

# EXECUTIVE SUMMARY

## PALM BEACH COUNTY, FLORIDA RESOURCE RECOVERY FACILITY

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### ENERGY RECOVERY CASE STUDY: PALM BEACH COUNTY, FLORIDA

The Palm Beach County North County Resource Recovery Facility (NCRRF) is one of 13 Refuse Derived Fuel (RDF) facilities currently operating in the United States. Commencing operations in 1989, the plant is owned by the Solid Waste Authority of Palm Beach County and operated by a subsidiary of Babcock & Wilcox Power Generation Group, Inc. It has served Palm Beach County's population of 1.3 million people without interruption for the last 20 years. The company recently renewed its contract with the Authority for another 20 years and is also undertaking a full scale retrofit of the facility. Palm Beach County disposes of about 1.5 million tons of municipal solid waste annually, of which 30% is recycled, 40% is combusted and 30% is landfilled. Due to the success of the NCRRF and the issues with siting a landfill, the Authority is in the midst of procuring a new mass burn WTE plant. At 3000 tons per day, generating between 95 and 100 MW of electricity, it is expected to come on line in 2015. It will be the first such plant built in the United States in 15 years and will use cutting edge combustion and air pollution control technologies. With this plant, the Authority will be more than doubling its WTE capacity.

#### Economic Impacts

- **Energy Efficiencies:** The 605,000 tons of waste combusted at the NCRRF produces about 378,500 Mwh (megawatt-hours) of electricity, enough to service about 40,000 homes and displace the use of 226,000 barrels of oil annually. Residual or non-recycled plastics contribute about 31% of the energy recovered on a BTU basis.
- **Employment:** The plant employs 220 permanent skilled workers, who contribute about \$8.8 million to the local economy annually. In addition, the facility contributes at least an additional \$5 million to the region annually through purchases of goods and services.
- **Impact on the Public Budget:** The Solid Waste Authority of Palm Beach County is a special taxing district. Residential properties pay an annual disposal fee based on type of property. Businesses are assessed a waste generation fee which varies by type of business. Private haulers also pay a tip fee of \$35.00 (2009) at all disposal sites. The Authority's

total budget in 2009 was \$253,599,000 of which 64% came from non ad-valorem assessments, 11% from electricity revenues, 10% from tip fees and 5% from material sales. The remainder came mainly from reserves.

- **Real Estate Footprint:** The facility, processing nearly 2400 tons per day, is located in the northwest quadrant of the county at the 1300 acre North County landfill. To handle that level of daily waste the Authority would have to double its landfill size.

## **Environmental Impacts**

- **Recycling Levels:** The Authority has voluntary recycling for residents and businesses. Its recycling rate was about 25% in 1996 and reached 30% by 2008. The state goal recently changed to 75% by 2020; thus, the Authority is considering making recycling mandatory.
- **Metal Recovery:** The NCRRF recovers about 30,000 tons per year of ferrous metal and 4000 tons of non ferrous metal at a value of approximately \$9.5 million. The county receives 90% of the ferrous revenues; the operator retains all non-ferrous revenues.
- **Landfill Diversion:** Over the plant's life, about 10 million tons of waste have been kept out of landfill. This has preserved valuable landfill capacity in the county. In addition, by diverting wastes from the landfill, the Authority has avoided the leachate production and the emission of hazardous landfill gases associated with this waste.
- **Reduction of Reliance on Fossil Fuels:** The plant takes the non-recyclable portion of the waste stream and generates energy. This energy is sold onto the grid and is enough to service about 40,000 homes as well as meet the in-house energy needs of the plant, displacing 226,000 barrels of oil.
- **Greenhouse Gas Reductions:** The combustion of 605,000 tons of waste at the WTE plant plus the metals recovery at the plant contributes to the net reduction of Greenhouse Gas (GHG), compared to the alternative of landfilling this waste. Using the US EPA's WARM model, one can calculate that the waste to energy plant results in a net reduction of 178,151 MTCEs (Metric Tons Carbon Equivalents), which is comparable to taking about 119,642 cars off the road.
- **Air Emissions:** The WTE plant operates under strict federal and state air emissions and operating standards, which are monitored and tested on a regular basis. As a RDF plant, which removes hazardous materials and metals prior to combustion and sizes the remaining waste, the NCRRF has met all standards with electrostatic precipitators and dry scrubbers. After 20 years of operation, in 2010 the plant is undergoing a \$260 million retrofit and boiler upgrade a new air pollution control system will be installed. It will be one of the cleanest WTE plants in the United States.

## **Political/Institutional Impacts:**

- **Community Support:** The plant has operated without significant opposition over the last 20 years. In fact, as a reflection of community support, the Authority will be building a new 3000 tons per day plant next to the current facility. Dan Pellowitz, Assistant to the Authority's Executive Director that "the success of the RDF plant has allowed us to proceed with permitting a new mass burn facility. Community and

environmental groups recognize that this is a much better alternative than a new landfill.”<sup>1</sup>

- A recent editorial in the local paper echoed this sentiment stating: “Not only does that [the new WTE plant] slow up the rate this landfill—and perhaps the next one, should it ever get built—gets used, squeezing energy out of garbage puts trash to good use. That's not just green. It's smart. And it's the best plan the county has in the works for dealing with its growing trash pile.”<sup>2</sup>
- **Industry Recognition:** In 2009 the NCRRF was recognized by the American Society of Mechanical Engineers (ASME) by receiving the Large Waste to Energy Facility Recognition Award for outstanding performance among facilities in North America. It also received the 2009 Solid Waste Association of North America (SWANA) silver Excellence Award in the Waste-to-Energy category.

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<sup>1</sup> Interview with Dan Pellowitz, Assistant to the Executive Director, October 26, 2010.

<sup>2</sup> Editorial. **Sun Sentinel**. February 27, 2010. <http://articles.sun-sentinel.com>