

Mini - Project Idea Note

Generic Name of Project: **Palm Oil Company (POC) #4: Biogas Electricity Generation Plant Project**

Date submitted: **5 May 2007**

Technical summary of the project	
Greenhouse gases targeted	<input checked="" type="checkbox"/> CO ₂ / <input checked="" type="checkbox"/> CH ₄ / <input type="checkbox"/> N ₂ O / <input type="checkbox"/> HFCs / <input type="checkbox"/> PFCs / <input type="checkbox"/> SF ₆
Field of activities	<input checked="" type="checkbox"/> a. Energy supply <input type="checkbox"/> b. Energy demand <input type="checkbox"/> c. Transport <input checked="" type="checkbox"/> d. Waste management <input type="checkbox"/> d. Manufacturing industries <input type="checkbox"/> e. Chemical industries <input type="checkbox"/> f. Mining/mineral industries <input type="checkbox"/> g. Fugitive emissions from fuels (solid, oil, gas) <input type="checkbox"/> h. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride <input type="checkbox"/> i. Solvent use <input type="checkbox"/> j. Agriculture and livestock
Objective of the project	<p>The objectives of the project are:</p> <p>(1) To mitigate CH₄ emissions from palm oil factory's wastewater digestion in existing open ponds system by using a new wastewater digester system; and</p> <p>(2) To reduce CO₂ emissions from grid electricity generation by using biogas produced from wastewater treatment plant as fuel for power generation to supply electricity to the national grid.</p>
Project descriptions and proposed activities	<p><i>Palm Oil Company (POC) #4</i> is established to receive and treat wastewater from <i>Other Palm Oil Company</i>, which is a crude palm oil (CPO) mill with a 45 ton-fresh fruit bunch (FFB) per hour feed capacity. At present, approximately 480 m³/day of wastewater effluent from <i>Other Palm Oil Company</i> is treated by open ponds system.</p> <p>To mitigate methane (CH₄) gas generation from organic digestion in existing anaerobic condition of open ponds system, the Complete Stirred Lagoon Reactor (CSLR) shall be applied for wastewater treatment. The CSLR can treat wastewater, and produce approximately 11,500 Nm³/day (@ 65% CH₄) of biogas. This amount of biogas production shall be fed to a high efficiency internal combustion engine which could generate 1.0 MW-net of power or 7,200 MWh per year of energy for exporting to the grid under the Very Small Power Producer (VSPP) scheme.</p>
Technology to be employed	The technologies to be employed in this project comprise:

	<p>(1) Wastewater treatment plant using a Complete Stirred Lagoon Reactor concept; and</p> <p>(2) A biogas engine generator for generation of electricity to be supplied to the national grid.</p>
Location of the project	
Brief description of the location of the project (Region and Country where the project will be implemented)	The project is in Surat Thani province, Thailand
Expected environmental and social benefits	
Estimate of Greenhouse Gases abated (in metric tons of CO ₂ -equivalent)	The potential GHG-emission reduction is approximately <i>37,986 tCO₂-equivalent/years</i> , or <i>569,785 tCO₂-equivalent of project duration</i> (estimated at <i>15 years</i>).
Socio-economic aspects What social and economic effects can be attributed to the project and which would not have occurred in a comparable situation without that project?	<p>The project activity will contribute to the sustainable development of Thailand in the following ways:</p> <ul style="list-style-type: none"> • Improve Thailand's fuel supply security by reducing the dependence on the use fossil fuel in power generation, which now is dominated by natural gas, lignite and imported fuel oil; • Support Thailand's policy for using renewable energy for power production; • Promote distributed generation plant, which shall cause less power loss on transmission and distribution system; • Improve stability of electricity supply in the local area; • The utilised biogas will reduce methane emission and thus decrease the impact on the global warming; • The problem of bad odors and insects caused by the wastewater treatment system will be reduced; • Sludge and treated effluent can be used for fertilizing palm fields; • Improve natural water resources through better treated wastewater qualities in existing ponds; and <p>Increase local employment during construction, installation of the system, operation and maintenance of the biogas system.</p>
PIN/PDD Developer-Intermediary	
Name of the PIN/PDD Developer	<p>Dr. Thierry LEFEVRE, Managing Director Energy Economy Environment Consultants Co. Ltd. SLD Building (7B), 13 Soi Saladaeng 1, Rama IV Road, Silom Sub-district, Bangrak, Bangkok 10500, Thailand Tel: (662) 235-5817, (662).629.0912 Fax: (66 2) 236-9574</p>
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Expected schedule	
Earliest project start date	By mid 2007
Expected first year of CER delivery	2009
Project lifetime	15 years
Current status or phase of the project	<input type="checkbox"/> Identification and pre-selection phase <input type="checkbox"/> Opportunity study finished <input type="checkbox"/> Pre-feasibility study finished <input checked="" type="checkbox"/> Feasibility study finished <input checked="" type="checkbox"/> Negotiations phase <input type="checkbox"/> Contracting phase (mention what contracts) <input type="checkbox"/> etc.