

Template for the Project Idea Note (PIN)

A PROJECT IDENTIFICATION

Title of the project activity Blast Furnace Top—Pressure recovery Turbine Unit (TRT)

Applicant **** Iron&Steel Group Co.,Ltd

Date of submission Sep 8th, 2007

B PROJECT PARTICIPANTS

B 1 Applicant	
Name	Iron&Steel Group Co., Ltd.
Type of organization	
Other functions of the applicant within the project	<input checked="" type="radio"/> Sponsor <input type="radio"/> Intermediary <input type="radio"/> Technical consultant <input type="radio"/> Other: _____
Main activities, knowledge and experience	Metallurgical Industry
Name of contact person	
Address	Iron&Steel Group Co., Ltd., Maba,Qujiang,Shaoguang City, Guangdong Province,China
Phone/fax	
E-mail	

B 2 Project developer	
Name	Guangzhou Institute of Energy Conversion, Chinese Academy of Science
Type of organization	
Other functions of the project developer within the project	<input type="radio"/> Sponsor <input checked="" type="radio"/> Intermediary <input type="radio"/> Technical consultant <input type="radio"/> Other: _____

Main activities, knowledge and experience	
Name of contact person	Luo zhigang
Address	
Phone/fax	
E-mail	luozg@ms.giec.ac.cn

B 3 Other project participants	
Name of the project participant	
Type of organization	<input type="radio"/> Governmental body: _____ <input type="radio"/> Private enterprise <input type="radio"/> NGO <input type="radio"/> Other: _____
Function within the project	<input type="radio"/> Sponsor <input type="radio"/> Intermediary <input type="radio"/> Technical consultant <input type="radio"/> Other: _____
Name of contact person	
Address	
Phone/fax	
E-mail	

C HOST COUNTRY

C 1 Location of project activity	
Host country Party(ies)	China
Region/State/Province etc.	Guangdong Province
City/Town/Community etc.	Shaoguang city/Qujiang county/ Maba town
Brief description of the project location	Guangdong Iron&Steel Group Co.,Ltd (“ ”), occupying an area of 83,200m ² , is located in the southern suburb of Shaoguang city. It is one of the “ 500 largest industrial enterprises” and the “512 national key enterprises” in China. It is also awarded as the “first level audit enterprises” by national auditing bureau and the “superfine credit enterprises” by China Industry&Commerce Bank. is the best base for Guangdong’s steel industry development because of its advantages: entering into the different-level steel market with large potentials; lying in the traffic hinge of four provinces: Xiang province, Gui province, Yue province and Gong province, and neighboring the two big railways, “ Jing-Guang line” and “Jing-Jiu line“, and closing to two metropolises, Hongkong and Guangzhou; having abundance materials, such as iron ore, limestone and so on, in the area 100km within its location; having a technical group of more than 4000 persons, which is the most powerful treasure for development.

Projects are permitted as JI or CDM projects only when the host country has ratified the Kyoto Protocol. The list of countries which have ratified the Kyoto Protocol is available on the Internet at <http://unfccc.int/resource/kpstats.pdf>.

Memoranda of Understanding (MoU) regulate basic aspects of carrying out JI and CDM projects between two countries. A list of countries with which Austria has already concluded a MoU is on the Internet at <http://www.ji-cdm-austria.at> or <http://www.klimaschutzprojekte.at>.

C 2 Status of the host country	
Host country	<input type="radio"/> Signed and ratified, accepted, approved or acceded to the Kyoto Protocol <input type="radio"/> Signed and has demonstrated a clear interest in becoming a party in due time <input type="radio"/> Has already started or is on the verge of starting the national accession process
Existing Memorandum of Understanding (MoU) with Austria	<input type="radio"/> Yes <input type="radio"/> No

D PROJECT INFORMATION

D 1 General Information	
Project name	Blast Furnace Top-Pressure Recovery Turbine Unit (TRT)
Project objective	<p>Under the preconditions of ensuring the blast furnace can run normally and the top pressure of it can keep stable, TRT can make full use of the pressure energy and thermal energy, by turbine expanding, and drive the generator and convert it into electrical energy. In this way, it can recover energy consumed for the high-pressure manifold throttling and reduce the GHG emission.</p> <p>According to the estimated calculation,after running the project, the top-pressure recovery generated energy from 2650m³ blast furnace can annually generate 104,000,000kwh that can save 75,700-ton coal used for generation(according to the low quality of coal in Shaoguang),and reduce 123,600-ton CO₂ emission and 29,200-ton coal slags.</p>
Description of the project background	<p>The capacity of a 2650m³ TRT is 15,000kw,which can generate 104,000,000kwh per year without any fuel.</p> <ul style="list-style-type: none"> ● The 2650 m³ blast furnace project is aythorized by the Guangdong government and now is under construction. It is estimated that it will be finished in September, 2008, and TRT project will start up at the same time. ● To generate the same quantity of power, using the new technology can save 53,000-ton coal used for generation(according to the low quality of coal in Shaoguang),and reduce 95,400-ton CO₂ emission and 30,000-ton coal slags. ● Power is a important element of national economic development. Implementing this project will not only generate the power,but also save limited fuel and reduce CO₂ emission, which answers to the national environmental pretection policy. ● The project adopts the new technology of “the top-pressure recovery generated energy “. Because of the low cost, the annual profit can be 4.8 million yuan,and at the same time it brings a good effect on the zoology and environment. ● Since the technology is mature and there is successful experience to use for reference, the project has less risk.

D 2 Category(ies) of project activity	
Project category	<ul style="list-style-type: none"> <input type="radio"/> Construction (retrofitting) of combined heat and coupling plant <input type="radio"/> Energy sources transfer in energy conversion installations and production plants to renewable energy sources or from energy sources with high carbon content to energy sources with lower carbon content, especially in existing district heating systems, <input checked="" type="radio"/> Construction (or retrofitting) of generating plants operated with renewable energy sources (especially wind power stations, biogas or biomass combined heat and power coupling as well as hydroelectric power plants), <input type="radio"/> Projects whose purpose is the avoidance or (energy) recovery of landfill gas, <input type="radio"/> Waste management measures which contribute to avoidance of greenhouse gas emissions especially through energy recovery of waste, if possible under consideration of waste heat utilisation, <input type="radio"/> Projects serving the reduction of end-user energy consumption in residential accommodation, public and private service office buildings as well as in industrial applications and processes (including waste heat potentials) (energy efficiency projects). <input type="radio"/> Other: _____

D 3 Technical aspects	
<p>Technical description.</p> <p><i>The essential technical aspects should be briefly presented</i></p> <p><i>A detailed description (max. 3 A4 pages) is to be enclosed to the PIN including the following aspects:</i></p> <p><i>Project purpose</i></p> <p><i>Applicant's facilities to generate Emission Reductions</i></p> <p><i>Description of technology employed and associated risks</i></p> <p><i>Milestones, time schedule and current status of implementation</i></p> <p><i>Key permits and expected date of approval</i></p> <p><i>Key contracts and expected date of signing</i></p> <p><i>Risks during project implementation and operation</i></p>	<p>1 Project purpose</p> <p>The blast furnace is 2500m³. The designed top pressure is 0.2 ~ 0.25Mpa, the flow-rate of gas is (38 ~ 43)×104 m³/h, and the temperature is 100 ~ 150 °C. Adopting TRT technology, it uses top-pressure gas of the blast furnace as the power to generate electricity. Under the normal conditions, the generated energy is about 10000kWh, and about 80,000,000kWh/year. When the energy is recovered, it can save coal used for generating power 53,000 tons per year and reduce emission of 95,400 tons CO₂ and coal slag of 30,000 tons.</p> <p>2 Technology and Risk</p> <p>The technology of blast furnace top-pressure recovery turbine unit (TRT) had been widely used in a lot of large blast furnaces around the world. Under the preconditions of ensuring the blast furnace can run normally and the top pressure of it can keep stable, TRT can make full use of the pressure energy and thermal energy, by turbine expanding, and drive the generator and convert it into electrical energy. In this way, it can recover energy consumed for the high-pressure manifold throttling and get rid of noise. So it is a high efficient energy-saving and environment-protection project.</p> <p>3 Project investment and economic efficiency</p> <p>The cost for the blast furnace top-pressure recovery turbine unit (TRT) project which formed a complete set as dry bag house dust collector of 2500m³ is 49.3 million yuan. Under the normal condition, for one 2500m³blast furnace, the top-pressure recovery generated energy can be 10000kW, annual generated energy can be 80,000,000 kWh. If calculating it according to 0.40 yuan/kWh, the annual recovered power cost can be 32 million yuan. Deducting the operation cost, the generated energy profit can be 0.06 yuan/kWh, the annual profit can be 4.8 million yuan, the inner investment profit rate can be 9.7%, and the invest payout period can be 10.3 years. So it is a good project with low investment and good environment-protection.</p> <p>5 Risk</p> <p>The huge investment capital, low profit rate and long recycling period will affect the management of the plant.</p>

E PROJECT ORGANISATION

E 1 Project team	
<p>Project-specific qualifications and experiences</p> <p><i>The essential qualifications and experiences should be briefly presented, detailed project references are to be enclosed to the PIN (using the format of Appendices 4, 5)</i></p>	<p>The technology in China is mature.</p>

E 2 Schedule	
<p>Current project status</p>	<p><input type="radio"/> Project idea</p> <p><input type="radio"/> Planning</p> <p><input checked="" type="radio"/> Implementation</p>
<p>Status of financing</p>	
<p>Status of negotiations with the host country</p>	
<p>Status of permission procedures of authorities</p>	<p>Approved by the Guangdong government.</p> <p>Starting the design stage and putting into operation in Sep,2005,with TRT project.</p>
<p>Project preparation</p>	<p>From: _____ to: _____</p>
<p>Construction/assembly</p>	<p>From: __December, 2007__ to: __July, 2008__</p>
<p>Project lifetime</p>	<p>From: __August, 2008__ to: __September, 2017__</p>
<p>Generation of ERUs/CERs</p>	<p>From: _____ to: _____</p>
<p>Other milestones</p>	
<p>Effect of PIN acceptance on the time schedule of the project</p>	

E 3 Project financing	
Costs of project development (EUR)	EURO€5,300,000
Costs of project implementation (EUR)	EURO€5,300,000
Estimated annual operating costs (EUR)	EURO€3,920,000
Estimated annual revenues (EUR)	EURO€58,4946
Financing sources (equity/debt capital, financing institutions)	Loan from bank
Proposed ERU/CER price (EUR)	

F GREENHOUSE GAS REDUCTION

Only projects resulting in emissions reductions of the greenhouse gases listed in table F1 can be accepted as JI or CDM projects.

The crediting period corresponds to the period during which 'creditable' emissions reduction units can be generated. For details on the crediting period see e.g. the baseline study available at <http://www.ji-cdm-austria.at> or at <http://www.klimaschutzprojekte.at>.

All emissions must be stated in tonnes of CO₂ equivalent. A conversion table is available on the Internet at <http://www.ipcc.ch/pub/wg1TARtechsum.pdf>.

F 1 Greenhouse gases	
Greenhouse gases targeted for emissions reductions by the project	<input checked="" type="radio"/> CO ₂ <input type="radio"/> CH ₄ <input checked="" type="radio"/> N ₂ O <input type="radio"/> HFCs <input type="radio"/> PFCs <input type="radio"/> SF ₆
Estimation of the project-specific greenhouse gas emissions in tonnes of CO ₂ equivalent	95,400t/a

Crediting period	Sep, 2005 ~ Sep, 2017
Estimated abatement of greenhouse gas emissions in tonnes of CO ₂ equivalent in comparison to the baseline scenario	95,400t/a

To determine the emissions abatement the JI or CDM project must be compared with a baseline scenario. The baseline describes how the system in question would develop if the intended project did not take place.

F 2 Baseline	
Framework of the considered baseline scenario	Before the TRT bringing into use, the mechanical energy is useless and waste.

The project boundary defines which emissions sources and mechanisms of action are to be considered in the emissions calculation. The project boundary is to be briefly described and presented with an illustration.

F 3 Project boundary	
Project boundary	After the mechanical energy converting to the power, it brings indirect CO ₂ emission reduction in the new coal-fired plant

Leakage describes the indirect emissions taking place outside the defined project boundary. For details on leakage see e.g. the baseline study which is available at <http://www.ji-cdm-austria.at> or at <http://www.klimaschutzprojekte.at>.

F 4 Leakage	
Leakage	

G EXPECTED ECOLOGICAL AND SOCIO-ECONOMIC EFFECTS

G 1 Expected environmental effects	
Expected global/local positive and negative environmental effects of the project ¹	For one 2500m ³ blast furnace, the annual top-pressure recovery generated energy can be 80,000,000 kWh. So after using TRT, it can reduce emission of 53,000 tons coal, 95,400 tons CO ₂ and coal slag of 30,000 tons.

G 2 Socio-economic aspects	
Expected social and economic effects of the project	The annual recovered power cost can be 32 million yuan. Deducting the operation cost, the generated energy profit can be 0.06 yuan/kWh, the annual profit can be 4.8 million yuan, the inner investment profit rate can be 9.7%, and the invest payout period can be 10.3 years. So it is a good project with low investment and good environment-protection.
Project-related employment structure	<input checked="" type="radio"/> Employees below 14 years <input type="radio"/> Employees over 14 years
Do any of the listed effects occur due to the project?	<input type="radio"/> Resettlement <input type="radio"/> Restriction of access to essential resources <input type="radio"/> Compulsory purchase of land

¹ Abstraction of ground water or surface water may in no event be larger as the natural water influx.

H ADDITIONALITY

H 1 Additionality	
Presentation of the additionality of the project to a development without utilising the JI/CDM mechanism considering national and/or sectoral outline conditions or policies	Low profit will affect the enterprise's benefit.
Presentation of the project's contribution to the sustainable development of the host country	Global GHG ER