Department of Land and Resources of Hainan Province

Notice of Environmental Impact Evaluation for Construction Project

No.03 [2007] Environmental Evaluation Notice

Project name	Phase I Works of Dongfang Gancheng Wind farm	Construction unit	Hainan Xinfengyuan Industrial Co., Ltd.
Construction site	From the Gancheng Town to Banqiao Town in the Dongfang city,about 30km far away from Dongfang	Construction scale	49,500 kilowatts of total installed capacity for Phase I works.
Total project investment (RMB millionYuan)	502.241	Capital source	Self-raising and bank loan.
Environmental impact evaluation form	1. Prepare environmental impact evaluation outline (×); prepare an environmental impact report (x). 2. Prepare an environmental impact report and attach a special analysis report (√) 3. Prepare an environmental impact report (x). 4. Prepare an environmental impact register (x).		
Proposed environmental evaluation emphasis	1. Environmental feasibility of project site; 2. Ecological environmental impact and landscape and impact.		
Proposed environmental evaluation standard	Grade I standard in GB3095-1996 (*Ambient Air Quality Standard*) (revised edition) applies to ambient air in the project area; offshore sea water is based on the function zoning requirements of related offshore marine environment; Grade I standard in Table 4 of GB8978 --1996 (*Comprehensive Sewage Emission Standard*) applies to sewage emission and others implementation standards should be made clear when the report is examined.		
Remarks	attached impect of view items		
Officer :Xu Liang Date: August 14,2008 Tel:+ 86-898-65390820 (office).			
Issuer : Mou Weikan Date:August 18, 2008			
Receiver: Yuan Sheng Date: August 18, 2008 Mobile: +86-13876571991			

Note: 1. The capital source column is used to indicate own fund or national investment.
2. Environmental evaluation form is determined by marking "√".
3. The remarks column is used to indicate problems which must be coordinated and solved.
4 . This notice is made in triplicate with one copy held by the construction unit and the other two held by competent administrative unit.

Key Contents of Public Participation Conference

of Phase I Works of Dongfang Gancheng Wind Farm

On the afternoon of August5, public participation conference of Phase I Works of Dongfang Gancheng Wind Farm was organized and held by Gancheng government and Hainan Xinfengyuan Industrial.Co;Ltd which is the ower of Hainan Dongfang Gancheng Wind Farm.Following are key contents:

At begaining, Hainan Xinfengyuan Industrial.Co;Ltd introduced the general profiles of Phase I Works of Dongfang Gancheng Wind Farm. Wind power is clean and renewable energy. Wind farm construction is supported by state and in line with the national energy development policy.Wind farm production process is that wind energy is changed into mechanical energy and then into electric energy. Throughout the process, no air, water, solid waste and other aspects of pollution, even a big noise pollution would not be produced.

The two parties agreed after discussion that wind farm would promote the local economic development with the wind farm development and construction management personnel to enter such as building materials, the use of the surplus labor force.However, the wind farm after completion would have no bad impact on local residents'life . In addition,the wind farm not only can ease the local shortage of power status, but wind farm itself can also become a tourist attraction to promote local tourism development.

Hainan Xinfengyuan Industrial.Co ; Ltd

August5 2008

Public Participation List in Chinese(English documents attached)

公众参与调查表

项目名称：东方感城风力发电场一期工程

建设单位：海南新丰源实业有限公司

项目概况；

海南东方感城风力发电场一期（49.5MW）工程位于东方市感城镇至板桥镇一带，北起感恩河入海口，南至板桥镇利章港。本期工程总装机容量49.5MW，年上网电量约10385.7万kW•h，安装33台单机容量为1500kw风机，风机轮毂高度65m。新建110kV升压变电站一座（内含办公楼），新建场区道路15km，架设10kV架空线路19.52km，架设110kV线路5km（该110kV架空线路不属本次评价内容）。本工程总占地面积283.57亩，其中永久占地92.7亩，临时占地190.87亩。项目一期工程定员15人，项目总投资50075.6万元。

项目施工期产生的施工废水、施工噪声、施工扬尘等对周围环境有一定影响，但这种影响是可逆的，随着施工期的结束而消失。

项目营运期工程污水排放量约为1095t/a，生活垃圾量为5.475t/a，风机废弃润滑油产生量264kg/a，升压站主变压器检修或发生事故时产生少量废油。生活污水经一体化污水处理设施处理后可用于肥田；生活垃圾经收集后由环卫部门统一处理；检修或事故产生的废油及风机产生的废弃润滑油属于危险废物，委托有资质单位处理，对环境的影响较小。110kV 变电站工频电场强度、工频磁感应强度满足国家相关的标准和规定，电磁辐射影响较小。工程建成运行后，风机的安装对景观有一定的空间干扰。

风能属于可再生能源，风电场项目属于国家鼓励发展类的项目，符合国家的产业政策。风电作为一种清洁能源，除了可节约能源外，与相同发电量的燃煤发电相比，具有明显的减排效益，能够减少粉尘、CO_2、SO_2、NO_x、C_nH_m、CO的排放，此外还可节约淡水。

姓　名	黄思杰	职　业	书记
性　别	男	民　族	汉
文化程度	高中		
住址（工作单位）	感城镇加[illegible]		

	了解	√
1、您对该项目的了解程度？	有所了解	

Project name: **Phase I Works of Dongfang Gancheng Wind Farm**

Construction unit: Hainan Xinfengyuan Industrial Co., Ltd.

Project profiles：

Phase I (49.5MW) engineering of Hainan Dongfang Gancheng Wind Farm is located in the area from Dongfang Gancheng Town to Banqiao Town with north edge in estuary of Ganen River and south edge in Lizhang Port of Banqiao Town. The total installation capacity of this phase of project is 49.5MW, annual network electric quantity is about 103857 MW·h, capacity of 33 installed unit is 1500kw and the wheel hub of fan is 65m in height. A 110kV boost transformer substation including office building and farm road of 15km are to be built. A 10kV overhead circuit of 19.52km and a 110kV circuit of 5km (this 110kV overhead cuicuit does not belong to the content of this evalution) are to be erected. The total occupation area of the project is 18.90 hectares, among which permanent occupation area is 6.18 hectares and temporary occupation area is12.72 hectares. Phase I project has a staff of 15 persons and a gross investment of RMB 500.756 million Yuan.

During the operation period of the project, the discharge amount of sewage is about 1095t/a, domestic rubbish amount is 5.475t/a, amount of discarded lubricating oil for the fan is 264kg/a, and the maintenance of main transformer of the booster substation or accidents will generate small amount of waste oil. Domestic sewage can fertilize the farmland after treatment in integrated sewage treatment facilities; collected domestic rubbish will be disposed by sanitation department; waste oil generated in maintenance or accidents and discarded lubricating oil generated by fans are dangerous wastes and will be commissioned to be disposed by qualified units. The intensity of power frequency electric field and power frequency magnetic induction intensity of 110kV transformer substation meet relevant state standard and regulation and the electromagnetic radiation influence is small. After completion, the installation of fans will cause certain space interference to the landscape.

Wind energy is renewable clean energy and wind farm is project that the Chinese government encourages to develop. Besides saving energy, wind power can decrease discharge of dust, CO_2, SO_2, NO_x, C_nH_m and CO compared with coal electricity generation of same output of power.Moreover，fresh water will be saved.

Name	Mai Xianju	Occupation	
Sex	Female	Nationnality	Han
Academic degree			
Address			

Public Participation List

IHow much do you learn about this project?	Know	v
	Know a little	
	I don’t konw	
IIDo you think that the project will promote the development of local economy?	Yes	v
	No	
	Unclear	
III How do you think the influence of this project to the environment?	Very serious	
	A little serious	
	Basically no influence	v
IV Which are the main environmental influence of the project in your opinion?	Enlogical influence	
	Landscpe influence	v
	Water influence	
VHow do you think the envirionment quality after the project completion?	Getting better	
	Basically no influence	v
	Getting worse	
VI How do you care about the environment protection usually?	A lot	v
	Ordinary	
	Don't care	
VII What’s your general attitude towards the project?	Support	v
	Nonsupport	
	I don't care	
VIII What is the largest characteristic of the project in your opinion?	Enenergy-conservation and emission reduction	
	Influence to landscape	
	Promote local economy	v
Opinions on the project		
I have not any suggestion.		

Note:please do v if you agree that.We will be more happy to see your suggestions.

Environmental Impact Report for Phase I Works of Dongfang Gancheng Wind Farm

(Annex: Special Landscape Impact Report)

Evaluation Opinions

Hainan Guangshui New Energy Development Co., Ltd. commissioned Hainan Environment Science&Technology Economy Development Company to prepare the Environmental Influence Report Form（attached Special Landscape Impect Report） for the Project of Phase I Works of Dongfang Gancheng Wind Farm , which has been complicated and reviewed by experts on January17 2007 and replied by Department of Land Environment & Resources of Hainan Province on January 25, 2007 (QTHZJZ [2007] No.13). The project has not been started yet. As the owner now is changed into Hainan Xinfengyuan Industrial Co., Ltd. Moreover , the scale and the scope of land are also changed.Therefore,Hainan Xinfengyuan industrial Co., Ltd again commissioned Hainan Environment Science &Technology Economy Development Company to prepare the Environmental Influence Report Form（Notice of Environmental Impact and Evaluation, NO.[2008]219） for the Project of Phase I Works of Dongfang Gancheng Wind Farm according to Notice of Environmental Impact and Evaluation of Construction Project prepared by Land Environment & Resources of Hainan Province。Three experts (list attached) were invited by Land Environment & Resources of Hainan Province to check the Form of Environmental Influence Report for the Project of Phase I Works of Dongfang Gancheng Wind farm（attached Special Landscape Impact Report）。The following is the Summary of specific views of the experts in details.

I Project overview

1. Owner: Hainan Xinfengyuan Industrial Co., Ltd.
2. Construction site: From Gancheng town to Banqiao town ,away from Dongfang city about 30km
3. Project scale and main construction content: 33 wind power generating sets（49.5MW of total installed capacity, 103857MWh/a of quantity annual electric online), 1 booster transformer substation, general office , 15km -long road repaired on the new site and 5km-long other road repaired, erection of 10kV about 19.25km-long circuit line (10kV circuit line doesn't fall under this appraisal content).
4. The investment of works: The total investment is 502.241 million yuan including 0.654 million yuan for environmental protection.

II. Environmental feasibility of project construction

1. Conformity of project construction to industrial policy

This project is an encouraged project in the Guiding Catalogue of Industrial Structure.

2. Conformity of project site selection to planning

   According to the Outline of the 11th Five-year Plan of Dongfang City for National Economy and Social Development, the project site lies in planned wind power generation area.

3. Main environmental impact and environmental protection measures

   (1) Ecological environmental impact

□ Floor area of the project and analysis of its impact on vegetation and coastal defense forest.

The project takes up 9.527 hectares of permanent land including coastal defense forest , forest land,etc .

According to the Management Methods of Hainan Province for Protection of Coastal Defense Forest, if it's actually necessary to fell forest trees for the sake of national or provincial key construction project or fostering or replacement of forest trees, it shall be subject to the verification of competent forestry department under the people's government at county level and reported to competent forestry department under provincial people's government for approval.

A certain area of coastal defense forest will be felled in the project construction area. So the ecological function of the coastal defense forest will be affected to some extent and remedial measures had better be taken. Whereas the east of the project land includes foresty land, young forest land, graveyard and melon land, it's proposed to strengthen the management and protection of existing forest land, timely recover forest vegetation and enhance fostering of trees in the graveyard so as to remedy the weakening of the function of coast defense forest caused by project construction. Meanwhile, it's proposed forest culture, management and protection expenses should be disbursed from the "recovery expense for forest vegetation" paid by the construction unit.

□Earth and stone balance

Total earth and stone excavation is 27557m3 and total filling volume is 17419m3, Waste slag 10138 m3 .A waste slag need to be built. Measures of soil erosion should be taken timely.

□Analysis of soil erosion impact

The project occupies a relatively small area, so if construction is not conducted in the rainstorm season, soil conservation measures are taken (for example, enclosure for the construction site and temporary yard and rainwater damming), recultivation and afforestation are done timely and standard escape canals are built on both sides of roads, soil erosion will be controlled and limited and the background level basically can be recovered within 3-5 years after the works is be completed. Meanwhile, in case of strong wind during the construction period, the temporary yard should be covered to prevent wind erosion and dust pollution.

(2) Analysis of landscape impact and alleviation measures

According to the Special Landscape Impact Report, evaluated through the landscape quality grading indexes of the Bureau of Land Management (BLM) of USA, the landscape in the project

area is of relatively low quality, neither unique nor scarce (Landscape quality of Grade C) is largely affected and disturbed by man-induced factors and local custom and culture. At present, the coastal defense forest zone is divided into melon land, cultivation land and graveyard.Main existing landscape resource is the ocean.

 Impact of wind generators on landscape

Because the height (H) of the wind generator is 65 m, if the wind generator foundation serves as the center of a circle, within the scope of a radius of 65m (viewing distance D), D/H value will be no more than 1 so that the people who act within such scope will have senses of closeness and oppression; within the scope 65m-130m far from the wind generator foundation, D/H value will be more than 1 but no more than 2 so that the people who act within such scope will have a sense of discomfort; when the distance to the wind generator foundation is more than 130m, D/H value will be more than 2 so that wind generators will become viewing object of people and with the further increase of D/H value, the visual impact of wind generators on the landscape space will gradually disappear.Since the distance from the residential quarters near the project site to the wind generator foundation is more than 130m, wind generators will become a viewing object of people.

Impact of 10kV circuit on landscape

The cement wire pole is 15m high. Within the scope of a radius of 15m, D/H value will be no more than 1 so that the people who act within such scope will have senses of closeness and oppression; within the scope 15m-30m far from the wire pole foundation, D/H value will be more than 1 but less than 2 so that the people who act within such scope will not have a sense of discomfort; when the distance from the wire pole foundation is more than 30m, D/H value will be more than 2 so that people will have senses of comparison and strangeness, and with the further increase of D/H value, the visual impact of the wire pole and bus on the landscape space will completely disappear.

Impact of roads on landscape

The impact of road construction on the landscape is mainly the separated and broken impact on the vegetation landscape of the coastal defense forest.

Impact of the shadow of wind generators

The shadow of wind generators may be as long as 200m, within the scope of 200m ,often making people to have upset or dizziness. However, the shadow of wind generators has no impact on residents because there is 2000m from the wind generators foundation to the nearest village.

⑤Measures to alleviate landscape impact

Afforestation and recultivation should be done timely and both sides and the surrounding of the buildings should be specially provided with afforestation design to give play to the hiding function of arbor plant and alleviate the impact on the landscape.The dimension, shape, color, texture and style of the buildings should harmonize with surrounding landscape. Select wind generators with matt exterior coating to reduce visual light pollution.

(3)Other environmental impact

The booster station and wind generators are relatively far from the residential area, so the noise

and electromagnetic radiation hardly exert an influence on the living environment.

(4)Main pollution control measures

Domestic sewage during the operation period (660.6m3/d) will be used as fertilizer after treated through Grade Three septic tank.

Domestic rubbish during the operation period (5.5t/d) will be regularly transported to nearby urban rubbish disposal plant to be treated.

About 264kg/a of waste lubricating oil arising from replacement of lubricating oil of the wind generator will be sent to provincial hazardous waste treatment center to be treated.

III．Preparing quality of the report and special report

The report and special report are basically prepared in compliance with the standard with relatively complete content and creditable evaluation conclusion, so we agree to approve the evaluation.

IV. Suggestion for further supplement and improvement of the report and special report

Ⅰ Attention should be paid to verify the various types of covers (coastal defense forest, woodland , etc.)

Ⅱ Environmental Protection Rules of Hainan Province promulgated and carried out in 1995 was revised in 2007

Ⅲ Attention should be paid to verify and check, particularly the number and position statements.

Other observations and recommendations in details written by the experts can be seen in examination table.

The Standard for the experts to put the each view, amend the list of annotated page executive summary and modify, or without making changes that reason is provided..

Head：Zhang Geqing

Date：August28 2008

The Environmental Influence Report Form for the Project of Phase I Works of Dongfang Gancheng Wind Farm was conducted last year and formed experts′opinions. The evaluation was made from the impact of the ecological environment, balance of earth and stone , soil erosion area impact analysis , landscape impact analysis and mitigation measures, the wind generators of landscape impact , 10kv lines of the landscape impact , etc. Moreover , the corresponding measures were given in this evaluation.

I think the environmental impact report which shows the same location of project construction and only a little different in the size of project and selection of wind generators should be approved. I think wind power as a clean energy has the positive impact on environment. So wind power generation projects benefit to encourage the development of environmental protection projects。Sum up，I agree with the project this reports. Hereby announce.

Signed:Zheng Guanglei

Date:August28 2008

The Routine Examination Form

For Environmental Impact Evaluation Unit Holder

（Report compiled）

Certified by the evaluation unit:

Hainan Environmental Technology & Economy Development Company

The project committed by environmental evaluation unit:

Environmental Influence Report Form for the Project of Phase I Works of Dongfang Gancheng Win Farm

Reviewers：Chen Xianjiang

Title：Research fellow

Unit：Land Environment & Resources of Hainan Province

Date：August26 2008

Reviewer‘s Specific Comments on Report Prepared

With a normative compilation, complete content, a proper evaluation standard, incisive Engineering Analysis, and clearly situation Presentation, this report has a special point in landscape and influence on Ecological Environment, and its environmental protection Measures is basically feasible, also it has a convincible conclusion, so this report is agreed to pass the evaluation.Wind power is clean and renew resource of energy compared with mineral energy resource facing with exhaustion, so making best use of Hainan's wind power and developing wind power generation has practical significance .But Wind Power Generation asks for a sufficient research on the land use. Though it never asks a large need for land, it asks a big distribution range, which can be a limit for other land use in these areas, and it may be a big number. Therefore , how to solve this problem shall be a key factor to develop wind power generation .

Expert’s Opinions List

Number	Expert opinions	Page of modification	Changes
I	Attention should be paid to verify the various types of covers (coastal defense forest, woodland , etc.)	P4	Has been modified
II	Environmental Protection Rules of Hainan Province promulgated and carried out in 1995 was revised in 2007	Special Landscape Impact Report P2	Has been modified
III	Attention should be paid to verify and check, particularly the number and position statements.		In the report to re-type data verification, without amending the place

Examination and Approval Register for Environmental Protection of Construction Project

Filling unit (seal): Hainan Environmental Technology Economy Development Co., Ltd. Filled by (signing): Zhao Xin Project officer(signing):

Construction project	Project name	Phase I Works of Dongfang Gancheng Wind farm			Construction site		Coastal zone 6 kilometers long south of the estuary of Gan'en River in Dongfang City,		
	Construction content and scale	49,500kW of installed capacity			Construction property		√ Newly constructed ☐ Reconstructed and extended ☐ Technological transformation		
	Industry sector	4419 Other electric industry			Management classification of environmental protection		☐ Prepare a report √Prepare a report ☐Fill in a register		
	Total investment (Million Yuan)	502.241			Environmental protection investment (Million Yuan)		0.654	Proportion (%)	0.13
	Project setting department				Approval code			Time of project setting	
	Report examination and approval department	Department of Land and Resources of Hainan Province			Approval code			Time of approval	
Construction unit	Name of the unit	Hainan Xinfengyuan Industrial Co., Ltd.	Telephone number	0898-66190269	evaluation unit	Name of the unit	Hainan Environmental &Technology Economy Development Co., Ltd.	Telephone number	0898-66727521
	Mailing address:	1201RoomFuxiangGarden,No.59 Haidian East2# Road, Haikou City Hainanprovince in China	Zip code	570208		Mailing address	No.12 Longkun South Road, Haikou City, Hainan Province	Zip code	570206
						Certificate number	No.3002 Guo Huan Ping Yi Zi	Evaluation funds	1.6
	Legal representative		Contact	Xie Yufan					
Current environmental situation of the construction project area	Environmental quality grade	Ambient air: Grade I in GB3095-1996 Surface Water: Groundwater: Type II in GB/T14848-93 Ambient noise: Type II in GB3096-93 Sea water: Second kind in GB3097-1997 Soil: Other:							
	Sensitive characteristics of environment	☐ Drinking water source protection zone ☐ Natural protection zone ☐ Scenic spot ☐ Forest park ☐ basic farmland protection zone ☐ Ecological conservation zone ☐ Key soil erosion prevention and control area ☐ Ecological sensitive and susceptible zone ☐ Densely populated zone ☐ Major culutural and historic site under state protection ☐Three rivers, three lakes, double control area ☐Three Gorges reservoir area							

Pollutant emission conformity and overall control (filled for industrial construction project)																
Pollutant	Existing works (built + in construction)				This works (planned to be built)					System works (built + in construction + planned to be built)						The reduction replaced by regional balance
	Real emission concentration	Allowed emission concentration	Real total emission amount	Total ratified emission amount	Predicted emission concentration	Allowed emission concentration	Discharge	Self-reduction	Predicted total emission amount	Total ratified emission amount	Reduction by "leading the old through the new "	Predicted total emission amount	Total ratified emission amount	Emission increasing or decrease		
Waste water					-	-	0.1022	-	0.0661							
Chemical oxygen demand *					100	100	0.2642	0.1726	0.0614							
Ammonia nitrogen					15	15	0.0231	0.0012	0.009							
Petroleum																
Waste gas																
Sulfur dioxide *																
Smoke and dust *																
Industrial dust *																
Nitrogen oxide *																
Industrial solid waste *																
Other characteristic pollutants related to the project																

Note: 1.*It is the pollutant whose overall emission is controlled by the State during the "Tenth Five-Year Plan" 2.Emission increase or decrease: (+) means increase and (-) means decrease 3.Measurement unit: Waste water emission --Ten thousand T / Y; waste gas emission --Ten thousand normal cu.m / y; industrial solid waste emission --Ten thousand T /Y; emission concentration of water pollutants --mg / l; emission concentration of atmospheric pollutants --mg / cu.m; water pollutant emission --T /Y; atmospheric pollutant emission / --T /Y.

Ecological environmental impact and alleviation measure (filled for non- industrial construction project)	Control project	Index						Taken measures								
		Name	Grade	Impact degree	Impact way	Protection object	Impact position		Engineering keeping-off	Protection zone adjustment	Moving protection	Control and management	Engineering management	Landscape design	Ecological compensation	Other
	Natural protection zone							Investment in ten thousand Yuan								
								Expected result								
	Water source protection zone							Investment in ten thousand Yuan								
								Expected result								
	Important wetland							Investment in ten thousand Yuan								
								Expected result								
	Scenic spot							Investment in ten thousand Yuan								
								Expected result								
	Natural and cultural relics							Investment in ten thousand Yuan								
								Expected result								
	Forest park							Investment in ten thousand Yuan								
								Expected result								
	Important ecological function zone							Investment in ten thousand Yuan								
								Expected result								
	Creature protection: Rare animal							Investment in ten thousand Yuan								
								Expected result								
	Creature protection: Rare plant							Investment in ten thousand Yuan								
								Expected result								
	Creature protection: Peculiar creature							Investment in ten thousand Yuan								
								Expected result								
	Creature protection: Important economic species							Investment in ten thousand Yuan								
								Expected result								
	Creature protection: Foreign species							Investment in ten thousand Yuan								
								Expected result								
									Relocation	Backward	Other					
	Immigration and removal	Moving move for the land for the works	--	Resettlement way	--			Investment in ten thousand Yuan								
		Moving population for environmental impact	--	Resettlement way	--			Expected result								
	Area of soil erosion control		Engineering management:	Creature management:					Sound insulation wall	Noise-reduction afforestation	Relocation	Sound insulation window	Low-noise equipment	Engineering keeping-off	Control and management	Other
	Green coverage of works	3050m2	Afforestation rate: 4.94%	Noise	Operation period			Investment in ten thousand Yuan								
	Waste water SS during the construction period		Materialization					Expected result								
	Project land biomass T (air dry weight) hectare	Before construction	After construction		Construction period			Investment in ten thousand Yuan								
	earth and stone of works	Total excavation is 27557 m3, so earth and stone volume is basically balanced						Expected result								
	Land	Total floor space	18.90hectares		Occupied cultivated land				Basic farmland	Forest land	Meadow	Fish pond				
		Property	Temporary	Permanent												
		Floor space	12.72 hectares	6.18hectares	--											
		Newly-increased														
		Recultivation area														