

Memo

To: Gregg Mandsager, City Council
From: Jon Koch, WPCP Director
Date: June 6, 2017
Re: Upcoming FTA Grant Resolution

The High Strength Waste Receiving Station (HSW) design is proceeding well and should have new projected cost estimates by next week. We have had some delays due to other projects this winter like the Nutrient Study that was required by the DNR and the Biogas Study that we wanted to have completed before much more was done to the HSW project. Justification for the project hinged on a good outcome to this report. We have been working very closely with Stanley on this and my full staff has reviewed and revised several iterations of the design.

We are pilot testing several of the largest pieces of the equipment that will receive the liquid waste and I encourage anyone interested to come see how it performs (call me for scheduled pilot demos). We continue to take a cautious and deliberate approach to the equipment involved as it is very new to our industry and has few test sites. We are working with the vendors to ensure it is the most appropriate equipment at the best price. We have offered to be a showcase for this equipment if the price is reduced even further.

Because we are proceeding with the HSW project, we need to be sure it fits to our model we call MARRVE, the Muscatine Area Resource Recovery for Vehicles & Energy program. MARRVE will be a one of a kind program in the Midwest and will include industrial, commercial and residential organic waste being diverted from landfills and converted into clean renewable vehicle fuel. This fuel is carbon negative through diversion of potential carbon leaving the landfill being used in vehicles instead of a more polluting fuel such as diesel or gasoline. This grant is critical to our future use of the gas created by the MARRVE program.

We have a unique opportunity to receive 85% and 90% funding through the Low-No Emissions Program Grant from the Federal Transit Authority (FTA). The availability of this grant in the future is uncertain at best so we are hoping to capitalize on it for this project now.

This would purchase:

1. Up to 6 CNG buses to replace older diesel and/or gasoline buses (85% funding)
2. Maintenance facilities (85% funding)
3. Fueling facilities and equipment (90% funding)

Line Item	Total Cost	Local Match	Federal Share
6 CNG buses	\$720,000	\$108,000	\$612,000
CNG Slow Fill station	\$375,000	\$37,500.00	\$337,500
Maintenance facility upgrades	\$25,000	\$3,750.00	\$21,250
Workforce training	\$1,685.00	\$0	\$1,685
	\$1,121,685	\$149,250	\$972,435

To start we would be using natural gas bought off the grid since we are not currently able to convert our biogas to useable fuel. There are not many funding options for this technology so we will need to build up capital from tipping fees to purchase the needed equipment. Here is a breakdown of the needed equipment and a cost from one vendor. Other vendors will be able to bid on this equipment but the BioCNG 100 is made in Dubuque, IA by Unison and would be a preferred supplier.

Unison biogas to fuel conversion package:

BioCNG™ 100 base system	\$660,000	Lump Sum	1	\$660,000
Appurtenances:				
Enclosure	\$82,000	Lump Sum	1	\$82,000
Interconnection Kit	\$20,000	Lump Sum	1	\$20,000
Electrical Distribution	\$22,000	Lump Sum	1	\$22,000
Skid Mounted Panel & Chiller	\$32,000	Lump Sum	1	\$32,000
Installation Labor	\$24,000	Lump Sum	1	\$24,000
Start-up and commissioning	\$10,000	Lump Sum	1	\$10,000
				\$850,000

Funding options may become available for this portion of the project in the future. Without it this will delay use of biogas by several years. This will mean buying gas from Alliant for the near future which is still estimated to be less than current diesel prices. Private stations are selling CNG at \$1.99 to \$2.16/gallon. With the City controlling the price and possible volume transport pricing that price will certainly be lower. More work is being done to have better estimates of these prices.

The use of CNG will be a sustainable practice for maintenance and new purchases into the future since CNG engines are identical to gasoline engines with a different tank and delivery system. Many vehicles can switch while driving from CNG to gasoline. There is typically a 30% additional cost to purchase CNG vehicles but that level is coming down every year and with grants covering new purchases it should make this added expense reasonable. There is on-going training expenses for the maintenance staff but the initial training is covered by the grant.

This grant would get us started on our CNG journey where we can realize cost savings from volatile fuel prices, create a revenue stream from renewable energy credits and reduce air pollution all while reducing the amount of material sent to the landfill. The opportunity to be the first fully functioning CNG transit community will help move Muscatine in the right direction of becoming a sustainable community with our own waste fueling local vehicles. There are few cities in the nation and around the world that can make that claim. If making Muscatine known to the world is our goal this accomplishes a large presence on the international stage.