

**Environmental Impact Statement (EIS)
Summary for the Public
for the
Proposed 1,700 MW Batangas
Combined Cycle Power Plant Project**

December 2020

**Excellent Energy Resources, Inc.
(EERI)**

A. PROJECT DESCRIPTION

Project Name	1,700 MW Batangas Combined Cycle Power Plant (BCCPP) Project
Project Location	Barangay Dela Paz Proper, Batangas City
Project Type	Thermal Power Plant (Gas-fired)
Project Components	<p>Major Components</p> <ul style="list-style-type: none"> • Gas Turbines including Auxiliary Systems • Heat Recovery Steam Generators including Auxiliary Systems • Steam Turbines including Auxiliary systems • Generators <p>Support Facilities</p> <ul style="list-style-type: none"> • Jetty (for Light Fuel Oil (LFO) deliveries) • Fuel Oil (LFO) Facilities • Switchyards • Water Treatment Systems • Circulating Cooling Seawater Systems • Closed Cooling Water Systems • Seawater Intake and Outfall Structures • Compressed Air and Dryer Systems • Emergency Diesel Generators • Interconnection Facility <p>Pollution Control Devices</p> <ul style="list-style-type: none"> • Wastewater Treatment Systems • NOx Watering Systems • Exhaust Stacks <ul style="list-style-type: none"> ○ Main Stacks ○ Bypass Stacks • Continuous Emissions Monitoring Systems
Project Area	40.87 hectares of land area; 3.15 hectares of foreshore and miscellaneous lease areas
Project Capacity	Phase I: 850 MW net; Phase II: 850 MW net
Project Technology	Combined Cycle Power Plant Technology
Resource Utilization	<p>Seawater. EERI will use seawater as coolant medium in the condensing system of the steam turbine. Abundant supply of this resource which will be required in large quantity during the operation is one criterion that favors the siting of the plant in the area. The other usage of seawater will be for the various processes of the power plant and domestic requirement. Desalination and demineralization processes will be used to have a water quality suited for the requirements of power plant operation systems and domestic requirement.</p> <p>Freshwater. Freshwater is not at all dependable for use in the study area since all streams dry up easily after major rainfall events. The potential source for the water requirement of construction personnel would be the spring and deepwells found during the fieldwork that are proximate to the construction site. Water requirements for concreting and equipment use may be directly tapped from the available springs near the site and/or from deepwells.</p>
Project/Investment Cost	PhP 67.863 Billion

B. PROJECT LOCATION AND AREA

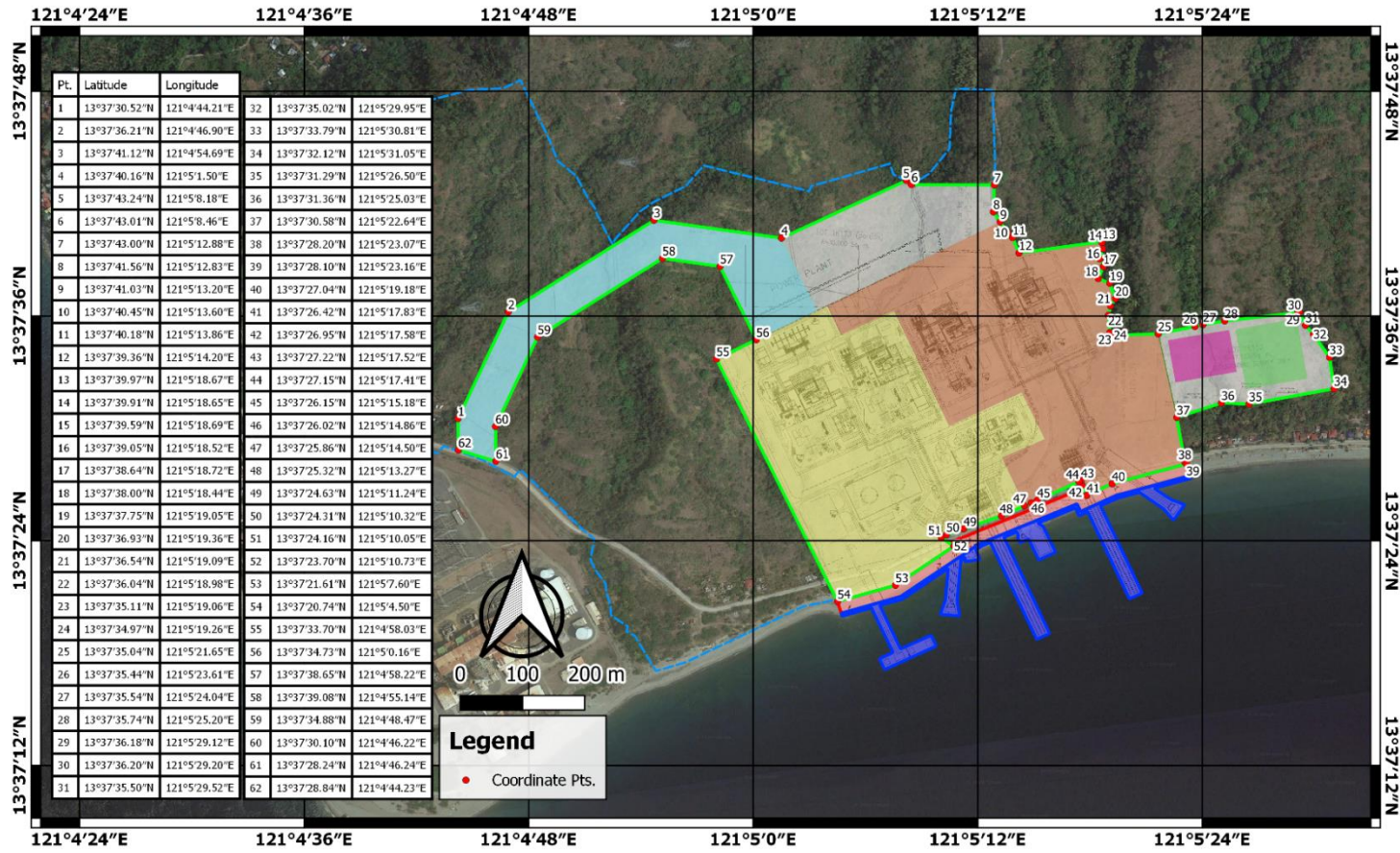
The proposed BCCPP Project will be located in a 40.87-has area leased by EERI within Barangay Dela Paz Proper, Batangas City. The majority of the project site is located at Barangay Dela Paz Proper in Batangas City. The plant area is bounded in its southwest portion by the KEPCO Ilijan

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Combined Cycle Power Plant, and the coastline of Barangay Dela Paz Proper in its southern portion. Verde Island is located approximately 7 kilometers (km) south of the project site.

The geographical location of the proposed project site is presented in **Figure 1**.





<p>Geographical Map for the Proposed 1,700 MW Batangas Combined Cycle Power Plant Project</p>	<p>Proponent: Excellent Energy Resources, Inc.</p>	<p>Prepared by: GEOSPHERE Technologies, Inc.</p>
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Figure 1. Geographical Map of the Proposed BCCPP Project

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The primary considerations in the selection of the site for the construction of the proposed BCCPP Project are the following:

1. Proximity to fuel the existing Malampaya gas pipeline infrastructure
2. Presence of the transmission lines that can still accommodate the generation from the proposed BCCPP Project in close proximity.
3. Availability of seawater in close proximity, which is a primary requirement in the operation of the Heat Recovery Steam Generator (**HRSG**) and Steam Turbine Generator (**STG**).
4. The location is fronting an open sea which is vital consideration in the transport of imported liquefied natural gas (LNG).
5. Availability of land and classification of this land.
6. Low density of habitation.
7. Accessibility by road and sea.
8. Ambient conditions and land elevation.

EERI has sought to identify alternative sites for the proposed BCCPP Project which aligned with the development plan of the DOE and electricity network, but was unable to identify another site with sufficient land available that meets the requirements of such a large combined cycle power plant.

Based on the known impacts of natural gas fired combined cycle power stations, the selected site has a number of distinct advantages over alternative sites. The location selected considered the following design parameters:

- Has sufficient available land for the development. Minimum available area is approximately 40.87 hectares;
- The site land identified, being a hill, has a very low habitation;
- Has additional area to allow for future expansion and co-location of potential electricity and natural gas off-takers;
- Has access to the offshore sea for sea water cooling;
- Has sufficient water depth for a barge to float;
- Is located in an area with existing electricity grid network (500kV transmission line) and planned to be part of key future upgrades; Has a direct connection to the first transmission tower for evacuation of power to the grid;
- It is close to Metro Manila, the main load centre in Phillipines;
- Is consistent with the DOE master plan with regards to LNG import terminal;
- It is consistent with the DOE master plan of merchant power plants;
- Is close to existing power plant infrastructure and facilities which can be utilized by the new development;
- Has direct access to main roads;
- Can be fenced and secured for security reasons; and
- Minimum disturbance to current habitants in the area.

The presence of the existing gas fired combined cycle power plant near the area where the proposed BCCPP Project will be constructed will be an advantage since economy of scale will play a major role in pricing the LNG. Regasified LNG will be the main fuel to operate the power plant while Light Fuel Oil (**LFO**) will be used as an alternate if regasified LNG is not available.

C. PROJECT PROPONENT

Name of Proponent : Excellent Energy Resources, Inc. (**EERI**)
Proponent's Address : 155 EDSA Brgy. Wack-Wack, Mandaluyong City
Authorized
Representative : Mr. Rene R. Mendoza, Project Director
Contact Details : Telephone No: (02) 667-5203; Mobile No.: 0917-8342078
Email Address: rrmendoza@smcgph.sanmiguel.com.ph



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D. PROJECTED TIMEFRAME OF THE PROJECT IMPLEMENTATION

The proposed BCCPP Project will be implemented in two phases. Each phase is estimated to be completed in 36 to 40 months. Phase 1 is targeted to begin construction within the 2nd Quarter of 2021 and is targeted to be completed by the 1st Quarter of 2023 for the Simple Cycle and 2nd Quarter of 2024 for the Combined Cycle. Phase 2 is targeted to be completed two (2) years thereafter.

The schedules of BCCPP Project for Phases 1 and 2 is presented in

Figure 2 and **Figure 3**, respectively.

PHASE I																							
Project Activity	2020				2021				2022				2023				2024						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Permitting																							
Construction																							
Simple Cycle Unit 1&2																							
Testing & Commissioning																							
Commercial Operation																							
Combined Cycle Unit 1&2																							
Testing & Commissioning																							
Commercial Operation																							

Figure 2. Proposed BCCPP Phase 1 Project Schedule

PHASE II																							
Project Activity	2022				2023				2024				2025				2026						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Permitting	<i>Included in Phase 1 Activity</i>																						
Construction																							
Simple Cycle Unit 1&2																							
Testing & Commissioning																							
Commercial Operation																							
Combined Cycle Unit 1&2																							
Testing & Commissioning																							
Commercial Operation																							

Figure 3. Proposed BCCPP Phase 2 Project Schedule

E. SUMMARY OF MAJOR IMPACTS AND RESIDUAL EFFECTS AFTER MITIGATION

Table 1 presents the summary of major environmental impacts caused by the project and residual impacts after mitigation.

Table 1. Summary of the Environmental Impacts, Mitigating and Enhancement Measures, and Residual Impacts

Environmental Component	Potential Impact	Prevention/Mitigation/ Enhancement Measures	Target Performance/ Efficiency
PRE-CONSTRUCTION PHASE			
	Pre-construction phase covers planning activities, feasibility study, outlining of plans and permits procurement.		Non-commencement of construction phase until compliance and

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Environmental Component	Potential Impact	Prevention/Mitigation/ Enhancement Measures	Target Performance/ Efficiency
			completion of required permits.
CONSTRUCTION PHASE			
Hiring of construction workers	Increase income for the residents	Positive impact; No mitigation measure required.	100% priority hiring of qualified local residents
	Spread of communicable diseases from migrant workers	<ul style="list-style-type: none"> • Conduct of medical examination of workers prior to hiring • Provision of medical services to employees and nearby communities • Conduct of Environmental Health and Safety Briefing to workers and communities prior to construction 	100% compliant with the COVID-19-related policies and guidelines of the DOH
	Construction-related hazards	Conduct of Environmental, Health and Safety (EHS) Training prior to construction	100% efficient implementation of EHS training
Construction of project facilities: - Access roads - Main plant components - Support facilities - Pollution control devices/ systems	Change in sub-surface underground geomorphology	<ul style="list-style-type: none"> • Formulate appropriate design measures for the protection on slopes and banks, soil improvement/ ground reinforcement to minimize ground failure 	100% efficient implementation of engineering interventions for unstable slopes
	Soil Contamination	<ul style="list-style-type: none"> • Proper handling of fuels, lubricants and chemicals • Implementation of solid waste management program that shall include proper waste segregation and good housekeeping • Provision of portalets and garbage bins for domestic solid wastes 	100% efficient materials handling and implementation of Solid Waste Management Program of EERI.
	Increased turbidity and suspended sediment levels	<ul style="list-style-type: none"> • Schedule onshore excavation during dry season • Provision of canals and impoundments/ siltation ponds around the facility to trap erosion • Cover stockpiles with simple covers 	100% compliant with DAO 2016-08 except for baseline data that exceeded the above-mentioned standard.
	Increase in greenhouse gas emissions	<ul style="list-style-type: none"> • Minimize vegetation removal and alteration of topography, if possible • Implement regular inspection and preventive maintenance of heavy equipment, machineries and service vehicles to meet the DENR Emission Standard • Use electric or fuel-efficient equipment, machineries and vehicles and maximize its operation if possible 	100% compliant with RA 8749 and DAO 2000-81
	Dust generation/ increase of suspended particles during construction	<ul style="list-style-type: none"> • Minimize alteration of topography and removal of vegetation to lessen earthworks • Conduct regular cleaning and clearing of construction access /sites and the surfaces of spoils and debris from construction equipment and vehicles and wetting of ground soil in the construction site when necessary • Store excavated materials at designated disposal area. Stock pile construction and trucks loaded with spoils shall be covered • Undertake daily cleaning of paved routes around the construction sites 	100% compliance with RA 8749 and DAO 2000-81



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Environmental Component	Potential Impact	Prevention/Mitigation/ Enhancement Measures	Target Performance/ Efficiency
		<ul style="list-style-type: none"> • Control vehicle movement maintaining the speed limit within the construction site to <10kp • Store excavated materials outside road reserve, but where there is no area, spoils shall be loaded and transported immediately • Plant vegetation on bare ground as early as possible and create vegetated buffer zone where possible 	
	Increase concentration of gas emission from vehicles/ trucks	<ul style="list-style-type: none"> • Undertake regular preventive maintenance of heavy equipment, machineries and service vehicles to meet the DENR Emission Standards. Wherever possible, use electrically-powered equipment • Minimize vehicle transport by maximizing the use of site-generated materials 	100% compliant with RA 8749 and DAO 2000-81 standards
	Increase of noise level due to vehicles & equipment	<ul style="list-style-type: none"> • Select routes that will avoid populated areas • Provision of silencers or mufflers of vehicles • Restriction of noise producing activities to daytime hours 	100% compliance with the NPCC noise standards for construction activities
OPERATION PHASE			
Hiring of Workers for Operation Phase	Spread of communicable diseases from migrant workers	<ul style="list-style-type: none"> • Medical examination of workers prior to hiring • Provision of medical services to employees & nearby communities • Environmental Health & Safety Briefing to workers and communities 	100% compliance with the COVID-19-related policies and guidelines of the DOH
	Generation of health hazards to plant workers & the public	<ul style="list-style-type: none"> • Better workplace condition • Provide training on occupational health for workers <p>Provide proper communication to increase awareness of public on potential hazards</p>	100% efficient implementation of proposed mitigations.
Operation of the proposed BCCPP	Subsidence and Liquefaction	<ul style="list-style-type: none"> • Structural monitoring of buildings and facilities especially after each earthquake • Formulation of detailed Emergency Preparedness and Response Plan 	100% efficient implementation of proposed mitigations.
	Ground settlement	<ul style="list-style-type: none"> • Identification of the load bearing capacity of the soil in the project site and estimate settlement of the planned structure. Apply allowable bearing capacity to ensure that the foundation remains stable and the maximum tolerable settlement is not exceeded. 	100% efficient implementation of proposed mitigations.
	Soil contamination due to accidental spillage of fuel, lubricants and chemicals	<ul style="list-style-type: none"> • Provisions to immediately collect and contain spilled fuel, lubricants and chemicals • Bunding all storage tanks for fuel and chemicals • Cementing of fuel tanks area and motor pool area 	100% efficient implementation of proposed mitigations.
	Depletion of water resources/ competition in water use	<ul style="list-style-type: none"> • Conduct of a detailed groundwater resource evaluation in the area 	100% efficient implementation of proposed mitigations.

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	Degradation of water quality	<ul style="list-style-type: none"> • Installation of WWTS that will treat wastewater prior to discharge into the receiving body of water • Proper maintenance and operation of the wastewater treatment facility • Regular monitoring of effluent 	<p>100% efficient implementation of proposed mitigations.</p> <p>100% compliant with DAO 2016-08 General Effluent Standards</p>
	Water contamination due to accidental release of fuel, lubricants and chemicals	<ul style="list-style-type: none"> • Regular maintenance of equipment to avoid fuel/oil leaks • Provision of spill containment measures such as oily water drains in turbine building area and transformer bay; and concrete spill containment dikes at fuel oil and chemical storage areas. 	100% efficient implementation of proposed mitigations.
	<p>Threat to abundance, frequency and distribution of species of corals, reef fishes, plankton and marine benthic organisms during operation of the offshore facilities including intake and outfall structures</p> <p>Loss of important species</p> <p>Loss of habitat</p>	<ul style="list-style-type: none"> • Treated wastewater discharges to Batangas Bay which will be in compliance with the DENR standards are not expected to cause significant adverse impacts to the marine environment. • Installation of screens at the intake structure with a design velocity which minimizes the impact on marine biota. • The design static screen hole of less than 10cm in diameter will prevent fish and other bigger marine organisms from entering the intake structure • Multiple small-size intake heads will not significantly hinder the activities of the marine life in the area. • Regular cleaning and maintenance of underwater structures • The maximum discharge temperature increase at the outfall of less than 3°C is within DENR limits for preservation marine life • Using the lowest possible hypochlorite concentration and proper and regular maintenance of underwater structures • Over the long time, the pier piles of the jetty can serve as artificial refuge for a wide variety of marine animals in the area and can enhance the diversity of marine organisms. • Conduct annual monitoring of marine ecology in the area. 	100% compliant with RA 9275 and DAO 2016-08 Standards
	<p>Increase productivity of benthic fauna due to colonization of jetty piles by reef-dwelling biota</p> <p>Re-colonization of benthic communities in the jetty area</p>	<ul style="list-style-type: none"> • Positive Impact 	NA



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	Increase in greenhouse gas emissions	<ul style="list-style-type: none"> • Planting of vegetation as much as possible to open areas at the facility and in the buffer zone. • Implementation of Energy/water conservation program such as use energy efficient products (i.e. LED lights) and carbon footprint monitoring. • Regular inspection and proper maintenance of structural facilities, equipment, and machinery. 	100% efficient implementation of proposed mitigations.
	Degradation of ambient air quality due to emissions from fuel-based power generation	<ul style="list-style-type: none"> • Equip gas turbine generators with turbine inlet evaporative cooling for enhancement of power output • Enclose steam turbine generators with water-to-air-cooled (TWAC) with a static excitation system • Installation of CEMS on each boiler units to have real time monitoring of emissions at the stacks • Installation of NOx Dewatering Injection System to reduce NOx emissions during fuel oil operations • Construct stacks at a height of 60m to reduce ground level concentrations of pollutants • Proper maintenance and operation of pollution control devices • Regular maintenance of gas turbines and generators • Conduct of ambient air quality monitoring and source emission testing 	<p>100% efficient implementation of proposed mitigations.</p> <p>100% compliant with DAO 2000-81</p>
	Air pollution from emergency generators and vehicle emissions	<ul style="list-style-type: none"> • Regular maintenance of emergency generators • Implementation of a motor vehicle maintenance program, including emission testing 	100% efficient implementation of proposed mitigations.
	Increase in occupational and ambient sound levels due to vehicles & equipment/facilities	<ul style="list-style-type: none"> • Equip engines with silencers, maintain in proper condition and use in accordance with the manufacturer's recommendations • Installation of barriers or sound protection panels if noise levels exceed NPCC Noise standards • Enclose sources of noise that exceed the NPCC Noise Standards • Provision of personal protective equipment to machine operators • Establishment of a green belt around the project site especially in the vicinity of an inhabited area with the highest noise level recorded • Repair and replace defective equipment/parts with abnormal noise and/or vibration 	100% efficient implementation of proposed mitigations.
ABANDONMENT PHASE			
Decommissioning	Soil contamination with heavy metals	<ul style="list-style-type: none"> • Abandonment Plan of the Project will be strictly followed with emphasis on the strategy of sustaining erosion/ 	100% efficient implementation of Abandonment Plan



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		sedimentation control within and adjacent vicinity of the Project and rendering the Project area free of soil contamination	
	Disposal of wastes may lead to possible impacts from spills and discharges of contaminants affecting water quality and marine ecology	<ul style="list-style-type: none"> • Collection of spills • Removal and/or neutralization of chemicals • Regular monitoring of water quality 	100% efficient implementation of proposed mitigations 100% efficient implementation of Decommissioning Impact Management Plan
	Generation of noise, dusts and exhaust emissions during dismantling which could affect workers, vegetation and wildlife	<ul style="list-style-type: none"> • Watering during dismantling to minimize dust • Proper maintenance of vehicles and equipment • Use of noise suppressors/mufflers • Limiting of noisy activities during daytime 	

F. IDENTIFIED STAKEHOLDERS

The following are the identified stakeholders of the proposed Project:

- LGU of the host city: Batangas City
- LGU of the host barangay: Brgy. Dela Paz Proper
- Sectoral Representatives (Education, Health, Livelihood, Religious, Business, Senior Citizens, Women) at the host LGUs
- Non-Government Organizations at the host LGUs
- EMB-DENR CALABARZON Region
- Provincial Environmental Management Unit (PEMU)-Batangas
- Department of Energy (DOE) Regional Office-Luzon
- Department of Energy (DOE) Electric Power Industry Management Bureau

G. STATEMENT OF COMMITMENT AND CAPABILITY TO IMPLEMENT NECESSARY MEASURES TO PREVENT NEGATIVE IMPACTS

The EERI as the Proponent commits to provide overall policy and guidance with regards to implementation of the Project. EERI shall ensure that all necessary mitigating measures including budgets and agreements with other concerned national and local government agencies are included in all contracts to prevent and/or minimize the negative impacts of the project and enhance the positive impacts.

H. INFORMATION WHERE TO GET COPY OF THE EISR

The draft Environmental Impact Statement Report (EISR) and this ESP will be posted in the EMB website (www.emb.gov.ph) at least 15 days before the public hearing. After the review process, the final EISR of the proposed 1,700 MW Batangas Combined Cycle Power Plant Project will be available at the following:

1. **EEMB Region 4A**
6th Floor DENR by the Bay Bldg., 1515 Roxas Blvd., Ermita, Manila



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2. CPDO – Batangas City

Batangas City Hall Complex, P. Burgos Street, Brgy. Poblacion 17, Batangas City

For more information about the proposed project, the following people may be contacted:

Proponent:	Preparer:
Mr. Rene R. Mendoza Project Director Excellent Energy Resources, Inc. 155 EDSA Brgy. Wack-Wack, Mandaluyong City Telephone No: (02) 667-5203; Mobile No.: 0917-8342078 Email Address: rrmendoza@smcgph.sanmiguel.com.ph	Engr. Leticia T. dela Cruz Managing Director GEOSPHERE Technologies, Inc. 19D Eisenhower Tower, Eisenhower St., Greenhills, San Juan City Tel: (02) 724-5665/67 E-mail: gti0722@geospheretechnology.com