



EMB MEMORANDUM CIRCULAR
No. 2020 - 23

SUBJECT : CLARIFICATION ON THE REQUIREMENTS OF WASTE-TO-ENERGY (WtE) PROJECTS RELATIVE TO ECC APPLICATION PURSUANT TO DAO 2019-21

Pursuant to the issuance of DENR Administrative Order No. 2019-21, otherwise known as “Guidelines Governing Waste-to-Energy Facilities for the Integrated Management of Solid Wastes”, Waste-to-Energy Projects, regardless of the power generating capacity, are now covered by the Environmental Impact Statement System, and are required to secure Environmental Compliance Certificate (ECC). Hence, the following is provided:

Project Description	Category A: ECP	Category B – Non-ECP	
	EIS	EIS	IEE Checklist (through EMB Online Application)
Waste-to-Energy – Power Projects	≥ 30MW or ≥ 1,140 Tons per day feedstock	≥ 10MW but <30MW, or ≥380 Tons per day but not <1,140 Tons per day feedstock	≥ 1MW but <10MW, or ≥ 38 Tons per day but <380 Tons per day feedstock

The scoping and screening checklist form in the preparation of the EIS, attached hereto as Annex A, shall be used by EMB Central/Regional Offices concerned as the minimum terms of reference of Environmental Impact Assessment (EIA) during the technical scoping.

A Health Risk Assessment (HRA) as provided under Section 5 of DAO 2019-21 shall be included in the requirements of ECC application. As such, the EMB Central/Regional Offices are required to invite a Public Health Specialist or Expert from the Department of Health (DOH) or from the academe, as a member of the Review Committee to be convened by their respective Offices.

The provisions stated under Annex A – 3.2.8 of EMB Memorandum Circular No. 2014-05, and all other provisions inconsistent herewith is hereby revoked, amended, and superseded by this Memorandum Circular.

This Memorandum shall take effect fifteen (15) days after its publication in a newspaper of general circulation and upon acknowledgment of receipt of a copy thereof by the Office of the National Administration Registrar (ONAR), UP Law Center.

Issued this 28th day of May, 2020. Quezon City, Philippines.

Publication: **THE MANILA TIMES**
Thursday, 23 July 2020

Acknowledgement: **U.P. LAW CENTER**
Tuesday, 28 July 2020


ENGR. WILLIAM P. CUÑADO
OIC-Director



EIS SCOPING AND SCREENING FORM FOR THE PROPOSED WASTE-TO-ENERGY (WtE) PROJECTS

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Date Submitted for Screening: _____
 Form of Submission: ___ Hard ___ Digital
 Project Title: _____
 Project Location: _____
 Project Proponent: _____
 Authorized Representative: _____
 Address: _____
 Contact No: _____ Email: _____ Contact Person: _____
 EIS Consultant: _____
 Address: _____
 Contact No: _____ Email: _____ Contact Person: _____
 Project Size: _____

WtE Capacity	Office to Process/Decide ECC application
<input type="checkbox"/> ≥ 10 MW but <30 MW or ≥ 380 TPD but < 1,140 TPD feedstock	EMB Regional Office
<input type="checkbox"/> ≥ 30 MW or ≥ 1,140 TPD feedstock	EMB Central Office

Date of Technical Scoping: _____
 Venue of Technical Scoping: _____

Table 1. Checklist of Documentary Requirements

Boxes and blanks in the first column are to be filled-up during scoping and the rest, upon submission of EIS for screening

	Acceptable?		Screening Officers' Remarks
	Yes	No	
Required EIA Report: Environmental Impact Statement ¹ ✓ Executive Summary ✓ Project Description ✓ Assessment of Environmental Impacts (including baseline) ✓ Environmental Management Plan ✓ Environmental Risk Assessment (ERA) & Emergency Response Policy and Guidelines ✓ Social Development Plan/Framework (SDP) and IEC Framework ✓ Environmental Compliance Monitoring ✓ Decommissioning / Abandonment /Rehabilitation Policy ✓ Institutional Plan for EMP Implementation including EMF (for ECP) and EGF Commitments			
Proof of Authority over the Project Site <input type="checkbox"/> TCT <input type="checkbox"/> Lease Agreement <input type="checkbox"/> Deed of Absolute Sale (DOAS) <input type="checkbox"/> Memorandum of Agreement (MOA) on the Use of Land <input type="checkbox"/> Others: _____			
Accountability Statements of Preparers & Proponent			
Health Risk Assessment (HRA) pursuant to DENR AO 2019-21 (Contents of HRA shall follow the DOH issued IRR of Chapter XX – Pollution of Environment, of the Code on Sanitation of the Philippines – PD 856)			

ACTION TAKEN: *(Please check to indicate corresponding action taken)*

- Document accepted; please submit ___ copies
- Document not accepted

O.R. # _____
 Date _____

 Screening Officer

EMB: _____
 Screening Office

NOTED BY:

 Chief, Clearance & Permitting Division (EMB RO) or
 Chief, Environmental Impact Assessment (EMB CO)

Date: _____

¹ Please refer to attached checklist of EIS Contents

EIS SCOPING AND SCREENING FORM FOR THE PROPOSED WASTE-TO-ENERGY (WtE) PROJECTS

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Table 2 EIS Annotated Outline

Sections / Subsections	Contents	Page #	Acceptable?	REMARKS
Executive Summary (Maximum of 10 pages)				
Project Fact Sheet (1 page)	Summary of Project Description			
Process Documentation (1 page)	<p>Documentation of the process undertaken in the conduct of EIA (<i>EIA Team, EIA Study Schedule & Area, description of key EIA Methodologies including sampling and measurement plan, Scoping and Public Participation</i>)</p> <p><i>The EIA Team at the minimum shall include the following experts/specialists:</i></p> <ul style="list-style-type: none"> • Air quality expert preferably a registered engineer trained to conduct air dispersion modelling and assess impacts of project on air quality. • Water quality management specialist • Risk assessment specialist • Terrestrial ecology expert • Land/Geology expert • Socio- environment expert • Public Health Specialist 			
EIA Summary	<ul style="list-style-type: none"> • Summary of alternatives considered in terms of siting, technology selection/operation processes and design • Concise integrated summary of the main impacts and residual effects after applying mitigation • Risks and uncertainties relating to the findings and implications for decision making 			
1. Project Description Include as an introduction, basic information about the project and project proponent				
1.1. Project Location and Area	a) Map showing sitio, barangay, municipality, province, region boundaries, vicinity, proposed buffers surrounding the area and Primary & secondary impact areas			
	b) Geographic coordinates (shape file data) of project area (use WGS 84 datum - GPS setting)			
	c) Describe the vicinity and the accessibility of the project site/area			
1.2. Project Rationale	<ul style="list-style-type: none"> • Cite and focus on the need for the project as solid waste management measures • Describe the justification for the Project with particular reference made to the economic and social benefits. 			
1.3. Project Alternatives	<p>a) Cite criteria used in determining options for facility siting, and technology selection (thermal or biochemical process), and discuss how the decisions on the preferred options were made.</p> <p><u>Siting</u>: Alternative project locations including factors significant to the selection such as perception of affected communities with regards to project, ancestral domain issues, land classification, etc.</p> <p><u>Technology Selection</u>: Discuss factors significant to technology selection in consideration to project's adverse impacts to environment</p> <p><i>Likewise contextualize the determination of preliminary options in terms of project site factors significant to the selection such as supply sustainability and susceptibility to:</i></p> <ul style="list-style-type: none"> • Liquefaction, Ground Shaking, Ground Rupture, Earthquake induced Landslides Volcanic eruptions, tsunami (PHIVOLCS) • Rain-induced landslide and flooding (MGB) • Storm surge, and flooding as well as extreme climatologic 			

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	<p><i>conditions (PAGASA)</i></p> <p>b.) Summarize and discuss comparison of environmental impacts of each alternative for facility siting and technology selection</p> <p>c) Discuss the consequences of not proceeding with the project or no project option</p>			
1.4. Project Components	<p>a) General layout of facilities;</p> <p>b) Maps showing in particular, the location and boundaries of project area including its support facilities (ie. municipal waste storage, wastes segregation facilities area, ash disposal facility), and proposed project buffers</p> <p>c) Identification and descriptions of major components such as specifications, capacity, number and safety features. Major components of WtE (thermal process) includes:</p> <ol style="list-style-type: none"> 1. Combustor/oxidation chamber 2. Boiler 3. Turbine <p>d) Identification and description of support facilities (eg. waste segregation facilities, wastes storage area, fuel handling system) and infrastructure requirements such as water supply, storm water drainage, sewerage, telecommunications, safety devices/emergency facilities, and similar facilities</p> <p>e) Identification and description of pollution control devices and waste management system:</p> <p>THERMAL PROCESS</p> <p><u>Air Pollution Control Facility</u>, for</p> <ol style="list-style-type: none"> 1. PM (Particulates), any of the following or any combination hereof: <ul style="list-style-type: none"> ✓ Electrostatic Precipitator (ESP) ✓ Baghouse Filter ✓ Fabric Filter with Teflon Membrane ✓ Multicyclone ✓ Gas and Particulate absorption tank equipped with filter medium 2. SO_x Provision of series of wet scrubber and/or Limestone slurry injection in the flue gas to control SO_x emission 3. NO_x Air and temperature control, flue gas recirculation or provision of catalytic converter to control NO_x emission <p><i>Description shall include discussion on the percentage of efficiency per stage of control facility and the final emission in the stack for 100% compliance in RA 8749.</i></p> <p><i>All average values of Dioxin and Furans measured over sampling 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 toxic equivalents per normal cubic meter (ng-TEQ/NCM). Likewise, NO_x, SO_x and Particulates should not exceed emission standards set forth in DAO 2000-81.</i></p> <p><u>Other Waste Management Facility</u></p> <p>Provision of Ash Disposal Facility (ADF) for bottom ash and fly ash generated. The ADF must be lined with an HDPE of 1.5 mm thickness and leachate generated shall be treated to centralized wastewater treatment facility (WTF). The ADF should have enclosure / containment area.</p> <p>All sources of leachate (ie. from waste storage area, waste preparation area, ADF) should be provided with collection system leading to the centralized wastewater treatment facility.</p>			

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	The proponent shall ensure that the discharge from the centralized WTF shall conform with the effluent standards for the following parameters: Temperature, pH, COD, TSS, BOD5, Fecal Coliform, Ammonia, Nitrate, Phosphate, Oil and grease, Surfactants			
3.1. Process/ Technology	<p>a) Description of the technology to be used in waste to energy project</p> <ul style="list-style-type: none"> o Process Flow Sheet (<i>showing material and energy balance including waste streams</i>) o Storage Protocol (<i>e.g. municipal solid waste handling and transport</i>) o Heating Value of Feedstock (<i>Ultimate and proximate analyses of the municipal solid waste as fuel that will be used and the corresponding evaluation</i>) <p>b) Description of facilities (<i>ie. boiler, combustion/oxidation chamber, turbine and pollution control facilities, etc.</i>) <i>It should include the rated capacity, actual capacity (net and gross), Volume of waste to be processed, specifications and number of facilities to be used, efficiency of the facilities.</i></p> <p>c) Description of Facilities Operations (<i>e.g. waste segregation facility operations, temperature of combustion chamber and stack, operating hours, expected emission at stack</i>)</p> <p>d) Description of maintenance and monitoring of facility (<i>description and installation of CEMS, monitoring wells and other monitoring devices/equipment</i>)</p>			
3.2. Project Size	<p>a) Total power generating capacity in Megawatts (MW) and Tons per day feedstock</p> <p>b) Total Project Area in square meters (m²) or hectares (has)</p>			
3.3. Development Plan, Description of Project Phases and Corresponding Timeframes	<p>Phases to be described in terms identifying specific activities (w/ special attention on those with significant environmental impacts as well as climate change adaptation options relevant to the project and project activities) and corresponding projected implementation timeframes:</p> <ul style="list-style-type: none"> • Pre-construction Gantt Chart (e.g. planning, acquisition of rights to use land, permits from LGU and other concerned agencies (DOE/ERC – if electricity will be transferred to the grid, DOST – <i>Environmental Technology Verification Protocol (ETVP) for post ECC condition</i>, etc.) • Construction Gantt Chart , e.g. <ul style="list-style-type: none"> o land/site clearing including excavation works o transport of construction materials o construction of waste to energy facilities (ie. WtE infrastructure requirements, waste receiving area, waste storage area, installation of boiler, turbine and other pollution control, temporary housing facilities for workers with provision of sanitary facilities (e.g. septic/storage tank) in compliance to Sanitation Code of the Philippines). It shall include number of workers to determine number of portalets to be used during construction. At least one (1) portalet for 10 workers shall be observed. • Operation Gantt Chart (e.g. start-up, commissioning, full operation of various project components, maintenance and monitoring) <p>Efficiency of operation in terms of conversion of solid waste materials converted to energy (MW) shall be discussed in the operation phase.</p> <ul style="list-style-type: none"> • Decommissioning/Abandonment/Rehabilitation <ul style="list-style-type: none"> - projected life of the project and alternatives for the future use of the project area which should be consistent with long term zoning and land use development plan of the municipality; 			

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	- Abandonment Plan (general) to include management plan for the projected cumulative/long term project impacts such as remediation of contaminated soil and water resources, land restoration, proper dismantling/abandonment of facilities/ equipment and other necessary activities																																														
3.4. Manpower	<p>Tabulate (in matrix form) the following per project phase (pre-construction, construction, operation and maintenance):</p> <ul style="list-style-type: none"> • Manpower requirements; • Expertise/skills needed; • Nature & estimated number of jobs available for men and women, (if sited in IP ancestral land, include IPs in manpower requirements); • Scheme for sourcing locally from host and neighboring LGUs <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="3" style="width: 40%;">Project Development Phases</th> <th colspan="4">Number of Manpower Requirements</th> </tr> <tr> <th colspan="2">From Host LGUs</th> <th colspan="2">From Neighboring LGUs</th> </tr> <tr> <th>Men</th> <th>Women</th> <th>Men</th> <th>Women</th> </tr> </thead> <tbody> <tr> <td>Pre-construction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Skills needed (ie. Admin Officer, Accountant)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Construction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Skills needed (ie. plumber, carpenter, welder etc.)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Operation</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Skills needed (ie. engineer, safety officer)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Project Development Phases	Number of Manpower Requirements				From Host LGUs		From Neighboring LGUs		Men	Women	Men	Women	Pre-construction					Skills needed (ie. Admin Officer, Accountant)					Construction					Skills needed (ie. plumber, carpenter, welder etc.)					Operation					Skills needed (ie. engineer, safety officer)							
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3.5. Project Cost	Indicative Project Investment Cost (Philippine Peso)																																														
<p>2. Assessment of Environmental Impacts</p> <p>See Table 3 for the checklist of key environmental impacts which shall be subjected to assessment. The assessment shall done using the prescribed approach/method and in relation to the corresponding baseline characterization in the primary and secondary impact areas (as determined using the Guidelines in Annex 2-2 of the Revised Procedural Manual (RPM) for DAO 2003-30 or succeeding issuances). The sampling and measurement plan used shall be discussed. Likewise, the assessment should be done for the various phases of development (i.e. pre-construction, construction and operation) and should consider climate change projections and disaster risks based on existing natural hazard information. <u>For all maps</u>, include overlays of project area footprint, show sensitive/critical receptors and sampling points for baseline data (indicate geographical coordinates). In conclusion, the residual and cumulative impacts shall be assessed.</p>																																															
<p>3. Environmental Management Plan</p> <p>Appropriate mitigation/management measures should be specified for each of the identified key impacts (Table 3) including appropriate climate change adaptation and disaster risk reduction measures/options shall likewise be thoroughly discussed. The impact management plan should be summarized using at the minimum, the format in Annex 2-17 of RPM for DAO 2003-30</p> <p>Dioxins and Furans shall be included as parameters to be monitored during operation phase pursuant to DAO 2019-21, subject to guidelines of DENR.</p> <p>Include table of impacts/measures as part of this Chapter (Attachment 1)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Project Activities</th> <th style="width: 15%;">Potential Impacts</th> <th style="width: 15%;">Mitigating Measures</th> <th style="width: 50%;">Efficiency/Performance of Mitigating Measures</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>					Project Activities	Potential Impacts	Mitigating Measures	Efficiency/Performance of Mitigating Measures																																							
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<p>4. Environmental Risk Assessment (ERA) & Emergency Response Policy and Guidelines</p>																																															

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<p>The level of coverage and type of document required shall first be determined based on Annex 2-7e of RPM for DAO 2003-30.</p> <p>See Table 4 for details</p>				
<p>5. Social Development Plan/Framework (SDP) and IEC Framework</p>				
<p>5.1 Social Development Program (SDP)</p>	<p>Community development or livelihood programs/activities, projected beneficiaries, partner institutions, timeframe of implementation as well as source and amount allotted per activity/component (See Annex 2-18 of RPM for DAO 2003-30)</p>			
<p>5.2. Information and Education Campaign (IEC)</p>	<p>Target sector, key messages, scheme/strategy/methods, Information medium, timelines and frequency, cost (See Annex 2-19 of RPM for DAO 2003-30)</p>			
<p>6. Environmental Compliance Monitoring</p>				
<p>6.1. Self-Monitoring Plan</p>	<p>The monitoring plan shall be summarized using Annex 2-20 of RPM for DAO 2003-30 or succeeding issuances as template.</p>			
<p>6.2 Environmental Guarantee and Monitoring Fund Commitments</p>	<ul style="list-style-type: none"> • Discussion on the necessity of putting up an EGF. If deemed necessary, present a proposed amount of EGF indicating the basis for the estimate (per guidelines in annex 3-6 of RPM for DAO 2003-30) • Discussion on Establishment of MMT for ECP (DAO 2017-15) and corresponding EMF 			
<p>7. Decommissioning / Abandonment /Rehabilitation Policy</p> <p>Statement on Proponent's policies to implement the abandonment plan described in Item 1.7 and to formulate and submit procedures for Rehabilitation/ Decommissioning/Abandonment within a timeframe specified in the ECC.</p>				
<p>8. Institutional Plan for EMP Implementation including EGF Commitments</p> <p>Present the organizational scheme of the proponent including line of command and reporting procedures as well as manpower complement and relationships with other operating departments. The basis of the proposed amount of EGF shall be discussed in this section in relation to compliance with existing guidelines.</p>				

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Table 3. Key Environmental Impacts to be included in the Assessment and Formulation of Management and Monitoring Plan to be reflected in the EIS

During scoping: Unless otherwise specified as agreed during scoping, all items listed are required. Write specific instructions (if any) on the blanks/spaces provided			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS								
List of Key Impacts	Baseline Data Parameter Requirements	Required Assessment Methodology/Approach	Baseline Conditions		Impact Analysis		Mgmt. Plan		Monitoring Plan		Remarks
			Page	✓	Page	✓	Page	✓	Page	✓	
I. Land											
1.1 Land Use and Classification											
1.1.1 Impact in terms of compatibility with existing land use	Description & Map showing the project area in relation to existing land use.	Assessment of the compatibility of the proposed project vis-a-vis actual land use and the approved comprehensive land use plan/zoning classification									
1.1.2 Impact on compatibility with classification as an Environmentally Critical Area (ECA)	Identify ECA where the project is located or near the project area. Identify areas vulnerable/susceptible to natural hazards where the project is located or near the project area (include map/s).										
1.1.3 Impact in existing land tenure issue/s	Identify areas in or near the project area which are under CARP or with CADC / CADT / CALC/ CALT where the project is located or near the project area and corresponding existing issues		Identify and assess project impact in terms of land tenure issues (e.g. informal settlers, IPs area etc.)								
1.1.4 Impairment of visual aesthetics	Visually significant landforms/ landscape/structures (if any) that can be potentially impacted by the project		Identify and assess impact of the project on these visually significant landforms/landscape/structures								
1.1.5 Land pollution due to improper storage of wastes											
1.2 Geology/ Geomorphology											
1.2.1 Inducement of landslides due to change in surface land form/ topography/ terrain/slope	Slope and Elevation/ Topographic Map hazard maps (NAMRIA, NDRRMC, MGB, PHIVOLCS, PAGASA) Regional/General Geological Map	Identify and assess project impact in terms of the changes in surface landform/topography/terrain/slope including existing hazard as maybe aggravated by climate change as projected by PAGASA Identify and assess project impact in terms of the changes in sub-surface geology and inducement of landslides, to the environment including the possibility of aggravating existing natural hazards Discuss and assess the impacts of geologic hazards and planned									

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			Page	✓	Page	✓	Page	✓	Page	✓	
		earthworks on the project facilities									
1.3 Pedology											
1.3.1 Potential soil erosion	<ul style="list-style-type: none"> Summary of Soil Investigation Report on soil type and quality Soil map showing soil types, sampling stations, topography, streams, built-up areas, and planned project features Water erodibility potential Riverbank stability 	Describe capability of the land to accommodate the proposed development									
1.3.2 Change in soil quality/fertility due to improper collection of generated ash, leachate and potential leak of fuel oil	Laboratory results on soil sample analysis for N, P, K, pH, organic matter, micronutrients and trace metals e. g. Pb, Hg, As, Cd, Cr hexavalent	Assess the impact of the project activities on soil quality and fertility									
1.4 Terrestrial Ecology											
1.4.1 Loss of vegetation and habitat due to site clearing	<ul style="list-style-type: none"> Map showing land cover; sampling sites; location of observed important, endangered, and keystone species; ecologically sensitive sites; planned land development works Flora and fauna species inventory or survey report to cover species listing, abundance, richness, dominance, diversity, evenness, ecological status, and uses; Historical occurrences of pest infestation, forest/grass fire and/or similar incidences 	<p>Quadrat sampling for flora to cover all land cover types (please show locations in a map);</p> <p>Use of mist nets, traps, transect walk for fauna</p> <p>Identify and assess project impact in terms of vegetation removal, loss of habitat, threat to existence and/or loss of important local species, threat to abundance, frequency and distribution of important species and hindrance to wildlife access.</p>									
1.4.2 Threat to existence and/or loss of important local species	Summary of endemism / conservation status	removal, loss of habitat, threat to existence and/or loss of important local species, threat to abundance, frequency and distribution of important species and hindrance to wildlife access.									
1.4.3 Threat to abundance, frequency and distribution of important species	<ul style="list-style-type: none"> Summary of abundance, frequency and distribution Economic importance and uses of significant flora and fauna 										
1.4.4 Hindrance to wildlife access	Survey map in relation to the project site	<p>Discuss the loss of carbon sink due to loss of vegetation.</p> <p>Number of trees to be planted shall be computed to off-set carbon sink loss.</p>									

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During scoping: Unless otherwise specified as agreed during scoping, all items listed are required. Write specific instructions (if any) on the blanks/spaces provided			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS								
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			Page	✓	Page	✓	Page	✓	Page	✓	
		Note: Per existing DENR - FMB regulations, replacement of trees shall follow the following ratio: 1:50 (50 trees for 1 planted tree cut), and 1:100 (100 trees for 1 naturally growing tree cut)									
2. THE WATER											
2.1 Water Quality											
2.1.1 Degradation of groundwater quality due to leachate from ash disposal facility	Physico-Chemical characterization of ambient water : ✓ Temperature ✓ pH ✓ COD ✓ TSS ✓ BOD5 ✓ Fecal Coliform ✓ Ammonia ✓ Nitrate ✓ Phosphate ✓ Oil and grease ✓ Surfactants sampling site map ○ At least two sampling stations both for groundwater and surface water (downstream and upstream).	Identify and assess project impact in terms of degradation of groundwater and surface water. Use DENR standard methods and procedures for sampling and analysis.									
2.1.2 Degradation of surface water quality due to improper handling of municipal solid waste during transport/delivery (nearest body of water 1km radius from the project site)											
2.2 Freshwater/Marine Ecology											
2.2.1 Potential loss of species and habitat due to water quality degradation	<ul style="list-style-type: none"> • Summary of endemcity / conservation status • Abundance of ecologically and economically important species Presence of pollution indicator species; • sampling site map 	Identify and assess project impact in terms of threats to existence/and or loss of species and include discussions on overall impact to freshwater ecology in a long term.									
3.0 THE AIR											

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ECC APPLICATION SCREENING FORM FOR PROPOSED WASTE-TO-ENERGY PROJECTS

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			Page	✓	Page	✓	Page	✓	Page	✓	
3.1 Meteorology/ Climatology											
3.1.1 Impact on local micro-climate e.g. local temperature (for thermal process only)	Monthly average rainfall and temperature of the area; Climatological normals/extremes; Wind rose diagrams; Frequency of Tropical cyclones	Identify and assess project impact in terms of change in the local micro- climate change. Also discuss effects of climate change using PAGASA medium to long term projections									
3.1.2 Contribution in terms of greenhouse gas emissions	Data on Greenhouse gasses (i.e. carbon dioxide, nitrous oxide)	Estimate projected greenhouse gases (GHG) (i.e. carbon dioxide, nitrous oxide) using IPCC guidelines; include mitigation and/or sequestration program to off-set GHG emissions.									
3.2 Air Quality (& Noise)											
3.2.1 Degradation of air quality	Characterization of ambient air quality: ✓ TSP ✓ PM ₁₀ ✓ SO _x ✓ NO _x Sampling site map <ul style="list-style-type: none"> ○ At least two sampling stations (upwind and downwind) 	Use DENR standard methods and procedures for sampling and analysis. Identification and assessment of impact of the project to the identified parameters including odor									
3.2.2 Increase in ambient noise level	Characterization of ambient noise level Sampling site map <ul style="list-style-type: none"> ○ At least two sampling stations (upwind and downwind) 	Use DENR standard methods and procedures for sampling and measurement. Identify all potential source of increase noise level in construction and operation phase									
4.0 THE PEOPLE											
4.1 Displacement of settler/s Displacement/ disturbance of properties Change/conflict in land ownership	Demographic data of impact area: - Number of households and household size - Land area, - Population, - Population density /growth - gender and age profile, - literacy rate, profile of educational attainment	Identify and assess project impacts on demography of affected communities. Use assessment in the formulation of SDP/IEC Assess availability of alternative									

1st 2nd 3rd _____
 th Screening

ECC APPLICATION SCREENING FORM FOR PROPOSED WASTE-TO-ENERGY PROJECTS

During scoping: Unless otherwise specified as agreed during scoping, all items listed are required. Write specific instructions (if any) on the blanks/spaces provided			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS								
List of Key Impacts	Baseline Data Parameter Requirements	Required Assessment Methodology/Approach	Baseline Conditions		Impact Analysis		Mgmt. Plan		Monitoring Plan		Remarks
			Page	✓	Page	✓	Page	✓	Page	✓	
Change/conflict Right of way	- Settlements map Census of population / property that will be displaced / disturbed Housing ownership profile / availability of housing/ number of informal settlers	public access and housing options for displaced settlers For project with displacement/ disturbance of properties/settlers, change/conflict in land ownership and change/conflict right of way, formulate resettlement framework plan or RAP									
4.2 In-migration Proliferation of informal settlers		Identify and assess project impact due to in-migration patterns including proliferation of informal settlers									
4.3 Cultural/Lifestyle change (especially on Indigenous People, if any)	Demographic data on Indigenous People (if any) and existing Culture/Lifestyle that may be significantly affected	Identify and assess project impact in terms of Culture/Lifestyle that may be affected and/or introduced									
4.4 Impacts on physical cultural resources	Inventory and description of the value/importance of physical cultural resources: Movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontologic, historical, architectural, religious, aesthetic, or other cultural significance. <ul style="list-style-type: none"> Physical cultural resources may be located in urban or rural settings and may be above or below ground or under water. Their cultural interest may be at the local, provincial, national, or international level. Among the official sources of information are the National Museum (NM), National Historical Commission of the Philippines (NHCP), National Commission for Culture and Arts (NCAA) and the Local Government Units (LGUs) in the project area. 	Identify and assess all potential project impacts on physical cultural resources in an integrated manner, and identify and address risks in terms of institutional capacity and commitment in managing environmental impacts (especially in terms of compliance with applicable government/regulatory requirements). Include proposed protocols in case of chance finds and (if necessary) proposed mitigation measures such as site protection and other actions, procedures and technologies to counteract negative impacts.									
4.5 Threat to public health and	Availability of public services in terms of: health resources	Identify and assess specific									

1st 2nd 3rd _____th Screening

ECC APPLICATION SCREENING FORM FOR PROPOSED WASTE-TO-ENERGY PROJECTS

During scoping: Unless otherwise specified as agreed during scoping, all items listed are required. Write specific instructions (if any) on the blanks/spaces provided			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS								
List of Key Impacts	Baseline Data Parameter Requirements	Required Assessment Methodology/Approach	Baseline Conditions		Impact Analysis		Mgmt. Plan		Monitoring Plan		Remarks
			Page	✓	Page	✓	Page	✓	Page	✓	
safety	(Government and Private) Statistical data / information related to public services: <ul style="list-style-type: none"> • Morbidity and mortality rates (infants and adults - 5-year trend) • Common diseases in the area including endemic diseases; • Environmental Health and Sanitation Profile 	threats to public health and safety due to project impacts. Analysis of the aggravation as a result of project implementation of the existing diseases profile. Relate discussions on air quality.									
4.6 Generation of Local Benefits from the project Enhancement of employment and livelihood opportunities Increased business opportunities and associated economic activities Increased revenue of LGUs	Socioeconomic data: <ul style="list-style-type: none"> • Main sources of Income • Employment rate/profile • Sources of livelihood • Poverty incidence • Commercial establishments and activities • Banking and financial institutions 	Identify and assess local benefits of the project in terms of enhancement of employment and livelihood opportunities									
4.7 Traffic congestion	Road network/ systems Existing transportation/ traffic situation	Assess the traffic impact of transfer of municipal solid waste to project site in consideration of traffic situation in the area including congestion based on existing capacity of road system									

Table 4. Environmental Risk Assessment to be included in EIS

During scoping: Check (✓) required/applicable items; items with ✓ are automatically required; write specific instructions (if any) on the blanks/spaces provided.			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS							
Level of Coverage & Type of Risks	CONTENTS OF ERA AS PART OF EIS For the identified safety risks in column 1	Remarks/ Specific Scoping Instruction/s	ERA		ERP		Monitoring Plan		REMARKS	
			Page	✓	Page	✓	Page	✓		
Level of Coverage: Refer to Annex 2-7e of the RPM for DAO 2003-30	For EIS, check type of report to be submitted prior to Operation: <input type="checkbox"/> Quantitative Risk Assessment(QRA)									

Project Name: _____

1st 2nd 3rd Screening

ECC APPLICATION SCREENING FORM FOR PROPOSED WASTE-TO-ENERGY PROJECTS

During scoping: Check (✓) required/applicable items; items with ✓ are automatically required; write specific instructions (if any) on the blanks/spaces provided.			✓ For completeness during procedural screening; page numbers should be provided upon submission of the EIS						
Level of Coverage & Type of Risks	CONTENTS OF ERA AS PART OF EIS For the identified safety risks in column 1	Remarks/ Specific Scoping Instruction/s	ERA		ERP		Monitoring Plan		REMARKS
			Page	✓	Page	✓	Page	✓	
<input type="checkbox"/> Level 2 (QRA Required) <input type="checkbox"/> Level 1 (Emergency Plan based on hazard analysis) <input type="checkbox"/> Risk Screening	<input type="checkbox"/> Hazard Operability (HAZOP)								
Safety Risks Type: <input checked="" type="checkbox"/> Fire <input checked="" type="checkbox"/> Explosion	<input checked="" type="checkbox"/> Description of conditions, events and circumstances which could be significant in bringing about identified safety risks <input checked="" type="checkbox"/> Description & assessment of the possible accident scenarios posing risk to the environment <input checked="" type="checkbox"/> Description of the hazards, both immediate (acute effects) and delayed (chronic effects) for man and the environment posed by the release of toxic substance, as applicable <input checked="" type="checkbox"/> The safety policy and emergency preparedness guidelines consistent with the regulatory requirements. Emergency Preparedness should also consider natural hazards to the infrastructures and facilities.								
<input checked="" type="checkbox"/> Physical Risks (Failure of Structure w/c could endanger life, property and/or the environment)	<input checked="" type="checkbox"/> Description of conditions, events and "trigger" which could be significant in bringing about identified physical risks <input checked="" type="checkbox"/> Description & assessment of the possible accident scenarios posing risk to the environment <input checked="" type="checkbox"/> Description of the hazards both immediate (acute effects) and delayed (chronic effects) for man and the environment posed by the failure of structure, as applicable								

1st 2nd 3rd _____th Screening

Noted by:	Signature		Signature
Review Committee Members		EMB Representatives	
1.		1.	

Project Name: _____

ECC APPLICATION SCREENING FORM FOR PROPOSED WASTE-TO-ENERGY PROJECTS

2.		2.	
3.		Project Proponent:	
4.			
Resource Person		Project Preparer/Consultant:	

Project Name: _____

Attachment 1

WASTE TO ENERGY PROJECTS (WtE)

Environmental Management Plan

PROJECT ACTIVITIES	POTENTIAL IMPACT	MITIGATING MEASURES	RATING/ PERFORMANCE OF MITIGATING MEASURES
Construction Phase			
Site Development including excavation	Degradation of surface water quality due to contamination from domestic wastewater	<ul style="list-style-type: none"> • Provision of (<u>indicate number</u>) portalets for construction workers <p>Note: at least one (1) portalet for 10 workers</p> <ul style="list-style-type: none"> • Provision of septic tank or wastewater collection system for workers 	100% no discharge of domestic wastewater to nearby bodies of water
	Dust emission from site preparation	<ul style="list-style-type: none"> • Sprinkling of water at least three (3) times a day along the access road especially during dry season 	100% no dust emission
	Generation of spoils	<ul style="list-style-type: none"> • Spoil materials will be hauled by third party hauler 	100% no spoil materials will be left unattended
Construction and installation of the Waste to Energy Facility	Noise pollution from heavy equipment facilities	<ul style="list-style-type: none"> • Use of mufflers and exhaust silencers • All workers must be equipped with PPEs 	100% Noise within standard
	Potential siltation of nearby bodies of water due to surface water run-off	<ul style="list-style-type: none"> • Construction of soil erosion control measures either by engineering structure 	100% no siltation
Operation Phase			
Delivery and transfer of Municipal Solid Waste to Project Site	Noise pollution from wastes delivery trucks	<ul style="list-style-type: none"> • Use of mufflers and exhaust silencers 	100% Noise within standard

	Spillage of municipal solid waste from trucks	<ul style="list-style-type: none"> • Trucks is fully covered 	100% no spillage of municipal solid waste
Municipal Solid Waste Preparation (ie. Screening/ Sorting/ grinding)	Generation of odor	<ul style="list-style-type: none"> • Storage and preparation of MSW in enclosed storage area with negative pressure 	100% containment of odor from MSW
Operation of the WtE facility (ie. combustion chamber, boiler, turbine)	Degradation of air quality due to the following: <ul style="list-style-type: none"> • Generation of gases (SOx, NOx) and particulates • Potential emissions of dioxins and furans 	<ul style="list-style-type: none"> • Use any of the following: <ul style="list-style-type: none"> ✓ electrostatic precipitator (ESP) ✓ baghouse filter ✓ Fabric filter with teflon membrane ✓ Multicyclone ✓ Gas and Particulate absorption tank equipped with filter medium • Provision of wet scrubber or Limestone slurry injection in the flue gas to control SOx emission • Air and temperature control, flue gas recirculation or provision of catalytic converter to control NOx emission 	100% compliant to RA 8749
	Generation of fly ash and bottom ash	<ul style="list-style-type: none"> • Provision of ash disposal facility 	100% containment of fly ash and bottom ash
	Contamination of groundwater due to leachate from the ash pond and waste storage area	<ul style="list-style-type: none"> • Ash disposal facility is lined with geo-textile liner topped with impermeable geo-membrane HDPE liner with thickness of at least 1.5 mm • Provision of leachate 	100% no groundwater contamination

		collection system for treatment to centralized WTF	
	Contamination of surface water from process/domestic wastewater	<ul style="list-style-type: none"> • Provision of Centralized Wastewater Treatment Facility (combination of biological, physical and chemical treatment) to treat the collected leachate, scrubbed water and other process and domestic wastewater. • Zero Discharge will be adopted by re-using the treated wastewater (effluent) in the plant. 	<p>100% no discharge of wastewater</p> <p>100% conformance to effluent standards</p>
	Generation of noise from turbines	<ul style="list-style-type: none"> • The turbine will be housed to a building with noise insulator 	100% no noise perceived from turbine operation outside the building
	Generation of used oil (from motorpool) and other hazardous materials	<ul style="list-style-type: none"> • Provision of storage facility/area and collected by hazardous wastes DENR accredited 3rd party hauler and treater 	100% compliant to RA 6969