



JG Summit Petrochemical Corporation
EIS for the 2x150MW Coal Fired Power Plant
ESP

July 2017

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1. EIS summary for the Public (ESP)

1.1 Project Description

1.1.1 Project type

The 2x150MW Coal fired power plant is a proposed power generating plant to be located in Barangay Pinamucan Ibaba, Batangas City. The general components of the proposed 2x150 MW coal-fired power plant will use circulating fluidized bed combustion (CBFC) technology and will generally operate as a base load plant with occasional operation as load cycling plant. The project is intended to be implemented in two stages and envisioned to have a total capacity of 300 MW in the future. The coal fired power plant is intended to replace the existing diesel power station supporting the company's existing petrochemical and naphtha cracker plants. The proposed project is also intended to meet the growing electricity requirements of the existing plants and further off-takers down the line for anticipated development in the area. The embedded generation will cater to the existing facility and JGSHI intends to eventually connect to the electricity grid in order to sell off surplus power to the Luzon Grid.

1.1.2 Components and size (capacity)

Table 1 Major components of the project and capacities

Component	Capacity	Remarks
Power plant	300 MW (gross)	2x150 MW units JGSHI is considering the possibility to expand in future to an additional 300 MW, however, it is not included in this EIS as it is too early to do so.
Stack	150 m height	Single stack arrangement for the pair of 2 x 150 MW units fitted with electrostatic precipitators prior to the stack
Water supply system for processing water	230 tonne per hour for one unit of 150 MW (~460 tonne per hour for two units of 150 MW)	Water supply to be extracted from desalination plant Various subsystems, including storage tanks and distribution pumps and pipelines for raw, de-mineralised, potable, and service water.
Water supply system for drinking and domestic purpose	15 m ³ /hr	Water supply to be extracted from the existing groundwater wells within the complex Various subsystems, including storage tanks and distribution pumps and pipelines for potable, and service water.
Switchyard	230 kV switchyard	Developed mainly to provide power dispatch based on an embedded configuration, but with consideration to the possibility of contributing electricity into the national grid.
Fuel oil system	500 m ³	Auxiliary fuel will be used for start-up and as a back-up fuel for the boilers, but also for the emergency diesel generator and vehicles, etc. The fuel used for this duty is light fuel oil or bunker C fuel
Jetty	50,000-80,000 DWT	The jetty will be equipped with coal unloading and conveyance systems.

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Component	Capacity	Remarks
Coal handling system	40,000 tons/week	The coal handling system will include components for handling of coal from arrival through boiler throughput, i.e., unloading, conveyance, transfers, and dust collection.
Coal storage area	123,700 tpm	Sizing of the coal storage area is on the basis of one month worth of coal availability for both boiler units (2x150 MW)
Ash handling system	Truck capacity (to be determined)	Ash handling will be carried out by storing the bottom ash into a temporary ash bunker and trucking the bottom ash to the ash pond The fly ash will also be stored in a similar ash bunker and then hauled either to the ash pond or sold to re-processing facility
Ashpond	10 ha	Sufficient for ash disposal during the first 25 years of operations on the basis of a phased development approach.
Wastewater treatment	880 tonne per hour	The wastewater treatment system will include the oil-water separator, chemical treatment, and sanitary treatment facilities.
Buffer zone	To be confirmed after quantitative risk assessment and HAZOP study	A quantitative risk assessment and hazard and operability (HAZOP) study will be undertaken after the detailed design of the power plant components have been completed, prior to construction, which will define the boundaries of the areas to be maintained as buffer zone during project operation.

1.1.3 Process/technology

The general components of the proposed 2x150 MW coal-fired power plant will use circulating fluidized bed combustion (CFBC) technology and will generally operate as a base load plant with occasional operation as load cycling plant. The CFBC technology generally applies the principle of fluidised beds, which is achieved by blowing air through a bed of material (e.g. particles such as coal) lying on a grid. In comparison to traditional coal-fired power plant technologies, emissions control in the CFBC results in lower NO_x and SO_x emissions.

The power generation process will entail the generation of two by-products—bottom ash and fly ash. Bottom ash has large and fused particles that fall to the bottom of the furnace and are mixed with the bed media. Fly ash includes fine-grained and powdery particles that are carried away by flue gas into the electrostatic precipitator, which is then collected. Total ash collected includes the injected limestone for desulphurization and the resulting reaction product.

1.1.4 Resource utilisation and project alternatives

The proposed project will entail the utilisation of these two major resources:

- The daily consumption of coal by the 300 MW plant is expected to be a maximum of 4,432 tonnes.
- The total daily water requirement of the proposed plant is estimated at 800 m³/day or 33 m³/hr. Raw water supply will be sourced via a desalination plant to be installed for the

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project, which will obtain seawater from the adjacent coast and treat it to produce freshwater of appropriate quality for use as raw water supply.

Site alternatives

In 2011, a site suitability study was undertaken for the purpose of studying two proposed locations for siting the power plant, these were the RLC site (16 ha area south of the existing petrochemical plant), and the Magellan site (current proposed location). On the basis of the need for an embedded operation, the two options were chosen as potential sites, as each is located adjacent to the existing facilities within the JG Summit Complex.

From the perspective of accessibility, geotechnical considerations and availability of water resources, both options were on similar terms. However, the RLC site was of insufficient area to accommodate the proposed power plant and all its ancillary facilities. In addition, relocation of a large number of residents would be unavoidable in this location.

The Magellan property was therefore chosen in order to have flexibility in terms of the plant footprint and to be able to avoid considerable involuntary resettlement concerns.

In terms of plant layout, the final project siting was assessed using the following criteria:

- Land acquisition
- Energy consumption
- Configuration complexity
- Proximity to previously occupied property
- Environmental impacts

Subsequent to the initial options originally explored, JGSHI went back to the drawing board in order to develop a new plant layout that would sufficiently address certain considerations related to space limitations, minimising environmental impacts, and land acquisition. Among others, one of the main decisions that JGSHI had reached as a result of the plant layout development process was the need to acquire the Soriano property and relocate the residents, thereby preventing adverse health and environmental impacts should the power plant be built while the residents are in their current location.

In view of these, the proposed plant layout was developed. The impact assessment presented in this EIS Report is therefore in consideration of this latest plant layout. The project footprint is estimated to be approximately 17 hectares for the main power block and balance of plant (utility block, coal handling and storage facilities, administration units) and an estimated ash pond area of 10 hectares.

Fuel source alternatives

A summary of the main considerations taken into account in the development of the project is presented below. **Table XX** presents following alternative fuel sources that were considered are therefore discussed in view of the need to be location-specific and has considered proximity to JG's development expansion. The use of coal as main source of fuel emerged as the most feasible option in terms of reliability of supply to meet the energy requirement of JGSHI.

Table 2 Fuel source alternatives considered for the proposed energy requirement

Energy sources	Consideration	Feasibility
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		No	Yes
Renewable energy source			
Wind power	The proposed location of the power plant does not have sufficient wind resources.	X	
Hydroelectric power	The main river running through (Pinamucan River) does not provide continuous flow making it unsuitable for use in power generation, whether as run-of-river or impounding hydropower facility.	X	
Solar	The required area of 2 ha/MW is too large to be sited within the proposed location, or indeed even in nearby areas	X	
Nuclear	Geological conditions in the country play a key role in the ability to site and operate a nuclear power plant safely, thus making nuclear power plants likely unsuitable in the Philippine setting.	X	
Geothermal	Geothermal plants are site-specific. No new geothermal fields have been found proximate to the location of the complex that will make it suitable for an embedded type of generation.	X	
Non-renewable energy sources			
Natural Gas	Liquified natural gas or LNG is not currently available in sufficient supplies in the proximity of the project site for it to be viable for JGSHI's requirements.	X	
Diesel	The existing diesel power plant currently supports electricity supply of the existing petrochemical and naphthacracker plants owned and operated by JGSHI and its subsidiaries. Diesel prices and reliability of supply have been the key challenges encountered by JGSHI in operating the existing 75 MW diesel power plant. Hence, the need to explore alternative fuel sources to provide stable electricity supply for the operation of their existing facilities	X	
Coal	Coal availability has been proven reliable to support the operation of a power plant to provide for the electricity requirements of the facilities within the JG Summit complex. In addition, lower costs coupled with high efficiency also make coal ideal as fuel source for JGSHI's power plant.		✓

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Technology selection

With coal as the fuel of choice, and in consideration of the inclusion of latest combustion technology equipped with the appropriate pollution control installations, JGSHI decided on the use of circulating fluidised bed combustion technology over conventional pulverised coal boilers.

The advantages of CFBC include:

- The ability to burn a wide range of fuels due to the large heat capacity and mixing of the bed
- The ability to utilise some types of waste material such as biomass and solid waste, which promotes safe disposal and reduces net CO₂ release to the atmosphere
- Good combustion efficiency, and thus low CO and hydrocarbon emissions due to turbulent mixing and long residence time in the circulating bed
- Low SO₂ emissions, due to suitable temperatures for sulphur retention using limestone
- Low NO_x emissions, due to low bed temperature and staged combustion
- Stable operating conditions and boiler response, due to the high heat transfer from the circulating material
- Good turndown rates (i.e. ratio between maximum and minimum flow) due to heat transfer being approximately proportional to load; no need to slump section of the bed at low loads
- Fewer fuel feed points due to better mixing in the bed

1.2 Project Proponent

The project proponent is JG Summit Holdings, Inc (JGSHI) with address in 42 Floor Robinson Equitable Tower, ADB, Avenue, Ortigas. JG Summit Holdings, Inc is one of the leading companies in the Philippines with business interest in air transportation, banking, food manufacturing, petrochemicals, real estate, hotels & property development, and telecommunication.

1.3 Projected timeframe

A work plan will be established to ensure that design, fabrication, delivery and construction activities are conducted in an orderly and timely manner to meet construction schedule and requirements. Site construction works to start in 2018 will be for a period of 33 to 36 months for the first unit and another 6 months for the second unit. Commercial operation is expected to commence in 2020.

1.4 Integrated summary

The summary of impacts identified below were compiled as a result of the environmental risk assessment exercise undertaken as part of the EIA study, with a view to identifying activities with high or extreme risks associated with project activities. The proposed mitigation measures are also included in the table below.

Table 3 Summary of identified impacts and corresponding mitigation measures¹

Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
<i>PRE-CONSTRUCTION PHASE</i>			
Land acquisition	Land / People	Displacement of settlers Households located in the Soriano property will need to be relocated and/or compensated	A Resettlement Action Plan has been developed and will be implemented by JGSHI. JGSHI is in the process of negotiating with the residents for land acquisition and resettlement. Appropriate compensation will be given to the affected households.
<i>CONSTRUCTION PHASE</i>			
Location of project and project design	Land / Water	Encroachment in Environmentally Critical Areas: areas frequently visited and/or hard-hit by natural calamities; areas with critical slope; presence of water bodies	Structural support and slope and storm surge protection measures were installed in the jetty and project site portion fronting the sea Slope stabilization and revegetation measures will be implemented in areas with critical slope Pollution control measures will be installed and waste management system will be implemented to avoid or minimize impacts on nearby water bodies
	Land	Change in surface land form	Proper cut-and-fill and proper grading to minimize effects to the existing topography
	Land	Inducement of geologic hazards	The facility will be designed according to international accepted factors of safety. Built-in measures and design considerations will be reflected in both structural and operational design. Bypassing liquefiable soils and relieving pore water pressure build up to prevent liquefaction

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¹ An attempt has been made to summarise the content of the Environmental Impact Statement into this Project Fact Sheet, however, it should not be read apart from or considered as independent of the main body of the report

Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
Clearing of ash pond area	Land	Vegetation removal	Avoid unnecessary clearing Establish buffer zones Conduct tree inventory and comply to the conditions of the Tree Cutting Permit A reforestation plan will be developed and implemented JGSHI will continue its existing commitments on mangrove rehabilitation, reforestation, artificial reef program and IECs on marine biodiversity
	Land	Threat to existence and/or loss of important species	Avoid unnecessary clearing Compliance to condition of the Tree Cutting Permit Replacement of cut or relocated trees following DMO 2012-02
Earthworks and general construction works	Land	Dust generation may affect plants	Buffer zones should be established JGSHI will continue to include reforestation in its CSR programs
	Land	Loss of habitat	Clearing activities will be limited to designated construction area only. No hunting of wildlife will be strictly implemented in all phases of the project. Enrichment planting of remaining habitats will be implemented. Increase production of seedlings from the nursery. Continue its commitment of providing a mini forest within the project site, a biodiversity center and technical assistance relevant environmental education and research.
	Land	Hindrance to wildlife access	Where possible, establish and maintain corridor or buffer zones within the project area JGSHI to plant native fruit-bearing trees and shrubs within suitable open areas and remaining vegetation. No exotic and invasive alien species of plants and animals must be introduced

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
		Threat to abundance of important species	Buffer zones should be established. Enhance remaining habitats through enrichment planting and reforestation
	Water – water quality	Soil erosion may lead to increase in sediment load runoff to adjacent waterways.	Built-in measures such as the installation of silt traps and construction of vegetative buffer zones. Stockpiling of construction debris and excavated soils will be done away from the coast and river bank to reduce the potential for erosion and run-off. Excavated soil will be used for embankment construction and backfill.
	Water – water quality	Offshore construction of the jetty and intake/outfall will disturb the seabed and lead to increase in suspended sediments	Design of the discharge tunnel with a seal wall structure that creates a siphon effect in the circulating water system, eliminating the need for pumping at the discharge end of the CWS.
	Water – water quality	Oil and fuel spillage	Secondary containment measures will be employed the storage facility of oil and fuel An emergency and contingency plan will also be established A rapid response team will be designated and trained
	Water – water quality	Solid and sanitary wastes due to influx of workers may affect water quality if not properly managed	A waste and materials storage/recovery facility will be established Sanitary facilities such as portalets will be installed
	Water – marine ecology	Increased sediment deposition and turbidity resulting from coastal and off shore earth moving activities Possible nitrification from generation of sewage and solid wastes Petroleum contamination from increased vehicular traffic	Implementation of slope stabilization strategies before earth moving activities are conducted Installation of silt traps and stockpiling of graded materials properly with appropriate drainage to minimize erosion. Canals will be installed with settling ponds or catch basins to control the direction and flow rate of the water and sediments from the construction area

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
			If possible, most of the earth moving activities be done during the dry season when there is less probability of precipitation and consequent terrestrial run-off.
Presence of marine vessels	Water	Increased volume of traffic of service ships may pose navigational problems/impediment to movement of local fishers. Pollution from oil and bilge water from service ships can be viewed by local fishers as an issue that will prevent fish from moving closer to some of their fishing grounds close to shore.	Development of navigational plan for service ships and local fishing boats Plan will include protocols for proper handling and disposal of pollutants from oil and bilge water. Navigational plan will be communicated to all stakeholders (service ships, contractors, local fishers, LGUs)
Usage of construction vehicles and equipment	Air	Dust generation	Provision and operation of water trucks in project site, particularly in areas where earthmoving and excavations are being done, along the access roads, around the batching plant, and around the temporary administrative offices. Implementation of speed limits
	Air	Air emissions from vehicles and equipment	Regular vehicle inspections and emissions testing Regular inspection and preventive maintenance of equipment
Earthworks and general construction works		Noise generation from construction activities and usage of equipment and vehicles	Proper maintenance of equipment If practicable, operation of noise-generating machines will be limited during daytime. Acoustic insulation (e.g. fence around major construction areas) Information dissemination or advisories can be considered to forewarn nearby barangays, should there be expected nuisance (i.e. elevated noise levels) during night time. Construction workers will be provided with noise protection
Influx of workers	People	Competition with locals for employment and resources and cause social problems	Priority hiring of qualified locals Conduct of needs assessment workshop to understand the needs and provide appropriate benefits to the community

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
			<p>Capacity building for civil society organizations and investment in community development activities</p> <p>Regular consultations with stakeholders to have an open communication, address concerns and promote transparency</p> <p>Regular coordination with the municipal and barangay peace and order officials to identify threats and vulnerabilities in the society</p> <p>Implementation of code of conduct for employees and contractors</p>
General construction works	People	Threat to delivery of basic services/resource competition	<p>Undertake full assessment on the available infrastructure (in coordination with LGU), services and utilities within the project impact barangays and provide appropriate management strategy necessary to minimize the potential strain on local infrastructure and services.</p> <p>JGHSI's jetty will serve as landing area equipment and construction materials so as not to congest the roads</p> <p>Traffic signage shall be installed at conspicuous places</p>
Vehicle movement	People	Construction activities may potentially increase traffic congestion and likelihood of road accidents and blockage	<p>Implementation of traffic management plan, in coordination with the LGUs concerned, which would include installation of traffic warning signs (i.e. traffic lights, pavement markings, pedestrian crossings, lane lines, traffic regulatory signs, loading/unloading, stop signs)</p> <p>Establishment of speed limits; vehicle load limits; car maintenance requirements; and use of seatbelt</p> <p>Conduct of IEC to communicate traffic impact and management plan to the community</p>
Project development	People	Generation of local benefits from the project	<p>Implementation of SDP</p> <p>Regular consultation with the stakeholders to ensure sustainability and success of the SDP</p> <p>Priority hiring of qualified local</p>

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
			Training programs can be provided or supported to improve skills of work force from the community and qualify them for any job opportunities on other projects elsewhere.
<i>OPERATION PHASE</i>			
General operation activities	Land	Change in soil quality	Proper containment of waste and chemical storage should be implemented An effective environmental management plan should be adopted during the construction phase of the project A chemical handling program/plan should be drafted and prepared to assess, mitigate and control such contaminants
	Land	Soil erosion	Avoid unnecessary clearing Slope stabilization, protection and revegetation measures will be implemented
	Water	Competition in water use – no expected impact	A desalination plant will supply the process water for the project. The project's drinking and domestic water supply will be sourced from existing wells in the existing petrochemical complex.
Discharge of heated cooling water	Water	Discharge of heated cooling water may affect marine organisms	JGSHI will ensure that outfall temperature will be kept within acceptable limit of delta 3 degrees Celsius through the use of heat exchangers. Outfall will be located away from coastal marine ecosystems (e.g. coral reefs), and in an area where optimum mixing occurs for a fast efficient dissipation of heated water.
General operation activities	Water	Oil and chemical spillage may impact water quality of nearby water bodies	Provision of secondary containment in handling, maintenance and storage of chemicals and oil Establishment of emergency response procedures in case a significant oil or chemical spill occurs
Operation of ash pond	Water	Potential contamination of adjacent waterbodies from ash pond leachate seepage	The ash pond will have an impenetrable clay base of 400 mm minimum depth and wall lining of HDPE

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
			Ash pond leachate will be drained through wrapped PVC pipes and drained into a settling basin, made of reinforced concrete.
Transport of coal	Water	Coal particles may get into the waterbodies during transfer of the product from service ships to land-based facilities.	The coal handling system will have enclosed design During coal transfer, the system will be operated automatically to prevent dust emission. Dust collection devices will also be provided at coal transfer points and a fire-fighting system will be installed for other coal transfer stations
Generation of wastewater	Water	Oil wastewater, chemical wastewater and sewage will be generated by roject operation.	Installation of wastewater treatment facilities, including oil-water separator, chemical treatment, and sanitary treatment plants will ensure wastewater discharges to comply with DENR Effluent Standards. A drainage plan will be developed according to each type of wastewater treatment. Treated wastewater will be collected at settling basins, recycled or re-used for a number of purposes, or otherwise discharged.
Manpower from operation	Water	Solid waste and sewage generation from manpower	A storage and material recovery facility will be constructed for proper handling and segregation, and a waste management system will be implemented.
Intake of cooling water	Water	Entrainment of fish and other larger marine organisms	Intake structure will be located away from coral reef areas intake structure will have a low flow design and filter system that will minimise entrainment of fish and other marine organisms. It will have bar screens that will prevent entry of large organisms, and travel screens that has a smaller mesh size that most macro organisms cannot pass through. Submerged nets will likewise be installed around the intake to further exclude motile organisms. Personnel training on rescue protocol of important marine organisms will be conducted.

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	Water	Cooling water intake will withdraw planktonic organisms found mainly in the near-surface waters still reached by sunlight.	To offset this impact, JGSHI will continue to support the deployed artificial reefs in the vicinity of the power plant. Monitoring of marine water quality and aquatic communities, including in the artificial reef, will be conducted by JGSHI to provide indications on the long-term effects of plant operations.
Marine vehicle movement	Water	Ships may also discharge or leak bilge water and oil during coal transport operations, affecting the water quality	Bilge water of transport and service ships will be monitored and waste disposal protocols specific to this will be established and implemented.
	Water	Capture fisheries may be affected due to offshore activities brought about by the project	Implementation of navigational plan for service ships and local fishing boats Navigational plan will be communicated to all stakeholders (service ships, contractors, local fishers, LGUs)
Air emissions	Air	Generation of air emissions	Use of CFBC technology for its boiler, which, because of the lower bed temperature of the boiler between 850°C and 900°C, greatly reduces the formation of NO _x gases. The CFBC technology also allows for an in-boiler reduction of SO _x emission via limestone injection, which is added as an absorbent to capture the sulphur in the coal. Installation of electrostatic precipitators for collection of suspended particulate matter in the flue gas prior to release in the stack, thereby greatly reducing the amounts of escaping fly ash in order to comply with DENR limits. To prevent re-suspension of coal fines, covered conveyors and coal storage areas will be used for the project.
Vehicle movement	People	Vehicle movement due to project operation may potentially increase traffic congestion and likelihood of road accidents and blockage	Designation of waiting areas for vehicles servicing the complex Truckers will need to pass accreditation requirements and will be subject to strict safety standards JGSHI has an ongoing project with the local barangays to designate traffic aides along the Pinamucan route, specifically at choke points approaching the bridge.

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
General operation activities	People	<p>Potential impacts to public health and safety due to the following:</p> <ul style="list-style-type: none"> – Dust and other air emissions – Water and other pollutants due to improper waste disposal – Road safety especially during delivery of materials and transport of workers – Increase in population may place strain on living conditions and inadequate capacity of health facilities can raise levels of communicable diseases. 	<p>Dust suppression methods and inspection will be implemented to prevent dust and related emissions.</p> <p>Heavy equipment and vehicles will comply with DENR emission testing requirements and regular engine maintenance check will be conducted to prevent untoward emission of air pollutants.</p> <p>Sediment control devices (e.g. silt traps) will be installed, sanitary toilet facilities will be constructed, and proper management of solid waste as well as oil and grease will be practiced.</p> <p>Traffic management plan will be implemented to prevent road accidents.</p> <p>Built-in pollution control measures will be installed to avert the perceived adverse impacts on the proposed project. This includes the use of low-sulfur coal, injection of limestone, use of electrostatic precipitator and wet scrubbers, and installation of wastewater treatment facilities.</p> <p>Solid waste and oil/grease management program will be implemented.</p> <p>JGSHI work with the government health agencies to strengthen disease monitoring and surveillance system as well as response and treatment capacity development.</p> <p>Health programs and projects will also be undertaken through the company's CSR and ER 1-94 programs such as capacity building for health workers to target high risk diseases, support for public health infrastructure development, resources and training and support public health response and treatment capacity.</p> <p>To prevent perceived impacts of in-migrant workers on community health, the proponent will implement the following measures:</p>

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Project phase / environmental aspect	Environmental component likely to be affected	Potential impact	Options for prevention or mitigation or enhancement
			Priority hiring of qualified locals Health education programs Communicable disease awareness training and screening Workforce health screening program and similar health-related awareness programs

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1.5 Identified stakeholders

The primary project impact area is projected to include the proposed plant footprint within the Magellan property. The direct impact areas also include areas defined to be within the boundaries of the air dispersion and thermal plume modelling. In addition, the areas to be occupied by the seawater intake structure and effluent outfall structure are included in the direct impact areas. For the offshore facilities, a 300 meter radius from the berthing platform of the jetty is proposed as permanent exclusion zone, while 500 meter radius from the berthing platform of the jetty is proposed as temporary exclusion zone.

The area occupied by existing houses in Sitio Soriano is also delineated to be included within the project direct impact areas. The EIA has incorporated discussions about resettlement of the houses within Sitio Soriano.

The secondary or indirect impact area includes the following:

- Immediate adjacent areas and road networks in the vicinity, including areas in Barangays Simlong and Pinamucan Proper, for noise and traffic impacts
- Adjacent coast and immediate offshore area for thermal discharges and presence of plant structures (e.g. coal unloading jetty)
- Navigational marine waters for coal deliveries
- Local airshed for air emissions and noise impacts —extent determined by the dispersion model prepared with the EIS.

Based on the environmental impact assessment, indirect impacts during both construction and operation are constrained to within the two km buffer zone delineated.

From the above discussion, it can be deduced that the project stakeholders include the following:

- Residents of Sitio Soriano
- Residents located near the proposed project area in Pinamucan Ibaba and to some extent residents in Barangay Simlong
- Fisherfolks using the proposed offshore facilities as navigational route

1.6 Project proponent's statement of commitment and capability to implement necessary measures to prevent adverse negative impacts

Management of impacts will be undertaken in accordance with the identified risks and their risk rankings, in order to appropriately prioritise levels of effort to be provided by JGSHI during project implementation. Appropriate management plans will be developed and implemented, including waste management plan and spill response plans, among others. An Environmental Management Unit will be established to ensure compliance with environmental regulations and commitment with the environmental management plan presented as part of this EIS.

As part of its Corporate Governance, JGSHI is committed to adhere to its Stakeholder Health, Safety and Welfare policy. Under this policy, the company is *"committed to undertake all reasonable steps to ensure the health, safety and welfare for the best interest of our stakeholders and the communities where we live and work by complying with the provisions of*

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law, industry rules and regulations, standards of independent accreditation bodies where the Company obtained accreditation, and contractual obligations.”

This policy aims to:

1. Provide a guiding principle to ensure health, safety and welfare of the Company's stakeholder.
2. Identify responsibility and accountability of every personnel and department in the organization to ensure the health, safety and welfare of stakeholders.
3. Integrate health and safety practices in all activities to ensure efficiency and quality of products and services.

The policy defines the guiding principles and responsibilities for managing health, safety and welfare of the stakeholders of the company including its subsidiaries and affiliates. This policy will also provide the guiding principles for the project to implement appropriate measures to prevent adverse impacts of the project.

1.7 Information on where to get a copy of the EIS for further information

The draft Environmental Impact Statement and this ESP will be posted in the EMB website (www.emb.gov.ph) at least 20 days before the public hearing. Upon completion of the review, a copy of the final EIS will be available to the public from the following government units and agencies:

Agency	Address
DENR - EMB	DENR Compound, Visayas Avenue, Diliman, 1100 Quezon City, Philippines
Department of Energy	Department of Energy, 2F PNOC Building V, Energy Center, Rizal Drive, 34th St, Taguig, 1632 Metro Manila
Provincial Government of Batangas	2nd Floor Provincial Capitol Building Batangas City 4200
City Government of Batangas	Batangas City Hall, P. Burgos, Batangas City, Batangas
Barangay Office of Pinamucan Ibaba	Pinamukan Ibaba Barangay Hall Pinamucan Road, Batangas City, 4200

A copy will also be available from the office of JGSHI at 42 Floor Robinson Equitable Tower, ADB, Avenue, Ortigas.

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