SWANA TECHNICAL POLICY T-8

WASTE TO ENERGY AS PART OF

INTEGRATED SOLID WASTE MANAGEMENT

Background

SWANA supports the recovery of energy from solid waste as an element of integrated solid waste management. For the purposes of this policy, we are defining waste to energy (or energy from waste) as terms used to represent technologies that combust solid waste and recover energy from the waste in the form of steam, heated water or electricity. Other waste conversion technologies that do not involve combustion of the waste are not considered part of this technical policy. Waste to energy technology provides a renewable source of energy and results in net carbon reductions when compared with most other methods of waste disposal. The net carbon reduction is a result of: eliminating landfill methane emissions, recovering metals, and offsetting the burning of fossil fuels.

Policy

The use of waste to energy technology should be consistent with the USEPA's current waste management hierarchy and local government integrated solid waste management plans, that include existing and planned waste prevention, waste reduction and recycling programs. Permitting of waste to energy facilities should be consistent with the established long term needs of local government and their integrated solid waste management plans. Appropriate public policy mechanisms should be put in place to ensure the viability of waste to energy projects. Waste to energy projects are long term projects that require significant upfront capital and the economic feasibility of these projects should be reviewed by financial specialists. The full costs for the siting, design, construction and operation, including residue management and disposal, should be included in the costs assigned to a waste to energy facility, within an integrated solid waste management system. Expected revenues from sales of energy or recovered materials, as well as potential revenues related to renewable energy credits and

carbon credits should be considered as part of the full cost accounting. While combustion using mass burn or refuse derived fuel (RDF) technologies are the most common technologies used for recovering energy from solid waste, there are several new and emerging technologies that may be considered, based on the characteristics of the integrated solid waste management system and the attributes of the technology. The selection of a waste to energy technology should be consistent with best practices regarding economics, environmental performance, technical performance and public health issues. The use of waste to energy facilities should be based on the assurances that during siting, design, construction and operation, a waste to energy facility will comply with all federal, state/provincial and local government rules, regulations and permits.

The following are considered to be best practices in the planning, siting, design and operation of waste to energy facilities as part of integrated solid waste management:

1. Planning for waste to energy facilities should consider the following factors:
    - evaluation of need based on current and projected waste volumes and characteristics,
    - evaluation of the risks the community can or is willing to take,
    - evaluation of the environmental and regulatory requirements for the facility implementation,
    - evaluation of the potential delivery process and business model (Design/Build, Design Build Operate, Design Build Own Operate, etc.)
    - capability of being engineered to provide for best practices in design and operation, and to ensure compliance with all applicable environmental regulations,
    - evaluation of the environmental performance of the selected technology,
    - evaluation of compatibility with recycling and source reduction efforts in integrated solid waste plan,

- verification of the of the availability and viability of long term revenue sources for the facility products,

- evaluation of facility economics, including initial construction costs, financing costs, ongoing operational costs and revenue sources. Facility economics should consider financial return on investment on a life cycle basis and there should be a high level of confidence that projected pricing of energy and tipping fees are reasonable and consistent with market conditions,

- commercial and technical viability, and

- the use of experienced consultants and attorneys for development of appropriate procurement and contract documents.

2. Sites for waste to energy facilities should be selected based on the following principles:

   - consistency with local land use conditions and zoning codes,

   - consideration of projected waste availability and energy demand for the immediate surrounding area to minimize transportation and transmission costs,

   - siting in proximity to existing infrastructure such as roads, rail access, utilities, transmission lines, steam loops/customers, collection/transfer systems and residue reuse or disposal sites and,

   - with sufficient process to ensure adherence to environmental justice principles.

3. Facilities shall be designed by registered professional engineers and other licensed professionals, with clearly demonstrated knowledge in waste to energy facility design, and shall incorporate the following principles:

   - designed for long term operation at high availability levels,

   - designed for environmental excellence in operations, including use of energy efficient equipment, minimizing use of chemicals and water, reuse of resources within operations, zero discharge of wastewater,

- designed in a manner to maximize energy and heat recovery
- designed with a means for the measurement of incoming solid waste and out-shipped residue energy and products,
- designed with a means for the screening of incoming solid waste,
- designed to include or be a part of a system that includes household hazardous waste and electronic waste recovery programs within an integrated solid waste management program,
- designed to control run-on and run-off to minimize/prevent surface water contamination,
- designed with a means to minimize generation of and/or control emissions of green house gases and other air quality contaminants to ensure compliance with applicable regulations,
- designed to incorporate continuous emissions monitoring systems,
- designed to support the beneficial use of residue,
- designed for maximum recovery of ferrous and non-ferrous metals or other reusable materials from residue, and
- designed to allow for the safe transport and disposal of unusable residue in permitted disposal areas.

4. Construction of waste to energy facilities shall be conducted by licensed contractors familiar with industrial level energy generating facilities with appropriate construction management, monitoring and certification.
5. Waste to energy facilities should be properly commissioned and tested to confirm achievement of performance guarantees.
6. Operation of waste to energy facilities shall aspire to the following principles:
    - operated under the management of a provincial/state certified manager/operator in those provinces/states where certification is required,

- operated by a manager with certification by the appropriate entity in the appropriate category of management and operation,
- operated and maintained using an asset management program, as well as preventive and predictive maintenance programs to minimize expense and down time,
- provision that operators have access to real-time operational and emissions data to enable operation at highest standards,
- provision for ongoing training of all on-site personnel appropriate to assigned area of responsibility,
- operated with high standard safety programs focused on worker health and safety as well as the safety of customers and contractors at the facility,
- provision for controlled access to facility and use by only authorized users,
- provision for an effective inspection and monitoring program of incoming loads to detect and prevent the disposal of hazardous, undesirable, or non-permitted waste, and
- operated so that residue is managed in a manner consistent with the design and permit conditions.

Approved by the International Board
on January 12, 2012

International Secretary

Dated January 12, 2012