

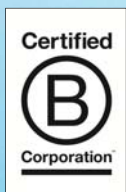
# NATURAL SYSTEMS UTILITIES

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## Ridgewood WWTP FOG Co-Digestion

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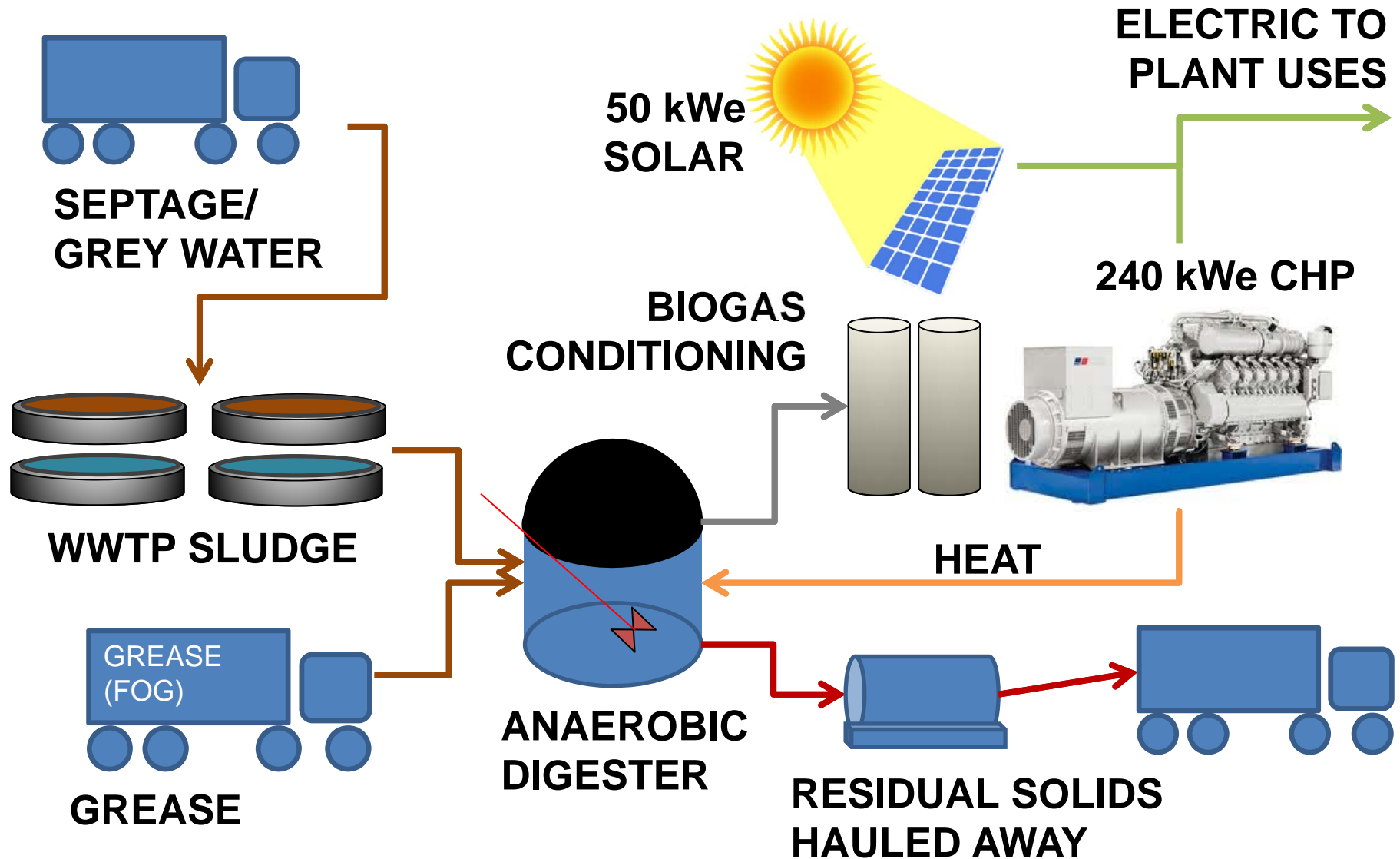


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# RGRME – Public Private Partnership



# Ridgewood Green RME:



# Ridgewood, NJ - Profile

<b>Project Outline</b>	Retrofit organic waste receiving station, CHP system and solar panels at an <b><u>WWTP</u></b> with an operating digester
<b>Goal</b>	Provide up to 100% of power consumed by the WWTP
<b>Capital Cost</b>	Approx. \$4MM (\$1.6 MM from grants)
<b>Energy Production</b>	240 kW CHP + 50 kW solar (max.). Target is 190 kW on average between both systems
<b>Carbon Offset</b>	Approx. 1,050 Tons CO <sub>2</sub> .eq/yr. (equiv. to 6,750 tanks of gasoline per year)

# Ridgewood, NJ – Motivation

**What makes this project special?**

- 1. Public-Private-Partnership model for infrastructure**
- 2. 4-6 yr PBT (capitalized) – investment grade**
- 3. Small-scale – Proof of Concept at a 2 MGD plant**
- 4. Replicable concept at 100s of other US WWTPs for small communities**
- 5. Diverts otherwise undesirable grease trap waste from landfills for beneficial reuse**
- 6. Multiple benefits for the Village**

# Ridgewood, NJ – Village Benefits

- 1. No risk to Village of Ridgewood – all finance provided privately. Business success is a private risk**
- 2. Lock in a source of renewable energy with controlled cost for 20 years**
- 3. Shared revenue from tipping fees**
- 4. Potential cost savings due to reduction on digestate volumes**
- 5. Potential for resilient source of power (pending islanding approval by NJ BPU)**
- 6. Potential to eliminate chemical disinfection pending UV installation**

# RGRME – Project History

- May 2011 – Village of Ridgewood Announces RFP for digester energy project.**
- Jul 2011 - Ridgewood Green RME forms as special purpose vehicle and proposes to deliver services under 20 year DBOOF arrangement, via a Power Purchase Agreement**
- Dec 2011 - Contract signed/Procurement begins**
- Jun 2012 - Construction begins**
- Jan 2013 - Start producing solar power and receiving grease loads**
- Jun 2013 - Start providing CHP power to plant**
- Jun 2013 - Construction substantially complete**
- Jul 2013 - Official start of commercial operations**

# CHP/Gas conditioning system





# Liquid Waste Receiving Station



# RGRME Performance

	Jul 2015	ITD
<b>CHP kWh produced</b>	109,944	2,014,631
<b>Solar kWh produced</b>	27,061	555,863
<b>Tons of CO2 (eq.) offset</b>	100	1682
<b>Gallons FOG Received</b>	103,100	4,797,060
<b>Gallons Septage Received</b>	221,850	2,744,125
<b>Gallons Grey water Received</b>	212,900	6,391,300

# Performance to Date



The screenshot shows a Nasdaq GlobeNewswire news article. At the top, there is a navigation bar with 'NEWSROOM', 'PRICING', 'SEND RELEASES', 'REGULATORY FILINGS', and 'PR SOLUTION'. The article is from Middlesex Water Company, a subsidiary of Natural Systems Utilities. The headline is 'Ridgewood Green RME Wins Biogas Project of the Year'. Below the headline are social media sharing buttons for Google+, Facebook (1 Like), Twitter (0 Tweet), LinkedIn (0 Share), Email (0), and a general Share button (34). The article text begins with 'HILLSBOROUGH and ISELIN, N.J., April 10, 2014 (GLOBE NEWSWIRE) -- The American Biogas Council today awarded Ridgewood Green RME the "Biogas Project of the Year Award" for a renewable energy project implemented at the wastewater treatment plant owned by the Village of Ridgewood, NJ. The American Biogas Council selected the project in the Municipal category because of its excellence in

# Monitoring



[http://live.deckmonitoring.com/?id=ridgewood\\_wastewater](http://live.deckmonitoring.com/?id=ridgewood_wastewater)

# Conclusions

- RGRME illustrates successful small-scale PPP co-digestion CHP project
- Over 2 million kWh generated from biogas since early 2013
- CHP environmental impact the same as removing 200 cars from the road
- Project required some improvements after start-up which could not qualify for grant funding

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**Thank you for your attention**



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