ITEM # ___31__
DATE: 07-22-14

COUNCIL ACTION FORM

SUBJECT: AUTHORIZATION TO WAIVE PURCHASING POLICY FOR COMPETITIVE BIDDING REQUIREMENTS AND FOR STAFF TO VET & POSSIBLY NEGOTIATE WITH FRONTLINE BIOENERGY LLC FOR RDF CONVERSION SYSTEM

BACKGROUND:

Since the City's Resource Recovery Plant (RRP) first opened in 1975, the practice of burning refuse derived fuel (RDF) along with coal has been a very effective way to reduce landfilled waste and co-fire the City's Power Plant. In 2008 the power market began to flip, making the internal production of energy a more expensive option compared to purchasing power from the power grid. In addition, federal environmental mandates led the Power Plant to begin studying conversion from coal to natural gas. This provided a timely opportunity to explore other waste-to-energy technologies.

Staff from the City Manager's Office, Finance, Electric Services and Public Works formed a working group to explore options that would allow for 1) more economical purchase and generation of power, 2) improved energy recovery rates, 3) increased consumption rate of RDF, 4) proposed emission standards being met, and 4) sustainability well into the future by minimizing the amount of landfilled waste. **In October 2010, City Council awarded a contract to URS Corporation to prepare a feasibility study of current Waste to Energy (WTE) conversion alternatives. URS examined six unique conversion methods and determined that thermal gasification would be the most viable alternative conversion process for the City, from a technological standpoint.**

The URS study focused on evaluating various conversion technologies, but did not include a detailed financial analysis of the alternatives. Therefore, **in July of 2012 City Council awarded a contract to HDR Engineering to perform detailed financial modeling of the identified gasification process.** This contract produced a tool to assist in determining the cost effectiveness of an individual project using capital expenses, operating expenses, market cost, and labor, assuming an independently redundant system that would be fully financed, owned and operated by the City of Ames. **On November 12, 2013, City Council decided that the HDR gasification model appeared to be too expensive to pursue. At that time, Council advised Staff to continue looking for conversion technology options in the future that would be both financially and technologically viable.**

The HDR financial evaluation was conducted in parallel with Electric Services' Energy Resource Options study, which was performed by Black and Veatch. Based on that study, **in November 2013 City Council determined that the City's Power Plant**

would be switched to natural gas as the primary boiler fuel source. The EPA has established a deadline for this conversion of April 2016. It was noted at that time that using natural gas would potentially reduce the Power Plant's capability to utilize RDF by as much as 13%.

Since reporting to Council in 2013, staff has continued to explore potential RDF to gas conversion technology options at the Resource Recovery Plant. Staff has researched and had discussions with several vendors and consultants about projects that are at a commercial scale and at a size sufficient to accommodate our community's future needs. Our ongoing research of viable options has led us to Frontline Bioenergy, LLC, of Ames, Iowa. This firm has an existing commercial scale gasification technology, and it appears that this technology could be integrated into the Ames WTE system under financially advantageous terms.

A Frontline gasification system was installed in Benson, MN, in partnership with Chippewa Valley Ethanol Company (CVEC). This is a full scale plant that gasified wood waste to power the CVEC ethanol production process. As the availability of the wood waste began to diminish and the price of natural gas began to steeply fall, the financial viability of this gasification process declined and the gasifier was decommissioned. In an effort to assess the compatibility of Ames RDF in their gasifier, Frontline used City of Ames RDF as test feedstock at the Biomass Energy Conversion Facility (BECON) in Nevada, IA, with successful conversion of the RDF to biogas. Frontline Bioenergy has proposed that they would dismantle the Benson gasifier and relocate the equipment to the City Power Plant's coal yard for use in the Ames WTE system. City staff visited the site in Benson, MN this past March, viewed the equipment, and found that it appears to be a viable option. Staff has also had very preliminary discussions with Frontline regarding potential financial arrangements.

Should the City Council desire to move forward with gasification of RDF, staff has identified three approaches that could be followed.

Approach 1

The first approach would be to **construct the City's own gasification system**. That process would involve engaging a consultant to design the project. The project would then be **publicly bid**, with a construction contract being awarded to the lowest responsive and responsible bidder. This process is not feasible in this case, however, since any gasification technology is very specific to the particular vendor's technology and would likely be proprietary in nature. This makes it impractical to design plans and specifications for which multiple contractors could submit bids.

Approach 2

A potential procurement process would be for the City to competitively select a **private firm that would build, own and operate a plant** which utilizes RDF to produce electrical power or another marketable product. To identify such a firm, the City would typically issue a **Request for Proposals (RFP)**. Given the lack of commercially proven,

financially viable conversion technologies presently available, however, staff does not believe that the RFP process would be worthwhile at this time.

Approach 3

A third approach is to **waive formal bidding requirements and identify one firm with whom to negotiate a contract**. As was mentioned above, staff has researched potential vendors and processes for thermal conversion as recommended in the URS study. Staff has found Frontline to have the only promising, full-scale, proven technology available. **It is important to note that under this alternative, the vetting process of Frontline's technology would continue after the Council waives the competitive bidding requirements. If the vetting process determines that this is an unworkable solution or if staff is unable to negotiate an acceptable arrangement for the City, the Council will not be asked to approve a contract.**

There are a number of advantages of moving forward with this third approach, including the following:

- Frontline has a full-scale, commercial gasification plant that was in operation.

- Frontline's existing gasification equipment is presently idled, and could be physically relocated to Ames.

- Frontline could potentially acquire other needed equipment, including pre-owned pelletizers, gas boiler, and turbine generator. As long as the equipment is in acceptable condition and is valued appropriately, this could provide an economic advantage compared to purchasing new equipment.

- As a private company, Frontline can take advantage of New Market Tax Credits. These would provide a 30% tax credit to qualified investment taking place south of the City's Power Plant.

- Frontline has stated that they would insure that the conversion system they construct meets the City's required performance standards (E.g., emission standards, tons per hour throughput, energy output).

- Frontline appears to have the ability to install its existing equipment and set up a viable conversion process that could closely follow the April 2016 Power Plant fuel conversion deadline.

- It appears that Frontline's system could fit within the City's existing coal yard. This would place it in close proximity to the existing fluff bunker storage building, as well as to the Power Plant substation for connection to the City's electric distribution system.

For these reasons, staff is requesting that the City Council waive the City's purchasing policies requiring formal competitive bids, authorize staff to work with Frontline to

thoroughly vet their system, and then to potentially enter into negotiations with Frontline Bioenergy, LLC of Ames, Iowa for a contract to provide a commercial scale gasification-to-electricity operation. The negotiated agreement would come before the City Council for final approval.

Staff's vetting process will include two critical elements prior to negotiations. The first is to gain assurance that the process of securing Iowa Department of Natural Resources air quality permits for Frontline's system does not delay or negatively affect the City's own environmental permits for the Power Plant fuel conversion project. The second is to scrutinize the financial viability of the project and the fiscal capability of Frontline Bioenergy. Construction timelines and a workable operating agreement must also be determined.

Should this vetting process prove the project to be viable, staff would seek to negotiate terms and conditions with Frontline Bioenergy that include but not be limited to the following:

- **Sale or transfer of RDF to Frontline**
- **Lease of land to Frontline**
- **Engineering and construction**
- **Operation and staffing**
- **Purchase power agreement**
- **Risk sharing that protects the City's interests**

Staff would have liked to also explore a possible lease-purchase arrangement with Frontline, whereby the City could assume ownership of the gasification system after a number of years of successful operation. However, City Legal staff determined that such an advance agreement to lease-purchase the gasification system would make the project a "public improvement" under the state Public Bidding Law, which in turn would require the City to obtain plans and specifications from an engineering firm and to publicly bid the project. As was described above, such a process is unworkable in the Frontline situation with its patented technology and existing equipment.

ALTERNATIVES:

1. Waive the City's Purchasing Policies for competitive bidding, and authorize staff to thoroughly vet Frontline Bioenergy, LLC and its commercial scale gasification-to-electricity operation, and if the vetting process is successful, to initiate contract negotiations with Frontline.

2. Follow the City's formal Purchasing Policies and direct staff to prepare a Request for Proposals for RDF conversion technologies.

3. Do not pursue RDF conversion technologies at this time, continue to burn RDF in the City's Power Plant, and direct staff to continue to look for other technically and financially viable alternatives.

MANAGER'S RECOMMENDED ACTION:

The City's existing Waste to Energy system has brought immeasurable benefits over the past 40 years. A key component of this system has been the City's ability to utilize refuse derived fuel along with coal in the City's Power Plant. Upon conversion of the Power Plant to natural gas, however, the ability to utilize RDF as supplemental boiler fuel will likely be reduced. Furthermore, the need to constantly burn RDF sometimes reduces Electric Services' ability to turn down the Power Plant boilers and take advantage of purchasing lower cost energy over the City's electric tie lines.

In order to address these concerns, the City Council has directed staff to study a variety of technological alternatives for converting RDF to energy. Staff has done extensive research of possible alternatives while reporting to City Council along the way. According to the URS study, gasification of the RDF has been shown to be the most viable conversion alternative. Until now, however, there did not appear to be any proven gasification systems that merited City consideration. Furthermore, none of the gasification alternatives identified in the HDR study were financially realistic.

Staff has determined that Frontline Bioenergy, LLC of Ames has an operational, full-scale gasification system. It appears that this existing system could be moved to Ames and be located in the City's existing coal yard. Frontline has access to other pre-owned equipment and to federal tax credits that could help make the cost of this relocation acceptable to the City. The availability of those assets, however, is time sensitive since Frontline and CVEC are actively seeking the sale of their gasifier and associated equipment.

It seems appropriate to take advantage of this opportunity to further explore the suitability of Frontline's gasification process. Designing and bidding a City-owned system or engaging in a lengthy RFP process in accordance with the City's Purchasing Policies do not appear to be the best alternatives in this situation.

Waiving the City's purchasing policies requiring formal competitive bids and entering into negotiations with Frontline Bioenergy will allow staff to continue vetting Frontline's technology, environmental permitting, and financial stability. This action would also allow staff to negotiate potential contract agreement terms, if appropriate. This option has the potential to allow the Resource Recovery System to continue the efficient and sustainable handling of the area's solid waste and position the system for future needed growth.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, as noted above. **It is important to note that under this alternative, the vetting process of Frontline's technology will continue after the Council waives the competitive bidding requirements. If staff determines that key elements related to this approach are unacceptable to the City, Council will be advised that negotiations should cease.**