

Budget Narrative

Knox County Advancing Renewable Energy Project

Knox County has clear financial policies and procedures that will allow it to properly manage grant funds. Grant project expense will be tracked as a segregated fund to maintain accurate records. Knox County will ensure they have a thorough understanding of the grant terms and conditions. Appropriate record keeping will be performed throughout the grant period and will be maintained for the required time period.

Ms. Davis and Mr. Erickson, the County Treasurer and County Clerk, respectively, are knowledgeable in management and budgeting county programs and departments. The County Clerk, Treasurer, and Attorney will work with their selected consultant to ensure all federal requirements are adhered to and met to successfully complete this important first step in the County's support of renewable energy production.

The GHG reduction measure for the Knox County Landfill Cell #3 will be the collection of municipal solid waste methane gas. The capture and conversion will require 3-phase power, which the landfill currently does not have.

The major features are the GCCS installation and the installation of 3-phase power at the project site. The major tasks necessary to achieve these two features will include bringing 3-phase power out to the landfill and extended into the Landfill to power blowers and other blower flare skid components; installing a series of collection pipes at the landfill, well heads, gas extraction skid for flaring or collection.

A 3-phase power system provides more reliable energy with fewer voltage drops making it more efficient than single phase. While small blowers can be operated on single phase power, larger units and compressors require 3-phase, or the use of phase converters to mimic 3-phase. Bringing 3-phase power to the project location and extending it within the landfill property is anticipated to cost \$2,240,000. Costs were provided by Ameren Corporation, the local utility company.

A GCCS is composed of a series of wells, pipes, flare and blower skid, and compressor system. The system directs the gas to a central point where it is captured for use. It is estimated these systems will cost approximately \$2,210,000 to purchase and install. These opinion of probable construction costs were developed by engineers and based on recent Knox County projects and similar projects in the region.

The final cover for the 25-acre sideslopes of Landfill Cell #3 is anticipated to be \$3,436,500 and will be completed in 2025, after the installation of the gas system. This expense is part of the Landfill Department budget fund

Funding will be used to help Knox County install a methane collection system for future gas to energy production, including the equipment, installation, and 3-phase power to operate the system. The following detailed cost estimate is listed under the Contractual Category on the SF424A Budget form.

**Detailed Cost Estimate
USEPA CPRG
Knox County Advancing Renewable Energy Project**

Item	Units	Quantity	Unit Price	Extension
Extension of 3-Phase Power				
Extend 3-phase power to landfill property *	lump sum	1	\$1,740,000	\$1,740,000
Extend 3-phase within landfill property ^	lump sum	1	\$500,000	\$500,000
Subtotal				\$2,240,000
Gas System Installation- 2024-2025				
Mobilization/demobilization	lump sum	1	\$50,000	\$50,000
depth avg.)	vertical feet	2,000	\$125.00	\$250,000
Install well heads	each	20	\$2,500	\$50,000
Install pneumatic pumps	each	20	\$5,000	\$100,000
Install 10" gas header pipe	linear feet	5,000	\$75.00	\$375,000
Install 6" gas lateral pipe	linear feet	4,000	\$65.00	\$260,000
Install 4" condensate transfer pipe	linear feet	500	\$45.00	\$22,500
Install 2" compressed pipe	linear feet	6,500	\$25.00	\$162,500
Install condensate driplegs	each	3	\$5,000	\$15,000
Install condensate pump manhole	each	1	\$75,000	\$75,000
Install flare and blower skid	lump sum	1	\$600,000	\$600,000
Electrical	lump sum	1	\$150,000	\$150,000
Air compressor system	lump sum	1	\$100,000	\$100,000
Subtotal				\$2,210,000
TOTAL				\$4,450,000

Notes

* = Cost provided by Ameren

^ = Cost to extend 3-phase to the solar project and the blower

All other costs are based on:

Engineer's opinion of cost

Recent projects at Knox County

Recent similar projects in the region