

Project Idea Note

A. Project description, type, location and schedule

Name of Project: Co production of Bioethanol and co-firing using pellets bagasse's residues

Date submitted: 28/03/08


Technical summary of the project

Objective of the project	Promoting technology through CDM for production of bioethanol from Sweet Sorghum and using the residues trashes and bagasse for making agri-pellets. These pellets will be co-fired in a coal power plant for energy production.
Project description and proposed activities	<p>Promotion of the pelletiser technology for making grains and sugar juice, pellets directly from humid agriculture residues and baggages generated from sweet shorghum plantations. Production of the ethanol from the sweet sorghum</p> <p>Major Activities:</p> <ul style="list-style-type: none"> • Establishment of production unit • Promotion of the Sweet sorghum plantations • Modification of the thermal power plant for co-firing of agri pellets • Supply of pellets for co-firing to the thermal power plant • Because the moisture of A.P. is < 10% a max cofiring level of 20% can be envisaged.
Technology to be employed	<ul style="list-style-type: none"> ○ New pelletising technology, able to pelletise mixtures of most biomass and to dry mechanically the biomass; ○ Micro-distilleries for Sweet Sorghum ○ Blending of biomasses is thus possible to limit noxious compounds (like Cl-K...)

Project developer	EUBIA
Name of the project developer	Giuliano Grassi
Organizational category	<input type="checkbox"/> a. Government <input type="checkbox"/> b. Government agency <input type="checkbox"/> c. Municipality <input type="checkbox"/> d. Private company <input checked="" type="checkbox"/> e. Non Governmental Organization
Other function(s) of the project developer in the project	<input type="checkbox"/> a. Sponsor <input type="checkbox"/> b. Operational Entity under the CDM <input checked="" type="checkbox"/> c. Intermediary <input checked="" type="checkbox"/> d. Technical advisor <input type="checkbox"/> e. Others:

Summary of the relevant experience of the project developer	<ul style="list-style-type: none"> - Technical advisor for the development of pelletising technology - Technical advisor for governments for energy strategy (Brazil, Chili, Russian Federation, China...) - Consultant on Biomass sector for EU. - Partner and coordinator in related projects for the European Commission
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Project sponsors	
<i>[List and provide the following information for all project sponsors]</i>	
Name of the project sponsor	Investors in ETS, possibly through Carbon Trade Platform
Organizational category	<input type="checkbox"/> a. Government <input type="checkbox"/> b. Government agency <input type="checkbox"/> c. Municipality <input type="checkbox"/> d. Private company <input type="checkbox"/> e. Non Governmental Organization
Address (include web address, if any)	
Main activities	
Summary of the financials	
Type of the project	
Greenhouse gases targeted	<input checked="" type="checkbox"/> CO ₂ / <input 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 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 checked="" type="checkbox"/> j. Agriculture and livestock

Location of the project											
City	Not Identified										
District											
Brief description of the location of the project	<p>Thailand Area: 97,409 sq km Crops: Rice, Rubber, Maize, Cassava, sugar cane. Minerals: barite, coal, dolomite, feldspar. Industries: textiles and garments, agricultural processing, cement, world's second-largest tungsten producer and third-largest tin producer, Major city: Bangkok (over 6 million population) Energy Electric Power:</p> <table border="1"> <thead> <tr> <th>Power plant</th> <th>Installed capacity</th> </tr> </thead> <tbody> <tr> <td>Phumiphon Dam (hydroelectric)</td> <td>420 MW</td> </tr> <tr> <td>Bangkok power-station (oil-fired plant)</td> <td>237 MW</td> </tr> <tr> <td>South Bangkok thermal power plant</td> <td>1.300 MW</td> </tr> <tr> <td>Lignite-fueled plant a Mae Mo</td> <td>825 MW.</td> </tr> </tbody> </table> 	Power plant	Installed capacity	Phumiphon Dam (hydroelectric)	420 MW	Bangkok power-station (oil-fired plant)	237 MW	South Bangkok thermal power plant	1.300 MW	Lignite-fueled plant a Mae Mo	825 MW.
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Expected schedule											
Earliest project start date	2009										
Estimate of time required before becoming operational after approval of the PIN	Time required for financial commitments: 2-3 months Time required for legal matters: 2 months Time required for negotiations: 2 months Time required for construction: 12 months										
Expected first year of CER delivery	2010										
Project lifetime	2										
Current status or phase of the project	<input checked="" type="checkbox"/> Identification and pre-selection phase <i>Available documents:</i> <input type="checkbox"/> Opportunity study finished <i>Available documents:</i> <input type="checkbox"/> Pre-feasibility study finished <i>Available documents:</i> <input type="checkbox"/> Feasibility study finished <i>Available documents:</i>										

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	<input type="checkbox"/> Negotiations phase <i>Available documents:</i>
	<input type="checkbox"/> Contracting phase (<i>mention what contracts</i>) <i>Available documents:</i>
	<input type="checkbox"/> etc.: <i>Available documents:</i>
Current status of the acceptance of the Host Country	<input type="checkbox"/> Letter of No Objection is available <input type="checkbox"/> Letter of Endorsement is under discussion or available <input type="checkbox"/> Letter of Approval is under discussion or available <input type="checkbox"/> Host Country Agreement is under discussion or signed <input type="checkbox"/> Memorandum of Understanding is under discussion or available <input type="checkbox"/> etc.:

B. Expected environmental and social benefits

<p>Estimate of Greenhouse Gases abated (in metric tons of CO₂-equivalent)</p>	<p>Annually :</p> <ul style="list-style-type: none"> - 1 ton of A.P. saves (substitution): ~ 1.3/1.4 ton CO₂ - Biorefinery from Sweet sorghum : Has high energy yield (~ 10/12 TOE/ha) and thus able to absorb a large amount of atmospheric CO₂ : 30 - 50 tCO₂ /ha.cycle. - Potential CO₂ saving up to 30t CO₂/ha.cycle
<p>Baseline scenario</p>	<p>CDM projects must result in GHG emissions being lower than “business-as-usual” in the Host Country. At the PIN stage questions to be answered are at least:</p> <ul style="list-style-type: none"> • Which emissions is the proposed CDM project displacing? <ul style="list-style-type: none"> - Coal replacement using agro-residues pelletised for optimized power generation (cofiring) - Reduced transportation distance and thereby vehicular emission for transportation of coal. - Replacement of fossil fuel by bio-ethanol • What would the future look like without the proposed CDM project? <ul style="list-style-type: none"> - No reduction in emission and problems of energy production with decline of fossil fuel availability. • What would the estimated total greenhouse gas (GHG) reduction be? <ul style="list-style-type: none"> - 20% cofiring level means about the utilization of 0,35 t of Agro-pellets (4000 Kcal/Kg) for every 0,8 ton of coal.
<p>Baseline scenario</p>	<p>CDM projects must result in GHG emissions being lower than “business-as-usual” in the Host Country. At the PIN stage questions to be answered are at least:</p> <ul style="list-style-type: none"> • Which emissions is the proposed CDM project displacing? <ul style="list-style-type: none"> - Coal replacement using agro-residues pelletised for power generation - Reduced transportation distance and thereby vehicular emission for transportation of coal. - Replacement of fossil fuel by bio-ethanol • What would the future look like without the proposed CDM project? <ul style="list-style-type: none"> - No reduction in emission and problems of energy production with decline of fossil fuel availability. • What would the estimated total greenhouse gas (GHG) reduction be? <ul style="list-style-type: none"> - 0.7 million tone/year only from the coal replacement by the pellets others need detailed location based calculations

<p>Specific global & local environmental benefits</p>	
<p>Which guidelines will be applied?</p>	
<p>Local benefits</p>	<p>The proposed technology for production of ethanol is environmentally more efficient than sugarcane based production system :</p> <ul style="list-style-type: none"> - Sweet sorghum cultivation uses almost 1/3 of the water needed for sugarcane and thus avoids adverse effect on the water table contrary to Maize and sugarcane. - Environmental impacts of use of biofuel (ethanol) as transport fuel - Help the local Farmers increasing the labour revenue bringing out numerous socio-environmental benefits
<p>Global benefits</p>	<p>Help to reduce GHG emission</p>
<p>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>	<p><i>[In total about ¼ page]</i></p> <p>The proposed area is predominantly cassava, rice, rubber, maize, sugar cane the Total Existing Production Capacity today is 755 KL/d from 6 plants; 4 plants from molasses and 2 plants from cassava.</p> <p>Projected Production Capacity in 2008 : 11.6 ML/d from more than 50 distilleries all over the country. It is perhaps an opportunity to announce that Thailand will be the World number 3rd ethanol producer after Brazil and USA. And to generate most employments.</p> <p>So in the future Thailand’s ethanol program will rely heavily on cassava as we have the highest average yield of 20.3 tons/hectare now, comparing to the world averaged of 11 tons / ha. With the current yiled we can produce 3687 litre of ethanol by planting 1 hectare of cassava in 1 year. By next year we hope to increase the average yield to 32 tons/ha. which will provide upto 35 millions fresh roots of cassava, half of which will be used as feedstock for ethanol.</p>
<p>Which guidelines will be applied?</p>	
<p>What are the possible direct effects (e.g., employment creation, capital required, foreign exchange effects)?</p>	<ul style="list-style-type: none"> • Generate additional employment for harvesting, transportation of the stalks and at production unit • Double cropping of the sorghum would generate addition employment opportunities • Could promote dairy activity, as the by product from the ethanol processing unit could be used as feed
<p>What are the possible other effects? For example:</p> <ul style="list-style-type: none"> • training/education associated with the introduction of new processes, technologies and products and/or • the effects of a project on other industries 	<ul style="list-style-type: none"> • Training and promotion of sweet sorghum cultivation • Operations: Apart from the technology to be used for processing of the sweet sorghum, some efforts would be needed on the operational aspects of the project like Cultivation (whole range from providing high quality seeds (hybrids) to cultural practices), harvesting , transportation (modelling to reduce transportation time and processing the stalks within the stipulated time), processing, which would generate additional employment and would also demand capacity building of the manpower • This activity could also bring about the multiplier effect and

	<p>would set example for initiation of new units</p> <ul style="list-style-type: none"> • Directly: Thermal power plant, Refineries • Indirectly: automobile (engine adaptation for high diesel oil/gasoline blending with bioethanol)...
<p>Environmental strategy/ priorities of the Host Country</p>	<p>In Thailand, fossil fuel resources are limited and hence are inadequate to satisfy energy demand of the country. Therefore, Thailand has to depend on imported energy from foreign sources, which causes a considerable loss of foreign currency. Renewable energy development will help reduce not only the energy supply burden but also the import of non-renewable energy. In addition, renewable energy will help reduce environmental impacts resulting from energy development and utilization as, among others, it causes less emission of carbon dioxide, a greenhouse gas causing the climate change. Besides, biomass energy development is a means to optimize the utilization value of domestic energy resources, bringing economic benefits to concerned local communities.</p> <p>To increase the share of renewable energy from 0.5% of the commercial primary energy, or 265 thousand tons of crude oil equivalent (ktoe), in 2002 to 8% of the commercial primary energy, or 6,540 ktoe, by the year 2011, that is, within the next 8 years.</p> <p>The measures are:</p> <ol style="list-style-type: none"> 1. Establish the regulation or legal enforcement on the Renewable Portfolio Standard (RPS) for new power plants that 4% of their generation capacity must be generated by renewable energy such as solar, wind or biomass. 2. Devise incentive measures encouraging purchase of power generated by renewable energy, for example, provision of tax credit, privilege, and subsidies from the Energy Conservation Promotion Fund. 3. Support research and development (R&D) on renewable energy of which Thailand has high potential, such as solar, micro-hydropower, wind and biomass (agricultural wastes and municipal wastes). 4. Encourage participation and partnership of the local communities in renewable energy-fueled power plants.