



GraceKennedy Limited Policy	
Policy Name	ENERGY POLICY

1. PURPOSE

Heavy dependence on imported petroleum products contributes to the Company's susceptibility to the volatilities of the world's oil market including supply and price fluctuations. In light of this, the Company seeks to diversify its energy supply, by identifying and implementing cost-effective and environmentally sustainable energy solution(s).

The Company is committed to the development of a sustainable energy strategy with focus on exploiting indigenous renewable sources to enhance its international competitiveness and energy security whilst reducing its carbon footprint.

The Company will assess the prevailing energy and environmental conditions and provide guidance on opportunities and strategies include diversification, energy conservation, efficiency and use of renewable technologies for energy to ensure sustainability .

2. DEFINITIONS

"The Company" refers to GraceKennedy Limited, each of its subsidiaries, joint venture entities and associated companies (where applicable).

"Demand Side Management Programme" means a programme comprising techniques and policies which aim at equalizing energy consumption levels over the day and lowering electricity demand.

"Energy Management Systems" means computer-aided tools used to monitor, control, and optimize the performance of the generation and/or transmission system.

"Internet of Things (IOT)" means the planning and management of energy consumption using real-time processing of underlying data which makes it possible to forecast possible failures, and consequently leads to reduction of downtime incidents and operational inefficiencies.

"Renewable Energy" means energy from a source that is not depleted when used, such as wind or solar power.

“Predictive Maintenance” means planned maintenance of processes, facilities and equipment based on the evaluation of processes, trends and machine data.

“Standardization” means structured methods and reliable data that are used to save time in the innovation process and makes it easier to disseminate ideas and knowledge about leading-edge techniques.

“Net Billing” means that the Company’s renewable energy system generates electricity for personal use and sells any excess energy to the public grid at wholesale or “avoided cost” prices set by the public regulator.

“Net Metering” means that the Company’s renewable energy system generates electricity for personal use which is metered (or measured), so that any excess electricity which is generated can be credited (or banked) to the Company’s account for future consumption. In practice, the meter will spin backward to compensate for any excess electricity generated; or forward, if the Company’s private supply is insufficient. In effect, the Company is selling electricity to the public grid at the retail rate.

“Power Wheeling” means the transportation of electric energy from within an electrical grid to an electrical load outside the Company’s facilities boundaries.

3. SCOPE

This policy is applicable to GraceKennedy Limited, each of its subsidiaries, joint venture entities and associated companies (where applicable).

4. POLICY STATEMENTS

4.1. Energy conservation in relation to the Company’s operations and procurement engagements (where applicable) will encompass various criteria to avoid waste and reduce impact of the Company’s energy consumption. The Company is committed to responsible energy management supply and conservation and will strive to practice energy efficiency throughout its premises, plant and equipment. The Company will meet this commitment through providing guidelines regarding diversification, energy conservation, efficiency, energy management systems, Predictive Maintenance Programmes, renewable energy, fuel supplies, green building construction, using hybrid and electric vehicles, Net Billing, Net Metering, Smart Meters and Power Wheeling, as well as providing criteria for electrical power supply and equipment.

4.2. Diversification

4.2.1. Efforts will be undertaken to diversify the sources of petroleum supply to ensure that the Company becomes less vulnerable to disruptions in its oil supplies and the grid-tied electricity.

4.2.2. Global trends will be used to guide the diversification of and implementation of sustainable and renewable sources of energy across the Company. The generation

of electricity from a modern, efficient liquified natural gas (LNG) environmentally friendly plant that is designed to handle natural gas as a cost-effective alternative will be explored for future installation.

- 4.2.3. Focus is being placed on established and proven energy generation systems to ensure the security of the Company's operations.

4.3. Energy Conservation and Efficiency

- 4.3.1. The Company will facilitate the introduction of energy saving devices.
- 4.3.2. All new lighting installations are to be aligned with current light-emitting diode (LED) technology, or any other energy saving devices as determined by management from time to time.
- 4.3.3. Standardization of equipment will be implemented to minimize operating and inventory expense, to create a predictable energy profile.
- 4.3.4. Demand-side management programmes will be implemented to fully exploit the potential for energy efficiency and conservation in-house.
- 4.3.5. The procurement of new motor-driven equipment where applicable will consider inverter-type models. Inverter-type model equipment include:
- (i) Pumps
 - (ii) Motors
 - (iii) Air Conditioning systems
 - (iv) Refrigerators
 - (v) Washers
 - (vi) Microwaves

4.4. Energy Management Systems

- 4.4.1. Where applicable, an Energy Management System will be used to monitor, control, and optimize the performance of energy consumption.
- 4.4.2. Meters will be considered for the supply lines for the energy and utility sources such, air steam, electricity and water.
- 4.4.3. Targets will be established for the tracking and reduction of energy.
- 4.4.4. Energy audits will be performed at each facility at minimum, every five years; and, pre- and post- system and equipment upgrade to validate effectiveness.
- 4.4.5. Energy audits will be performed to determine areas of wasted energy and evaluate corrective measures where required. Focus areas will include:
- 4.4.5.1. Electrical loads
 - 4.4.5.2. Gas, Steam, Water and Air leaks – paying particular attention to:
 - (i) Insulation
 - (ii) Piping inspections
 - (iii) Steam traps
 - 4.4.5.3. Thermal Imaging
 - 4.4.5.4. Motors
 - 4.4.5.5. Electrical Panels

4.5. Predictive Maintenance Programme

- 4.5.1. A Predictive Maintenance programme will be considered throughout the Company, which is driven by IOT data, where applicable, including:
- (i) Remotely monitoring energy and environmental conditions.
 - (ii) Making use of dimmer technology and sensors during low occupancy and sequence air conditioning systems operations during peak hours.
 - (iii) Increasing the use of digitization of paperwork where possible.
 - (iv) Implementing cost-effective solutions to monitor performance and health of energy systems before failure.

4.6. Renewable Energy Technologies

- 4.6.1. Renewable energy sources will positively impact the Company's carbon footprint and help to reduce the noise impact on the environment.
- 4.6.2. The Company will aim to supply 20% of its energy from renewable energy sources during the peak sun hours.
- 4.6.3. The renewable energy technologies considered will include: -
- (i) Solar panel systems that can process at least 15% of solar energy into usable energy depending on factors including placement, orientation and weather conditions.
 - (ii) Battery systems or load banks should be used in conjunction with solar panel systems to manage electric demand.
 - (iii) Wind Turbines – should be used to supplement electric demand but be cognizant of intermittent operations and a threats associated with hurricane conditions.

4.7. Alternative Electricity and Fuel Supplies

- 4.7.1. The Company will actively explore new electricity generation projects based on least-cost options (such as co- or tri-generation utilizing gas turbines or reciprocating engines), whilst ensuring the security of electricity supply.
- 4.7.2. The financial, technical, social and environmental viability of natural gas and other alternative fuel sources will be analyzed to support the long-term sustainable growth of the Company.
- 4.7.3. Co-generation will be explored to improve the efficiency of all proposed generation facilities (including making use of any by-products such as steam, hot water or chill water for air conditioning systems).

4.8. Green Building Construction

- 4.8.1. The Company will consider employing energy-saving approaches in building design and construction, such as:
- (i) Wall and roof insulation to manage heat retention
 - (ii) Passive Shading to limit solar penetration
 - (iii) Ventilation to ensure efficient air flow, and
 - (iv) Natural Lighting to reduce reliance on electrical systems (ie. window locations).

- 4.8.2. Energy-saving and emission reduction devices will be employed within new and existing buildings.
- 4.8.3. Where possible, implement solar water as opposed to electric heating at all facilities.
- 4.8.4. All acquisitions, leasing of assets, construction or modification of plant, buildings and grounds, equipment, devices, appliances and fixtures will consider the implications on energy efficiency and other relevant points stated in this policy. The following points are to be considered:
 - (i) Making use of energy-saving solutions at the engineering, or architectural design, or selection stage.
 - (ii) The use of automated solutions versus manual, with appropriate redundant systems.
 - (iii) Capital projects proposals will include an assessment with specific statements on energy efficiency and cost.

4.9. Hybrid and Electric Vehicles

- 4.9.1. Consideration will be given to purchasing energy-economic vehicles to minimize the Company's reliance on imported petroleum.
- 4.9.2. Applications will be made for tax exemption when purchasing energy-economic vehicles where applicable.
- 4.9.3. Ensure regular maintenance and inspection of vehicles to promote safety and energy efficiency.

4.10. Net Billing, Net Metering and Power Wheeling

The Company recognises the dynamic nature of these options and will therefore consider the most appropriate measure to be applied to each new project venture.

4.11. Criteria for Electrical Power Supply and Equipment

The following criteria will be considered where applicable when modifying or procuring electrical power supply or equipment:

- (i) Initial Investment
- (ii) Cost of power (\$ /kWh)
- (iii) Operational & Maintenance Cost
- (iv) Power requirements
- (v) Availability Fuel inputs (LNG, sunlight, wind, biomass, etc.)
- (vi) Reliability
- (vii) Operating mode and Storage
- (viii) Life Span of Equipment
- (ix) Environmental Impact (noise, dust pollution, etc.)
- (x) Disposal of Equipment (cradle-to-grave life cycle)

5. ROLES AND RESPONSIBILITIES

5.1. Senior General Manager – Manufacturing

The Senior General Manager - Manufacturing, will have overall responsibility for the management and maintenance of energy use and conservation within the Company and will ensure the implementation of the relevant procedures within the Company and ensure that adequate measures are in place to promote energy conservation considerations.

6. REVIEW PERIOD

This Policy shall be reviewed at least every three (3) years.