

Staff Report

**RECIPROCATING INTERNAL COMBUSTION ENGINES AND TRANSFORMER
PROCUREMENT FOR AMES MUNICIPAL ENERGY CENTER**

July 21, 2026

BACKGROUND:

The Ames Municipal Energy Center (AMEC) project involves the design and construction of a new facility at the former coal yard site south of the existing Power Plant, where the next generation of electric generating assets will be installed and operated.

This City Council update relates to the purchase of three reciprocating internal combustion (RICE) engines, their associated generators and accessories, and the generator step-up transformer (GSU). No action is requested at the July 21 workshop. However, the City Council will be asked to award contracts for these aspects of the project on July 28.

The City has retained Sargent & Lundy, Chicago, IL, to assist with the design of the facility and specifications for its major components. Over the past several months, Sargent & Lundy has assisted City staff in preparing a bid document for the transformer and a Request for Proposal (RFP) for the procurement of the reciprocating internal combustion engines (RICE), both which will be installed at the new facility.

AMEC PROJECT BUDGET:

At the April 21, 2026, City Council workshop, staff relayed the revised project budget estimate, which was \$190 million +/-5%. At that time, staff provided an overview of the financial impacts based on an analysis from the City's financial consultant, PFM.

PFM conservatively projected that electric rates will need to increase by approximately 2.5% annually beginning in FY 2026/27 through FY 2043/44 (18 years), followed by 1.5% annual increases through the life of the bonds (FY 2056/57). As the staff report explained at that time, the Electric rate projections had previously included a 1.5% rate increase over the next five years to cover the cost for new generation, but were increased to 2.5% to account for the increased project costs. These rate increases are also predicated on the utility saving substantial operating costs from discontinuing the burning of refuse-derived fuel.

The AMEC project budget contains several major project components, including the GSU, the RICE engines, and the general work to construct the building and install much of the equipment. Two of these items (the GSU and RICE engines) are addressed in this document

and the anticipated July 28 City Council action.

The April project budget table contained 14 key items, plus three additional expense lines for taxes (\$5.3M), overall project escalation (\$14M) and contingency (\$24M). The tax, escalation, and contingency estimates are the sum of the taxes, escalation, and contingency for each individual budget line.

Staff has asked Sargent & Lundy to prepare a revised budget table that assigns the tax, escalation, and contingency to each individual expense line. Incorporating the escalation and contingency in particular is important because some items in the budget are more susceptible to substantial cost increases and affected by timing. The result is the revised table shown below:

DESCRIPTION	TOTAL ESTIMATED BUDGET - EACH LINE ADJUSTED TO INCLUDE TAX, CONTINGENCY, ESCALATION
Reciprocating Internal Combustion Engines (RICE) and Auxiliary Equipment	\$ 73,315,096.14
Generator Step-Up Transformer (GSU)	4,805,580.00
GSU Relay Protection Control Cabinet & Metering	393,900.00
MV Non-Segregated Bus Duct	196,950.00
Balance of Plant Station Batteries and Charging System & UPS	1,293,815.76
Geotechnical Investigation	182,287.06
Topographical Survey, Benchmarks, and Property Limits Survey	37,710.00
Acoustical Consultant	50,280.00
Independent Testing Service	62,850.00
General Work Contractor	97,366,422.65
Engineering Services	8,800,427.01
Construction Management At-Risk Support (Home office engineering construction support and CM on site)	497,438.60
Builders Risk Insurance (for 3 years)	1,773,692.31
Building Furnishings	377,166.20
Land Acquisition	502,888.26
Transmission Connection (Including MISO Application)	3,017,329.57
TOTAL	\$ 192,673,833.56

By incorporating the taxes, escalation, and contingency into each of these line items, as contract prices are considered for the GSU and RICE engines, it becomes clearer how close the major contract items align with the overall budget and what the remaining outstanding cost risks are.

GENERATOR STEP-UP TRANSFORMER:

Each set of three RICE units will be connected to a single Generator Step-Up Transformer (GSU) to transmit the electricity to the utility's electric grid. The transformer has a long lead time to manufacture and deliver. On May 12, 2026, the City Council received the report of bids for the generator step-up transformer for the AMEC project and approved the recommendation to delay the award of bid. **Staff is now prepared to request the City Council's approval of the transformer contract at the July 28 meeting.**

The Engineer's estimate for this equipment is \$3,600,000, exclusive of tax. On February 20, 2026, an Invitation to Bid was posted to AmesBids by Purchasing, for the purchase of a GSU. On April 24, 2026, 10 bids were received as shown in the table below:

BIDDER	BID AMOUNT
Cavalry Energy LLC Warrendale, PA	\$1,641,075.00
EL Power Tech Co., LTD. Hwaseong-Si, Gyeonggi-Do, Korea	\$1,940,000.00
Meta Power Solutions Lake Park, FL	\$2,152,856.16
Cahoon Sales, Inc. Iowa City, IA	\$2,248,100.00
Cleaves-Bessmer-Marietti, Inc. Lee's Summit, MO	\$2,285,368.00
RESCO (Rural Electric Supply Cooperative) Ankeny, IA	\$2,511,487.00
WEG Transformers Washington, MO	\$2,532,176.00
Hyundai Corporation USA Torrance, CA	\$2,645,075.00
Energy Solutions Inc. Elkhorn, NE	\$3,564,998.00
Fletcher Reinhardt Co Cedar Rapids, IA	No Bid

Staff and Sargent & Lundy thoroughly evaluated the bids, considering criteria including the size and performance capabilities of the equipment being bid, the efficiency of each unit, the place of origin and delivery methods, delivery times, the offered payment schedule, etc. It is important to note that for a bid of utility equipment such as this the City Council may make the award that is in the best interests of the utility rather than awarding the contract only to the lowest responsive, responsible bidder.

Following this evaluation, staff and Sargent & Lundy are recommending that the contract for the GSU be awarded to Cahoon Sales, Inc., Iowa City, Iowa for a General Electric 69/13.8kV generator step-up transformer. The City Council should note that, although the initial bid price from this supplier was \$2,248,100, the original bid validity date expired in June. More time was necessary than anticipated to review and negotiate contract terms, and therefore an extension to this date had to be negotiated.

In order to proceed, the supplier requires a cost increase of \$60,700, resulting in a revised contract price of \$2,308,800, plus applicable sales taxes. In addition, the delivery date has been delayed by three months. The delivery is now anticipated in early 2029. This delay is not anticipated to impact the overall AMEC project schedule, and will in fact eliminate some challenges with storing the transformer until it is ready to be installed.

RICE ENGINES AND ASSOCIATED EQUIPMENT:

The RFP for the RICE engines was issued on March 13, 2026. The RFP called for a supplier to design, engineer, procure, fabricate, assemble, and factory test the engines, then pack, ship, assemble, and set them on prepared foundations. It was specified that each engine be capable of operating both on natural gas and fuel oil, producing between 18 and 20 MW (54-60 MW total). The design life of the engines is 30 years.

A variety of optional components were also specified, including equipment and services such as lubricating oil and reagent storage tanks, exhaust gas ducting, steel structures, distributed control systems, switchgear, auxiliary ventilation units, five- and two-year service agreements, spare parts, heat recovery systems, and lower noise exhaust systems. Each supplier was asked to provide performance information for over 60 separate categories related to items such as fuel consumption, operating temperatures, noise, and emissions.

The RFP specifies that proposals are to be evaluated on the basis of the following criteria:

1. Proposal Completeness and Compliance
2. Performance Characteristics
3. Emissions and Noise
4. Project Schedule
5. Included Scope
6. Testing & Commissioning
7. Maintenance Requirements and Training
8. Technical Field Assistance
9. Customer Base and Status of Technology Offered
10. Total Cost

PROPOSALS RECEIVED:

On May 29, 2026, proposals were received from:

- **Wärtsilä North America, Inc., for three Wärtsilä 18V50DF engines.** These are 18-cylinder dual-fuel (fuel oil and natural gas) engines, with each cylinder having a 50 cm bore. Each engine has a nominal output of 18.540 MW. Wärtsilä recently installed engines of this model for the Omaha Public Power District. The proposal expires July 31, 2026.
- **Everllence SE, for three Everllence 18V51/60DF engines.** These are 18-cylinder dual-fuel (fuel oil and natural gas) engines, with each cylinder having a 51 cm bore. Each engine has a nominal output of 18.522 MW. Everllence is installing similar engines for Cedar Falls Utilities. The proposal expires July 31, 2026.

The proposals differ greatly in the components and options included, in addition to the differences in the technical specifications between the two manufacturers. Staff and Sargent & Lundy conducted a thorough analysis of the desired options and the costs in the context of the performance and other characteristics of each engine. In addition, both companies reduced their pricing during the course of negotiations through the morning of July 20. The bottom-line cost for each proposal is:

Firm	Price
Wärtsilä North America, Inc.	\$ 69,230,520*
Everllence SE	\$ 75,283,223**

*Approximately 75% of this amount is calculated based on the conversion of Euros to USD on July 15, 2026. This amount is subject to revision at the time the down payment is made. After that date, Wärtsilä assumes any future exchange rate risk.

**All of Everllence's pricing is calculated in Euros and converted to USD to result in this indicative price. This amount is subject to change based on conversion rates in effect shortly before the agreement is signed. After that date, Everllence would hold the exchange rate risk for the first 36 months of the anticipated 5-year contract term.

Both proposals involve the production of the major components in Europe, then importing the equipment to the U.S. Sales taxes and import duties are excluded from both proposals. These costs would be pass-throughs to the City. Both firms offer performance guarantees for various parameters of the engine's performance once installed. These guarantees provide for a reduction in cost if the specified performance is not able to be met after installation, start-up, and tuning.

Additionally, both proposals contained options for long-term service agreements. These service agreements do not need to be included in the contract at this time, and will instead be agreed to at a later date and incorporated into the Electric Services operating budget rather than the AMEC capital project. **For reference, the 5-year maintenance proposal from Wärtsilä is priced at \$5,513,000, while the Everllence 5-year maintenance proposal is \$13,231,980.**

Wärtsilä has identified a production slot that was relinquished by another buyer, which would allow the engines to be delivered to foundations in Ames in October 2029, with assembly and installation to follow for an estimated Spring 2030 commissioning. Everllence offers a delivery date to a European port of August 2029, followed by transport to Ames with an estimated substantial completion by June 2030.

The Everllence units have approximately 8% better heat rate (the efficiency of fuel used per kW produced) as compared to the Wärtsilä units. The Everllence units consume slightly more lubricating oil and 50% more emissions reagent during operation.

Emissions overall are generally similar for both manufacturers, but the notable differences are that Wärtsilä has a 40% lower NOx rate and a 50% higher CO rate. The table below shows the emissions in pounds per kWh produced, based on the conversion of three major emissions categories (Methane, Carbon Dioxide, and Nitric Oxide and Nitrogen Dioxides) to CO2 equivalent (CO2(e)). The existing power boilers (Unit 7 and Unit 8) are included for comparison:

Carbon Dioxide Equivalent CO2(e)	
Source	lb/kWh
Unit 7	1.76
Unit 8	1.68
Wärtsilä	1.05
Everllence	1.04

Both firms were invited to make presentations to the City staff and Sargent & Lundy team. **Following the presentations, staff scored the proposals using the 10 different RFP evaluation criteria as noted above. Below are the final scores:**

Firm	Total Points	Rank
Wärtsilä	260.7	1
Everllence	203.3	2

Given the final scores, staff is recommending that on July 28, the City Council award a contract to Wärtsilä North America, Inc. Sargent & Lundy has indicated to City staff that it also recommends awarding a contract to Wärtsilä, and will issue a letter of recommendation on July 22.

Wärtsilä has installed its RICE units in a number of locations over the past 25 years. Recent installations have included Central Iowa Power Cooperative (CIPCO), Alliant Energy, Omaha Public Power District, Nebraska Public Power District, Rochester Public Utilities (Minnesota), WEC Energy Group (Michigan and Wisconsin), Black Hills Energy (South Dakota), Coffeyville Municipal Light & Power (Kansas), and Marquette Energy Station (Michigan).

In addition to the overall capital cost for the Wärtsilä proposal being approximately \$6M less than Everllence, the Everllence long-term service agreement is approximately \$1.5M more costly on an annual basis. This cost would exceed any offset resulting from the slightly more efficient fuel use offered by Everllence.

The Wärtsilä contract requires payments as follows:

Item No.	Est. Months from Contract Signing	% of Contract Value	Milestone
1	0 - Down Pmt.	25%	Signed Contract and Notice to Proceed
2	4	10%	120-day document submittals complete
3	8	15%	Purchase of major auxiliaries
4	32	25%	First engine production conformity test
5	33	10%	Engines ready to ship
6	34	5%	Delivery of engines to U.S. port
7	40	5%	Generator sets on foundations
8	43	2.5%	Installation completion
9	51	2.5%	Performance test completion

The City Council should note that the proposed milestone schedule outlined above requires the City to make payments totaling 50% of the contract value within the first eight months of the four-year agreement. Staff is confident that, based on its long record of producing and installing RICE engines worldwide and in the Midwest, Wärtsilä will be able to meet its obligations under this agreement to deliver and install the engines for the AMEC project.

Sargent & Lundy is preparing a cash-flow plan for the overall AMEC project. This plan can be considered alongside the Electric Capital Improvements Plan to ensure bond proceeds and the Electric Utility Fund balance are sufficient to make the required payments for this contract.

Although no financial surety is required for this type of contract, staff has inquired with Wärtsilä about the prospect of obtaining a surety bond to protect the City after payment is made in the event Wärtsilä is unable to complete the delivery as promised due to bankruptcy. The cost for the premium payment of the bond is \$1,560,923.

Based on the long track-record of Wärtsilä installations, the advice of Sargent & Lundy, and a review of Wärtsilä's publicly available corporate financial records by the City's Finance Director, staff does not believe the risk of a Wärtsilä bankruptcy is significant enough to warrant obtaining a \$1.5 million bond.

The overall contract being presented to the City Council for approval on July 28 does not include the cost of the \$1.5 million bond. If the City Council desires to include the bond, specific instruction from City Council will be necessary on that date to include the expense in the approval and to incorporate the bond into the final contract.

The City retained an outside attorney from Dorsey & Whitney to provide guidance regarding the contract terms. Staff believes the contract that has been prepared with Wärtsilä is acceptable.

Considering the base price and applicable taxes and tariffs, the current revised project budget, including the purchase of the GSU and RICE engines as described in this report, is shown below:

DESCRIPTION	TOTAL ESTIMATED BUDGET - EACH LINE ADJUSTED TO INCLUDE TAX, CONTINGENCY, ESCALATION	CONTRACT (INCL. TAX/TARIFFS)	DIFFERENCE
Reciprocating Internal Combustion Engines (RICE) and Auxiliary Equipment	\$ 73,315,096.14	\$ 75,807,419.40	\$ 2,492,323.26
GSU	4,805,580.00	2,470,416.00	(2,335,164.00)
GSU Relay Protection Control Cabinet & Metering	393,900.00		

MV Non-Segregated Bus Duct	196,950.00		
BOP Station Batteries and Charging System & UPS	1,293,815.76		
Geotechnical Investigation	182,287.06	189,569.00	7,281.94
Topographical Survey, Benchmarks, and Property Limits Survey	37,710.00	35,520.00	(2,190.00)
Acoustical Consultant	50,280.00		
Independent Testing Service	62,850.00		
General Work Contractor (CMaR)	97,366,422.65		
Engineering Services	8,800,427.01		
Construction Management Support (Home office engineering construction support and CM on site)	497,438.60		
Builders Risk Insurance (for 3 years)	1,773,692.31		
Building Furnishings	377,166.20		
Land Acquisition	502,888.26		
Transmission Connection (Including MISO Application)	3,017,329.57		
TOTAL	\$ 192,673,833.56		\$ 162,251.20

Assuming approval of these contracts, the expenditures to date represent approximately 40.7% of the budget's estimated costs. The overage of \$162,251.20 represents a 0.08% exceedance of the anticipated project budget at this stage.

STAFF COMMENTS:

Given the significant size of these contracts, the City Council is not being asked to make an award on July 21. Instead, staff will deliver this report and answer questions the Council may have about the contracts and the AMEC project status. The City Council will be asked at the July 28, 2026 meeting to award contracts for the Generator Step-Up Transformer and RICE engine purchase.

It is important to note that the pricing for both RICE engine vendors will not be held past the end of July. Therefore, if the City Council is not prepared to approve a RICE contract award on July 28, the proposed pricing, engine production slot, and delivery date will no longer be available, subjecting the City to the risk of increased costs and substantial delays in obtaining these critical generating units.

ATTACHMENT(S):