Environmental Assessment
Climate Showcase Community Grant
City of Keene, New Hampshire

Introduction

The City of Keene has applied for a grant under the Climate Showcase Communities Program administered by the Environmental Protection Agency (EPA). The overall goal of the Climate Showcase Communities program is to create replicable models of sustainable community action that generate cost-effective and persistent greenhouse gas (GHG) emission reductions while improving the environmental, economic, public health, or social conditions in a community. EPA must ensure that the proposed project to be funded utilizing Climate Showcase Community grant funds undergoes environmental review as required by the National Environmental Policy Act (NEPA), and EPA regulations implementing NEPA at 40 CFR Part 6. This Environmental Assessment (EA) evaluates the potential impacts of the proposed action and alternatives on the quality of the human environment.

Background

The City of Keene is located in Cheshire County with a population of 23,409 people (2010 Census). The location of the proposed action is the Keene Material Recovery Facility and the adjacent City of Keene Landfill, which has been closed for operation since 1999. The City of Keene operates a landfill gas-to-energy system at the Keene Solid Waste Facility which is used to power the adjacent recycling center and transfer station. Over time the landfill gas-to-energy system has become increasingly inefficient. In the past two years the Solid Waste Division has experienced numerous unanticipated landfill gas system shut-downs because the gas supplying the system is either impeded or otherwise compromised. Given the landfill gas generator continues to experience periods of insufficient gas to power the engine (particularly in colder months), it is apparent that the gas production is decreasing to the point that efforts to revitalize the gas production are neither cost effective or likely to result in success. Without a reliable, long term primary energy source the recycling center and transfer station will cease to function. Therefore, based on an energy options study conducted by the City of Keene, the applicant proposes to begin to transfer to a biofuel generator which will ultimately be the primary energy source with the existing diesel generator as a backup.

Purpose and Need for the Proposed Action

The purpose of the proposed action is to reduce GHG emissions. Installation of a biofuel generator will reduce greenhouse gas emissions an estimated 94 tons CO_2 per year (76% reduction vs petroleum diesel).

Evaluation of Alternatives

Alternative 1 – No action: Under “no action”, EPA would not award the grant to the City of Keene through the Climate Showcase Communities Program, and the proposed project would not be implemented. Although “no action” does not meet the purpose and need of the project, to

reduce current GHG emissions, it is evaluated to help discern the environmental benefits and disadvantages between the alternatives carried forth for detailed analysis in the EA. Thus, "no action" is not considered a reasonable alternative; however, it will be used as a baseline for analysis.

Alternative 2 – Proposed Action: The Keene Materials Recovery Facilities (MRF) has been operating without grid interconnect by utilizing a landfill gas to energy plant built in 1994. The plant has been providing a significant portion of the MRF's energy needs, supplemented by a diesel generator. However, the deteriorating gas collection system and old energy plant are becoming increasingly inefficient. The applicant proposes to begin to transfer to a biofuel generator which will ultimately be the primary energy source with the existing diesel generator as a backup. This includes installation of the following which will occur all within the existing footprint of the close landfill: a biofuel generator, upgrade switchgear, wiring, piping to new generator, install a 20,000 gallon fuel tank (above ground in heated building), install fuel distribution point to allow for transport to other city facilities (if other facilities can successfully convert to bio fuel). (Attachment 1 – Proposed Project Area)

There are also potential additional opportunities to increase the use of biofuel in the City to replace the current burning of #2 fuel oil in city facilities (estimate 48,000 gallons per year), as well as blending with the City's diesel tank at Fleet Services to run B20 (or higher) in the warmer months and B5 in the coldest months. This would further enhance the City's greenhouse gas reductions to meet the objectives of the City's Climate Change Action Plan (2004), and the City's Climate Resilient Action Plan (2007), and are consistent with the City's Commitment made as one of the first signatories on the U.S. Conference of Mayors Climate Protection Agreement.

Description of Existing Environment

Study Area Description

The proposed project is located in the City of Keene, New Hampshire between the adjacent properties of the City of Keene's Landfill and the Keene Material Recovery Facility (MRF); northwest of the downtown area (Attachment 2 – Study Area). The City of Keene closed its 20-acre municipal landfill in July 1999 after over 30 years of operation. The Keene Materials Recovery Facility (MRF) has been operating without grid interconnect by utilizing a landfill gas to energy plant built in 1994.

Demographics

The U.S. Census Bureau shows the population for the City of Keene to be 23,409 people in 2010. The percent minority in 2010 was 4.7% and the median household income was $52,636 a year (2011-2015 in 2015 dollars).

Air Quality

In general, the City of Keene's air quality is classified as good and is in an area of attainment for all National Ambient Air Quality Standards (NAAQS), as designated by EPA. The New Hampshire Department of Environmental Services established an air quality monitoring station located in the city in 1989 to monitor ozone and PM 2.5.

Wetlands

Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Federal Interagency Committee for Wetland Delineation, 1989). According to the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI), no wetlands were determined to be present in the proposed project area.

Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service (USFWS), the only listed threatened or endangered species in Cheshire County is the Dwarf Wedgemussel. Typically, this species lives on muddy sand, sand, and gravel bottoms in creeks and rivers of various sizes (USFWS 1993). There are no creeks or rivers within the immediate project area. Based on discussions with the New Hampshire Fish and Game Department, EPA has determined that the proposed project will not affect federally listed species because there are no species occurrences within the immediate project area.

Cultural Resources

The proposed action will occur in an area previously disturbed by construction and ground disturbing activity. In coordination with the New Hampshire Division of Historical Resources, it was determined that the proposed action will not affect historic properties.

Environmental Consequences

Environmental Justice

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations", directs federal agencies to consider any disproportionately high and adverse human health or environmental effects of their actions, programs or policies on minority and low-income populations. The proposed action will reduce greenhouse gases through replacing a diesel generator that would be increasingly required with a biofuel generator as the landfill gas to energy plant becomes increasingly inefficient. Due to the beneficial impacts to air quality and associated health improvements resulting from reduced GHGs from the biofuels generator, the proposed action would have no disproportionately high and adverse effect on minority and/or low-income communities located in Keene, NH.

Air Quality

A small amount of emissions will be associated with the proposed project from the installation of the biofuels generator, biofuels storage tanks and associated ancillary activities related to the biofuels project. However, the project will not cause or contribute to the exceedance of the national Ambient Air Quality Standards.

Moreover, the use of the biofuels generator will reduce local greenhouse gas emissions. In particular, the new system will result in a reduction of an estimated 94 tons CO_2 per year.

Entities Consulted

This Environmental Assessment is based upon the "Landfill Gas to Energy System Update and Energy Options" proposal submitted by the City of Keene. The New Hampshire Division of

Historical Resources and New Hampshire Fish and Game Department were all consulted for information applicable to the location of the proposed project.