

ITEM #: 10
DATE: 07-27-23
DEPT: ELEC.

COUNCIL ACTION FORM

SUBJECT: AMENDMENT TO ELECTRIC SERVICES NATURAL GAS SUPPLY CONTRACT

BACKGROUND:

The Power Plant typically burns between 8,000 and 12,000 MMBtu of natural gas daily in either of its two boilers. The natural gas, along with refuse-derived fuel (RDF), are combusted to generate electricity. On October 15, 2015, Macquarie Energy LLC was awarded a 5-year fixed price contract for the purchase of 12,000 MMBtu/per day of natural gas for Electric Services. Subsequently, a 3-year extension was added which brings the current contract period through December 31, 2023.

The contract has created efficiency, flexibility, and affordability in the purchase of a valuable commodity, ensuring that the City has reliable service while creating stable generation costs.

In consultation with the City's natural gas consultant, City staff has determined that between now and September is a prudent time to secure a price and add one to three years of supply to the existing contract. There are several aspects of a natural gas contract extension which need to be explained further. These include the price volatility, impact on electric rates, and impacts to the Resource Recovery utility.

The challenge in arranging a contract extension or soliciting bids on a new gas contract is determining the price at which to commit. In the natural gas market, quoted prices expire within a 24-hour period, which is less time than is necessary to provide notice of a City Council meeting and approve the contract.

When staff negotiated the original contract, the process was handled similarly to the sale of the City's bonds. The Council Action Form did not have prices, nor did it identify the preferred supplier. Bidders faxed their prices to staff hours before the City Council meeting and a summary report was handed out during the Council meeting where a decision was made. Although this approach provides competitive pricing between several suppliers at a single point in time, it may lock the City into a price that would have been much lower if solicited at a different time of the year.

For the 2024 contract, staff is proposing an alternative to the bid-and-award system previously used. The current contract has a fixed price for natural gas set at \$2.77 per MMBtu. Future price estimates for one-to-two years out show natural gas futures in the \$3.50 - \$5.60 MMBtu range. The prices are higher than the current contract for a variety of reasons: customer demand, supply constraints, production cost increases, the uncertainty related to the Russia-Ukraine war, weather forecasts, and other factors.

As these prices fluctuate between Council meetings, staff is requesting the authority to commit the City to a one-, two-, or three-year extension with a goal to keep cost increases to electric customers to no more than 5%. At current natural gas contract prices, the potential increase is dependent on market timing and the amount of gas purchased.

It is important to note that the daily gas allotment, if unused by the Electric utility due to scheduled or unscheduled outages, can be sold back to the market at spot prices. At times when the gas can be sold back and spot prices are high, this can be advantageous to the Electric utility. However, if the spot prices are very low, then the gas must be sold by the Electric utility to the market at a loss.

IMPACT TO ELECTRIC CUSTOMER BILLS:

The natural gas purchased by Electric represents more than 20% of the overall Electric utility budget. These natural gas fuel purchases (and sales, if they occur), along with the cost of purchased power from the market (and sales to the market) are summed monthly on a rolling 12-month basis, and are converted into an Energy Cost Adjustment (ECA). The ECA can be either positive or negative, and is an adjustment to the electric rates adopted by the City Council, applied to customers' bills each month. **The approved FY 2023/24 operating budget includes \$13,980,000 for the purchase of natural gas to operate the Power Plant. This amount reflects an anticipated 3% cost increase to Electric customers through the ECA compared to the current gas pricing of \$2.77/MMBtu.**

If, for example, staff was able to sign a natural gas contract at \$3.65/MMBtu for the purchase of 12,000 MMBtu per day, Electric customers would experience an approximately 7.2% increase in electric bills (as adjusted through the ECA) compared to the current gas contract (or an additional 4.2 percentage point increase compared to what was budgeted).

In another example, at \$4/MMBtu the increase to customers' electric bills would be closer to 10.2% (an additional \$3.5 million to the Electric Services budget). This rate sensitivity was first shared with City Council in a Manager's Alert memo dated August 16, 2022, and has been the topic of detailed discussion at EUORAB for the past year.

IMPACT TO RESOURCE RECOVERY/HAULERS/BOONE COUNTY LANDFILL:

The 12,000 MMBtu of natural gas per day that is currently procured is sufficient to operate the Power Plant's Unit #8. This larger unit can consume approximately 30,000 tons of RDF per year if RDF is available and the unit is operating continually. Unit #7 consumes up to 8,000 MMBtu/day which would consume closer to 20,000-24,000 tons/year of RDF.

Unit #8 is relied upon to operate more frequently by the Power Plant because it is able to dispose of RDF at a faster pace than Unit #7. If Unit #7 is operating because Unit #8 is unavailable, the volume of RDF produced oftentimes outpaces the ability to burn it all,

resulting in periods where Resource Recovery is unable to process all of the MSW which would result in additional material being diverted to the Boone County Landfill (BCL). Typically, this diversion is handled by instructing the haulers to transport MSW directly to the Boone County Landfill. It is possible, however to also accommodate this situation by increasing the reject rate at Resource Recovery.

If haulers are diverted, there are a variety of impacts: First, although haulers save \$5.50/ton on tipping fee costs at the Boone County Landfill compared to Resource Recovery, they must drive longer distances, resulting in higher labor and fuel costs. Second, the additional material being sent to the Boone County Landfill places additional pressure on the landfill operation (both in terms of using available capacity and the additional staffing the landfill needs to arrange to handle the influx of Story County garbage trucks). Third, recyclable material is not being removed from the solid waste through processing before it is landfilled.

Additionally, hauler diversions result in losses of revenue for the Resource Recovery operation since tipping fees are not being collected and RDF and recyclable materials are not being sold. Although there is less expense for Resource Recovery since it is not processing (less electricity and maintenance expenses), the fixed costs remain for the operation, and therefore the overall impact to the Resource Recovery utility can be significant.

ALTERNATIVES:

There are several alternative strategies that could be pursued to purchase the natural gas, each of which has different advantages and disadvantages. Under Alternatives 1, 2, and 4, the City Council would authorize staff to approve an amendment to the contract with Macquerie Energy LLC, Houston, TX, to extend the existing natural gas supply contract for a term of not less than one but not more than three years for the gas quantities described in each alternative.

If staff is authorized to approve such an amendment, staff would then report back to the City Council after the contract has been approved. The report would include staff's estimates of cost impacts to the Electric customers and Resource Recovery Utility. The alternatives are:

ALTERNATIVE # 1: Purchase 12,000 MMBtu/day

In this option, enough natural gas would be purchased to combust a theoretical 30,000 tons of RDF in a year, meaning that any diversions of refuse haulers to the landfill would only be the result of planned or unplanned outages at either the Power Plant or at Resource Recovery. This option provides the most predictability to Resource Recovery, along with the haulers and Boone County Landfill, but will likely result the highest cost alternative to Electric customers. Gas allotments that are not used for the day can be sold back on the spot market; however, this alternative results in very little of the utility's gas allotment being sold back.

It is important to note that the adopted FY 2023/24 Electric Fuels budget contains only enough funding to purchase this quantity of gas if it was at or below \$3.19/MMBtu. Based on current pricing, staff believes it is unlikely that gas can be secured at this price. If the 12,000 MMBtu/day was purchased at the anticipated price of approximately \$3.65/MMBtu, then the annual cost would be \$15,987,000, which exceeds the Electric Fuels budget by \$2,000,000. This excess cost would be offset by increased revenue from customers through the ECA; the result of this option is an approximately 7.2% increase in customer electric bills through ECA adjustments compared to the current natural gas contract.

ALTERNATIVE # 2: Purchase only 8,000 MMBtu/day

In this option, enough gas would be purchased to guarantee the operation of Unit #7 for the entirety of the year (or at a reduced load level on Unit #8). This would allow for 20,000-24,000 tons of RDF to be consumed by the Power Plant, at a minimum. This reduction in RDF throughput by approximately 1/3 would result in garbage haulers being diverted to the landfill approximately two days per week. These diversions would have the negative impacts to the haulers, Boone County Landfill, and the Resource Recovery operation as described earlier in this report.

Alternatively, Resource Recovery could adjust the later steps of the processing to allow for more rejects to be created from the MSW received. This would allow for the haulers to continue to unload at Resource Recovery and for the recyclables to be separated rather than being directly hauled to Boone County Landfill. BCL would receive a lower volume of waste compared to sending unprocessed waste directly to BCL.

If the 8,000 MMBtu/day could be secured at the anticipated price of \$3.65/MMBtu, the Electric Fuels budget would have approximately \$3.3 million remaining. This funding could be held in reserve and used in one of two ways:

- 1) To purchase additional gas on the spot market when the pricing is favorable (most likely in summer months), increasing the amount of RDF that could be consumed from time to time. The result would be consumption of some amount of RDF greater than 20,000-24,000 tons per year.
- 2) Alternatively, if the long-term contract pricing for natural gas was to drop considerably, the \$3.3 million could be used to purchase an additional supply of up to 4,000 MMBtu/day for the year. However, staff does not have confidence that such a dramatic price drop is likely to occur.

This option results in the least potential for electric bill increases, but results

in the greatest amount of material being sent to the landfill, impacting the haulers, Resource Recovery, and Boone County.

**ALTERNATIVE # 3: Purchase gas only on the spot market
(no secure gas contract)**

This option would eliminate the use of a secure contract and would require the daily gas needs to be purchased on the spot gas market. **The Electric Utility would be subject to considerable volatility in gas prices, particularly in the winter months when demand for gas is the highest. It is not possible to project the potential cost to customers for this alternative.**

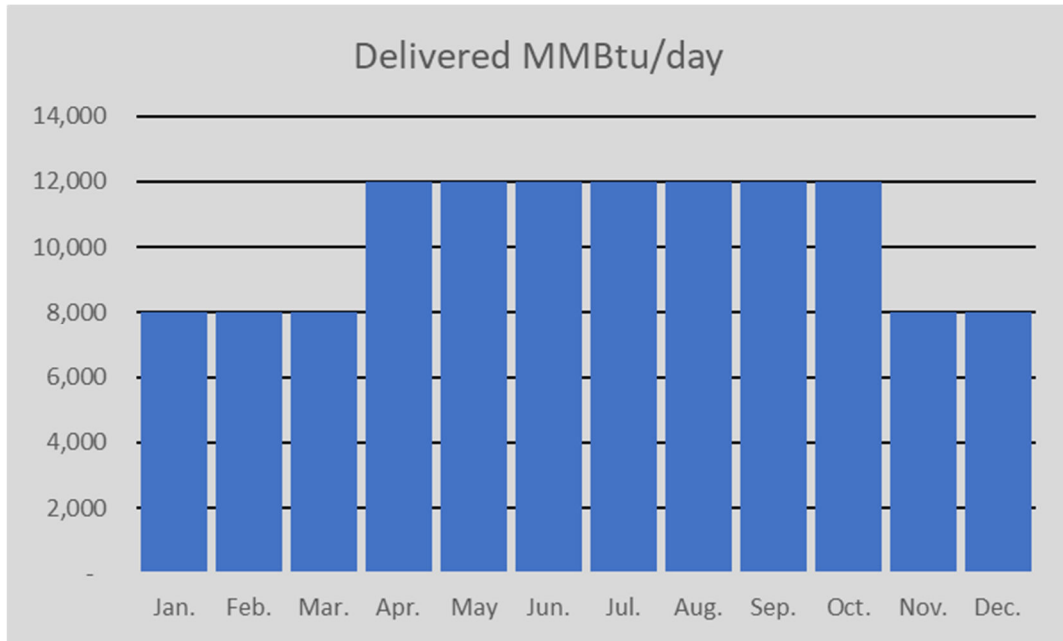
Because of the time required to startup and shutdown the Electric boilers and Resource Recovery operation, it would not likely be feasible to plan for purchasing electricity on the market when electric grid prices are low and burning RDF only when electric grid prices are high. Therefore, this option exposes the City to extreme volatility with little potential benefit. The only real benefit that can be seen today is that spot gas prices have remained below \$2.75/MMBtu since early February 2023.

ALTERNATIVE # 4: Purchase 8,000 MMBtu/day for November through March, and 12,000 MMBtu/day for April through October at a cost not to exceed \$4/MMBtu (with slight variations due to market conditions) and either:

(A) Divert haulers directly to Boone County Landfill approximately 2 days/week in winter months, OR

(B) Continue to accept hauled waste during the winter months but increase the volume of reject materials

This option allows the seasonal differences in gas prices to be “smoothed out” to arrive at a consistent price per MMBtu. This option would allow RDF to be burned at full capacity for April through October, and at reduced capacity for November through March (see chart below).



Impact to Electric Customers:

The adopted amount in the natural gas fuels budget would allow for this gas to be purchased for calendar year 2024 at a price of \$3.68/MMBtu, which is the lowest price staff has seen recently. Assuming this price is attained, customers would experience the anticipated Electric bill increase of 3%. Actual expenditures will not be known until a contract is executed.

Please note from the attached memo, this option is the preferred strategy by EUORAB (Attachment #1). However, some of the example pricing in the memo is different than this Council Action Form, illustrating the changes in market pricing over the course of the last several months (also note that the memo uses the unit “dekatherms,” which is equivalent to MMBtu).

Impact to Resource Recovery, Haulers, and Boone County Landfill:

Staff believes approximately 27,000-27,500 tons of RDF (2,500-3,000 tons of RDF less than Alternative #1) could be consumed by this approach. During the time when capacity is reduced (November through March), Resource Recovery would have to increase the proportion of MSW being converted into rejects, or haulers would have to divert directly to the landfill approximately two days each week.

Although this option does not provide the guaranteed ability to burn all of the RDF generated, it makes the timing of diversions more predictable. The Power Plant and Resource Recovery could also use this timing predictability to schedule planned outages at optimal times (Unit 7 in the summer, Unit 8 and/or Resource Recovery in the winter).

With insufficient gas to consume all the RDF generated during January-March and November-December 2024 under this alternative, there are economic impacts to the Resource Recovery Utility. Attachment 2 details these potential financial impacts.

ALTERNATIVE 4A: If haulers are not allowed to tip their MSW approximately two days per week during the reduced-throughput winter months because of the high price of gas, the Resource Recovery utility would experience a net negative budget impact of \$98,000 (estimated) in FY 2023/24. This impact takes into consideration lost tipping fee revenue, lost RDF sales, lost recyclable sales, and decreased operating expenses. Haulers and the Boone County Landfill would be negatively impacted as a result of drive times to the landfill and increased material quantities disposed of there, respectively.

ALTERNATIVE 4B: As an alternative to sending the haulers directly to Boone County Landfill two days per week, it would be possible for Resource Recovery to continue to accept and process the MSW, but increase the percentage of material that is converted into rejects (as opposed to RDF). This accomplishes several things: 1) It significantly reduces the amount/times haulers would be asked to directly divert to BCL, 2) Resource Recovery would be able to remove recyclable metals from the MSW, and 3) BCL would receive ground material, which takes up less volume in the landfill. However, this approach would increase Resource Recovery's hauling and disposal costs. This results in an estimated loss of up to \$125,000 in revenue for Resource Recovery for the remainder of FY 2023/24 (\$246,913 annually).

CITY MANAGER'S RECOMMENDED ACTION:

Over the past several years, the City has benefited from extremely advantageous guaranteed natural gas prices through the expiring long-term contract. The natural gas futures pricing is considerably higher than the expiring terms. Staff is concerned that the window for prices to drop is closing, and prices will again begin rising as cold weather and market uncertainty approach.

There does not appear to be a risk-free option available to the City Council. The strategy with the least impact to electric customers also has the highest impact to Resource Recovery System, and vice versa.

Staff believes the best strategy is Alternative #4B, which calls for a blended cost not to exceed \$4/MMBtu, and secures enough natural gas on contract to burn 90% of the RDF that could be consumed in a typical year. **This would include approval to increase the natural gas fuels budget from \$13,980,000 to \$14,900,000. At \$14,900,000 this represents a 5.0% increase which would be passed on to Electric customers through the Energy Cost Adjustment. This increase is 2 percentage points more than was anticipated with the adopted FY 2023/24 fuels budget.**

Alternative #4B calls for continued acceptance and processing of MSW during the winter months at the Resource Recovery Plant rather than sending haulers directly to Boone County Landfill for part of the time. The portion of material being converted to rejects (as opposed to RDF) would be increased.

If Alternative #4B is supported by the City Council, it becomes increasingly important to reduce the volume of waste being received at the Resource Recovery Plant immediately and subsequently allow Resource Recovery to divert haulers as little as possible by increasing rejects when necessary. Staff would time future planned outages at the Power Plant and Resource Recovery Plant to occur in the winter months when there is less available natural gas.

Additionally, staff would immediately pursue options for reducing the volume of waste received through recycling and other waste diversion programs. These options could potentially include adding sites for residents to drop off recyclable materials such as cardboard or plastics, implementing curbside recyclable collection (either through a Citywide contract or by requiring haulers to offer those services), and

It should be emphasized that due to lost RDF sales and increased hauling and disposal fees, the cost to the Resource Recovery System under Alternative #4B, with increased rejects sent to the landfill is estimated to be up to \$125,000 for the remainder of FY 2023/24, or \$246,913 for the calendar year (See Attachment 2). The actual shortfall amount due specifically to the reduction in natural gas purchased will be determined at the end of the FY 2023/24 and reported back to EUORAB and City Council. This projected shortfall could be addressed by one of the following:

- 1) Increasing the Resource Recovery tipping fee by 8.4% or \$5.22/ton (from \$62.50/ton to \$67.72/ton on January 1, 2024).
- 2) Transferring the actual calculated shortfall due to the reduction in natural gas purchased from the Electric Utility to Resource Recovery for FY 2023/24.
- 3) A combination of these approaches.

Given the fact that the other governmental partners in the Resource Recovery System, as well as haulers have been notified that the tipping fee will remain unchanged for FY 2023/24, staff would recommend that the actual shortfall generated by Alternative #4B be reimbursed by a transfer from the Electric Utility. This transfer will further increase the cost to Electric customers through the Energy Cost Adjustment but would be substantially less than the increased cost Electric customers would experience if Electric had to purchase 12,000 MMBtu/day year-round. Staff will consider different financial adjustments to recommend during the preparation of the FY 2024/25 Budget.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 4B, thereby authorizing the Electric Director to approve an amendment to the contract with Macquerie Energy LLC, Houston, TX, to extend

the existing natural gas supply contract for a term of not less than one but not more than three years at a price of not more than \$4/MMBtu and a total cost of not more than \$14,900,000, and further authorizing a transfer of funds from the Electric Fund to the Resource Recovery Fund, once determined by Electric, to offset the shortfall in net revenues due to the reduction in natural gas purchased for the remainder of FY 2023/24.

ATTACHMENT 1

Date: May 22, 2023
To: Donald Kom
Director, Electric Services
From: EUORAB
Re: Recommendations for Natural Gas Procurement

In the past couple of EUORAB meetings, one of the discussion points was the procurement of natural gas. Electric Services needs 12,000 dekatherms (Dth) per day of natural gas to operate Unit 8 at a load sufficient to burn 30,000 tons per year of refuse derived fuel (RDF) which is the typical annual production of RDF from the Resource Recovery Plant. Electric Services needs 8,000 Dth per day of natural gas to operate Unit 7, but this only allows 20,000 tons per year of RDF to be burned.

Electric Services currently holds a long-term natural gas contract for 12,000 dekatherms (Dth) per day at a price \$2.75 per Dth. This a very good price, but unfortunately, this gas contract expires on December 31, 2023. Electric Services needs to procure additional natural gas contracts to support the operation of the power plant and to consume the RDF produced by the Resource Recovery Plant for 2024 and beyond. Electric Services has had preliminary conversations with its gas consultant and can expect natural gas prices to increase in any future contracts. Electric Services staff presented the following three near-term options to EUORAB for their consideration:

Option 1 – Lock in 12,000 Dth/day of natural gas for one year at a predicted price of \$4.00 per Dth.

- Would result in a 9.2% increase in electrical rates through an Energy Rate Adjustment of +\$0.007
- If gas could be obtained at \$3.50 per Dth, the rate increase would be 5.5%
- If gas came in at \$5.00 per Dth, the rate increase would be 16.5%
- Would allow the power plant to burn 30,000 tons of RDF.

Option 2 – Lock in 8,000 Dth/day of natural gas for one year at a predicted price of \$4.00 per Dth, with additional natural gas purchased on the spot market.

- The electrical rates would not change
- Would allow the power plant to burn 20,000 tons of RDF, primarily by running Unit 7.
- Unit 8 would run to burn additional RDF, only when the spot gas price is less than or equal to \$4.00 per Dth.
- Would result in a strong incentive to reduce garbage intake.

Option 3 – Lock in 8,000 Dth/day of natural gas for one year at a predicted price of \$4.00 per Dth, with an additional 4,000 Dth/day of natural gas purchased on a monthly basis.

- Electrical rates would not change unless the monthly strip price exceeds \$4.00 per Dth.
- Would allow the power plant to burn 20,000 tons of RDF, but would allow consumption of additional RDF on a more predictable basis.
- Would likely still result in a strong incentive to reduce garbage intake.

EUORAB Comments:

ATTACHMENT 1

Natural gas prices are seasonal in nature. Natural gas prices are highest in the winter (heating) months, which are the months of November through March. Natural gas prices are lower in the summer (non-heating) months, which are April through October. It appears from the information above, that continuing to lock in 12,000 Dth of natural gas to burn all the RDF generated by the Resource Recovery Plant will have a negative impact on Electric Services customers. Therefore, Option 1 should not be considered. Options 2 & 3 are similar and would likely have minimal impact on Electric Services customers, but would reduce the amount of RDF burned by the power plant and increase the amount going to the landfill.

EUORAB Recommendations:

After consideration, EUORAB is recommending a combination of the options noted above. Electric Services should lock in 8,000 Dth of natural gas for the entire year. That amount of natural gas would allow the consumption of 20,000 tons of RDF for the year.

For the summer months of April through October, Electric Services should lock in an additional 4,000 Dth/day of natural gas. By purchasing a summer strip, it is likely natural gas can be purchased for less than \$4.00 per Dth. This approach would allow the power plant to burn 100% of the RDF for the summer months for a total of approximately 26,000 tons of RDF for the year.

Electric Services should work with their gas consultant on the best approach to locking in this gas. Sometimes it can be advantageous to purchase natural gas with combinations of summer/winter strips versus an annual contract. Natural gas purchases can also be layered to take advantage of different pricing. The gas consultant should be able to provide advice on the best path forward.

