforts with City code info for that private line.

Mr. Jacobson passed out some information to the Council about an artist that approached him about doing a mural. He said that he thinks we should talk about doing a mural on the old water treatment plant.

- Mr. Wallace agreed that this is a project that we could look into.

Human Resources, Ellen Glab

- Ms. Glab is out on maternity leave.

Borough Representative

Borough meeting 4/27/2023 (this will be filled in later)

City Clerk's Office, Melissa Dionne

- Ms. Dionne reminded everyone that the Revize training has been set for May 3, there will be at least 1 rep from each department from the city in attendance. After this training she is going to give the departments a week or so to review their info and change as necessary before giving the ok to go live with the site. The website will not be down at any point during this switchover.
- She let everyone know that in the packet were 2 different PIO training courses that she is interested in taking and said that she is open to advice on which to take. Due to budget restraints, she will not be

attending PD2 this year, instead will save that for next year after she has earned her CMC. She said she felt that spending the money for the PIO training was more important than PD 2 this year.

The Mayor thanked Ms. Dionne for putting together the basket for the Mayors Gala event and for being conscious of her training budget for the year.

- Ms. Dionne thanked Mr. Jacobson for the things that he brought in for use in that basket and agreed that it did look good.

ON GOING PROJECTS

- The Mayor shared that recently he was talking with the owner of Camper Valley RV's and asked him to consider coming to North Pole over in the Brookside Park area. He will be meeting with him again later in the month and will keep the Council apprised.

NEW BUSINESS

- Resolution 23 – 07, A Resolution of the North Pole City Council in Support of SB 128 (Pgs. 19-20)

Mr. Jacobson *moved* to approve the Resolution

Seconded *by* Mr. Keller

Ms. Welch *moved* to Amend the Resolution to change the title and add 'HB 180' were applicable.

Seconded *by* Mr. Jacobson

On the Amendment

DISCUSSION

None

PASSED

Yes: 6 – A. Welch, Clack, Jacobson, Cromer, Keller, Mayor Welch

No: 0

Absent: 1 - Skipps

On the Resolution as Amended

DISCUSSION

None

PASSED

Yes: 6 – A. Welch, Clack, Jacobson, Cromer, Keller, Mayor Welch

No: 0

Absent: 1 - Skipps

* The attending Council members asked if they could all be added as sponsors of this Resolution

COUNCIL COMMENTS

- Ms. Welch thanked the United Way for the Mayor's Gala she said it was a fantastic event. She said that she enjoyed having her younger grandchildren there. Her granddaughter wandered up on stage with the

Mayor when it was his time to talk and she thanked Mr. Keller's wife for stepping in when her granddaughter almost fell off the stage. She said that the entertainment was fun, and her grandchildren got an introduction to using the silks from the performers.

- Ms. Clack said that she is glad she was able to reach out to everyone and join us via Zoom tonight. She shared that the gala was nice and that the Mayor forgot to mention that she was also there. She said that it was excellent and that she enjoyed the part of the Mayor's gathering together to take pictures. She ran into some other people that she hadn't seen in a while who thought that she had left town. She said it was a very interesting meeting.
- Mr. Keller said that he thought attending the gala with his wife was a good first experience attending those types of events. There was one thing that was brought to attention by the local police force and that is that DUI's has picked up. So what he would recommend to anyone who is out drinking is to go ahead and have a plan A of how you are going to get home without the keys to your car. Call a friend. He said that he is pretty sure the officers would rather take you home before you get in your own car. For the soldiers and airmen out there there's out outlets for you SADD, soldiers against drunk driving, he has seen their van. For those going out single drinks there is avenues, take those avenues. Call a friend, ask the bartender for someone to drive you. If you are drinking at home, stay home. These DUI's are unnecessary at any cost. There are too many dangers that we could go into with having people behind the wheel. If your addicted get help, there are a lot of different avenues for help. He would like to thank our first responders for their service. His closing thoughts are for the aviation unit 125 that recently lost the 3 soldiers, he knows some of the people in that unit. It is a hard hit to the community. He said that he has thoughts and prayers towards the families involved, those personally impacted and those impacted by the friendships they have because he knows that it is a tight knit community over there.
- Mr. Jacobson said that the legislature winding up, the senate and house bills are quiet a bit apart, the house bill for the state budget is \$1.7 billion funding a \$2600 PFD payment and also a \$175 million dollar payment in a one-time additional education funding but it requires a \$580 million to draw down from the states piggy bank which is the constitutional budget reserve. The senate version of the budget reduces the PFD to \$850 million or \$1300 per person and leaves considerable room for increased education funding and a sizeable capital budget without drawing any from the CBR. The CBR from the governors from the last decade has gone from almost \$20 billion to just \$2 billion because the legislature didn't want to do any belt tightening, they just blew it. So stay tuned, they have extended it until May 17th, so hopefully between the 2, the house and senate they will come up with a compromise. There are 2 bills, he said he is not sure how much traction they are going to get but 1 is on legalizing gambling. He encourages everyone to oppose that because what it will do is effect pull tabs and bingo halls which really funds most of the nonprofits statewide. That is how they get money for their operations. This bill would allow pull tabs to move from a paper form to an electronic form that would be regulated by the manufacturer/distributor of the pull tab and reduce the amount of profit to those nonprofits by 50%. So it would decimate the nonprofits funding and causing those other companies to get richer. He said that he is not in favor of gambling or pull tabs but this is a legal and healthy way to support nonprofits. He shared that we used to have pull tabs here in North Pole and the city council used to approve those licenses and it really did help provide the community nonprofits to supply services to our residents. Many years ago when Jimmy was alive, he was the owner of the Refinery Lounge, and he would have some

pretty wild events there that would attract a lot of young folks off the base. Human bowling balls, sumo wrestling, Velcro walls, those were fun times. The owner had a really great relationship with the military so when there was a soldier or airman that was not good to drive, he or his staff would help them with ride and this wasn't a negative, it was a positive. He encourages anyone who goes to the Alehouse here, or any of the other establishments, to encourage them to reach out to the military to come up with a similar situation to make sure that our highways are safe and that these young men and women get home safely. The governor has proposed a state sales tax and Mr. Jacobson feels like that is the worst idea. For municipalities like us that generate income by sales taxes. To have to have a state sales tax plus a city one would be quite burdensome for our residents and the state has many other tools to generate income than a sales tax that would affect so many Alaskan communities. And finally, he said that he is disappointed and somewhat disgusted with the borough assembly and their treatment of the City of North Pole, the school board, and the City of Fairbanks as far as their representatives' reports. The whole idea of those reports was to bring to each other's attention events and concerns that we had. The sad part of the situation is that the genesis for all of this change was because a Fairbanks City Council woman report ran 20 minutes long and instead of dealing with that one incident and going to the City of Fairbanks and saying no more, they put this ordinance out there that is questioning why we would even want to go there. He thinks that we should consider taking a hiatus for the months of May through August and not go to the borough assembly meeting and just see what they have to say because how they treated Ms. Welch and anyone else who would be going there who wants to try and comment about something that is pertinent to us. They themselves sound very confused about what their rules are and what does apply and what doesn't and what agenda items you can and cannot speak on. This nonsense has to stop. He said perhaps our lack of participation will get them to rethink 'mmm let's do something to invite our neighbors down the road back'. Happy spring.

- The Mayor said that he would like to segway right off of what Mr. Jacobson said, you never know who is listening to those borough meetings just like ours or who is going to go back and watch it. 2 weeks ago he was actually at the borough meeting at 6:40 and at 9:40 he gave up because what he was there to listen to never came up. Brent Sheets was also on there and he only lasted an hour, but the Mayor said that he needed to give them more than an hour to get through what they needed to get through. Last Monday, a week ago today, Mayor Ward was in his office from 4:30 to 5:40; with him was also Mr. Wallace and Ms. Welch. Mayor Ward told him that he was going to bring up the idea about the park, the Mayor was telling him that he would be surprised that we have an acronym on Mr. Wallace's whiteboard on his wall where they are calling it the mother of all amusement parks or some acronym for that because we want to be able to go to this company that could make a motif that would be like a North Pole express and Mayor Ward expressed gratitude that the Mayor was willing to do that. The Mayor said yes he will find a way to do that and to work with the NPCCC to get that park done. He was looking forward to listening to what they had to say at the borough meeting that Thursday. He shared that the reason he has not been letting just one person be the borough rep is because, without unveiling someone, they were trying to tell him as of last summer that there was a big push to try and shut us down, to shoot everyone down, specifically what Mr. Jacobson just told us about, he doesn't want to bring up names, and it failed initially. Then after the new assembly came on and it was shifted a little more right and now they had the traction they wanted to get. He said that he is just going to say how he feels and is not going to apologize, he was pissed. So the

first thing he did Friday morning was contact the borough. He said that he is not going to sit back and let them step on any one of us when we are supposed to be able to participate and let us keep in mind that the City of Fairbanks came long before the borough, the City of North Pole came long before the borough. The borough didn't come into being until January 1, 1964, and yes we did cede certain powers over to them but that was because of efficiency and effectiveness, but not to shut us down. So when you are going to be the borough rep you better know that your mayor is going to have your back. He said that he was sitting there listening to this and couldn't believe what they had done. He couldn't get the borough clerk and instead spoke to the deputy clerk, who has only been onboard since December. The Mayor said that he did not pepper him with what he heard, he wanted the deputy clerk to tell him in his own words and he what he shared was proof that it was unfavorable against our city and that it wasn't correct. He immediately called to make an appointment with CSG to talk to our attorney for first thing this morning. Our attorney had already spoken to the borough attorney, Jill Dolan, and she agreed that a mistake had been made. Mr. Wilson also talked to the Borough clerk, and she also said that a mistake had been made. He thinks that what possibly happened, and he would like to give the assembly the benefit of the doubt, was when the presiding officer for our rep to wait to talk about it until such a time that when this ordinance was going to be brought up about transferring the park, even though she could have mentioned it in her report she was persuaded to wait until the ordinance was brought up. He said that as the city rep to the borough assembly that she had every right to speak to it. He does not know why the borough mayor did not speak up, the topic had been brought up to the city. He said that he does not understand where they are going with this but that he is not going to allow us to be stepped on like that. He said that it had occurred to him what Mr. Jacobson had previously said, that maybe we should stop going to the assembly meetings until they can straighten out. He said that after talking to the borough clerk and attorney that some of the assembly members seemed confused about what they were voting for. They should have been voting for yes or no should the City of North Pole be allowed to debate on it. But what they were actually voting on was shutting the rep off and not allow her to say anything. So they voted the wrong way and you can see that that happens and he gives them the benefit of the doubt. And what they thought they were voting on was 'yes, yes let's transfer the park' but what they actually were voting on was let's not let the City of North Pole rep talk. So, by going online and saying this tonight on the record saying that we are not going to be treated that way and now that it is out in the open he will talk to the borough Mayor, clerk and attorney along with our clerk and attorney and get it straightened out. He let the Council members know that if they go to the borough to represent us, if it is something that does not pertain to the city and they tell you that it doesn't, to go along with them. But if it does pertain to the city to not let anyone step on you, don't get into an argument with them, be civil, but do not let them step on you because we have every right to be there. He said that he has seen a lot of representatives, and this is their decision to, that give their report, pick up their book and leave. He was never that way and Councilwoman Welch is not that way, nor is Jacobson. He said that some of us are into it because we have a vested interest in the borough and about how our direction is going and our future. To get back on a happy note, the Gala was a big deal for him, and he really enjoyed it. He said what he learned from it was that the United Way of the Tanana Valley did something like 8,000 health screenings last year, provided almost 80,000 shelter nights, they provided services to 72,000 people and gave out 210,000 meals. That is a lot of services that they provide. One thing that he always remembered

as a boy was that in the Wizard of Oz everyone is looking to get their brain and their heart, and their courage and he always thought that it was fantastic that the wizard couldn't pronounce the word philanthropy. So, when he gives the tinman his heart, he called them good deed doers because he couldn't say philanthropist and he always thought that was a good thing. So, in his speech at the gala, he told everyone if they didn't know what a philanthropist is, or if they can't say it or spell it, to just be a good deed doer. Use your heart, give the most that you can, help those that are disadvantaged through the Uniter Way. He said that they had a great time.

ADJOURNMENT

Ms. Welch *moved* to adjourn

Seconded *by* Mr. Cromer

The regular meeting of Monday, May 1, 2023, adjourned at 8:27 p.m.

These minutes passed and approved by a duly constituted quorum of the North Pole City Council on Monday, May 1, 2023.

ATTEST:

Melissa Dionne, City Clerk

CITY OF NORTH POLE COMBINED HEAT AND POWER PLANT

Repurposing the Flint Hills Site to Provide Electricity, Grow Fresh Produce and
Provide District Heat for 240 Residences

PROJECT OVERVIEW

The North Pole Combined Heat and Power (NPCHP) project is a proposed initiative that aims to address the high energy and heating costs, as well as the emission challenges facing the North Pole region of Alaska. This demonstration project will utilize advanced technology and systems to generate electricity and heat, while reducing emissions and costs for homes, businesses, city utilities, and the regional electric utility. The City of North Pole (CoNP) is applying for DOE funding under Topic Area 2 as a single-site project, but the NPCHP project has the capability to be replicated in many rural and remote Alaskan communities

and Tribes that struggle with high heating and energy costs. EPA has designated the North Pole region as a "Serious Nonattainment Unit for PM2.5 emissions", which negatively impacts human health, and is proposing stringent solutions. The proposed project will improve upon older oil-fired electricity generating technologies currently being used by producers in the region utilizing newer, more efficient methods, and maximizing efficiency by using existing energy infrastructure. Proposed liquid natural gas (LNG) engine and heat recovery units, which use cleaner fuel and produce beneficial waste heat, can displace largely uncontrolled oil and wood-fired emission sources to local airshed and are expected to reduce PM2.5 and other emissions by more than 75% from existing levels. The project will also provide a 20-40% reduction in electricity and thermal energy costs compared to current market prices. This will benefit rural and remote communities by improving energy resilience, protecting community health, and reducing economic burdens. This proof of concept will be applicable to other areas across Alaska and the rest of the U.S.



BENEFITS

- **Low-Cost and Cleaner Power**
 - Generates both heat and electricity for industrial, residential, and utility customers.
 - Significant reduction in electricity generation and thermal energy costs of 20-40% compared to heating oil and other resources.
 - Reduces emissions of CO2 and contributes to the transition to renewable energy technology, reducing dependence on oil-based energy and decreasing the contribution to the PM2.5 nonattainment unit.
 - Identified customers for both heat and power include a 20-acre greenhouse that will be co-located with the NPCHP, the on-site MPC facilities, the CoNP water and sewage utilities, a nearby planned subdivision comprised of 240+ residences, and the region.
- **Project Repurposes the Contaminated Flint Hills Refinery Site**
 - The NPCHP project location utilizes a vacant site previously operated by Marathon Petroleum Company (MPC) where the Flint Hills refinery was located.
 - The MPC site has compacted gravel, concrete foundations, and several vacant buildings available to the NPCHP project.
- **Natural Gas and Other Infrastructure**
 - LNG infrastructure owned by the Interior Gas Utility (IGU) is available across the road from the MPC site which will provide LNG for consistent power and heat generation.
 - Construction activities planned are to modify existing foundations and buildings and construct new buildings as needed to house the NPCHP engines, heat recovery system, and power generation equipment.

- Construction is also required to connect the plant to the IGU LNG infrastructure and build the district heating system to move the heated water to clients and city utilities.
- **Food Security and Net Zero Co2 Advantages**
 - Site will include a 20-acre greenhouse complex providing more than 100 long-term jobs.
 - The use of LNG and syngas significantly reduces energy burdens of diesel-reliant communities and provides clean emissions by using the waste heat and CO2 emissions in community and commercial greenhouses, which is of significant value in Alaska where food security is an important issue.
 - The inclusion of greenhouses and growers as customers provides an opportunity for making these facilities effectively net zero CO2 producers through the beneficial use of CO2, which may allow the CoNP to take advantage of the Inflation Reduction Act (IRA) tax credits to further reduce operating costs and maintain a reduction in electricity and thermal costs for customers and the CoNP.

COST AND TIMELINE

- Estimated total cost for the project is \$80 million.
- The monetary request from the DOE is \$50 million. The CoNP is eligible for a reduced match of 20% for the project costs, and the match will be met with the valuation of the existing land and infrastructure available. The existing infrastructure at the MPC North Pole Terminal (which will be supplied as in-kind contribution) is valued at approximately \$30 million and is comprised primarily of a 20-acre gravel pad and some infrastructure that will be repurposed and incorporated into this project.
- Final design, construction, equipment, costs to retrofit existing infrastructure, and startup fuel are projected to cost a total of \$40 million. Additionally, we expect the construction of the district heating system that will distribute the waste heat to NPCHP customers will cost \$10 million.
- We anticipate this project will take 16 months from the time of the award agreement to full operations. This streamlined project schedule is due, in part, to the pre-existing work that has been done on the pilot study prior to this application for funding.

CONCLUSION

Overall, the CHP project is a model for how energy projects can be designed and implemented to benefit both the environment and the community, while also advancing diversity, equity, inclusion, and accessibility. By working collaboratively with partners, stakeholders, and the community, the project team is creating good local jobs, supporting a skilled workforce, and delivering meaningful energy savings to the CoNP community, while also reducing CO2 emissions, harmful PM2.5 emissions, and improving overall air quality in the region.

PROJECT PARTNERS

Mayor Mike Welch City of North Pole	Bernie Karl Chena Power	Brent J Sheets Univ. of Alaska Fairbanks
Chilkoot Ward and team Aurora Energy	Randy Hobbs Hobbs Industries	Rolf Maurer and team Hamilton Maurer International
Diane Revay-Madden and team National Energy Technology Lab	Mariana Hill and team Western Energy Systems	Casey Sullivan and team Marathon Petroleum Alaska
Casey Houweling and team Houweling's Tomatoes	Jim Patten and team Red Leaf Resources	Harvey Goldstein and team Worley Group



NORTH POLE COMBINED HEAT AND POWER DOE EIRRA Application Cover Page

Project Title:

North Pole Combined Heat and Power

Exchange Control Number:

2970-1566

Prime Applicant:

City of North Pole

Applicant Type:

U.S. Local Government Entity (city)

UEI:

WFLFBAZG5SN9

Project Partners:

Hobbs Industries, Inc.; RESPEC Company, LLC.; Shannon and Wilson, Inc.; Marathon Petroleum Company; Aurora Energy; Golden Valley Electric Association; and Brent Sheets (University of Alaska Fairbanks).

Total Project Costs:

\$80 million

Total DOE EIRRA Funding Request:

\$50 million

Total EIRRA Non-Federal Match:

\$30 million

Reduced Cost Share:

Applicant type qualifies for 20% match

Business Point of Contact:

Robert (Danny) Wallace, PhD

Email: rwallace@northpolealaska.org

Phone: 907-488-8593

Technical Point of Contact:

Randy Hobbs

Email: hobbsalaska@msn.com

Phone: 907-232-4409

**DOE EIRRA Topic Area:**

Topic Area 2, Area of Interest – Single-Site Projects

Region of Interest:

Alaska

Rural Area Impacted:

North Pole, AK

Description of Rural Area:

In 2020, the population of North Pole was reported to be 2,243 by the United States Census Bureau. This small town is situated outside of the Principal City of Fairbanks and falls within the Fairbanks North Star Borough in Alaska, where the population density is only 13. It is important to note that according to the United States Department of Agriculture (USDA), rural areas are defined as open countryside with population densities of less than 500 people/sq. mile, or areas with fewer than 2,500 people.

MISSION AND OBJECTIVES

The North Pole Combined Heat and Power (NPCHP) project is a proposed initiative that aims to address the high energy and heating costs, as well as the emission challenges facing the North Pole region of Alaska. This demonstration project will utilize advanced technology and systems to generate electricity and heat, while reducing emissions and costs for homes, businesses, city utilities, and the regional electric utility. The City of North Pole (CoNP) is applying for DOE funding under Topic Area 2 as a single-site project, but the NPCHP project has the capability to be replicated in many rural and remote Alaskan communities and Tribes that struggle with high heating and energy costs. EPA has designated the North Pole region as a “Serious Nonattainment Unit for PM_{2.5} emissions”, which negatively impacts human health, and is proposing stringent solutions [1]. The proposed project will improve upon older oil-fired electricity generating technologies currently being used by producers in the region utilizing newer, more efficient methods, and maximizing efficiency by using existing energy infrastructure. Proposed liquid natural gas (LNG) engine and heat recovery units, which use cleaner fuel and produce beneficial waste heat, can displace largely uncontrolled oil and wood-fired emission sources to local airshed and are expected to reduce PM_{2.5} and other emissions by more than 75% from existing levels. The project will also provide a 20-40% reduction in electricity and thermal energy costs compared to current market prices. This will benefit rural and remote communities by improving energy resilience, protecting community health, and reducing economic burdens. This proof of concept will be applicable to other areas across Alaska and the rest of the U.S.

The NPCHP project is a 2-phase project. The DOE Energy Improvement in Rural or Remote Areas will fund Phase 1. Phase 1 of the NPCHP project is based on a pilot plant study conducted by the University of Alaska Fairbanks (UAF) and Worley that was initially funded primarily by the U.S. Department of Energy’s National Energy Technology Laboratory (reference DE-FE0031601), to install a modular and scalable system of commercially available technology that includes two LNG-fired engines, a heat recovery system, and ancillary power equipment to generate both heat and electricity. The system is projected to produce 87,000 MWe of electricity for sale and 210,000 MMBtu of heat for sale. The power will be sold to Golden Valley Electric Authority (GVEA) to help it meet critical power supply needs. Additionally, the captured waste heat will be sold to industrial, municipal, institutional, and residential clients using a district heat system. The project team has also partnered with an international greenhouse company interested in using power, waste heat, and CO₂ emissions from the LNG engines to grow produce for the region, helping the system achieve a very low or net-zero carbon emissions status [2].

The NPCHP project location utilizes a vacant site previously operated by Marathon Petroleum Company (MPC) where the Flint Hills refinery was located. The MPC site has compacted gravel, concrete foundations, and several vacant buildings available to the NPCHP project. Newly built LNG infrastructure owned by the Interior Gas Utility (IGU) is also available across the road from the MPC site which will provide LNG for consistent power and heat generation. Construction activities planned are to modify existing foundations and buildings and construct new buildings as needed to house the NPCHP engines, heat recovery system, and power generation equipment. Construction is also required to connect the plant to the IGU LNG infrastructure and build the district heating system to move the heated water to clients and city utilities.



Location and Current Energy Challenges:

The CoNP is situated in the interior of Alaska in the Fairbanks North Star Borough (FNSB). The population of the CoNP is 2,243, according to the 2020 U.S. Decennial Census [3], and the city sits between Fairbanks, AK, and Eielson Air Force Base (AFB). Alaska has the second-highest electricity and fuel costs in the country due to its harsh winters and energy-intensive oil and gas industry, with the per capita total energy consumption being the fourth highest in the nation [4]. The total annual energy cost in the region is an average of \$4,000 per year, with single-family homes paying over \$5,000 per year. Heating is primarily based on diesel fuel, which fluctuates widely in cost. These prices continue to increase due to supply chain issues, especially after the COVID-19 pandemic. The harsh climate in the CoNP poses significant heating and energy challenges for the population, with average winter temperatures falling below 0°F and low temperatures of -40°F, or colder, normally occurring [5]. To prevent city water and sewer pipes freezing, approximately \$750,000 per year is spent on heating (or \$30/MMBtu). The city's already high electricity costs have risen to 26¢/kWh as of Sep. 2022.

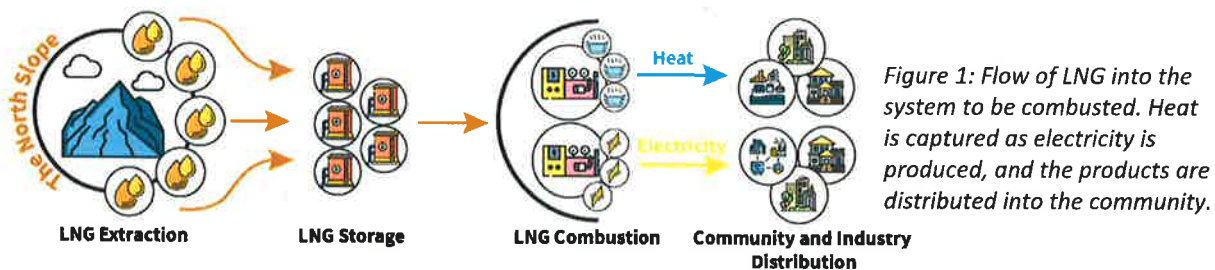
The predominant fuels in use in rural Alaska are Heavy Fuel Oil (HFO) and diesel for home heating and power generation. GVEA produces most of the power for the city and region from HFO and diesel at the GVEA North Pole Plant. The cost of HFO exceeds \$3 per gallon, not including transportation, with significant greenhouse gas emissions and air contaminants being emitted from burning this fuel, causing environmental harm and human health issues [6]. Diesel costs exceed \$4 per gallon in Alaska and has similar environmental and human health concerns as burning HFO [7]. Due to the cost and availability of HFO and diesel, many citizens also utilize cheaper wood-burning stoves to heat their homes, leading to further environmental degradation [1]. The regional heating and energy needs have caused the area to be designated as an EPA serious nonattainment unit for PM_{2.5} emissions, posing significant threats to human and environmental health. According to the Fairbanks Chamber of Commerce, wood smoke has been identified as a primary contributor to PM_{2.5}, contributing nearly 90% of the health-threatening pollution that disproportionally impacts rural and remote populations within Interior Alaska [8]. The GVEA North Pole Plant is also considered one of the CoNP's largest point sources of PM_{2.5} and other emissions.

The NPCHP project is a comprehensive solution to multiple challenges facing the CoNP and the surrounding region. By utilizing existing infrastructure and buildings, as well as LNG resources, the project will generate both heat and electricity for industrial, residential, and utility customers, resulting in a significant reduction in electricity generation and thermal energy costs of 20-40% compared to heating oil and other resources. The project will also reduce emissions of CO₂ and contribute to the transition to renewable energy technology, thereby reducing dependence on oil-based energy and decreasing the contribution to the PM_{2.5} nonattainment unit. This will also allow GVEA to choose to place older and inefficient generation methods on standby, reducing emissions to the PM_{2.5} serious nonattainment unit. The project will introduce additional economic opportunities for the rural area by utilizing waste heat and CO₂ emissions to grow produce in an adjacent greenhouse facility and selling CO₂ emissions from the LNG engines to interested partners. Overall, the NPCHP demonstration project represents a promising step towards a more sustainable and resilient energy future for the CoNP and the surrounding region, with far reaching implications for rural communities across Alaska.



DEMONSTRATION PLAN

The NPCHP configuration consists of sole purpose linear infrastructure connecting LNG input from IGU infrastructure located approximately 200 yds from the proposed site to the plant. The proposed plant is made up of two 9 MWe LNG-fired combustion engine generators, each equipped with heat recovery on the engine cooling loops and exhaust trains that would provide heat to a glycol/water circulation system, heating water to approximately 200 degrees. The heated water would then be distributed to customers connected to the district energy system. The system has been designed with a 20-year useful life. The development of the plant is based on an engineer/procure/construction management contracting approach and will utilize multiple subcontracts made up by the project team and organizations to be procured in the future. Current commercial versions of each applicable technology were incorporated into the NPCHP plan, allowing for a reduction in cost, risk, schedule time to engineer and construct, and providing repeatability for emissions permitting in other jurisdictions. Project development has already been aided by the generation of the pilot plant study conducted by the UAF. The figure below demonstrates the anticipated process for the plant and distribution of heat and energy products (Figure 1).



Project Costs and Timeline:

The estimated total cost for the project is \$80 million. The monetary request from the DOE is \$50 million. The CoNP is eligible for a reduced match of 20% for the project costs, and the match will be met with the valuation of the existing land and infrastructure available. The existing infrastructure at the MPC North Pole Terminal (which will be supplied as in-kind contribution) is valued at approximately \$30 million and is comprised primarily of a 20-acre gravel pad and some infrastructure that will be repurposed and incorporated into this project. Final design, construction, equipment, costs to retrofit existing infrastructure, and startup fuel are projected to cost a total of \$40 million. Additionally, it is expected that the construction of the district heating system that will distribute the waste heat to NPCHP customers will cost \$10 million.

The NPCHP project is anticipated to take 16 months from the time of the award agreement to full operations. This streamlined project schedule is due, in part, to the pre-existing work that has been done on the pilot study prior to this application for funding. Funding is requested for Engineering, Permitting, and Construction (EPC) contracts. EPC tasks include site surveying, building erection and installation of equipment, and simultaneous installation of the district heat system to the city utilities and other customers. As required by the pilot study, an "Environmental Volume" documenting the required permits has been completed but permit applications have not yet been prepared. Plant startup is the final stage of the project and includes the initiation of operations. See the anticipated project schedule below (Figure 2).



North Pole Combined Heat and Power Plant Timeline

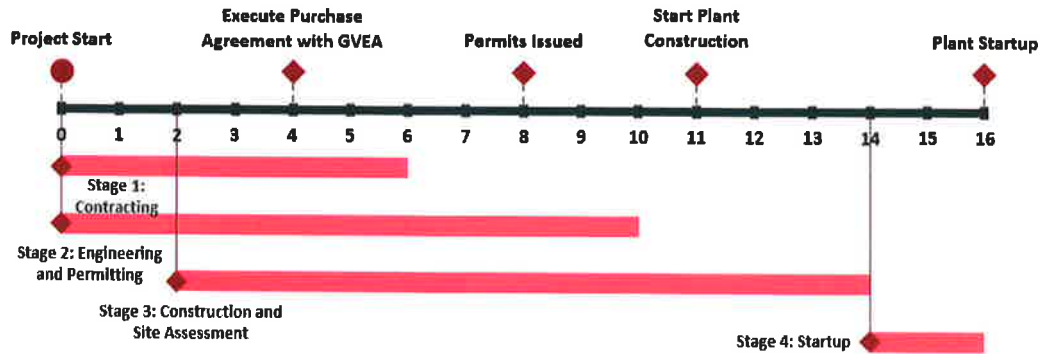


Figure 2:
NPCHP
Project
Timeline and
Milestones,
totaling 16
months.

Key Risks, Challenges, and Mitigation Strategies:

Large and complex infrastructure projects inherently carry risks due to factors such as labor, supplies, and other unforeseen challenges (noted below), which can result in delays and scope creep, and affect the project's development timeline. Therefore, contingencies are included in the cost estimate. Project contingency has been applied at 20 percent of "Bare Erected Costs" plus EPCM plus process contingency. (Thus, project contingency is applied to process contingency.) This is based on the current level of design development/definition and the approach employed in developing the bulk of the cost estimate. Experience has shown that such costs are likely and expected and will be expended by the end of the project.

Nonattainment area restrictions: The NPCHP is a new energy production facility in an EPA designated serious nonattainment area for PM_{2.5}, which entails stringent permitting requirements. The Alaska Department of Environmental Conservation (ADEC) is required to regulate permitted sources to reach attainment and alleviate environmental risks to public health and safety in the FNSB. New sources are required to install the best available control technology (BACT) and most stringent measures (MSM) in the production system to meet attainment requirements, which can slow down permitting. However, the NPCHP team has been proactive in mitigating this risk by designing the process to include BACT capable of meeting the MSM and other standards. The process utilizes commercially available technology that is efficient and clean. The plant is designed to significantly reduce PM_{2.5} emissions and help the FNSB reach attainment by enabling GVEA to place old and inefficient technology on standby at the CoNP's largest point source, should GVEA decide to do so.

Marathon North Pole Terminal contaminated site: The project's proposed site is the previous location of the Flint Hills Refinery, which produced petroleum products. The ADEC currently lists the property as an active contaminated site, and it is known to be contaminated with sulfolane, PFAS, and petroleum constituents [9]. The construction and operation of the NPCHP are subject to the conditions of the Restrictive Covenants of the property. The project team has conducted a Phase II Environmental Assessment and concluded that the project can be constructed within those terms, due, in part, to the existing foundations and building infrastructure built prior to MPC. The project team also possesses the expertise to resolve issues encountered by this risk, and MPC has identified that the location of the proposed project site on the property does not have contaminated soil.



Liquid Natural Gas (LNG) infrastructure: During previous planning for this project, concerns were raised about the LNG infrastructure that would be available to provide a consistent and cost-effective supply of LNG for Phase 1 of the plant. However, Interior Gas Utility (IGU) has recently built significant infrastructure in the CoNP and the FNSB, and secured additional long-term LNG supply commitments, making it possible to develop this project and use LNG cost-effectively.

Labor supply: The availability of construction labor in the U.S. is currently a challenge faced by all complex construction projects, which is further stressed by Alaska's remote nature. Nevertheless, the project team is committed to paying prevailing wages and will use the typical 60–70-hour workweek often employed in Alaska during the construction season. The team will also seek construction firms with local experience and knowledge that have good standing with the local labor organizations to mitigate the challenges of finding available labor.

Impact of DOE Funding:

The CoNP is a community of less than 2,500 people that is significantly impacted by the Department of Defense due to its proximity to neighboring bases. The United States Air Force and Army have identified housing as a critical need for national defense operations within the region, with an expected need of an additional 240+ homes. Consequently, the city is expected to experience unprecedented growth through FY30 [10, 11]. This growth will bring immediate community and military housing needs, which will put more pressure on the already serious nonattainment status for PM_{2.5} standards of the current energy and heating infrastructure in the region. However, the CoNP is working to maintain the quality of life for current and future residents without increasing emissions, costs, and significant taxes for the community. DOE funding to develop the NPCHP project that benefits the community by providing more resiliency to cost fluctuations in heating oil and diesel, and helps the city play a significant role in reducing PM_{2.5} emissions in an EPA designated serious nonattainment area without significantly raising taxes and the debt service of the city. This, in turn, improves the health and safety of the community while meeting the housing and development demands of the region.

Operations, Maintenance, and Future Plans:

The project team has conducted a pilot plant study and has a strong understanding of the operations and maintenance requirements for the NPCHP. The system has been designed with a 20-year useful life in mind and operations and maintenance were calculated by Worley based on that assumption. The team has already begun planning for those requirements and has brought on Aurora Energy (Aurora), an organization with industry expertise that will provide skilled labor and safe and efficient operation of the facility. Aurora has been operating a similar power generation and district heat system on the UAF Campus and understands the ins and outs of operating a CHP plant with district energy system in subarctic conditions.

The CoNP and the project team have spent time engaging with GVEA and potential customers and Energy Purchase Agreements for power and heat are being negotiated and are expected to be completed in the second quarter of 2023. Identified customers for both heat and power include a 20-acre greenhouse that will be co-located with the NPCHP, the on-site MPC facilities, the CoNP water and sewage utilities, a nearby planned subdivision comprised of 240+ residences, and the region. GVEA is also included in the project as the regional electric utility that has expressed interest in purchasing power from NPCHP to help meet its power supply needs that



includes the North Pole. Cash flow projections are provided below, demonstrating the economic and financial viability of the plant (Table 1).

Projected Cash Flow of the NPCHP						
	2025	2026	2027	2028	2029	Total After 20 Years Operation
Plant Revenues	\$17,108,638	\$17,550,949	\$18,005,142	\$18,471,519	\$18,950,392	\$ 763,574,700
Total Operating Costs	\$ 6,655,398	\$17,065,783	\$17,486,727	\$17,918,481	\$18,361,298	\$ 728,961,350
Net Operating Income	\$ 453,240	\$ 485,166	\$ 518,414	\$ 553,038	\$ 589,094	\$ 34,613,351
Total Incentives	\$ 2,600,802	\$ 2,600,802	\$ 2,600,802	\$ 2,600,802	\$ 2,600,802	\$ 28,607,901
Total Income	\$ 3,054,042	\$ 3,085,968	\$ 3,119,216	\$ 3,153,840	\$ 3,189,896	\$ 63,221,252

Table 1: The projected cash flows depict the first 5 years of operation and the total after 20 years of operation. Total Operating Costs include O&M expenses and fuel costs. Incentives refers to the estimated tax and other incentives stemming from clean energy generation and the IRA. These are assumed to only last for the expected 12 years of the stated IRA time period and reflect the lowest possible level of incentive for this plant. Total Income is Net Operating Income plus Incentives.

Once the project has been developed and is operational, the CoNP's long-term vision to sustain and maintain the project is to seek additional funding and further expand upon the plant with a Phase 2 gasifier and syngas combustion engine system. Phase 1 of the project represents a significant improvement to the health and safety of the airshed and the progress towards a more sustainable energy system. Nevertheless, it also does not fully solve the need for reduced energy and thermal costs for all constituents in the community, and it does not meet all of the development demands being placed on the city. The city and project team's vision are to build a facility that is scalable and modular, so it can be easily expanded to improve energy resilience in the future and employ new technologies and fuel types to diversify the system technology.

There is further potential for the system to be based on other fuel sources, including coal and biomass generated syngas. In Phase 2, the project team intends to bring on industry leaders in syngas technology by partnering with Worley and HMI. These organizations were major contributors to the original pilot study for the plant. The use of LNG and syngas significantly reduces energy burdens of diesel-reliant communities and provides clean emissions by using the waste heat and CO2 emissions in community and commercial greenhouses, which is of significant value in Alaska where food security is an important issue. The inclusion of greenhouses and growers as customers provides an opportunity for making these facilities effectively net zero CO2 producers through the beneficial use of CO2, which may allow the CoNP to take advantage of the Inflation Reduction Act (IRA) tax credits to further reduce operating costs and maintain a reduction in electricity and thermal costs for customers and the CoNP. Further, the homes and businesses connected to the district heat system may be considered net zero for emissions since the emissions will be credited back to the NPCHP plant, and heavily controlled. The compares favorably with 240+ individual fuel burning, home heating appliances, especially those relying on wood and diesel.



MANAGEMENT AND ORGANIZATION

The proposed NPCHP project team is a multi-disciplinary group of industry experts with decades of combined experience in electricity generation research, energy infrastructure development, and power and utility distribution. The CoNP is project owner and lead project manager, with unique experience in developing and maintaining robust city infrastructure despite facing many community and economic development challenges due to the harsh climate, and the housing demands stemming from the city's location near Eielson AFB. The city has spent years developing partnerships with the project team shown in the Summary Organization Chart (Figure 3).

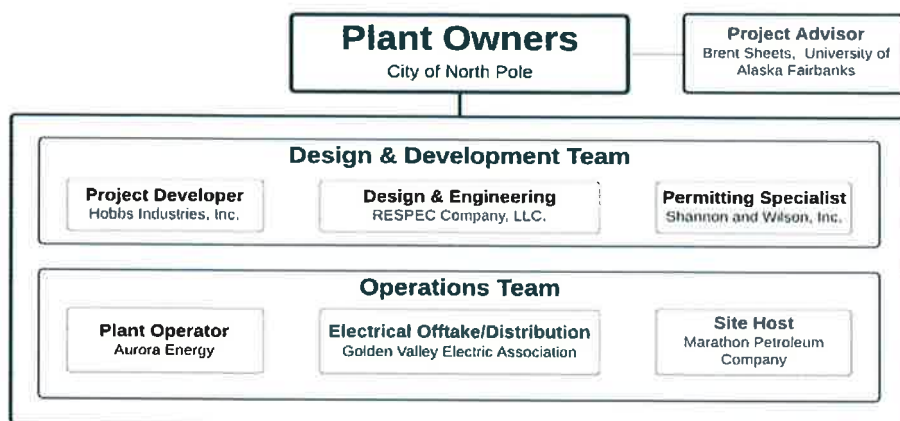


Figure 3: Summary organizational chart of the project team.

Key Project Partners' Qualifications, Skills, and Expertise

City of North Pole – Project Owner and Lead Project Manager: The City of North Pole is a home rule city located in interior Alaska. The city is headed by Mayor Michael Welch, who has served as mayor since 2018, has served as an elected official since 2005, and has a background in air traffic control and accounting. Mayor Welch oversees a council of six elected members that conduct the governing business of the city. The city currently manages and operates multiple utilities and municipal facilities, including piped water and sewer, a police department, and a fire and ambulance fire station. The Public Works Department is headed by Robert (Danny) Wallace, PhD, a retired veteran with decades of experience in planning and logistics. With experience gained through managing and developing public utilities, the city is well-equipped to oversee the project and develop the NPCHP plant for the citizens of the CoNP.

Hobbs Industries, Inc. – Developer: Hobbs Industries, Inc. is a local independent engineering consulting firm headed by Randy Hobbs, the technical point of contact for the project. Hobbs is knowledgeable about the Fairbanks area power generating sources and utility requirements, making him the ideal lead developer for this project. He has experience with the Regulatory Commission of Alaska and provided guidance in selecting the best reciprocating engines for the DOE Combined Heat and Power (CHP) project study in 2022, as well as contributed countless iterations of economic analysis. Hobbs Industries has also worked previously with Brent Sheets at the UAF and Aurora Energy on energy development projects in the Fairbanks region.

RESPEC Company, LLC. – Engineer: RESPEC is a global company working in 50 countries, 40 states in the US, and 3 Canadian provinces. RESPEC is a leader in diverse technologies and draws from a wide array of expertise, products, and services to deliver world-class solutions for business, mining, energy, water, natural resources, urban development, infrastructure, and enterprise



services. RESPEC is a leader in planning and designing greenhouse gas (GHG) mitigation and carbon capture, utilization, and storage projects and has been working alongside several agencies on projects in this field.

Shannon and Wilson, Inc. – Permitting Specialists: Shannon & Wilson is an employee-owned consulting firm founded in 1954 and headquartered in Seattle, WA. Committed to technical excellence and high-quality service, they provide integrated geotechnical engineering, engineering geology, environmental, and natural resource services for clients worldwide, and are permitting specialists in the U.S. geopolitical landscape.

Marathon Petroleum Company – Site Host: Marathon Petroleum Corporation (MPC) is a leading, integrated, downstream energy company that operates the nation's largest refining system. Marathon is the current owner of the Flint Hills Refinery site in the CoNP and a potential customer of power and heat generated by the NPCHP. The CoNP is working to establish an MOU with Marathon for using the project site and currently available infrastructure.

Aurora Energy – Plant Operator: Aurora Energy is a local (Fairbanks) electric generating company and a subsidiary of the Usibelli Coal Mine (UCM) that provides power to GVEA and district heating to downtown Fairbanks.

Golden Valley Electric Association – Electrical Offtake: Golden Valley Electric Association (GVEA) is the regional electric cooperative which operates and maintains 3,261 miles of transmission and distribution lines, 35 substations and 9 generating facilities. The system is interconnected with multiple military bases, the University of Alaska-Fairbanks, and all electric utilities in the Alaska Railbelt. The CoNP is working with GVEA to establish a purchase agreement for power.

Brent Sheets, University of Alaska Fairbanks – Advisor: Brent Sheets is the Director of the Petroleum Development Laboratory (PDL) at the University of Alaska Fairbanks, which works to engage the oil and LNG in Alaska in the conduct of research and developing high value analytical products that support economic development. More broadly, he is involved in research that supports resource utilization and development throughout the state. Brent was the Principal Investigator for the initial DOE funded CHP study (DE-FE0031601) and continues to be an advisor on the team.

COMMUNITY BENEFITS PLAN

Meaningful Community and Labor Engagement

The CHP project fosters positive community and end-user engagement by providing lower cost energy options for customers including the MPC Fuel Depot, which will provide the site for the plant, and the CoNP for heating its water and wastewater system to prevent it from freezing and district heat for a nearby housing development consisting of 240+ residences (about 500,000 sq. ft.) and commercial space (about 200,000 sq. ft.). Current residents are also interested in the project as it can reduce their electricity and heating costs, enhancing energy security [12]. The NPCHP project not only enables economic development, but it has the potential of doing so without adverse impact on air quality, indeed, the project may even offset some existing emissions, provided GVEA idle its older power generating units in favor of purchasing power from this pilot project.



The project has a strong relationship with several partners, including RESPEC Company, Shannon & Wilson, MPC, Aurora, GVEA, UAF, and Hobbs Industries. These partners continue to be stakeholders and supporters of the project. The CHP Project Team plans to work engage labor unions, worker organizations, emergency service providers, and community representatives to ensure the preparedness and protection of both residents of the CoNP and CHP workers. Aurora, the NPCHP operator, directly hires its workforce from the International Union of Operating Engineers, Local 302 (Local 302), based in Washington with an office in Fairbanks. Local 302 represents 14,000 men and women performing Hoisting & Portable (construction) and Stationary (building service maintenance, healthcare roles, public sector roles, etc.) operations in Washington, Idaho, and Alaska [13].

Creating Good Local Jobs and Supporting a Skilled Workforce

The CHP project is expected to create local jobs and support the skilled workforce associated with the development and maturing of the oil and gas production sector in Alaska, providing cost savings for workforce hiring and training. The project, along with the associated district energy system, is expected to create about six full-time highly skilled jobs ranging from about \$80,000 to \$150,000 per year, short-term construction positions, long-term plant positions, and more than 100 long-term greenhouse operations positions. The NPCHP project also has the capability to train the workforce and provide apprenticeships. Aurora and Local 302 only employ qualified operating engineers. To achieve this, the union provides a training facility, Alaska Operating Engineers Employers Training Center, in Palmer, AK, and an office in Fairbanks to provide training and formal apprenticeship programs to create a stronger, safer, and more diversified workforce [13]. The partnership with UAF can also include using the construction and new technology at the plant for training the next generation in energy technology and how to manage an energy plant in a serious nonattainment area location.

Advancing Diversity, Equity, Inclusion, and Accessibility

The CHP project team recognizes the importance of diversity, equity, inclusion, and accessibility in all aspects of the project, including workforce development, training, and community engagement. The team is committed to ensuring that the project benefits all members of the community, including historically marginalized and underrepresented groups. To achieve this goal, the team plans to work with local organizations, such as the FNSB Diversity Council and the FNSB Equal Opportunity Commission, to identify and address any barriers to participation and ensure that everyone has equal access to the benefits of the project.

In addition, the project team will prioritize hiring locally and working with labor unions and worker organizations to ensure that the jobs created by the project are accessible to all members of the community, regardless of background or experience. As mentioned above, Aurora hires its workforce from Local 302. Aurora and the CoNP expect Local 302 to have and maintain a Diversity, Equity, Inclusion, and Accessibility (DEIA) policy for its members. The Union Agreement states it will ensure “to recruit, train, and employ members of the minority groups as defined by the Office of Equal Employment Opportunity” [13]. All parties agree there will be no unlawful discrimination in hiring, referral, or any aspect of employment. All employee concerns, including those that neglect the DEIA policy, are taken directly to the union and discussed between the employer and the union. The training facility operated by Local 302 also upholds the same DEIA policy as the union; the center will not discriminate against apprenticeship applicants or



apprentices based on race, religion, color, national origin, sex (including pregnancy and gender identity), sexual orientation, genetic information, or because they are an individual with a disability or a person 40 years old or older. They will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29 of the Code of Federal Regulations, part 30 [13].

The Justice 40 Initiative

The NPCHP project is well positioned to deliver meaningful energy savings to the CoNP community while also helping GVEA meet power supply needs that benefit the entire region. End users such as single and multi-home residents, businesses, and military personnel will benefit from lower electricity costs, increased spending power, improved energy efficiency, and improved operational reliability and resiliency [14]. A resident using 600 kWh of energy per month, provided by GVEA, currently pays an average of \$170 per month for electricity [15] and uses an average of 300 gallons per month of heating fuel of about \$1,200 per month.

The CoNP is not identified as having an environmental justice population and is not considered a disadvantaged community since it does not have a minority population exceeding 50% of the total population or a meaningful concentration of minority or low-income residents when compared to that of the FNSB or the State of Alaska. However, the environmental benefits of the project will span Interior Alaska as lower PM_{2.5} and CO₂ emissions will allow for better air quality in the region. Since the FNSB is designated as a serious nonattainment area for PM_{2.5}, the shift to LNG from other fuel burning will significantly reduce PM_{2.5} and other emissions in the airshed and provides GVEA with an option to place old and inefficient diesel-fired units in standby, significantly reducing its power supply costs and eliminating the largest emission point source to the CoNP airshed.

The project team acknowledges that LNG produces carbon emissions. However, compared to the current local energy sources (diesel) used in North Pole, LNG has significantly lower emissions. The project also allows for the implementation of a carbon capture program for a 20-acre greenhouse that will be built adjacent to the plant to make beneficial use of CO₂ as fertilizer. The greenhouse will create more temporary and permanent jobs, lower food production costs for the CoNP and surrounding area (including Alaska Native communities) and provide fresh food for local military bases. With approximately 95% of Alaska's food imported into the state, greenhouses will reduce the state's dependence on imported food and increase food security [16]. Furthermore, CHP systems are ideal for meeting greenhouses' unique electricity, thermal, and CO₂ requirements [17]. While a detailed CO₂ emission estimation has not been completed, it is expected that combining the CO₂ offsets associated with displacing inefficient oil-fired generation, the beneficial use of waste heat and CO₂ for greenhouses and displacement of oil and wood-fired heating appliances, this overall project can achieve a "net-zero" carbon footprint.

Furthermore, this project's potential for replication in other areas, such as diesel-reliant communities and other disadvantaged rural communities, is significant. By implementing a Phase 1 LNG CHP plant or a Phase 2 LNG/syngas CHP plant and greenhouse system, oil-dependent communities may be able to transition their energy needs at a faster rate. Between 2011 and 2019, many U.S. fossil fuel power plants have been repurposed to burn other types of fuels, many of which were converted to or replaced by LNG-fired plants [18]. As technology improves, engines



running on LNG can be modified to run on renewable fuels such as hydrogen, or synthetic fuels such as syngas, potentially reducing the cost of energy projects by only upgrading the engines while keeping transmission lines, electric substations, access roads, and railroad lines intact. The plants can also add supplemental renewable energy resources, such as solar and biomass, to take advantage of CHP and district energy infrastructure already in place. The CoNP and the project team have identified several Alaskan cities and Tribes that could benefit from the use of LNG and/or syngas CHP plants including but not limited to Delta, Nenana, Tok, Glennallen, Nome, Kotzebue, Bethel, Seward, Valdez, Talkeetna, Cordova, Cantwell, and Denali Park.

Overall, the CHP project is a model for how energy projects can be designed and implemented to benefit both the environment and the community, while also advancing diversity, equity, inclusion, and accessibility. By working collaboratively with partners, stakeholders, and the community, the project team is creating good local jobs, supporting a skilled workforce, and delivering meaningful energy savings to the CoNP community, while also reducing CO₂ emissions, harmful PM_{2.5} emissions, and improving overall air quality in the region.

REFERENCES

1. Alaska Department of Environmental Conservation, *EPA Rejects Fairbanks/North Pole Air Quality Improvement Plan*. 2023, State of Alaska,.
2. Canadian Gas Association. *Greenhouse Operations with Natural Gas Combine Safe and Secure Food Supply with Near-Zero Carbon Footprint | Canadian Gas Association*. 2023 [cited 2023; Available from: <https://www.cga.ca/energy-magazine-post/greenhouse-operations-with-natural-gas-combine-safe-and-secure-food-supply-with-near-zero-carbon-footprint/>].
3. U.S. Census Bureau. *North Pole city, Alaska - Census Bureau Profile*. 2023; Available from: <https://data.census.gov/profile?g=160XX00US025591>
4. U.S. Energy Information Administration. *Alaska State Profile and Energy Estimates*. 2023.
5. FNSB Emergency Management, *Multi-jurisdictional Hazard Mitigation Plan*. 2021, Fairbanks North Star Borough,; fnsb.gov.
6. U.S. Energy Information Administration. *U.S. Residual Fuel Oil Wholesale/Resale Price by Refiners (Dollars per Gallon)*. 2023 [cited 2023; Available from: https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PWG_NUS_DPG&f=M].
7. American Automobile Association. *AAA Gas Prices*. 2023; Available from: <https://gasprices.aaa.com/?state=AK>.
8. Greater Fairbanks Chamber of Commerce, *Support HJR 11 Address Air Pollution in Fairbanks*. 2023, State of Alaska Legislature,; akleg.gov.
9. Alaska Department of Environmental Conservation. *North Pole Refinery*. Contaminated Sites 2020 [cited 2023; Available from: <https://dec.alaska.gov/spar/csp/sites/north-pole-refinery>].
10. Alaska Industrial Development and Export Authority, *Resolution No. G22-02*. 2022, AIDEA: aidea.org.
11. The Associated Press, *Alaska communities prepare for incoming F-35 squadrons at Eielson Air Force Base*, in *Air Force Times*,. 2019, Air Force Times,; airforcetimes.com.
12. Agnew::Beck Consulting, *City of North Pole Comprehensive Strategic Plan 2016-2021*. 2016, City of North Pole,.
13. IUOE Local 302. *IUOE Local 302*. 2023; Available from: <https://www.iuoe302.org/>.
14. U.S. Department of Energy: Office of Energy Efficiency and Renewable Energy, *Combined Heat and Power Technology Fact Sheet Series*. 2018, U.S. Department of Energy,; energy.gov.
15. Golden Valley Electric Association. *Rates*. 2023 [cited 2023; Available from: <https://www.gvea.com/services/rates/>].
16. Office of Governor Mike Dunleavy, *Administrative Order No. 338 - Mike Dunleavy*. 2023, gov.alaska.gov.
17. U.S. Department of Energy: Better Buildings Solution Center, *CHP Market Sector: Greenhouses*. U.S. Department of Energy,; energy.gov.
18. U.S. Energy Information Administration *More than 100 coal-fired plants have been replaced or converted to natural gas since 2011*. Today in Energy, 2





April 24, 2023

Danny Wallace
Director of City Services
City of North Pole
125 Snowman Lane
North Pole, Alaska 99705

Dear Mr. Wallace:

RE: Fee Proposal – North Pole Combined Heat and Power Plant, Scoping Study

PROJECT BACKGROUND

The City of North Pole is pursuing grant funds to design and construct a Combined Heat and Power Plant (CHP) as well as a district heat storage and distribution system. They have reached out to RESPEC to provide a scope and fee to support the design and construction of this facility. This information will be included in the grant application in June 2023.

The City has partnered with a multi-disciplinary team of researchers, engineers, and industry experts to develop a project plan which was finalized in August of 2022. The proposed CHP location is on the Marathon Terminal property adjacent to GVEA and IGU facilities. The proposed CHP will include a modular and scalable system of natural gas fired engines, a heat recovery system, and ancillary power equipment to generate economically priced district heat and power. Heat and power can be provided to the city and customers around North Pole, AK, while lowering emissions in a serious PM_{2.5} nonattainment area.

RESPEC is familiar with the site and with the City of North Pole; having a 50-year history of providing design and construction administration services on various water, sewer and facility projects for the City. RESPEC is also intimately familiar with the IGU LNG storage and regasification plant adjacent to the property since we designed and helped to commission the plant in 2020.

We are teaming with Stanley to provide grant materials for the process power design and cost estimating services since they have experience with other gas fired CHPs in Alaska as well as the recently constructed coal-fired power plant at UAF. Similarly, permitting services we intend to team with Boreal Environmental Services for defining the permits and associated costs. Their consultants are familiar with the air quality conditions in the project vicinity and they have permitted other projects in the interior including the UAF power plant.

SCOPE OF SERVICES:

In order to prepare a scope and fee for this project, there is some front-end engineering work necessary. This will define the shape and size of the project which is important for estimating the budget for the grant.

For this scoping phase the RESPEC team will prepare a scope and fee for the following services:

- Provide programming services to assist with the grant application. This will include a review of engine size as well as conceptual site layout for the plant and district heat pipe routing.

1028 AURORA DRIVE
FAIRBANKS, AK 99709
907.452.1414

respec.com



- Review current construction pricing to validate project estimate for budget.
- Estimate Professional Services
 - Design Phase (35%, 65%, 95%, and Final)
 - Permitting for Air Quality
 - Procurement of Long Lead items:
 - Building
 - Gas Fired Engines
 - Heat Recovery Boiler
 - Medium Voltage Transformers
 - Bid Phase
 - Construction Management and Administration
 - Procurement of 3rd Party Commissioning Agent
 - Professional Commissioning Support
 - Warranty Phase
- Participate in weekly project meetings between now and the grant submission in June.

SCHEDULE

All above deliverables will be submitted to the City by June 15, 2023. This will provide 2 weeks for review and updates ahead of the grant application deadline.

FEE SUMMARY

We propose providing these services for a lump sum price of \$30,000.

Thank you for this opportunity; we look forward to beginning this work. Please call if you have any questions or comments.

Sincerely,

Karen Brady, PE
Vice President

ACCEPTANCE OF PROPOSAL

Please return signed if acceptable. The return of this signed document will constitute our Notice-to-Proceed unless otherwise indicated.

Name: _____

Title: _____

Date: _____

City of North Pole Strategic Plan Update	Shelly Wade		Molly Mylius		Total
February - May 2023	hours	rate	hours	rate	
Estimate from Agnew::Beck Consulting, submitted on 2/10/23		\$190		\$140	
Task					
1. Project Start Up & Ongoing Management (Feb-May) A::B will manage the project and ensure ongoing communications with the City. This will include a kickoff meeting to confirm scope, timing, and identifying interviewees for Task 2.	2	\$380	4	\$560	\$940
2. Interviews and Initial Plan Review (Mar-Apr) Agnew::Beck will conduct up to ten interviews with City department heads, key leadership, and other critical community partners. The interviews will focus on usability of the 2016 Plan, status updates on Plan recommendations, and emerging priorities for the City over the next five years. Agnew::Beck will also conduct an initial review of recent City and regional plans for relevant content such as implementation of 2016 Plan recommendations and potential areas of interest for the Plan update.	4	\$760	14	\$1,960	\$2,720
3. Initial Summary of Findings (May) Prepare summary of recommendations and themes from interviews and the initial plan review. This will include a review of progress on recommendations in the 2016 Plan and recommendations on how to proceed with a Plan update. Convene a virtual meeting to present results to City leadership and facilitate a conversation around next steps.	2	\$380	8	\$1,120	\$1,500
TOTAL*	8	\$1,520	26	\$3,640	\$5,160

EXCLUSIONS + TERMS

Digital versions of all final materials will be submitted in an organized manner to the client for future editing, use and reproduction. Rights to final versions of all materials are transferred to the client upon conclusion of the project. A::B reserves the right to use any and all project materials for educational and marketing purposes. A::B reserves the rights to any draft or conceptual materials developed in the course of the project, or other materials specified in the terms of the contract.

* A::B reserves the right to move budget between tasks and staff so long as costs do not exceed the total budget.

This estimate is good for 90 days from the date of the estimate.



City Of North Pole 2023 Renewal Decision Summary Version 2

DECISION POINT	IMPACT (Based of 40 Employees Annually)	CLIENT DECISION
1. Meritain Renewal		
1a Accept Meritain Administrative Renewal at Proposed Fees	2% Increase, approximately \$768 annually due to reinsurance administration fee no longer being waived (\$1.60 PEPM)	
1b Rx Smart Savings: Maintain or discontinue	Reduces \$1.50 PEPM or approximately \$720 annually	
1c Healthy Merits Programs: Maintain or discontinue	Reduced \$4.50 PEPM or approximately \$2,160 annually	
1d Biometric Screening: Maintain or discontinue	Paired with Healthy Merits: \$190 Per Participant; Independent \$220 Per Participant	
1d.1 Include Payroll Deduction Incentive or Surcharge	Drives behavior to participate which increases likelihood of preventing diseases or catching them earlier if a member wouldn't otherwise obtain their preventive panels	
1d.2 Alaska Airline Mileage Giveaway	"Carrot" approach to participate	
1d.3 Allow buy-up Options at Employees Expense (Must elect and pay at time of registration)	No cost to the City, allows additional panels should the employee wish to add	
1e Livongo: Maintain or Expand to Whole Person Solution (Paid by City)	Current: \$75 PPPM / \$167 Replacement Glucometer Proposed: \$70 - \$120 PPPM	
2. Medical Plan Provisions		
2a Maintain as is	No proposed changes	
2b Adjust Out of Pocket Maximum to \$3,000 Individual / \$9,000 Family Currently: \$4,500 Individual / \$13,500 Family	Based on 2022 claims activity, there would be an increased cost of \$7,691.91 to the City.	
3. Adult Dental Plan Provisions		
3a Maintain Annual Maximum of \$1,500	No estimated claims impact	
3b Increase Annual Maximum to \$2,000	Estimated increase of \$3,000 annual claims cost	
3c Increase Annual Maximum to \$2,500 (Council Preference)	Estimated increase of \$3,500 annual claims cost	
4. Adult Vision Plan Provisions		
Maintain	No proposed changes	
5. Stop-Loss Insurance Renewal		
Renew with incumbent carrier, IOA Re	Fixed Cost: -1% or -\$3,084 annually Expected/Maximum Claims Cost: 3% increase	
6. RISQ Fees		
Accept proposed 10% over the next two years	2023: Increase from \$21,504 to \$22,584 annually, paid monthly; \$90 per month or \$1,080 annual increase 2024: Increase from \$22,548 to \$23,712 annually; paid monthly; \$94 per month or \$1,128 annual increase	
7. Mutual of Omaha		
Maintain STD, LTD, Group Life & AD&D, Voluntary Life & AD&D	Rate pass, next renewal 7/1/25	
8. Colonial Life Worksite Supplemental Benefits		
Maintain	Employee Paid Benefit	
9. Zywave Learning Management System		
Maintain / Renew	\$1,000 per year cost. No limit to users	
10. Employee Deductions (26 annually)		
CONSIDERATION: 2022 Decision - Increase Employee \$10 / Family \$20		
No change to deductions	Increase of 2% or \$11,776 - \$15,276 annually to City of North Pole, approximately \$295 - \$382 increase per employee annually	
10a Maintain \$33.08 Employee / \$110 Employee + Dependent per pay period		
2% Increase to Deductions	Increase of \$17.16 Employee and \$57.20 family annually City collects an additional \$1,807.52 annually	
10b New Deduction: \$33.74 Employee / \$112.20		
5% Increase to Deductions	Increase of \$42.90 Employee and \$143 family annually City collects an additional \$4,518.80 annually	
10c New Deduction: \$34.73 Employee / \$115.50		
10d Increase Employee \$5 / Family \$10	Increase of \$130 Employee and \$260 family annually City collects an additional \$8,840 annually, Net increase of \$2,936 - \$6,436	
Estimated cost to adopt all options: = \$11,776 + No Dental Enhancement Approximately \$295 Per Employee Per Year (PEPY) or \$11.35 per pay period With or without dental enhancement, expected increase = 2%		
Dental Annual Maximum Increase to \$2,000 = \$14,776 or approximately \$370 PEPY or \$14.23 per pay period Dental Annual Maximum Increase to \$2,500 = \$15,276 or approximately \$382 PEPY or \$14.69 per pay period		

Representative Name (Print)

Title

Signature

Date