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**EMB MEMORANDUM CIRCULAR**  
No. 2019- 008

**SUBJECT: ADOPTING THE NATIONAL SOLID WASTE MANAGEMENT COMMISSION (NSWMC) RESOLUTION NO. 669 SERIES OF 2016 "GUIDELINES GOVERNING THE ESTABLISHMENT AND OPERATION OF WASTE-TO-ENERGY TECHNOLOGIES FOR MUNICIPAL SOLID WASTE"**

**WHEREAS**, Section 8 (f) of Republic Act (RA) 9003, otherwise known as the Ecological Solid Waste Management Act of 2000 states that the DENR shall recommend policies to eliminate barriers to waste reduction programs;

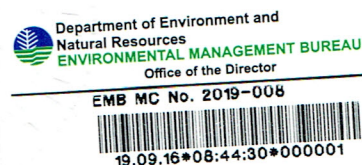
**WHEREAS**, the NSWMC issued a Resolution otherwise known as NSWMC Resolution No. 669, Series of 2016, which adopts the Guidelines Governing the Establishment and Operation of Waste to Energy Technologies for Municipal Solid Wastes (MSW);

**WHEREAS**, the above guidelines has already undergone series of public hearings at the Regional Level participated by all sectors from the provincial and municipal levels;

**WHEREAS**, these guidelines also adhere to the policy of the government to promote compliance with Presidential Decree (PD) 1586 (Establishing an Environmental Impact Statement System); RA 6969 (Toxic Substances and Hazardous and Nuclear Waste Act of 1990), RA 8749 (Philippine Clean Air Act of 1999); and RA 9275 (Philippine Clean Water Act of 2004).

**NOW, THEREFORE**, this Memorandum Circular is hereby issued to serve as guide to all EMB Regional Directors in providing technical support to LGUs and other concerned stakeholders in the establishment and operation of WtE facility.

**ENGR. METODIO U. TURBELLA**  
Director





Office of the President

## NATIONAL SOLID WASTE MANAGEMENT COMMISSION

Department of Environment and Natural Resources

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NSWMC Resolution No. 669, Series of 2016

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### ADOPTING THE GUIDELINES GOVERNING THE ESTABLISHMENT AND OPERATION OF WASTE TO ENERGY TECHNOLOGIES FOR MUNICIPAL SOLID WASTES

**WHEREAS**, Section 2 of Republic Act No. 9003 declared the policy of the State to adopt a systematic, comprehensive and ecological solid waste management program which shall retain primary enforcement and responsibility of solid waste management with local government units while establishing a cooperative effort among the national government, local government units, non-government organizations, and the private sector;

**WHEREAS**, Section 2 of RA 9003 declares, among others, the following: (a) to ensure the protection of public health and environment; (b) set guidelines and targets for solid waste avoidance and volume reduction through source reduction and waste minimization measures, including composting, recycling, re-use, recovery, green charcoal process, and others, before collection, treatment and disposal in appropriate and environmentally-sound solid waste management facilities in accordance with ecologically sustainable development practices; (c) ensure the proper segregation, collection, transport, storage, treatment and disposal of solid waste through the formulation and adoption of the best environmental practices in ecological waste management excluding incineration;

**WHEREAS**, Section 5 of RA 9003, created the National Solid Waste Management Commission whose primary function is to oversee the implementation of solid waste management plans and prescribe policies to achieve the objectives of the RA 9003.

**WHEREAS**, Section 15 of RA 9003 stipulates that within six (6) months from the completion of the National Solid Waste Management Status Report under Section 14 of this Act, the Commission created under Section 4 of this Act shall, with public participation, formulate and implement a National Solid Waste Management Framework. Such framework shall consider and include, among others, the (h) Practical applications of environmentally sound techniques of waste minimization such as, but not limited to, resource conservation, segregation at source, recycling, resource recovery, including waste-to-energy generation, re-use and composting;

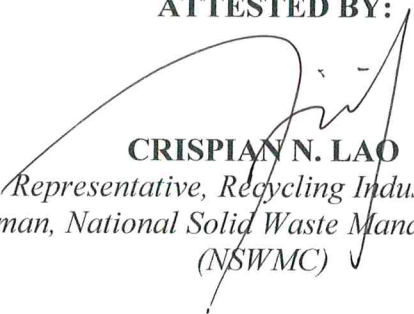
**WHEREAS**, there is a need to provide guidelines on environmentally-sound evaluation, establishment, operation and de-commissioning or closure of waste-to-energy (WTE) technologies for the management of municipal solid wastes.

*Waste No More! Waste No Time!*

**NOW THEREFORE, BE IT RESOLVED, AS IT IS HEREBY RESOLVED,** to adopt the attached Guidelines Governing The Establishment And Operation Of Waste To Energy Technologies For Municipal Solid Wastes

**APPROVED** on the 09<sup>th</sup> day of June 2016.

**ATTESTED BY:**



**CRISPIAN N. LAO**  
*Representative, Recycling Industry and  
Vice- Chairman, National Solid Waste Management Commission  
(NSWMC)*



**SUBJECT: GUIDELINES GOVERNING THE ESTABLISHMENT AND OPERATION OF WASTE-TO-ENERGY TECHNOLOGIES FOR MUNICIPAL SOLID WASTES**

Pursuant to Sections 5K and 5T(ii) of Republic Act (RA) 9003, otherwise known as the Ecological Solid Waste Management Act of 2000, and Executive Order 192 (Providing the Reorganization of the Department of Environment, Energy and Natural Resources; Renaming it as the Department of Environment and Natural Resources) dated 10 June 1987, the Department of Environment and Natural Resources (DENR) hereby adopts and promulgates these guidelines on the establishment and operation of waste-to-energy (WTE) technologies for municipal solid wastes.

Section 1. **Basic Policy.** These guidelines adhere to the policy of the government to ensure the protection of public health and environment and set guidelines and targets for solid waste avoidance and volume reduction through source reduction and waste minimization measures, including composting, recycling, re-use, recovery, green charcoal process, and others, before collection, treatment and disposal in appropriate and environmentally-sound solid waste management facilities in accordance with ecologically sustainable development practices.

These guidelines also adhere to the policy of government to promote compliance with Presidential Decree (PD) 1586 (Establishing an Environmental Impact Statement System), emissions standards as contained in RA 8749 (Clean Air Act); compliance with effluent standards as contained in RA 9275 (Clean Water Act); and regulate, use and disposal of hazardous substances and wastes as stipulated in RA 6969 (Toxic Substances and Hazardous and Nuclear Wastes Act).

Section 2. **Objective.** This NSWMC Resolution is issued to provide guidelines on environmentally-sound evaluation, establishment, operation and de-commissioning or closure of waste-to-energy (WTE) technologies for the management of municipal solid wastes.

Section 3. **Scope and Coverage.** These guidelines set the registration and permitting requirements, standards and procedures on the establishment and operation of commercial-scale WTE technologies utilizing municipal solid wastes, which include among others, the following:

- a) Pre-operation phase
- b) Waste delivery control
- c) Quality control
- d) Operational control
- e) Pollution abatement

- f) Environmental monitoring
- g) Documentation and monitoring
- h) Social safeguards
- i) Decommissioning or Closure

Section 4. **Definition of Terms.** For the purpose of these guidelines, the following terms are hereby defined:

- a) **Bottom Ash** shall refer to ash formed in WTE facilities that are agglomerated ash particles that are too large to be carried in the flue gases and fall through open grates to an ash hopper at the bottom of the furnace
- b) **Buffer zone** shall refer to tract of land between two or more differently zoned areas
- c) **Bureau** shall refer to the Environmental Management Bureau
- d) **Commercial-scale WTE facility** shall refer to facilities that recover energy from wastes at a rated capacity of at least one (1) mega Watt (MW)
- e) **Commission** shall refer to the National Solid Waste Management Commission
- f) **Continuous Emissions Monitoring System** is the total equipment necessary for the determination of a gas or particulate matter concentration or emission rate, using pollutant analyzer measurements and a conversion equation, graph, or computer program to produce results in units of the applicable emission limitation or standard
- g) **Department** shall refer to the Department of Environment and Natural Resources
- h) **Emission** shall refer any air contaminant, pollutant, gas stream or unwanted sound from a known source which is passed into the atmosphere
- i) **Energy** shall refer to the power derived from the utilization of physical or chemical resources
- j) **Environmental risk assessment** shall refer to the process for evaluating how likely it is that the environment may be impacted as a result of exposure to one or more environmental stressors such as chemicals, land change, disease, invasive species and climate change
- k) **Fly Ash** shall refer to ash formed in WTE facilities that are too small and light and are carried in the flue gases
- l) **Hazardous wastes** shall refer to by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and/or injury to health and safety and to the environment
- m) **Health risk assessment** shall refer to the process of estimating the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the near future
- n) **Pollution Abatement System** shall refer to the system of measure taken to reduce, control or eliminate pollution from a given environment
- o) **Pre-processing** shall refer to the systematic series of actions to be done before the actual operation

- p) **Quality Control** shall refer to the series of activities designed to ensure adequate quality
- q) **Resource Recovery** shall refer to the collection, extraction or recovery of recyclable materials from the waste stream for the purpose of recycling, generating energy or producing a product suitable for beneficial use
- r) **SWM Plan** shall refer to the 10-year solid waste management plan prepared by a local government unit in compliance with Section 16 of RA 9003
- s) **Toxicity equivalence** shall refer to weighted quantity measure based on the toxicity of each member of the dioxin and dioxin-like compounds relative to the most toxic member of the category, which is 2, 3, 7, 8-tetrachlorodibenzodioxin
- t) **Waste Materials** shall refer to any material unused and rejected as worthless or unwanted
- u) **Waste-to-energy (WTE)** shall refer to the energy recovered from waste, usually the conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of processes
- v) **WTE Facility** shall refer to the area where the waste to energy operations are housed

Section 5. **Pre-Operation Phase.** The following conditions must be met prior to the registration of a WTE facility with the Bureau:

- a) The host LGU shall notify the Commission of any WTE facility that will be established within its jurisdiction by submitting an updated 10-year solid waste management plan
- b) The WTE facility shall only be located at a site where the LGU is implementing an approved 10-year solid waste management plan as provided for in Sections 11 and 12 of RA 9003
- c) All LGUs where solid waste feed stock to the facility will be originating from must have approved 10-year solid waste management plans
- d) A WTE facility shall be located at a site consistent with the land use plan of the LGU and must always consider all environmental criteria on site selection including provision for buffer zone(s)
- e) All necessary permits, registrations and other legal requirements, such as compliance with the requirements of PD 1586, must be secured prior to construction, set-up and operation of a WTE facility
- f) Documentation for compliance with the requirements of PD 1586 shall include an environmental/health risk assessment

Section 6. **Registration Requirements.** WTE facilities are required to register with the Bureau as a source of air pollution in accordance with Rule XIX, Section 1 of DAO 2000-81.

In addition, the WTE facility shall submit to the Commission, through the Bureau's Regional Office, a certified true copy of its Environmental Compliance Certificate (ECC), all permits, plans and legal documents required by the ECC, business permit from local government unit where the facility is to be located, and Commission Resolution(s) on the approval of 10-year

solid waste management plan(s) of host LGU and those intending to provide feedstock to the facility

**Section 7. Waste Materials not Acceptable for WTE.** The facility shall not accept non-segregated municipal solid wastes and hazardous wastes.

**Section 8. Procedure for Accepting Wastes.** WTE facility shall provide for procedures for accepting wastes to include the following:

- a) Documentation to include quantity in weight, source and type of municipal solid wastes to be processed and date and time received
- b) Inspection plan for determining presence of hazardous wastes
- c) Sampling and testing plan
- d) Disposal plan for hazardous waste contaminating feedstock

**Section 9. Storage Facility.** Appropriate storage facilities should be provided for all waste materials, in-process materials and any product from the WTE facility operation. Such storage shall prevent or minimize the potential for explosion, combustion, corrosion and/or odor emission that could pose potential hazard to human health and the environment.

**Section 10. Pre-processing of Wastes.** Any pre-processing of wastes to augment its suitability with the technical specifications as feed stock to the WTE facility must have the necessary permits and monitoring systems for potential releases of pollutants such as dust, odor, volatile organic compounds, water, and noise.

**Section 11. Quality Control.** The WTE facility shall maintain at the highest possible standards a quality control/assurance system to demonstrate its ability to consistently provide products and services that meets applicable statutory and regulatory requirements.

**Section 12. Operational Control.** To ensure safe and effective operations of WTE facilities, the Commission, through the National Ecology Center, shall develop Best Available Technologies/Best Environmental Practices (BAT/BEP) guidelines for WTE technologies.

In addition, each facility shall:

- a) Develop, implement and communicate a detailed emergency response plan to ensure effective and rapid containment and clean-up in the event of an emergency incident; the facility must be equipped with adequate fire fighting devices as certified by the Bureau of Fire Protection
- b) All personnel of the facility directly handling or exposed to waste materials, in-process materials and finished products shall be provided with the proper personal protective equipment and medical care in compliance with existing laws, rules and regulations
- c) Submit an Environmental Technology Verification (ETV) Statement and Report for innovative or new WTE technologies, following the DOST ETV Protocol as per DENR-DOST Joint Administrative Order 2006-001

**Section 13. Pollution Abatement System.** A WTE facility shall have:

- a) Personnel, processes and systems that demonstrate its strong commitment to the protection of the environment, health and safety
- b) Resource efficient and cleaner production program that follows the waste management hierarchy of source reduction, recycling, treatment and safe disposal
- c) Appropriate pollution control and abatement facilities to ensure that all emissions and effluents comply with relevant environmental standards
- d) Access to Bureau-recognized transporters and treatment, storage and disposal facilities for any hazardous and/or residual wastes resulting from the operations of the WTE facility

**Section 14. Environmental Monitoring.** The WTE facility shall submit quarterly self monitoring report in accordance with DAO 27, Series of 2003.

- a) Emissions from WTE facilities must conform to standards specified in Section 19 of RA 8749 or approved by DENR-EMB.
- b) For WTE facilities utilizing thermal process, such shall fall under the category of fuel burning equipment, thus the appropriate emission standards in Section 19 of RA 8749 shall apply for the maximum limits for particulates and sulfur oxides
- c) WTE facilities utilizing thermal process must conduct sampling and analysis for dioxin for at least once a year following the prescribe methodology; all average values of dioxin measured over the sample period of a minimum of six (6) hours and a maximum of eight (8) hours must not exceed the limit value of 0.1 nanogram toxicity equivalence per normal cubic meter (ng-TEQ/NCM)
- d) Effluents from WTE facilities must conform to the requirements of effluent discharges as specified in Rules 6.3, 8.3, 12.1 and 19.6 of the IRR of the Clean Water Act (RA 9275)

**Section 15. Documentation and Monitoring.** All aspects of WTE operations must be well documented. As such, documents and records as listed below shall be maintained at least five (5) years and be made available for inspection:

- a) Delivery record of each waste material received in the facility
- b) Daily processing operation log sheet showing or attaching the following information:
  - i. Quantity of waste materials processed
  - ii. CEMS print-out (for thermal processes)
- c) Laboratory analysis of sample waste materials received and residual wastes such as fly ash and bottom ash
- d) Certification of treatment for wastes covered by RA 6969

Section 16. **Social Safeguards.** These shall address the facility's social commitment such as but not limited to damages and reparations to stakeholders that include employees, communities around the facility, authorities at different levels, non-government and people's organizations and others.

The WTE facility should be a partner for the stakeholders activities involving education and training, infrastructure improvements, emergency cases, disaster risk reduction and management, and social development.

The WTE facility shall maintain a billboard, in front of its site and within view of the general public, containing updated information on its air emissions and wastewater effluents.

Section 17. **De-commissioning or Closure.** The proponent shall submit to the Bureau an Abandonment Plan at least one (1) year prior to the de-commissioning or closure of the WTE facility. The Plan shall include rehabilitation measures, clean-up activities, remediation of areas affected by the WTE facility and proposed alternative projects in the area.

Section 18. **Fines and Penalties.** Fines and penalties for violating these guidelines shall be governed by pertinent provisions given in the Toxic Substances and Hazardous and Nuclear Wastes Control Act (RA 6969), Ecological Solid Waste Management Act (RA 9003), Clean Air Act (RA 8749), Clean Water Act (RA 9275), and Environmental Impact Statement System (PD 1586).

Violation of any provisions of these guidelines by WTE facility may result to the suspension or cancellation of Permit to Operate and/or the filing of appropriate charges, as determined by the Bureau.

Section 19. **Separability Clause.** If any provision of these guidelines is declared void or unconstitutional, the remaining provisions hereof is not affected thereby shall remain in full force and effect.

Section 20. **Transitory Clause.** Any establishment operating a WTE facility prior to the effectivity of this NSWMC Resolution shall be given one (1) year to comply with all registration and permitting requirements set forth provided, including payment of fines and penalties, that such facility does not pose imminent threat to human health and the environment as determined by DENR-EMB.

Section 21. **Repealing Clause.** All NSWMC Resolution that are inconsistent with these guidelines are hereby repealed or modified accordingly.

Section 22. **Effectivity.** This guideline shall take effect fifteen (15) days after its publication in two (2) newspapers of general circulation and upon submission of a copy thereof to the Office of the National Administrative Registry (ONAR) at the University of the Philippines Law Center