NACo National Association of Counties

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WASTE ENERGY RECOVERY: RENEWABLE ENERGY FROM COUNTY LANDFILLS

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Counties can increase their metal recycling rates by recovering metal during the waste-to-energy process.

Source: Shutterstock

INTRODUCTION

Each year, Americans on average generate nearly 4.38 pounds of trash per person per day, or collectively about 251 million tons per year.[1] We recycle about 87 million tons of this waste, for a total recycling rate of around 34.5 percent, but the majority of the waste we produce ends up in county-run landfills across the country.[2] Known as municipal solid waste, this trash is composed of a variety of items that people throw away, including food waste, yard clippings, electronics, tires, furniture and more. Counties play an important role in the collection and disposal of municipal solid waste, providing regular and efficient waste collection to keep counties safe and sanitary, while ensuring that waste is properly handled at landfills to avoid environmental damage from soil and groundwater contamination.

The current recycling rate of 34 percent is the highest it has been in the U.S. since the 1980s, when it was around 10 percent.[3] Through efforts including recycling, composting and municipal solid waste incineration, we now send about 54 percent of all waste in the U.S. to landfills, compared to 89 percent in 1980.[4] Items with the highest recycling rates include lead-acid batteries (96 percent), steel cans (70.8 percent), paper (70 percent), yard waste (57 percent) and aluminum cans (54.6 percent).[5]

Despite these efforts, each year some 135 million tons of municipal solid waste are sent to landfills in counties across the country.[6] It can be expensive to create new landfills when existing ones fill up, and transporting waste to landfills in other counties or even across state lines can be cost-prohibitive. Additionally, landfills are the third-largest human-generated source of methane emissions in the U.S., threatening the local environment and air quality.[7]

Counties have turned to alternative methods of municipal solid waste disposal and handling to avoid sending unnecessary waste to their landfills and find value-added benefits from landfill waste. Methods such as landfill gas-to-energy and waste-to-energy allow counties to generate renewable heat and electricity from previously unused sources. These methods can allow counties to generate new streams of revenue through the sale of electricity and captured methane, lower their energy costs, reduce their emissions, improve local air quality and strengthen public-private partnerships. This issue brief serves as a guide for county leaders to better understand the process of recovering energy from waste, and provides resources to help counties develop and finance energy-from-waste projects.

HOW DO MUNICIPAL SOLID WASTE AND LANDFILLS PROVIDE COUNTIES WITH RENEWABLE ENERGY?

Though solar and wind power are the most common sources of renewable energy, electricity generated from municipal solid waste (MSW) accounts for nearly 14 percent of all renewable energy generated in the U.S.[8] The two main methods of producing energy from MSW are known as landfill gas-to-energy (LFTGE) and waste-to-energy (WTE).

LANDFILL GAS-TO-ENERGY

When waste is deposited in a landfill, it begins to decompose and naturally produces landfill gas, or LFG, which is approximately 50 percent methane and 50 percent carbon dioxide.[9] Normally this gas is released into the atmosphere, which can lead to negative environmental and air quality impacts, but many landfills in counties across the country capture the methane and repurposing it to create electricity or use as fuel in compressed natural gas vehicles.

At LFGTE facilities, LFG is collected through a series of wells that are installed throughout the landfill, which draw out the methane gas through a vacuum process. The gas is then filtered to remove any debris and other contaminants, compressed and finally chilled to remove any remaining liquids through condensation.[10]

After it is chilled and the condensate is removed, the captured LFG is ready to be used for a variety of purposes. Counties operating LFGTE facilities take advantage of the naturally occurring methane by collecting it for a variety of uses, such as:

- powering generators on-site, or at other county facilities,
- fueling county-owned compressed natural gas (CNG) vehicles such as pick-up and garbage trucks,
- creating electricity which counties can sell to a local utility as a new source of revenue, and
- heating county-owned buildings, among other uses.

Wells are used to collect methane produced from decomposing waste, which can then be used as a source to generate electricity or power compressed natural gas machinery.
Source: King County Solid Waste Division

WASTE-TO-ENERGY

Waste incinerators were first built in the U.S. in the late 19th century and were quickly designed as power-generating facilities. Today, there are three main ways that MSW is incinerated:[11]

- **Mass Burn Facilities:** These facilities are the most common type of incineration facilities in the U.S. Waste destined for mass burn facilities is first sorted through to remove any hazardous or recyclable materials. From there, the waste is transferred into a furnace, which completely incinerates the waste at a minimum temperature of 1800 degrees Fahrenheit.[12] As the waste combusts, it releases heat which is used to convert water to steam. This steam powers a turbine generator which then produces electricity. The remaining material after the mass burn, known as ash, is collected and transferred to a landfill. The gas released from the burn passes through filters which trap more than 99 percent of the particulate matter in the gas.
- **Modular Systems:** Modular systems differ from mass burn facilities in that they are smaller and portable, and so can be moved from site to site. They are designed to burn mixed MSW, meaning the waste does not need to be pre-sorted.
- **Refuse Derived Fuel Systems:** These systems shred MSW and separate the non-combustible from the combustible materials. They convert the combustible material into pellets or briquettes which can be used in a furnace or boiler.

Regardless of the method, energy derived from MSW and LFG is considered to be a renewable resource available for counties to harness.

WHERE ARE WASTE AND LANDFILL ENERGY HARNESSED?

Landfills and MSW facilities in counties across the country are providing their residents and businesses with clean, affordable and renewable energy from their landfill operations.

LANDFILL GAS-TO-ENERGY FACILITIES

LFGTE operations are much more common in the U.S. compared to WTE, and are located in counties across the country. As of 2014, there are 621 operational LFGTE plants in the U.S., with another 450 landfills that are candidates for LFGTE operations.[13] Of these 621 facilities, counties own and often operate 145. For a full listing of the current operational LFGTE projects, visit the U.S. Environmental Protection Agency's Landfill Methane Outreach Program's project database at www.epa.gov/lmop/projects-candidates/operational.html.

Workers check on methane levels at the Cathcart landfill in Snohomish County, Wash.

Source: Snohomish County Public Works

WASTE-TO-ENERGY FACILITIES IN THE U.S.

As of 2014, there are 86 WTE facilities in 25 states in the U.S. that are capable of incinerating waste to generate heat and electricity.[14] Of these 86 facilities, counties own and operate 23. The 86 WTE facilities have the capability to produce a total of nearly 3,000 megawatts of power, or enough to power nearly one million homes in the U.S.[15]

The majority of the WTE facilities are located in the northeast portion of the country where population densities are higher, which makes the process more cost-effective. No new WTE-specific plants have been built in the U.S. since 1995, though a number of facilities in the U.S. have expanded their plants to include WTE operations, helping them both generate new sources of revenue while minimizing their environmental impact.

WHY PURSUE WASTE AND LANDFILL ENERGY PROJECTS?

GENERATE NEW REVENUE

LFGTE and WTE operations have the ability to provide counties with new sources of revenue. By selling the CNG collected and electricity generated on-site to local utilities, counties can contract with their local utilities to provide them with the renewable energy needed to meet renewable portfolio standards while collecting potentially millions in new revenue each year.

For example, Pinellas County, Fla. sells the energy created from its WTE operations to Duke Energy, the local utility provider. Duke Energy purchases around 475,000 megawatts of electricity each year, which brings in about $50 million in yearly revenue for the county.[16] Dane County, Wis., earns about $3.3 million each year from the electricity it sells to Madison Gas and Electric from its LFGTE operations at the Rodefeld Landfill.[17]

CREATE JOBS

Waste and landfill energy projects can be a boon to a county's local economy. Not only do they provide opportunities for temporary and permanent jobs during the construction and maintenance phases of the projects, but they can also serve as a new source of revenue for counties through the sale of electricity and methane.

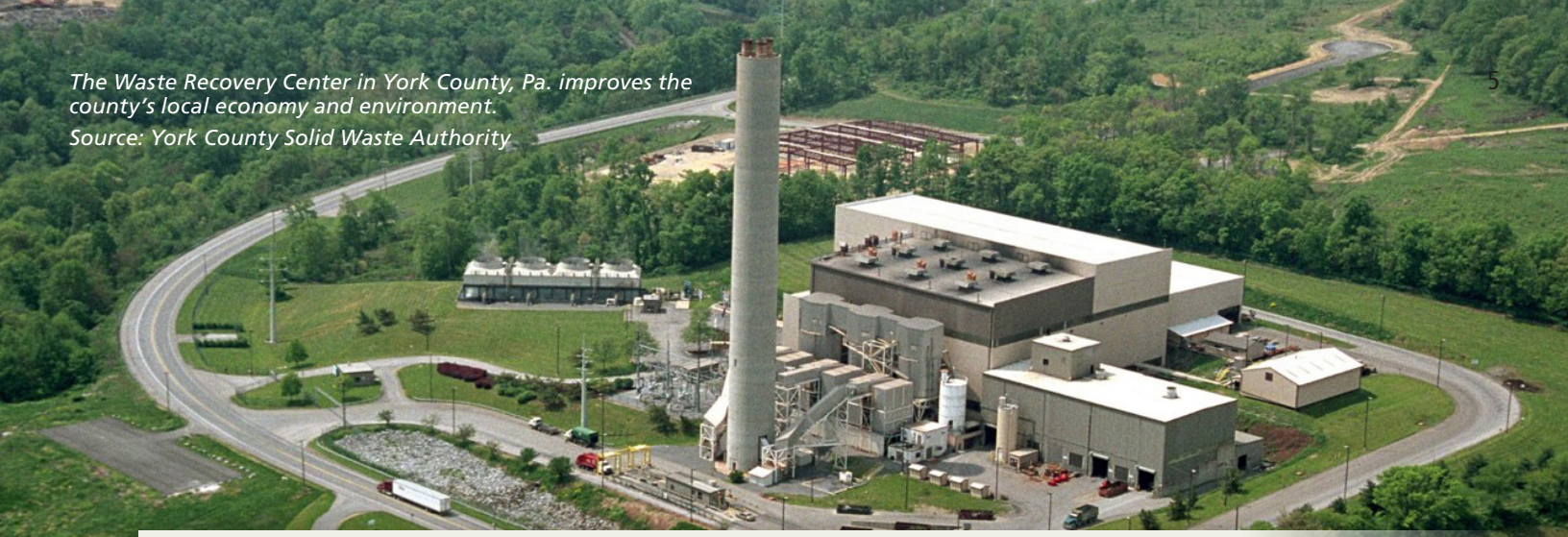
A standard three-megawatt LFGTE project involves input from engineers, construction firms and workers, local utility providers and equipment vendors. On average, a 1,500 tons per day WTE facility leads to 248 direct jobs and 52 indirect jobs during the construction phase.[18] Once in operation, an average of 59 new direct jobs is created to operate and maintain the facility. Counties such as Frederick County, Md. are specifically pursuing WTE as an economic driver to improve the local economy with hundreds of new jobs.

INCREASE RECYCLING RATES

WTE facilities provide counties the opportunity to divert unnecessary waste from their landfills, generate a renewable source of energy, and potentially earn revenue from the sale of this energy. Additionally, WTE facilities can also improve a county's recycling rate. Normally, metals are separated out before the waste is incinerated, but sometimes not everything is sorted out. After the waste is burned, the process leaves behind ash and occasionally metal fragments. These fragments can be collected from the ash by large magnets and taken to a recycling facility for further processing.

A number of counties have recycled a significant amount of metal recovered from the WTE process. Marion County, Ore.'s WTE facility recycles nearly 4,000 tons of metal that it recovers from the WTE process each year.[19] Westchester County, N.Y.'s WTE facility recovers some 17,000 tons of metal each year.[20] The metal carries a value of about $3.4 million, half of which the county earns in revenue from scrap metal sales.

Waste energy recovery operations require high-skilled labor and can provide many new local jobs.
Source: Shutterstock



The Waste Recovery Center in York County, Pa. improves the county's local economy and environment.
Source: York County Solid Waste Authority

CASE STUDY

RESOURCE RECOVERY CENTER PROVIDES YORK COUNTY ECONOMIC AND ENVIRONMENTAL SECURITY

York County, Pa., located just north of the Maryland border, is home to approximately 438,000 residents.[21] Since 1989, the York County Solid Waste Authority, governed by a nine-member board appointed by York County commissioners, has owned the York County Resource Recovery Center, the first WTE facility in the state to include air pollution control in advance of the Clean Air Act, which has been a leader in advancing renewable energy development from MSW.

The facility currently occupies 22 acres of a total of 150 acres of land, and is rated to process 1,344 tons of waste each day.[22] It is in operation 24 hours per day, providing regular and reliable electricity generation from its WTE operations. When operating at full capacity, the Resource Recovery Center is able to produce 36-40 megawatts of electricity, enough to power nearly 20,000 homes.

The operations at the Resource Recovery Center have helped York County improve both its local environment and economy. By generating electricity from waste, the county is able to significantly reduce the amount going to its landfill, saving nearly 13 acres of landfill space, 35 feet deep each year.[23] The energy created saves the equivalent of 375,000 barrels of oil, and nearly 20,000 tons of metal are recovered from combustion ash and recycled.[24] Through the WTE operations, the county reduces its carbon footprint: for every ton of waste managed at the facility, one ton of carbon dioxide emissions is avoided. To keep the plant in operation requires 52 full-time, high-skilled jobs, providing local employment opportunities. The county also earns revenue from the sale of the electricity generated; the Resource Recovery Center uses about five megawatts of energy to operate the facility and the Management Center, with the remainder of it sold to Metropolitan Edison, the local utility provider.

Though York County Solid Waste Authority owns the facility and the land it sits on, the facility is operated by Covanta York Renewable Energy LLC. The Solid Waste Authority and Covanta have a service agreement for Covanta to maintain and operate the Resource Recovery Center through the end of 2015, and with negotiations in progress to extend the agreement. In addition, a long-term contract with Metropolitan Edison enables the utility to purchase electricity generated from the WTE operations.

With the success of the WTE operations, the Solid Waste Authority is currently planning site improvements to the Resource Recovery Center to enhance customer service and safety at the facility. The $62 million project will more than double the plant's current footprint, expanding it by 27.5 acres.[25] To fund the expansion, the Solid Waste Authority will use money from its reserve fund as well as a $10 million bank loan. The expansion will increase the size of the tipping hall where trucks drop off waste, which will allow for tractor-trailers to have separate access away from smaller trash trucks, easing congestion at the facility. The office and visitor center will also be expanded, in part to accommodate the high demand for tours (currently the center educates up to 60 people at a time). The site improvement project will require more than 26,000 man-hours of engineering work, and will generate additional jobs locally during the construction phase. Construction is expected to start in spring 2015 and take between 30 and 36 months.

DIVERT WASTE FROM LANDFILLS

One of the main concerns for landfill operators and county leaders is how to avoid quickly filling up existing landfills. Creating new landfills is expensive, and counties with limited land availability may be forced to pay to have waste transferred out of their county and into landfills elsewhere.

WTE projects are one way in which counties can avoid this situation. Westchester County, N.Y.'s WTE plant has helped the county reduce its need for landfill space by nearly 90 percent—critical for the county, as it has no space available for a new landfill.[26] By extending the life of its landfill, the county can avoid transferring its waste elsewhere, which would not only be costlier but could lead to increased traffic on local roads and greater emissions from large automotives.

IMPROVE AIR QUALITY

WTE and LFGTE projects can improve the local environment for counties by reducing emissions from fossil fuels and improving local air quality. As noted previously, landfills are the third largest human-generated source of methane emissions in the U.S. All landfills naturally produce methane as a byproduct of the breakdown of waste, so capturing that gas is a way for counties to reduce landfill emissions. Although methane has a shorter atmospheric life-span—around 10 years—compared to carbon dioxide, it is a much stronger greenhouse gas, some 20 times more potent by weight than carbon dioxide.[27] Since LFGTE projects are capable of capturing 60 to 90 percent of methane from landfills, LFGTE projects are one of the most effective ways of seeing short-term beneficial impacts to local climate.

WTE projects also allow counties to reduce their methane and carbon dioxide emissions. Instead of letting waste decompose in a landfill and producing methane, WTE facilities avoid this through incineration of non-hazardous waste, eliminating methane emissions and producing fewer carbon dioxide emissions than a landfill otherwise would.[28]

Additionally, using energy produced from waste reduces counties' reliance on non-renewable sources of energy to meet their energy needs. This can greatly reduce emissions from power plants, including carbon dioxide, sulfur dioxide, nitrogen dioxides and methane, which in high enough concentrations can lead to smog, acid rain and other issues.[29]

Anne Arundel County, Md.'s Millersville Landfill and Resource Recovery Facility has been in operation since July 2014. The LFGTE facility lowers the landfill's methane and carbon dioxide emissions by approximately 6,375 and 15,130 tons per year respectively.[30] This is the equivalent of removing some 26,500 cars from local roads, or planting nearly 29,000 acres of trees.

MEET RENEWABLE PORTFOLIO STANDARDS

Producing energy from waste can help local utilities meet existing renewable portfolio standards, or RPSs. States that have set RPSs have created legislative requirements for local utilities to generate or sell a specific percentage of their total electricity from renewable energy sources, including LFG and incineration. The percentage and eligible sources vary from state to state; however, there are currently 37 states that have enacted RPSs. All accept LFG as a source of renewable energy, and 19 accept WTE as a renewable energy source.[36] Counties in states with legislated RPSs can work with their local utilities to help them, for example, by selling methane captured at county landfills or electricity generated from LFG.

CASE STUDY

FINANCIAL AND ENVIRONMENTAL BENEFITS FROM CATAWBA COUNTY'S BLACKBURN LANDFILL

Catawba County, located in western North Carolina, is home to approximately 155,000 residents.[31] Since 1987, the county has operated its Blackburn Landfill, where it collects and processes waste and recycled materials from county residents and businesses. Since 1999, the county has operated its LFGTE facility at the Blackburn Landfill, providing the county with a steady stream of revenue from the sale of electricity generated from the captured gas and preventing methane from escaping the landfill and threatening the health and welfare of county residents.

In the 1990s, when county leaders became interested in adding WTE capacities to the Blackburn Landfill, they recognized that partnering with members of the private sector was the most financially feasible way to meet their goals. The county entered into a public-private partnership with Enerdyne Power Systems to build and operate the LFG collection and delivery system, and worked with GE Jenbacher to design and create the engines that produce electricity from the LFG collected; this helped the county avoid $2.5 million in costs to design and build the facility alone.[32]

Catawba County has seen a significant reduction in its environmental impact from its LFGTE operations. The reduction in methane and carbon dioxide are equivalent to removing 23,600 cars from the road, carbon dioxide emissions from using 14.6 million gallons of gasoline, or the amount of carbon sequestered from more than 29,000 acres of pine forest.[33]

In addition to the environmental benefits from LFGTE operations, the county has also seen a steady stream of revenue from the sale of electricity. With three 1-megawatt engines installed at the Blackburn Landfill, Catawba County generates electricity on-site and sells it to Duke Energy, the local utility provider. The LFGTE plant is able to generate enough electricity to power 1,400 average-sized homes each year, the sale of which brought in about $550,000 in revenue for the county.[34] Over a 20-year period, the county plans on purchasing two more engines, which could create enough electricity to power a total of 2,300 average-sized homes, and generate approximately $9.2 million in revenue.[35] The revenue earned will augment the county's Solid Waste Enterprise Fund, helping maintain some of the lowest landfill tipping fees in the region. Likewise, the renewable electricity will help Duke Energy expand its renewable energy portfolio.

"Our landfill gas-to-energy project has been beneficial to Catawba County in several ways," said Catawba County Commissioner Kitty Barnes. "It's a great example of our focus on finding innovative solutions to meet challenges in ways that benefit our citizens. Our LFGTE project represented the first use of GE Jenbacher engines in the U.S., to go beyond the requirement that we merely flare the methane gas occurring naturally in landfills and use the gas to produce electricity that brings in additional revenue. The project has helped us keep landfill tipping fees stable for 16 years while we reduce an environmental hazard."

The sale of electricity generated from landfill gas by the Jenbacher engines at Catawba County's Blackburn Landfill provides the county with a reliable source of revenue from renewable energy.

Source: Catawba County

POTENTIAL CHALLENGES

WTE programs have a reputation of being "dirty" because of poor emission controls at WTE facilities during the 1970s and 1980s.[37] Standards set forth in the Clean Air Act of 1990 have since curbed WTE facility emissions, and have made WTE facilities in the U.S. among the cleanest and most well-managed in the world. The unregulated burning of waste is no longer practiced, and restrictions on particulate emissions ensure better air quality. Facilities that were not able to meet these guidelines were closed following the Clean Air Act. Despite this, the public's perception of WTE facilities has remained unchanged, a barrier that counties interested in pursuing WTE projects will need to overcome through community education and outreach.

New WTE facilities can also be costly—often $100 million or more in construction costs, and hundreds of thousands of dollars for operations and maintenance.[38] While the environmental benefits of WTE may be quickly realized, the financial benefits may take longer for counties to reap. A number of funding opportunities available to counties, from grants to loans to tax incentives, are addressed in the next section of this report.

FUNDING OPPORTUNITIES

A variety of federal and state funding opportunities exist for counties looking to pursue projects recovering energy from waste.

FEDERAL FUNDING

The federal government provides various funding opportunities and support for LFGTE and WTE projects. The Renewable Electricity Production Tax Credit is the largest incentive program offered by the federal government for the production of renewable energy.[39] The credit offers 0.9 cents per kilowatt hour of electricity generated for both LFGTE and WTE projects. What the federal government considers a renewable energy source can change from year to year, though; for example, WTE was originally not a qualified source for renewable energy. Information on the tax credit can be found at www.epa.gov/osw/hazard/wastemin/minimize/energyrec/rpsinc.htm.

Since 1994, the U.S. Environmental Protection Agency (EPA) has operated its Landfill Methane Outreach Program as a way to create partnerships among governments, energy users and providers, the LFG industry and other stakeholders. Through the Landfill Methane Outreach Program, the EPA provides a Funding Guide to help identify potential funding resources including:[40]

- Grants for direct funding support;
- Loans from lenders including government agencies and nonprofits; and
- Tax credits and exemptions.

The Landfill Methane Outreach Program's Funding Guide can be found at www.epa.gov/lmop/publications-tools/funding-guide/index.html.

WTE facilities, like the one in Kent County, Mich., follow strict emissions guidelines as set forth in the Clean Air Act.

Source: flickr user erinthomaswilson

In addition, other federal agencies beyond the EPA (including the Department of the Treasury, Department of Energy, Department of Agriculture and Department of Commerce) provide opportunities for grants, tax credits, bonds and more. To learn more about the programs offered by these federal agencies, visit the EPA's Federal Funding Resources page at www.epa.gov/lmop/publications-tools/funding-guide/federal-resources/index.html.

STATE FUNDING

Much like funding from the federal government, individual states offer financing programs for renewable energy projects, including those for LFGTE and WTE. There are incentive programs active in at least 17 states across the U.S, ranging from grants to rebates to tax credits. Information on the state incentive programs can be found at the EPA's Renewable Energy Production Incentives page: www.epa.gov/osw/hazard/wastemin/minimize/energyrec/rpsinc.htm.

The Database of State Incentives for Renewable Energy (DSIRE) also offers a comprehensive listing of incentives and other programs offered state-by-state. Managed by the U.S. Department of Energy and the North Carolina Clean Energy Technology Center, DSIRE provides up-to-date information on programs aimed to further the development of renewable energy programs in each state. For more information, visit DSIRE at www.dsireusa.org.

Trucks like these deliver municipal solid waste to Fairfax County, Va.'s Energy Resource Recovery Facility
Source: Fairfax County, Va.

CONCLUSION

Although recycling rates are at the highest they have been since the 1980s, how to handle all of the waste generated by residents and businesses is still a major concern for counties. As landfills fill up, counties are often faced with the choice to expand current landfills, create new ones or ship their waste to facilities in other counties. These options are often cost-prohibitive or logistically challenging.

Turning municipal solid waste into energy through landfill gas-to-energy and waste-to-energy projects provides counties an alternative for handling municipal solid waste. These projects enable counties to improve local air quality, lower their emissions, generate new revenue from the sale of electricity and create new local jobs. Funding programs from states and the federal government can help counties large and small, rural and urban reap the environmental and economic benefits from generating energy from waste. As these projects are becoming more common, counties are leading the way in the advancement of renewable energy development in the U.S.

ADDITIONAL RESOURCES

ANNE ARUNDEL COUNTY, MD.

- Anne Arundel County: www.aacounty.org
- Millersville Landfill & Resource Recovery Center: www.aacounty.org/dpw/wastemanagement/ml_homepage.cfm

CATAWBA COUNTY, N.C.

- Catawba County: www.catawbacountync.gov
- Catawba County Landfill Gas-to-Energy Facility: www.catawbacountync.gov/ue/cogen_links.asp

DANE COUNTY, WIS.

- Dane County: www.countyofdane.com
- Rodefeld Landfill: www.countyofdane.com/pwht/recycle/landfill.aspx

DATABASE OF STATE INCENTIVES FOR RENEWABLE ENERGY

- Database of State Incentives for Renewable Energy: www.dsireusa.org

PINELLAS COUNTY, FLA.

- Pinellas County: www.pinellascounty.org
- Pinellas County Waste-to-Energy Plant: www.pinellascounty.org/solidwaste/wte.htm

MARION COUNTY, ORE.

- Marion County: www.co.marion.or.us
- Marion County Waste-to-Energy Facility: www.co.marion.or.us/PW/ES/disposal/mcwef.htm

U.S. ENVIRONMENTAL PROTECTION AGENCY

- U.S. Environmental Protection Agency: www.epa.gov
- Energy Recovery from Waste: www.epa.gov/waste/nonhaz/municipal/wte
- Landfill Methane Outreach Program: www.epa.gov/lmop
- Landfill Methane Outreach Program Funding Guide: www.epa.gov/lmop/publications-tools/funding-guide/index.html
- Landfill Methane Outreach Program Operational Projects Database: www.epa.gov/lmop/projects-candidates/operational.html
- Renewable Energy Production Incentives: www.epa.gov/osw/hazard/wastemin/minimize/energyrec/rpsinc.htm

YORK COUNTY, PA.

- York County: www.yorkcountypa.gov/
- York County Resource Recovery Center: www.ycswa.com/york-county-resource-recovery-center

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ABOUT NACo

The National Association of Counties (NACo) is the only national organization that represents county governments in the United States. Founded in 1935, NACo provides essential services to the nation's 3,069 counties. NACo advances issues with a unified voice before the federal government, improves the public's understanding of county government, assists counties in finding and sharing innovative solutions through education and research and provides value-added services to save counties and taxpayers money. For more information about NACo, visit www.NACo.org.

ABOUT THE RESILIENT COUNTIES INITIATIVE

NACo's Resilient Counties initiative serves as a catalyst between local governments and the private sector to strengthen the resilience of the nation's 3,069 counties, and create solutions for sustainable places.

In order to remain healthy, vibrant, safe and economically competitive, America's counties must be able to anticipate and adapt to all types of change. Through the Resilient Counties initiative, NACo works with counties and their stakeholders to bolster their ability to thrive amid changing physical, environmental, social and economic conditions.

Hurricanes, wildfires, economic collapse, and other disasters can be natural or man-made, acute or long-term, foreseeable or unpredictable. Preparation for and recovery from such events requires both long-term planning and immediate action. NACo works to strengthen county resiliency by building leadership capacity to identify and manage risk, and allow counties to become more flexible and responsive. Through the use of sustainable practices and infrastructure, counties will be better prepared to address these issues in a manner that can minimize the impact on local residents and businesses, while helping counties save money.

Through the initiative, NACo:

- **Develops** strategies to foster economic growth and competitiveness,
- **Educates** counties on techniques for implementing resiliency and sustainability strategies,
- **Provides** tools for counties to educate their communities on resiliency initiatives,
- **Identifies** ways to leverage changing conditions and take advantage of new technologies and innovation, and
- **Facilitates** an open exchange with the private sector.

For more information, visit www.naco.org/resilientcounties.

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