Asia-Pacific
Economic Cooperation

Research Report on Low Carbon Model Town Capacity Building Development

(APEC PROJECT: EWG 05/2013A)

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Chief Editor: 天津市新金融低碳城市设计研究院
TianJin Innovative Finance Low Carbon Insitute

Supported by: 天津大学 Tianjin University
北京中创碳投科技有限公司 SinoCarbon Innovation & Investment Co., Ltd
天津低碳发展与绿色供应链管理服务中心 TianJin Green Supply Chain Service Centre

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Part One

New Energy • New Town

Project Database of APEC Low-Carbon Town Promotion Activities

Introduction

To achieve industrialisation, urbanisation, information technology and agricultural modernisation, China needs to embark on a new development pathway. China has unequivocally put ecology and environment protection in a more prominent position. We want a healthy environment as well as material assets. We would prefer a healthy environment to material assets; although a healthy environment is indeed our most important material assets.

——**XI Jinping**

NATIONAL ENERGY ADMINISTRATION

No.[2013]-495

NOTICE ON IMLEMENTATION OF APEC LOW-CARBON TOWN PROMOTION ACTIVITIES

Asia-Pacific Economic Cooperation (APEC) is the largest regional international organization and is also the vital platform for China's international energy cooperation. China actively proposed the low carbon town demonstration program many times at the APEC leader summit.

In order to implement the initiatives of Chinese leaders and promote low-carbon demonstration town project cooperation between China and APEC economies, APEC National Energy Administration will conduct a series of low-carbon town project promotion activities. The relevant particulars are notified as follows:

i.Implementation Measures

NEA selects projects submitted nationwide,then recommends projects to APEC for international bidding on attracting advanced urban development technology, concept, mode and solutions.

ii.Declaration Subject

The People's Government of the city (district, town),where the demonstration project locates,is responsible for the project declaration, organization and implementation, and supporting relevant work.

iii.Declare Conditions

Newly-built low-carbon town projects and old town (area) low-carbon transformation projects should have a sound research, development and implementation conditions that can represent the current mainstream of low-carbon town construction and symbolize the value of its successful experience with following conditions:

(A) Projects are approved by local authorities (planning cities or above deputy provincial authorities);

(B) Projects shall have a sound working mechanism, such as the establishment of clear leadership and organizational responsibilities, coordinating agency, the management committee or project team;

(C) A clear low-carbon town construction financing programs and support channels must be guaranteed;

(D) On-going or real-exiting planning project of the district (town) shall with an appropriate range of 3-15 kilometers without destroying or occupying farmland, woodland and water bodies;

(E) Declaring city shall have a strong willingness of promoting low-carbon town construction and actual implementation measures.

iv.Declare Methods

Government of its city (district, town) shall fill in the declaration application form (Appendix 1), and then submitted to the National Energy Administration after assessment and approval from the provincial energy administration. Municipalities or cities with independent planning could submit project directly to the National Energy Administration by its government.

Declare Due Date:2013/2/15

Big events of Low-carbon town promotion activities---2013

7. 22

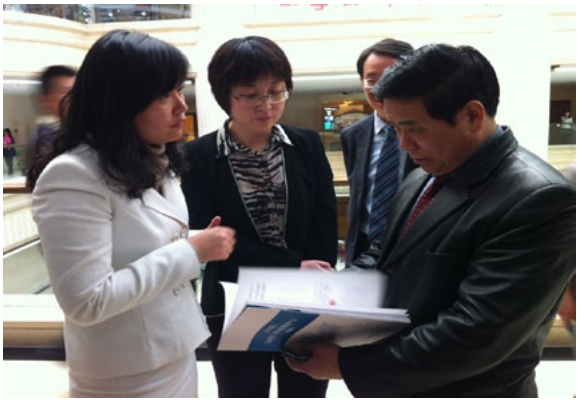
Start Conference of APEC Low-Carbon Town Promotion

On July.22nd, National Energy Administration held Start Conference of Low-Carbon Town Promotion at Diaoyutai Hotel. The President Assistant of Tianjin University, Liu Yaochang led a group of members from APEC Sustainable Energy Center Preparatory Working Group for participation, and further clarified the role of Tianjin University in promotion activities and responsibilities and implementation plan of APEC Sustainable Energy Center Preparatory Working Group.

8. 18

APEC LCMT Index System Review

On August.18th, APEC LCMT Index System Review Meeting was held at Beijing Tianfang Hotel, which was led by National Energy Administration and supported by National Development and Reform Commission and the Ministry of Housing and Urban-Rural Development. APEC Low-Carbon Town Index System was complied by China Enevrgy Conservation and Environmental Protection Group, specifying the details of evaluation method of various projects in difference city.



8. 20

APEC Low-carbon Town League & Low-carbon Development International Cooperative Alliance

On August.20th, 2013, APEC Low-carbon Town League & Low-carbon Development International Cooperative Alliance were jointly initiated at Beijing Minzu Hotel. Tianjin University, 12 central enterprises and some of the Fortune 500 companies, including China Huaneng Group, CECEP, ABB, IBM, CNCC International Logistics, Tianjin New Financial Development Company, EDF, together with some other important domestic enterprises in low-carbon industrial chain attended the meeting.

8. 21

APEC Low-Carbon Town Development and Innovative Model Seminar

On August.21st, APEC Low-Carbon Town Development and Innovative Model Seminar was held at Longquan Hotel, Mengtougou District, Beijing. It was the first project simulation seminar after the APEC Low-carbon Town League had been established. Prof. Zhu Li from Tianjin University addressed a keynote speech on the topic of establishing high-level think tank and promoting low-carbon town development during the seminar.

8. 30

Dongxiang Cross-Strait Low-carbon Ecological Demonstration Area Visiting Tour

On August.30th, Tianjin University organized a team of experts to Dongxiang Cross-Strait Low-carbon Ecological Demonstration Area for an on-the-spot investigation, and simulated the planning and exploitation of the project.

9. 20
10. 3

APEC Sustainable Energy Center Preparatory Work

From September.20th to October.3rd, Preparatory Committee negotiated with staff of the Ministry of Foreign Affairs to add the content of APEC Sustainable Energy Center into Leaders' declaration, however did not succeed.

9. 28
10. 7

APEC Low-Carbon Model Town (LCMT) Promotion and Participation Guidebook

From September.28th to October.7th, Tianjin University complied APEC Low-Carbon Model Town (LCMT) Promotion and Participation Guidebook, which becomes a vital promotion resource in various promotion seminars, simulation conference, low-carbon tour and international conference.

10. 13
10. 17

World Energy Congress (WEC)

From October.13th to October.17th, the World Energy Congress was held in Korea. The representative of Tianjin University, Prof. Zhu Li, was nominated as the committee member of the congress. During the conference, delegates shared an extensive communication and interaction on the topic of low-carbon town development.

10. 24

International Symposium on Index System of Low-Carbon Town in Asia-pacific Regio

On October.24th, the Energy Administration of Zhejiang Province held the International Symposium on Index System of Low-Carbon Town in Asia-pacific Region at Hangzhou Shangri-La hotel. During the conference, the delegation from Tianjin University discussed the preparatory work and subsequent plan of low-carbon town development with APEC Low-carbon Town League members.

11. 01

High-level Seminar of Low-Carbon Town Development in Singapore

On November.1st, with the support of National Energy Administration and Singapore Energy Market Authority, Tianjin University hosted a High-level Seminar of Low-Carbon Town Development during the International Energy Week at Sands Expo and Convention Center, Singapore. This seminar had received significant attention in mainstream domestic and overseas media. Xinhua Net continuously publicized for the seminar. The director of Singapore Energy Market, Wu Guocai, and the business editor of Xinhua News Agency Singapore Branch, Li Yan, came to the seminar, and gave their attentions and congratulations.

12. 04

Low-Carbon Town Global Promotion and International Bidding Workshop

On November.1st, with the support of National Energy Administration and Singapore Energy Market Authority, Tianjin University hosted a High-level Seminar of Low-Carbon Town Development during the International Energy Week at Sands Expo and Convention Center, Singapore. This seminar had received significant attention in mainstream domestic and overseas media. Xinhua Net continuously publicized for the seminar. The director of Singapore Energy Market, Wu Guocai, and the business editor of Xinhua News Agency Singapore Branch, Li Yan, came to the seminar, and gave their attentions and congratulations.

Big events of Low-carbon town promotion activities---2014

01. 22

APEC LCMT Index System Review and Communication Meeting

On Janurary.22nd, Zhang Yuqing, Deputy Director of the National Energy Administration hosted APEC LCMT Index System Review and Communication Meeting in China People's Palace. More than a hundred delegates from the Foreign Ministry, the National Energy Administration, the National Development and Reform Commission, the Ministry of Housing and Urban-Rural Development, China Development Bank, local government, research institutions, the project unit and business representatives participated. Zhang Junyan, Director of Social Sciences Administration Department of Tianjin University, and Prof.Zhu Li, are representatives from Tianjin University, addressed a keynote speech concerning Tianjin Energy Research Center and Sustainable Energy Research Center of Tianjin University, as well as APEC Sustainable Energy Center Preparatory Work to Zhang Yuqing, deputy director of the National Energy Administration and Zou Yiqiao, director of International Cooperation Department of National Energy Administration， and further clarified the main points of the preparation and implementation work of the center.

APEC Low-Carbon Town Promotion

Project Name	Location	Declaration Time	Recommender
Nucleus Island of Beijing Yanqi Lake International Convention Center	Yanqi Lake, Huairou District, Beijing	2013.06	Beijing Municipal Commission of Development and Reform
Shenzhen International Low-Carbon City	Pingdi Avenue, Longgang District, Shenzhen	2013.7.5	Shenzhen Municipal Commission of Development and Reform
Dongxiang Cross-Strait Low-carbon Ecological Demonstration Area, Jiangxi Province	Dongxiang County, Jiangxi	2013.5.30	Jiangsu Municipal Commission of Development and Reform
Songhuajiang Farm	Songhuajiang Farm, Reclamation Area, Heilongjiang	2013.5.22	Heilongjiang Reclamation Administration
Guantang New Town, Zhenjiang City	Zhenjiang, Jiangsu		Jiangsu Energy Administration
Jingneng Gas-fired Cogeneration Project, Beijing City	Future Technology City Park, Changping District, Beijing	2013.6.12	Beijing Municipal Commission of Development and Reform
Mentougou New Town, Beijing City	Mentougou District, Beijing	2013.6	Beijing Municipal Commission of Development and Reform
Mayang Low-carbon Ecological Town, Changtai, Fujian	Changtai County, Fujian		China Development Bank
Tongzhou Bay New Town, low carbon demonstration city, Nantong City, Jiangsu Province	Nantong Binhai Park, Nantong, Jiangsu	2013.7	Jiangsu Energy Administration
"Yuansheng .Jin Luo Bay" Project, Zhengzhou, Henan	Intersection of Hanghai Road and Zijinshan Road, Zhengzhou, Henan		Henan Municipal Commission of Development and Reform
Qingdao Sino-German Ecological Park	West beach, Jiaozhou Bay, Qingdao, Shandong		China Development Bank
Shagangwang APEC Low-Carbon Model Town	Zhongmou County, Zhengzhou, Henan	2013.7.19	Henan Municipal Commission of Development and Reform
Low-Carbon Town in Sanshan Village, Dongshan Town, Wuzhong District, Suzhou City Province	Sanshan Village, Dongshan Town, Wuzhong District, Suzhou city, Jiangsu	2013.7.1	Jiangsu Municipal Commission of Development and Reform
Qinghai Zhongguancun High-technology Industry Base	Pingan County, Haidong City, Qinghai	2013.11.22	Qinghai Municipal Commission of Development and Reform
Tianjin Yujiapu Economic Area	Tianjin Binhai New Area		Tianjin

Project Introduction

1 Nucleus Island of Beijing Yanqi Lake International Convention Center

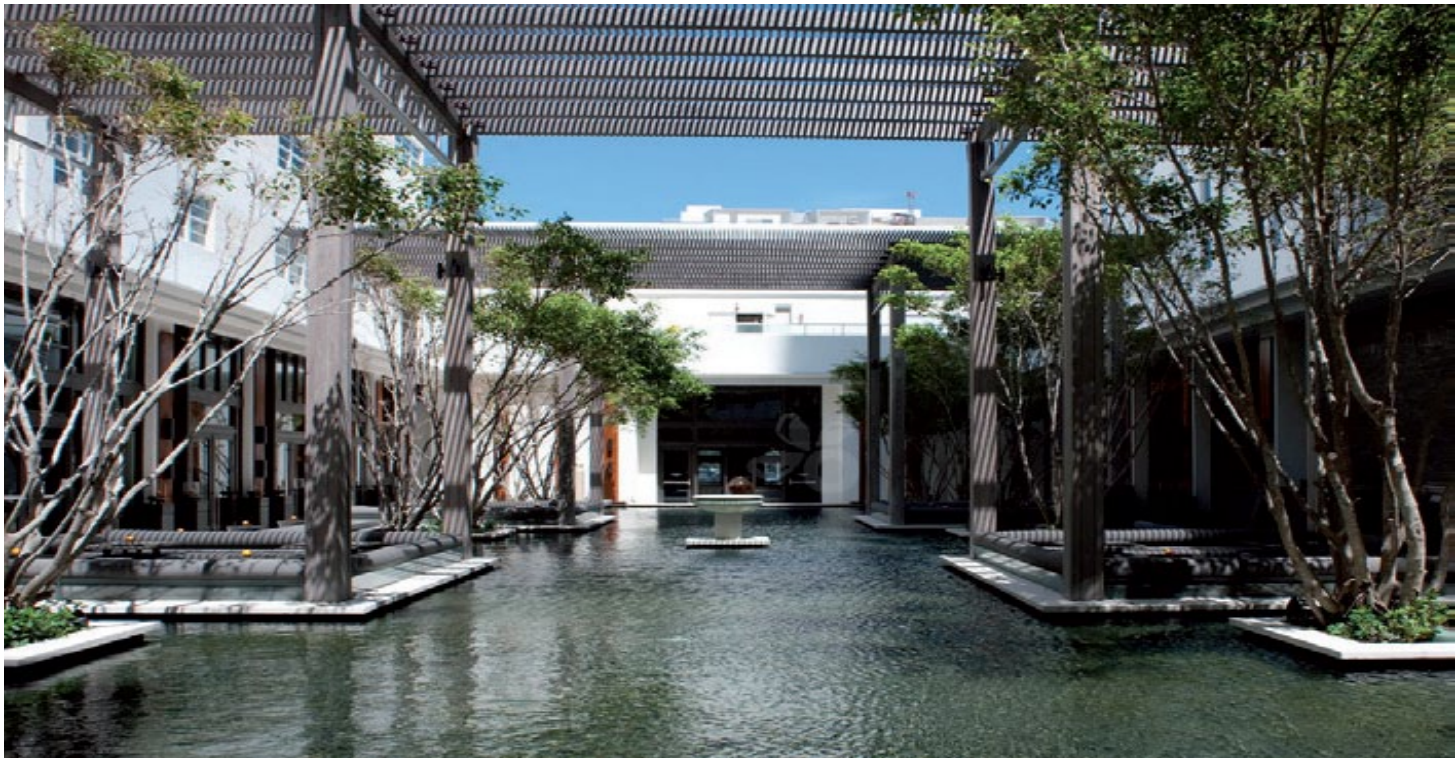
1.Project Overview

Located in Yanqi Lake Peninsula (Yanqi Lake), Huairou District, Beijing, the Yanqi Lake Ecological Development Demonstration Area is 60 kilometers away from the city center and 45 kilometers away from Beijing Capital International Airport. Situated in the southeast of Yanshan Mountains, the Demonstration Area serves as a part of North China ecological shelter and an important alternative water head site of Beijing. The nucleus sector of the Demonstration Area boasts prominent mountain and waterfront features along with favorable landscape resources.

Under the design principles of Chinese-style, Low-carbon and Science & Technology Innovation, the Demonstration Area will serve as a portal of international communication, world-class ecological development demonstration area and tourist resort with high quality ecological culture. Located in the core region of the Demonstration Area, the International Conference Center is constructed under state-guest standard for summits of high-end business.

The total land area of the Nucleus Island is 650,000 m, including 41,900 m built-up area of the International Conference Center. The overall investment of the Nucleus Island Project is 4.1 billion dollars, among which 0.46 billion is for the construction of the latter center. The project’s investor is Beijing Enterprises Group Real-Estate Co., LTD, while its designer is Beijing Institute of Architectural Design and its constructor China Construction Eighth Engineering Division. September 22nd, 2011 witnessed the commencement of the project whose planned completion date is December 31st, 2013.

Up to now, neither has the project got permission for the land, nor has it gone through construction formalities. Its architectural planning and design has been approved by Beijing Municipal Commission of Urban Planning.



2.Preliminary Study & Condition Analysis of the Low-carbon Connotation in the Nucleus Island

2.1 Low-carbon Industry

2.2 Low-carbon Spatial Distribution

2.3 Low-carbon Energy

Low-carbon energy: Solar Energy Generating Systems will be used on the surface of conference center, which can meet part of lighting needs. Meanwhile, lake water or ground source heat pump will be built to meet the energy requirements, and light guide technology will be used in lighting internal corridors and conference rooms while LED lights are used in public space. Extend cornices to shadow conference center, and use vacuum insulation glass to maintain the temperature inside.

Make greenhouse gas inventory of APEC summit during the conference time, and buy certain quantity of carbon emission reduction to realize carbon neutral.

2.4 Low-carbon Architecture

2.5.Low-carbon traffic

2.6 Low-carbon Standard & Key Technology

2.7 Other Features

3.Implementation & Promotion Plan of the Nucleus Island's Project

3.1.Project Plan & Implementation

The Yanqi Lake International Convention Center has come into service by the end of 2013 with nearby infrastructure largely perfected. Planned helipads on the island will serve as an air corridor connecting the conference center and the outside.

3.2.Working Mechanism & Supporting Measures

Based on the development goal of Beijing Enterprises Group Real-Estate Co., LTD, the project company is responsible for the overall and effective management and operation of the project, ensuring the realization of various business indicators.

Under the construction stage, the construction unit sets up departments for project approval, construction preparation and management, including Design Department, Pre-Stage Department, Engineering Management Department, Cost & Contract Department, Finance Department and General Affairs Office. These departments are responsible for successful approvals concerning project planning, environmental protection, fire protection, civil air defense and gardening; examination of design, construction, supervision and equipment bidding; supervision of construction quality and progress as well as project acceptance.

3.3 Development Mode and Investment

The project is invested by Beijing Enterprises Group Real-Estate Co., LTD, which is completely responsible for its management decisions. 20% of the investment is from the company itself while 80% from bank loan.

1).Techno-economic Analysis

The project is profitable to a degree of 9.38% financial internal rate of return after income tax, which is over the benchmark yield with the payback period of 10.45 years. It is financially feasible.

2).Economic Benefits

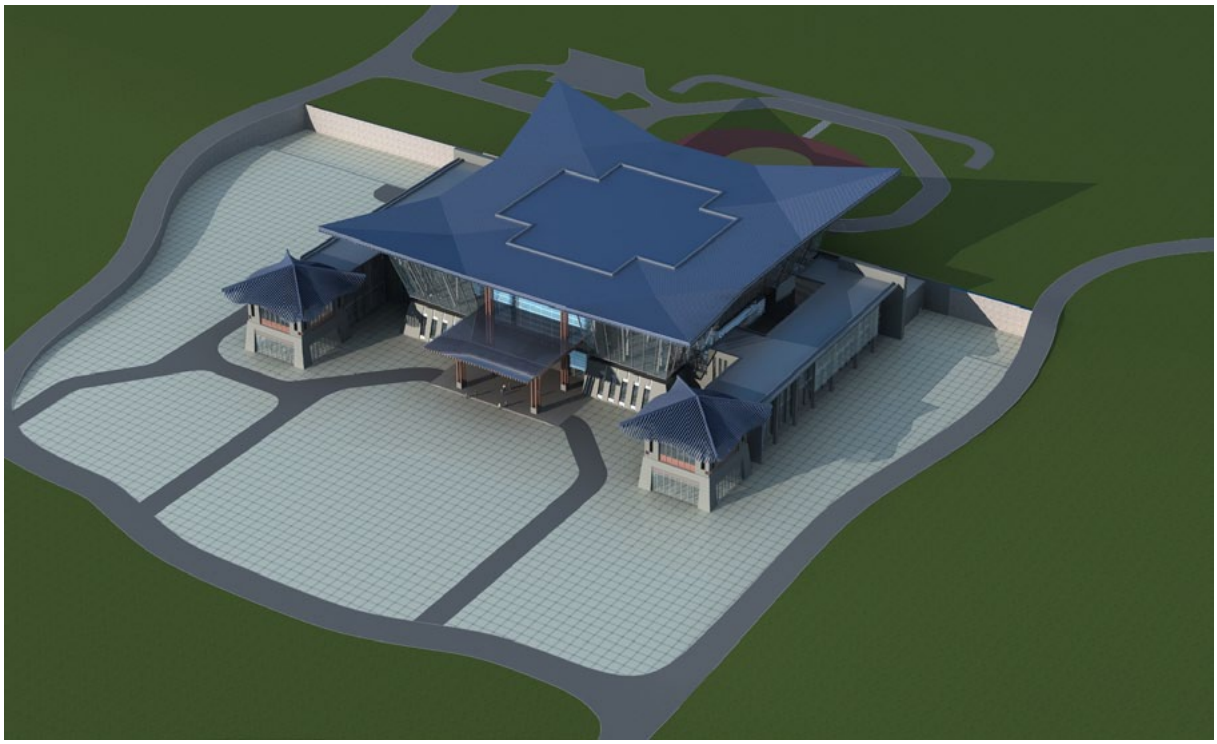
The project construction and economic development are complementary. Not only could the ecological function of the project boost the city’ s scenery and comprehensive competiveness, but also bring economic benefits and promote the sound development of its economy.

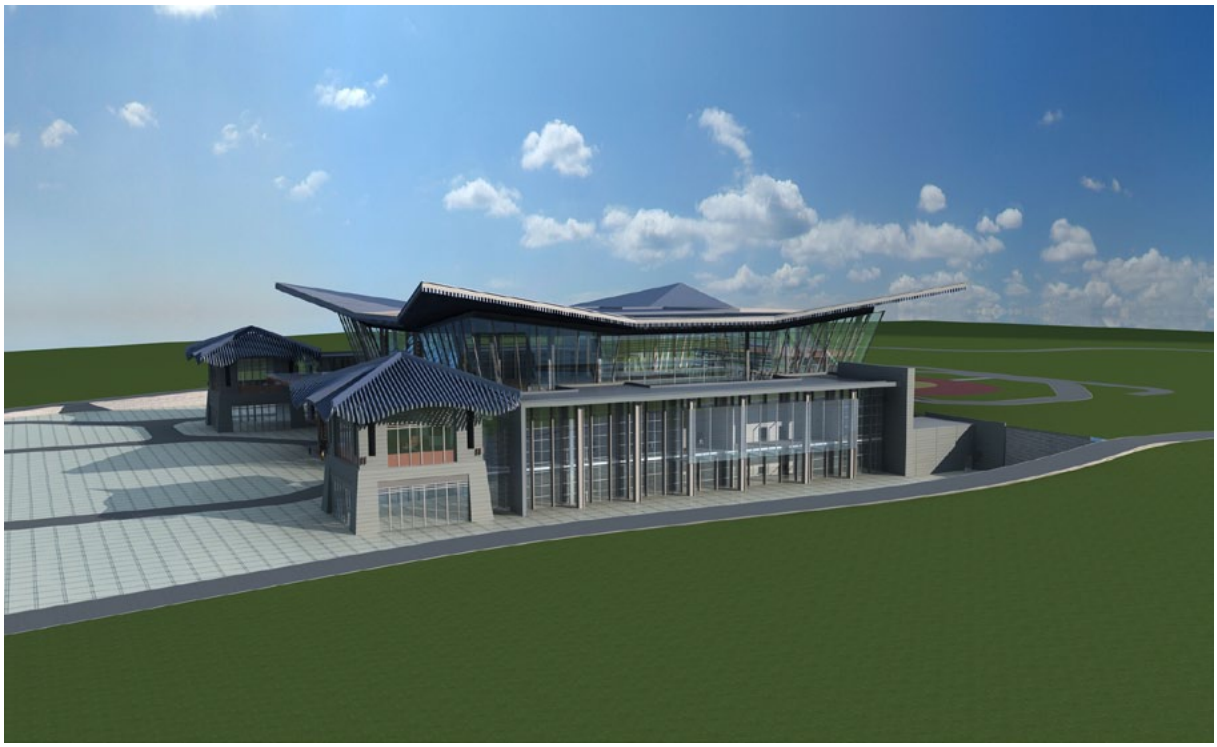
3). Social Benefits

The project aims to construct an international conference center for significant summits. Not only will it be the residence for international dignitaries and their families during state visits in Beijing, but also a conference center and tourist resort with high-end service and prominent ecological features.

4).Environmental Benefits

1% of the project’ s overall investment is consumed on environmental protection, including the control of waste water and gas, solid waste and noise pollution during project construction and operation. These measures largely decrease the emission volume of waste materials, ensuring that all within related standards with little negative influence on local environment. Both biological and engineering measures have been adopted to construct the levee, restore wetlands and vegetations, and increase the types and amount of plants. All these measures will bring positive benefits to local environment.





2 Shenzhen International Low-Carbon City

1.Project Overview

Shenzhen International Low-Carbon City is one of the ten key areas to promote strategic development in Shenzhen and it's also a national energy-saving fiscal policy demonstration project. The city was listed as the flagship project for EU-China sustainable urban development at the EU-China Urbanization Partnership High Level Conference on May, 2012. The city is located at Pingdi Street, Longgang District in Shenzhen and covers an area of 53.14 square kilometers, with the initial district covering approximately 1 square kilometers and the expanded district covering approximately 5 square kilometers. Situated at the junction of Dongguan and Huizhou, the Low-Carbon City serves as the northeast portal of Shenzhen with the advantage of convenient transportation. The city boasts excellent ecological environment with an abundance of forests, gardens and water areas.

2.Development Objective

According to the plan, the initial district will achieve remarkable success while the expanded district will make considerable progress by the year of 2015. The urban infrastructure and key industries will be built step by step; low-carbon innovation ability will be shaped preliminarily; resources intensive utilization efficiency, ecological environment, the quality and effectiveness of low-carbon development will be greatly improved; key low-carbon industrial park will be established preliminarily.

By the year of 2020, the regional total output value will reach 24.5 billion RMB, the GDP carbon emission intensity for every ten thousand RMB will be less than 0.32 ton and the average carbon emission intensity will be less than 5 ton, which will reach the international standard.

By the year of 2030, the regional total output value will exceed 100 billion RMB. The region will achieve leapfrog development and become the leading area in the global low-carbon field.

3.Project Orientation

It first serves as a pioneer climate-friendly city. Under the idea of low carbon, energy saving and sustainable development, energy consumption and carbon dioxide emission are adopted as restraint indicators for tackling pollution and limited carrying capacity of the local ecosystem in the process of economic and social development. Such endeavors will promote the City's role of a pioneer climate-friendly city. Second, the City serves as a new low-carbon industrial cluster. With an ideal environment for elite experts, research and development as well as industrialization, a new area is established for the gathering, demonstration and application of low-carbon technology. This facilitates the development of new low-carbon industries with distinctive features and a world-class low-carbon industrial cluster. Thus, precedents are available for the development of low-carbon industry and economic mode nationwide. Third, it will be a leading area of low-carbon lifestyle. In an urban ecological network, a low-carbon living environment could be formed where ideas could be promoted, including low-carbon life, green consumption and green commuting. Thus, a socialized resource recycling system is established and the development of low-carbon or zero-carbon community is promoted. Fourth, it will be a demonstration area of low-carbon international cooperation. Worldwide cooperation could benefit the construction of the application and demonstration center of low-carbon technology, the incubation center of research and development, and the service center of carbon exchange and finance in the international arena. These efforts would, on one hand, manifest China's responsible image and attitude on climate exchange, and on the other hand serve as a window and platform of international cooperation in low-carbon development.

4.Project Planning & Scheme

The following goals are to be achieved based on the idea of developing an international low-carbon city.

1. Overall Development Plan of the City

According to the Overall Development Plan of Shenzhen International Low-Carbon City, five main aspects are to be achieved based on analysis of the internal and external environment as well as theoretical and practical experience on the development of low-carbon city. These contents consist of creating a low-carbon urban form, establishing six emerging industrial park, developing a low-carbon technology center, promoting low-carbon lifestyle and building international communication platform. Such endeavors specify the strategic positioning, development goal and implementation path of the low-carbon city and serve as a systematic direction.

2. Spatial Planning of the City

Based on the aforementioned Overall Development Plan, specific spatial planning of various divisions is provided for industrial development and its layout, mode, function, land use, green transportation system, public facility, ecological infrastructure, ecological protection and utilization, and the developing sequence. Implementation Scheme of Land Disposition in the Extended Area of the City

3. Implementation Scheme of Land Disposition in the Extended Area of the City

The extended area covers the land of 5 km2. Based on the Guidance of Implementation Scheme of Land Disposition of Shenzhen International Low-Carbon City and related laws and regulations, the implementation scheme of land disposition is put forward combined with the need of investment and financing. The scheme consists of land disposition objective, schedule, disposition mode, monetary compensation, land displacement and benefit sharing. Guidance of land use is also available for the successful promotion of the project.

4. Investment & Financing Plan of the Extended Area

The planning area covers a total area of 5 km2 (not including the Promoter Area of 1 km2). It consists of Gaoqiao and Pingxi Divisions, stretching to Jiaoyu Road in the east, Longgang Avenue in the south, Huayuan Road-Jixiang One Road in the west, and the basic ecological line in the north of Gaoqiao Division. The Investment & Financing Plan of the Extended Area portraits a multi-system blueprint concerning low-carbon ecology, land utilization, industrial development, road traffic and landscape environment. Meanwhile, reasonable development plan, start-up plan, land acquisition and leasing mode as well as operation strategy are created along with the investment and financing plan for comprehensive implementation of the project’s successful operation.

5. Municipal Special Plan of the City

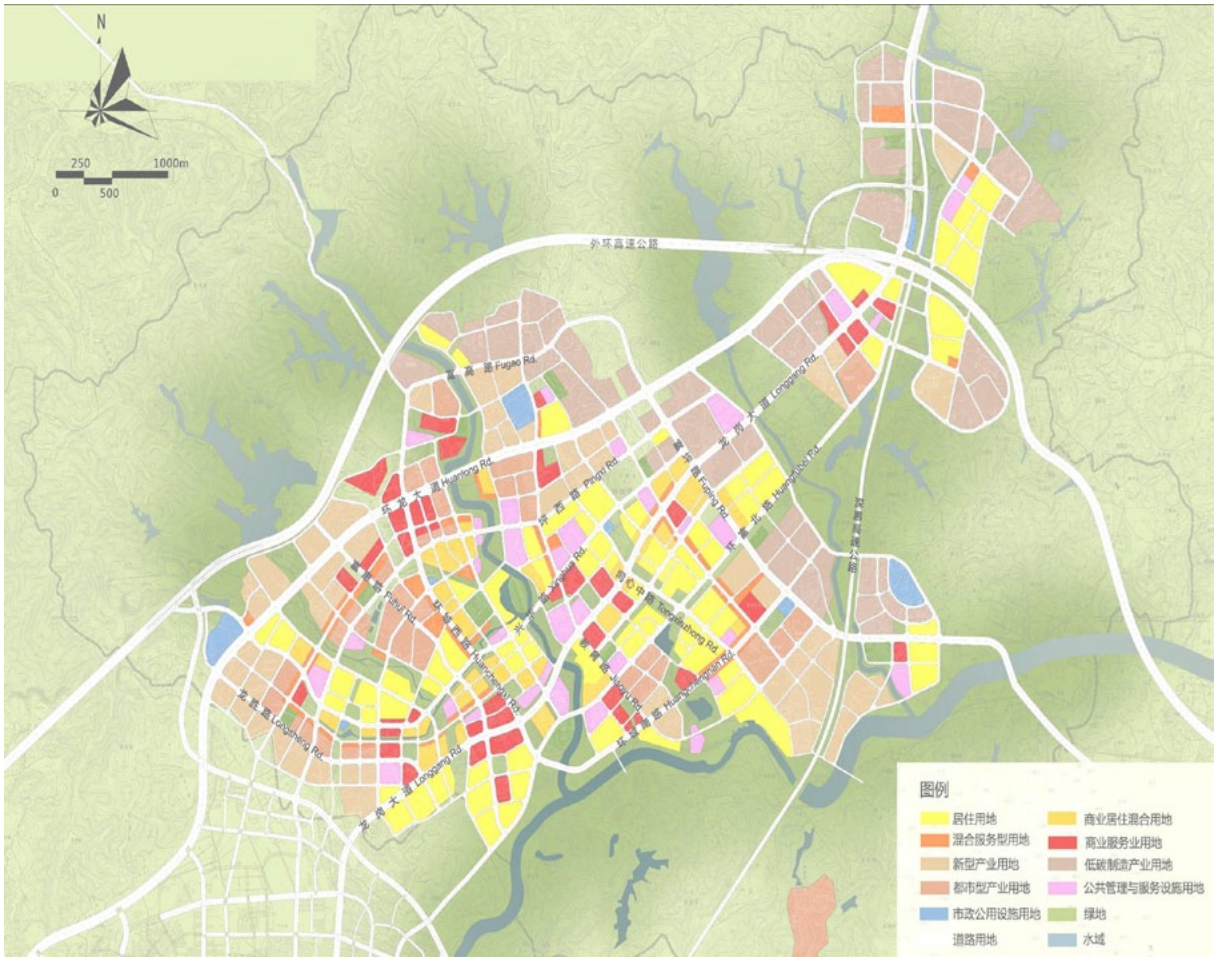
The Municipal Special Plan of the City involves three aspects of planning, including the low-carbon city, its Extended Area and Promoter Area. Concerning the low-carbon city, the contents are series of researches on the adaptability and application strategy of advanced technology (division planning), evaluation of ecological diagnosis and adaptability (specific planning of division level), comprehensive planning of the energy system (division planning), comprehensive remedy of Dingshan River (specific planning). Concerning the Extended Area of the city, the contents include detailed planning on municipal facility and pipe network (specific planning) and studies on municipal engineering construction guidance (studies of prefecture-city level). Concerning the Promoter Area, the contents consist of studies on construction sequence and action plan (studies of prefecture-city level) and planning and implementation scheme of a demonstration area of rain impact’s comprehensive utilization (detailed planning).

6. Comprehensive Transportation Plan of the City

This plan covers an area of 53 km2 for the low-carbon city and 5 km2 for the Extended Area (including 1 km2 for the Promoter Area). The contents are as follows: one specific planning Comprehensive Transportation Plan of the International Low-Carbon City, one detailed planning Detailed Transportation Plan of the Extended Area of the International Low-Carbon City, four studies namely Strategic Study on Transportation Development of the International Low-Carbon City, Study on New Bus System of the International Low-Carbon City, Study on the Application of Intellectual Transportation Technology in the International Low-Carbon City, and Study on the Development of Bus Station Based on the TOD idea in the International Low-Carbon City. The four studies are of megalopolis level, while the specific planning on traffic is of district level and the detailed planning on traffic is of division level.

7. Municipal Engineering Design of the Promoter Area in the City

This Design aims at the Promoter Area of Shenzhen International Low-Carbon City with an area of 97.01 hectares. The contents includes Proposal of Municipal Engineering Project, Studies on the Feasibility of Municipal Engineering Project, Scheme on Environment Impact Assessment & Water and Soil Conservation of the Municipal Engineering Project, the design of construction drawing of the project. Also, construction and completion of work is also among the responsibility. The work intensity adjusts with contents and related requirements.



3 Dongxiang Cross-Strait Low-carbon Ecological Demonstration Area, Jiangxi Province

1. Project overview

The project declaration of APEC Low-carbon Demonstration Town proceeds along with the construction of Dongxiang Cross-Strait Low-carbon Ecological Demonstration Area. To promote the development of China's low-carbon town, the local government pays much attention to the declaration and sets up a specific department for the project.

One billion RMB was invested in initial plans for infrastructure construction. Demonstration Area is constructing low-carbon ecological apartment house, low-carbon economic park and research and development center for low-carbon technology, using distributed energy sources, namely, solar thermal and photovoltaic power industry, natural gas, methane and refuse incineration electricity generation, to realize all-round clean and low-carbon industry. With the support of Cross-Strait cooperation, this area is determined to be the influential low-carbon demonstration area at a national as well as international level within 3 to 5 years. This area is combined both demonstration feature and operability, emphasize typical modes for central regions and seek for a suitable low-carbon modes for the realistic conditions in China. Thus, a system of indicators for the promotion of low-carbon development will be established, which is suitable to China's conditions. Based on its successful experience and radiation effect, the development of low-carbon towns in nearby areas will be promoted and serve as a new engine for economic growth in central China.

The project is located in the area of Pogan Town and Xiaohuang Town, east of Dongxiang city, Jiangxi Province, with low hill and gentle slope landscape. Covered with barren mountains and forest land, this area is lower from the south to the north, 18 kilometers away from Dongxiang city, 6 kilometers away from Yujiang City and 22 kilometers Yingtan downtown. Shanghai-Kunming Highway, No. 208 Highway and Hangzhou-Changsha High Speed Railway are going through the area.

Approved by the provincial development and reform commission and the provincial department of land, the land expropriation completed. In the second half of 2013, gas station, main grid lines, tap water lines, main roads, resettle apartment are under construction, which is expected to complete in the end of 2014.

A Leadership and coordination agency is established led by the main government officials in the city for smooth promotion of the project and implementation of funds. The project will be an influential and representative demonstration project among APEC members and boost local economy. Along with the project construction, the town also advocates the idea of low-carbon life in various channels, including newspapers, radio, television, network and other social media. The effects are better understanding of one's responsibility and obligation among governments, enterprises and citizens and the formation of a low-carbon lifestyle.

2. Content Introduction

2.1 Indicator System

The overall planning design is based on global tendering.

Elements are taken into account for the analysis and design of the indicator system, including the consumption of energy and resources, greenhouse gas emission and comprehensive utilization of the waste.

2.2 Low-carbon Industry

The overall planning design is based on global tendering.

The city possesses textile, bio-medicine, modified starch and metallurgy industry, meanwhile, actively introduces culture innovation, new energy, energy saving and pro-environmental industries. On the basis of inspection of enterprises' greenhouse gas emission, development objective and path could be established for the realization of low carbon in the whole industrial chain and LCA.

2.3 Low-carbon Distribution

The overall planning design is based on global tendering.

The city gives priority to industry and agriculture, followed by tourism. The low-carbon distribution coordinates with regional overall planning and is determined by characteristics and functions of the region.

2.4 Low-carbon Energy

The overall planning design is based on global bidding.

The demonstration area selects animal waste and sewage from 1000 or so pig and chicken farms in the city to produce methane for heating or electricity. Factories were introduced here to produce 0.1 million tons of methanols for fuel per year. There is a gas station specialized for Gas Pipeline Project. Relying on this gas station and the solar power, this area has established distributed natural gas and solar power generation station.

2.5 Low-carbon Buildings

The overall planning design is based on global bidding.

The plan includes the construction of new community, resettle apartment, Fushun East High Speed Railway Station, Dongxiang Railway Station and Bus Station in accordance with Low-carbon Standard. Buildings will make full use of solar power, geothermic, biomass energy and gas power.

2.6 Low-carbon Transportation

This area strengthens management of vehicles to encourage the purchase of pro-environmental vehicles instead of High pollution vehicles, to develop carbon-efficient and new energy transport and electricity transmission systems in public transportation.

2.7 Resource Recycling

Jiangtong Ltd. in the city utilizes the technology of soil remediation to plant Jatropha and Pistacia on mining area as biomass materials for producing biodiesel fuel. This area emphasizes on reutilization of waste, like copper tailing and sewage.

3. Project Implementation, Summarization & Promotion

3.1 Planned Schedule, Implementation & Supporting Measures

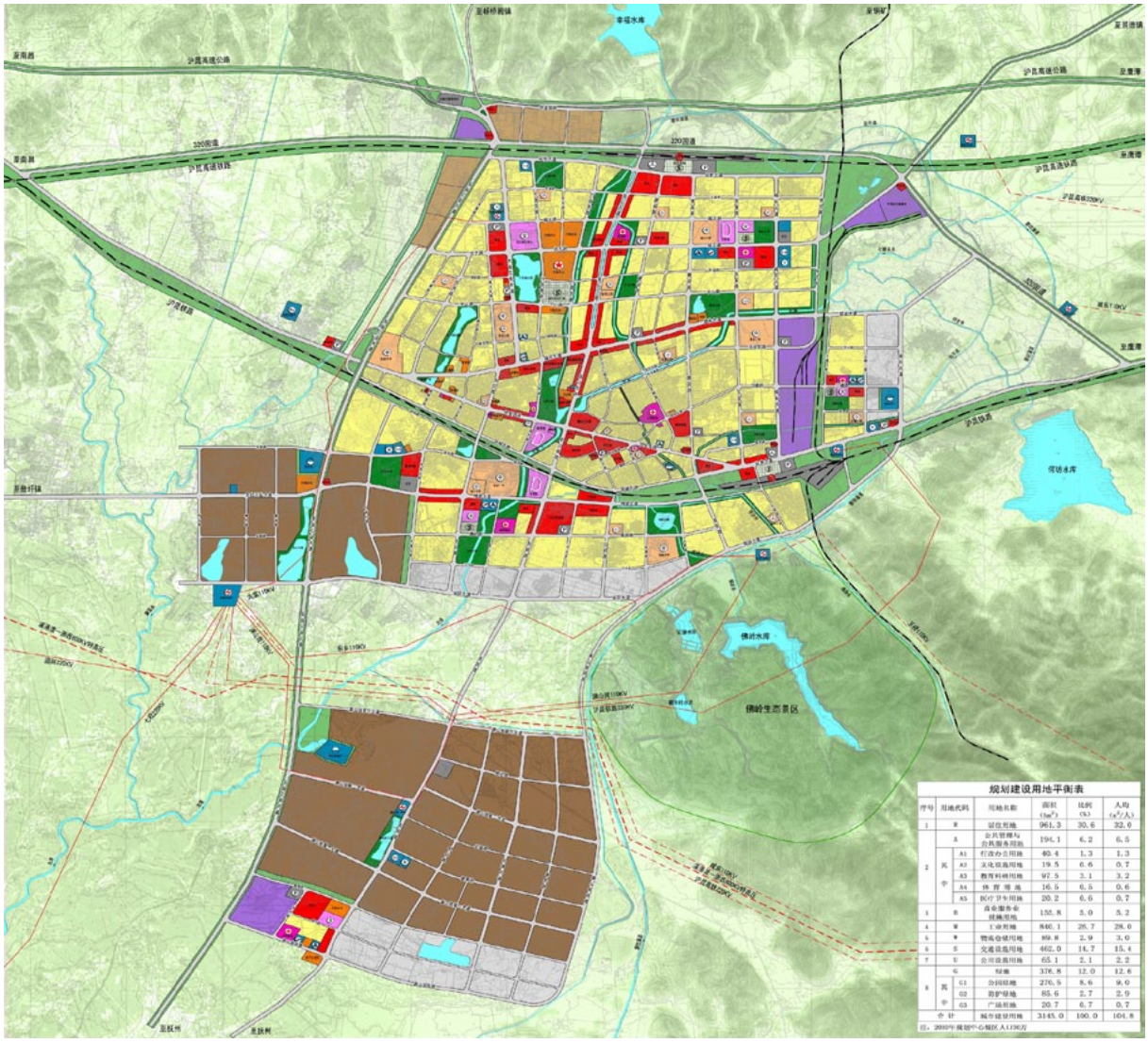
Number	Time	Main Activities	Notes
1	2013.06	project declaration	The project is approved and project declaration begins.
2	2013.07-2013.10	participating in low-carbon design competition	Submit related materials and finish project docking; promote the competition.
3	2013.11	signing memorandum of cooperation	Sign memorandum of cooperation with the winning bidder according to National Energy Administration's requirements.
4	2014	further promotion	Further promote the project's development based on the plan.
5	2014.10	achievement demonstration	Prepare for the achievement demonstration of APEC China Year.
6	2015	post-project work	The demonstration and comprehensive development of APEC Low-carbon Town Project

3.2 Development modes and capital deploy

The project adopted rolling basis between government and companies. The initial expense, one billion, is provided by local government and the subsequent development expenses are from the companies.

3.3 Techno-economic Analysis & Economic, Social and Environmental Benefits

The overall planning design is based on global bidding.
The project could dispose wastes effectively, reduce greenhouse gas emission pollution. It will also bring employment for better income of the residents, improve local living standard and environment.



4 Jingneng Gas-fired Cogeneration Projec , Beijing City

1. Project OVERVIEW

Situated at the junction between Xiaotangshan Town and Beiqijia Town, Beijing, the project is a solution scheme for comprehensive energy. Its design concept is intensive, high-tech, green and low-carbon while its design principle is planning with high starting point, constructing with high standard, and servnig with high level.

Content of Construction:

a 200MW gas-driven CCHP machine set;

a 3S clutch system, increasing heating capacity by 30%;

waste-heat based cooling system;

an intelligent supply system for both cooling and heating;

integrated intelligent monitoring and scheduling system.

With the adoption of CCHP system as the core sector, integrated investment, construction and management is available, complemented by peak load heat resource, restoration system and new energy system. Not only could the project bring energy and land saving profits, but also improve residents' life quality by offering a stable and efficient heat source. This project is good for Beijing's economic growth.

Development Objectives:

1).Actively develops regional clean energy heating supply system, promotes gas-driven CCHP system, diversifies energy technology and protection system, popularizes new energy and renewable energy, satisfies the requirement for energy planning and heating supply planning in "twelfth five-year" plan, aims to become gas energy distribution demonstration project;
2).Rate of clean energy utilization is 100%;
3).Rate of renewable energy utilization is above 10%;
4).Annual rate of gas energy comprehensive utilization is above 70%;
5).Rate of equipment autonomization is above 60%;
6).Reduces air-condition electrical load by 30%;
7).Reduces coal usage by 200000 tons per year, and carbon emission, 500000 tons.

The project was ratified by Beijing Municipal Commission of Development and Reform in December 29th, 2011. It is invested and constructed by Beijing Jingneng Clean Energy Co., Limited with the investment amount of 1.3 billion RMB. The project construction period is 19 months from 2012/5 to 2013/12.

2. Preliminary Study & Condition Analysis of the Low-carbon Connotation in Jingneng Gas-fired Cogeneration Projec

2.1 Low-carbon Industry.

2.2 Low-carbon Spatial Distribution

2.3 Low-carbon Energy

According to the overall planning objectives, the project aims to be a national demonstration area, now advocates the following technologies in the new town:

1). Waste heat utilization technology. This increases heating supply while the number of pipe heat source is constant. As far as our company is concerned, the technology could help reuse 58MW energy in gas-fired power station, which largely reduces the loss of heat in waste gas. Thus, the integrated recycle's heating efficiency is improved with a 30% increase in heating capacity along with a large decrease in waste omission. Under the same generating capacity and heat supply, the omission of CO2 could be reduced to 60,000 tons per year and NOX 265,200 tons per year. At the same time, condensate water is recycled with an amount of 115,000 tons a year due to the lowered temperature of the waste gas and smoke. Now the technology has been put into implementation and will be the first huge-scale YRHS worldwide, largely promoting the spread of energy-saving technology.

2). SSS clutch technology. This can turn the condensing unit being powered by back pressure in winter, which increase the heating capacity by 40%, and reduce the cold-end loses, energy consumption, electric quantity as well as the cost. It is the first time that Siemens puts this technology into E level gas-steam cycle unit.

3). Ground-source heat pump technology. This uses the earth surface to regulate temperature, so that energy could be efficiently utilized to provide cold water for air conditioners in summer and warm water for heating in winter. Heating load could be better adjusted with the complement of warm water by ground source heat pump. Thus, the problem in heating and cooling for end users could be solved. The technology significantly improves heating capacity and end user's heating quality. Also it reduces energy consumption at a single use.

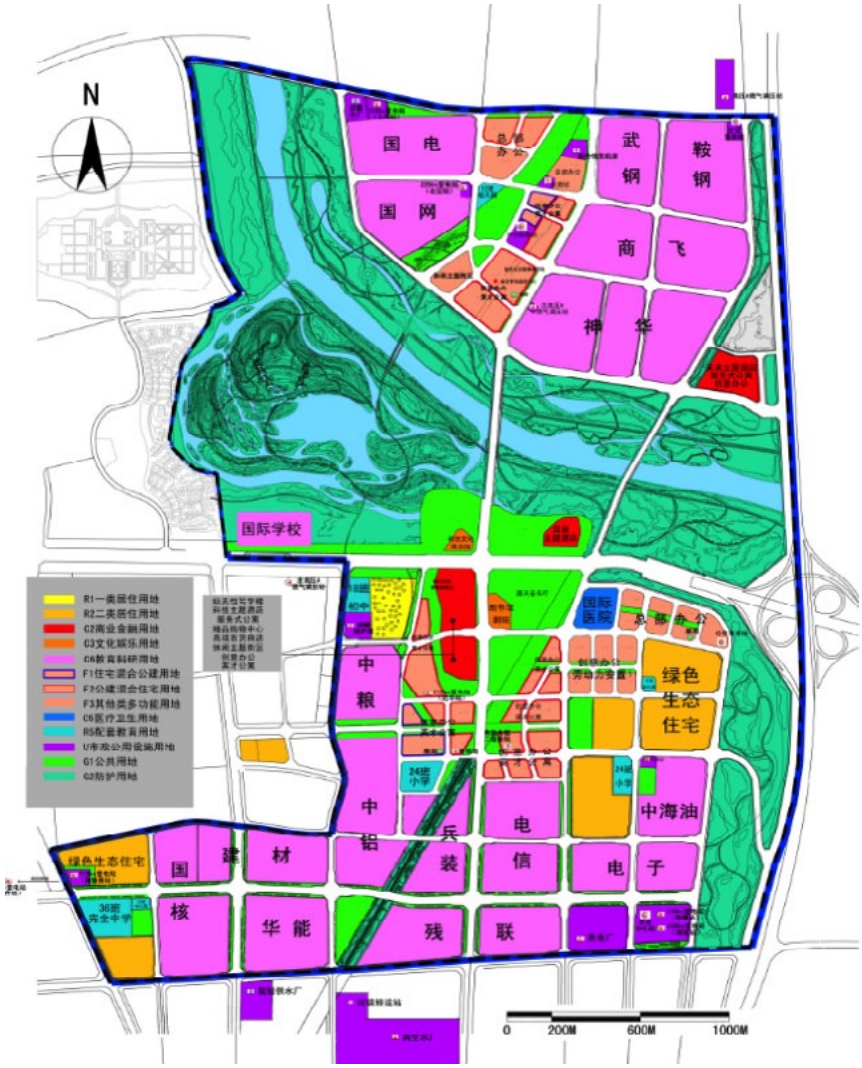
4).Termis energy monitoring management platform. This can simulate the distribution of heat sources, heat exchange stations and pumping stations, according to the external data feedback and weather forecasting. Therefore, load of the whole heat system could be predicted and the output temperature could be optimized. It will minimize the heat waste and output temperature, guarantee the stability of heat supply network, and reduce energy assumption by 8% and water assumption by 2%. With same energy supply, it increases the heat-supply area by 8%, which reduce the cost at a single use.

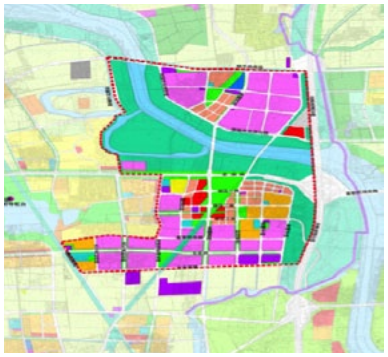
5).Distributed variable-frequency pump technology. It is an optimized technology which simplifies heat supply network coordination system and save a large amount of energy. Under this technology, operation flow rate could be adjusted based on thermal balance, and the pipe will not be under significant fluctuation of pressure.

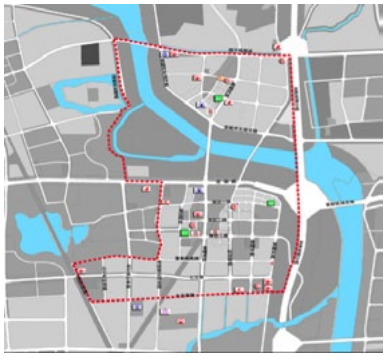
2.4 Low-carbon Transportation

2.5 Low-carbon Architecture

2.6 Low-carbon Standard & Key Technology







5 Mentougou New Town, Beijing City

1. Project overview

Mentougou New Town is located in core region of Mentougou District and in the center of "Two-axis, two-belt, and multiple centers" space structure of Beijing. Covering Gailongquan Town and Yongding Town, the project attains planning and construction land for 25 square kilometers. The project centers on the establishment of modernized new urban area, promoting the green, recycling and low-carbon development in an all-round way, striving to establish a modern area with a distinguishing city feature, supporting infrastructure, advanced tertiary industry, clean environment and anti-radiation ability.

Combining its natural environment, characteristic, historical and cultural resources and other advantageous conditions, the project is arranged around the spatial distribution and functional orientation in Beijing to achieve the transition in economic, social and urban realm and form a "Mentougou New Town"-focused Integrated Service Area and a west sub-region focused capital ecological barrier. By 2020, the New Town's GDP will amount to 36.869 billion RMB while the per capita GDP 118, 931 RMB. The percentage of regional urbanization will be 76.3%.

Construction period is from 2013 to 2020.The project mainly focus on adjusting energy structure, industrial structure and road system, as well as research on infrastructure construction includes rail transit and stations, possibility of heat supply and grid-connected system.

Up to now, the overall scheme text and specific planning have been formulated. Planning on Mentougou New Town (2005-2020) is approved by Beijing Municipal Government.

2. Preliminary Study & Condition Analysis of the Low-carbon Connotation in Mentougou New Town

2.1 Low-carbon industry

(1) Puts eco-tourism as leading industry;
(2) Gives priority to develop urban industry, real estate and modern services;
(3) Develops several characteristic industries to balance the economy: fruit and forest industry; agriculture industrialization; combination of eco-agriculture and tourism
(4) Creates high and new technology collection platform
(5) Develops recycling economy and constructs intensive society.

2.2 Low-carbon Spatial Distribution

Landscape construction, Green Mentougou and becoming rich are considered the starting point. In the view of natural resources protection and sustainable development, this project carries forwards the concept of ecological civilization and Yongding River culture, emphasizing green products and industry. Hierarchical diagnostic strategy of ecological construction is put forward and then comprehensive, balanced and sustainable economic and social development is guaranteed. Together with leading environmental protection

companies such as Huaneng Carbon Asset, a low-carbon industrial demonstration park is established of domestic first-class quality. Low-carbon buildings of domestic advanced level and ecological communities will also appear in the New Town Project.

2.3 Low-carbon Energy

(1) Develops solar, wind and biomass energy, the proportion of clean energy heat supply has reached 50% by the end of 2015.
(2) Develops distributed photovoltaic application projects in accordance with regional actual condition and electricity demand, increases the ratio of renewable energy utilization.

2.4 Low-carbon Transportation

(1) Strives to develop public transportation and reasonable bus system, and put bus transport into priority;
(2) Advocates bicycling and walking;
(3) Leads cars into a rational development, completes roads system;
(4) Reduces the disturbance from trucks by split-flow traffic.

2.5 Low-carbon Buildings

(1) Focuses energy conservation in agriculture, services and daily life, accelerates reform of energy-saving technology, promotes energy-saving buildings and lamps, and increases energy efficiency;
(2) Launches the campaign for the people's energy saving awareness, promotes green government affairs, builds low-carbon society.

2.6 Low-carbon Standard & Key Technology

(1) Low-carbon environmental indicator: including ecological environment (such as air quality and ecosystem) and resource utilization (energy utilization, water resource and recycling);
(2) Low-carbon economic indicator: including buildings (green buildings and densely packed cities) and transportation (low-carbon traffic);
(3) Low-carbon urban indicator: including economic vigor (industrial structure and enterprises) and carbon finance (carbon emission and green credit and loan);
(4) Low-carbon social indicator: including city characteristics (intelligent cities, 24 hrs city and urban security) and low-carbon life (low-carbon policy and consumption structure).

2.7 Other Features

In the project, sewage treatment system will be upgraded and the construction of network be facilitated for a water recycling system. The utilization efficiency will be increased to a degree of 90% sewage concentrated disposition rate and 80% urban sewage disposition rate. Meanwhile, the urban trash disposition system will be optimized for better living environment.

3. Implementation & Promotion Plan

3.1 Project Plan & Implementation

Initiated in 2013, the project is expected to last 6 to 7 years. From 2013 to 2015, focuses are put on developing low-carbon tourism, designing and tendering low-carbon industrial demonstration park, implementing clean energy projects such as solar power generation, promoting energy efficient buildings, energy saving lamp, public transportation and sewage upgrading engineering. From 2015 to 2020, focuses will turn to the completed construction of low-carbon industrial demonstration park, promotion of the development of urban industry, real estate and modern service industry. Flexible policies will be adopted on the development of cars and road network. Up to now the project plan is largely finished.

3.2 Working Mechanism & Supporting Measures

The project is coordinated and promoted by district officials and related departments with regular inspection on planning schedule and project quality.

3.3 Development Mode and Investment

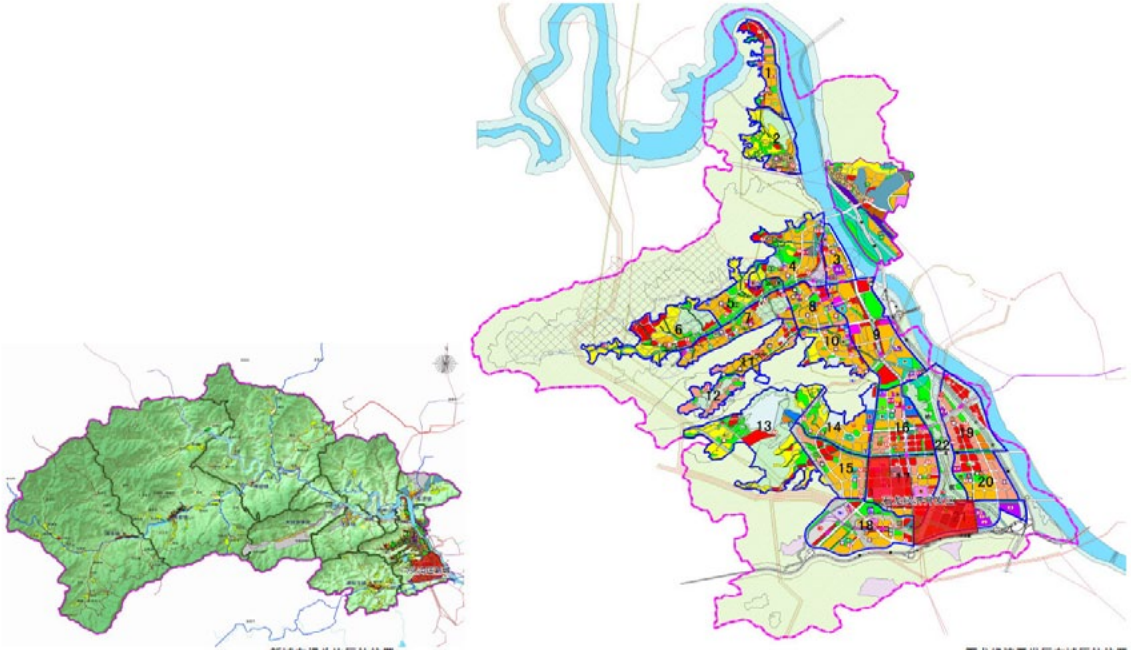
Under the PPP mode, the project manages to gain supports from departments of construction, energy, industry and others. Directed by indicator system, technology TRM and low-carbon rule, financial support is available from green financing, low interest loan, low-carbon industry fund and credit guarantee. The construction is achieved through public-private partnership, BOT and EPC.

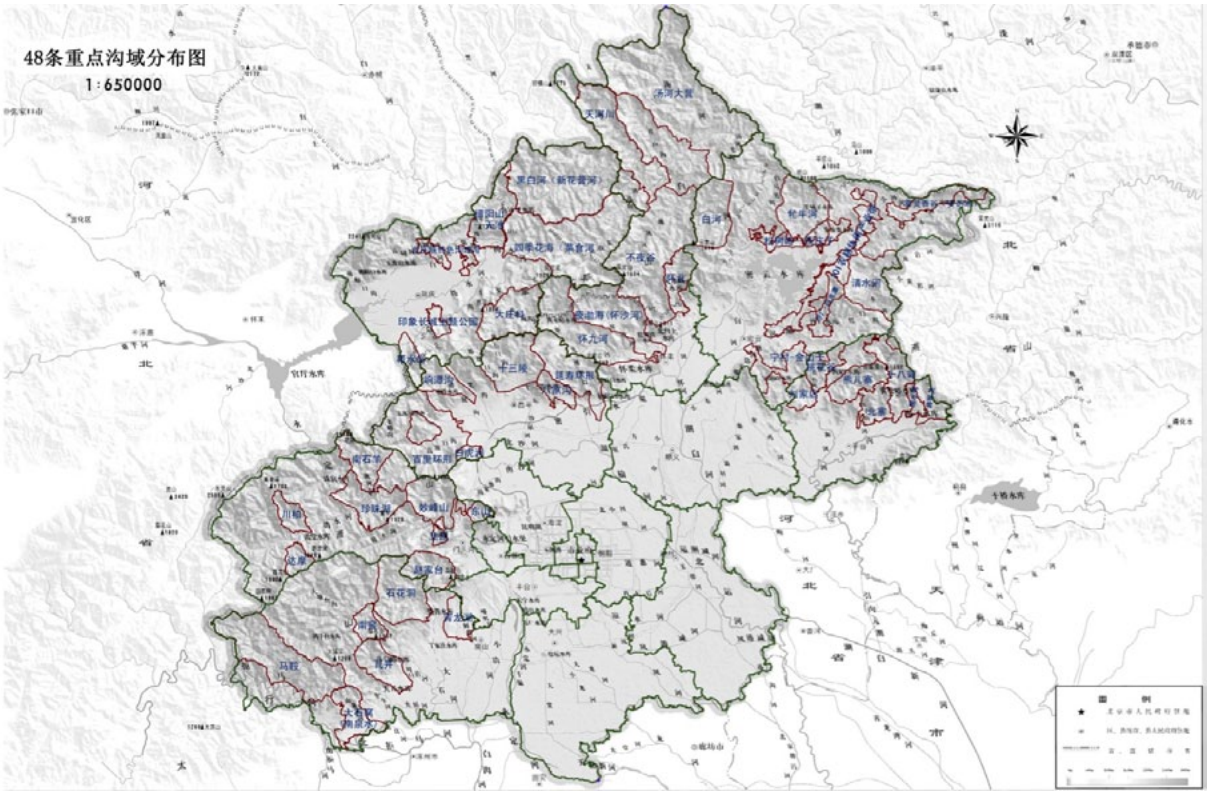
A team is set up for flowing work after Mentougou District government's planning and tendering.
The fund of the project is raised by Mentougou District government, the aforementioned team and related investment agencies. It is also supported by the state and the municipal government.

3.4Techno-economic Analysis & Economic, Social and Environmental Benefits

The district has initially developed an ecological-friendly industrial structure, including travel and leisure, urban modern agriculture, hi-tech industry, productive service industry and cultural and creative industry. This project stimulates investments in low-carbon industry, distribution, energy, transportation, buildings, and resources recycling, and fairly uses mature low-carbon technology and clean products. It attracts more projects with good quality and investment, increases the regional finance income, solves the employment problem and stimulates economic growth.

The construction of low-carbon demonstration town conforms to the positioning of "ecological conservation center and western comprehensive service center". On the one hand, the establishment of low-carbon town makes contribution to environmental protection and water and soil conservation. During the process of economic development, it reduces the negative influence to the environment so that to realize the eco-friendly and energy-saving development. On the other hand, low-carbon companies as well as talents, projects, funds, technology and information will be intensified.

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6 Mayang Low-carbon Ecological Town, Changtai, Fujianng City

1. Natural Environment

1.1. Geographic position

Chang Tai County is also known as the "treasure land of south Fujian" Chang Tai locates closely at the outskirts of Xiamen (one of China's five largest economic special region and the provincial city) and Zhangzhou (regional city and China's historical cultural city), which enables its function as a satellite town for both Xianmen and Zhangzhou.

1.2. Terrain

Chang Tai County locates at the transitional region between the Daiyun ridge in the plain of Zhangzhou at south and the coastal plain in Xianmen at southwest. There are two major characters of the terrain: Firstly, the elevation gradually decreases along range from the middle level mountains to the central and southern valley plain. Secondly, the middle level mountains surround the town from east, north and west. The general geographic feature is like a horseshoe with the elevation decreases from north to south and has a big open at south side. The gradually decreasing terrains include middle level mountains, low level mountains, small hills, tableland and plain.

1.3.Climate characters

Chang Tai County has the typical southern subtropical marine monsoon climate. There are generally three features of its climate:

(1) Warm all year without extreme cold and hot during winter and summer. Compare with other places on the same latitude, the central and southern regions of Chang Tai are warmer in winter and cooler in summer.

(2) Adequate sunshine and plenty of heat. Frost free period is long, which makes it possible to grow crops almost all the year.

(3) Abundant precipitation, but the time and space distribution is non-uniform.

1.4. Hydrological characters

There are four major flows in Chang Tai County, which are Longjin, Gaoceng, Mayang and Banli River. All of them are mountain rivers. Among them, the Longjin River is the biggest. The main rivers are parallel flow from northeast to southwest and finally flow into the Jiujiang River. These rivers are with short range, high elevation difference and fast flowing. Flow rate is abundant and changes obviously in different seasons. The valleys are mostly beaded. Water energy is huge and convenient for exploiting. The abundant water resources can satisfy the long term water supply, irrigation and flood protection of Chang Tai. In addition, there are five underground hot water spots (spa) in Chang Tai. Annual total flow rate is 385,000m3 with temperature around 50 ℃ . Water quality is high, which can be utilized for fish cultivation, recuperation, tour sight developing, entertaining and irrigation.

1.5. Biological and mineral resource

Biological resource

The suitable climate condition and diverse terrain cultivate enormous biological resource.
(1) Plant resource: ① Regional vegetation. Most vegetations are subtropical species. Forest covering rate reached 53% at the end of 1997. The entire county has achieved the forest covering over barren mountains. In 1994, the county was awarded as the "Advanced county of economic forest construction" by the Forestry Ministry. ② Medical plants. There are 166 families, 605 genuses medical plants. Among them, Chang Tai amomum is the most famous. Besides, Chang Tai also has various rare species include golden lotus, aescinate gall, polyphylla, guanyin string, etc. ③ Corp plants. Rice is the main crop in Chang Tai. In addition, there are over ten crops like wheat, sweet photo, photo, corn, Chinese sorghum and beans. ④ Economic plants. Sugarcane is the main economic in Chang Tai. Other economic plants include peanut, cole, sesame, tobacco, jute, rose, ginger, etc. ⑤ Horticultural plants. There are over 40 kinds of vegetable and hundreds of types of flowers. There are over 40 types of fruits include orange, litchi, longan, banana, grapefruit, olive, loquat, mango, pineapple, peach, plum, etc.
(2) Animal resource. There are more than three hundred animal species in Chang Tai.
(3) Microbiological resource.Over 1000 micro species exist in Chang Tai. The cultivation of mushroom productions has become a key side occupation in rural areas.

Mineral resource

Chang Tai has 26 types of discovered mineral resource distributed at 62 mining spots. There are 15 major discovered mineral resource with mining value include granite, gyrophyllite, dragon wall, feldspar, kaolin soil, quartz, wollastonite, lead, zinc, tungsten, mineral water, spa, manganese, lllite, brick clay and sand pebbles.

2. Social economic status

2.1 Administrative area and population

Chang Tai County has 4 towns, 1 township, 1 state owned farm, 70 administrative villages and 6 neighborhood committees. Total population of Chang Tai is 165,000 with 165,000 agricultural population, which occupies 86.7% of the whole population. The majority ethnic group is Han. Racial minorities include 200 Gao shan and She ethnic group population.

2.2. National economic status

The general trend of the economic development of Chang Tai is boosting rapidly. The development is on the high quality track. Chang Tai is guided by three basic policies for its economy: build the industrial county, link Xianmen and Quanzhou and motivate development through industrial projects. In recent years, the industrial output is more than 10 billion CNY. Over 200 scaled industrial enterprises have established the manufacturing factories in Chang Tai. Total number of the scaled industrial enterprise is 208 with 24 of them have annual output over 100 million CNY. Chang Tai has fundamentally formed five major dominating industries: sporting products, lighting equipment, mechanical manufacturing, paper packing and construction material. Chang Tai is now the biggest manufacturing base in Fujian province of ball production.

It is also the largest manufacturing and export base in Zhangzhou city of stone products, lighting equipment and papermaking products. Chang Tai has been awarded continuously as the top ten well developed counties in Fujian province for three times.

The fast developing tour industry has become a new spot contributing to the economic increasing of Chang Tai. Guided by the big tourism, big industry and big market policy, Chang Tai fully utilizes its regional advantages and resources to enlarge its tour industry. The tour industry is focused on ecology, entertaining and fitness. It turns out that tour industry is gradually becoming the pillar industry of Chang Tai’ s economy.

2.3. Infrastructural construction

In recent years, Chang Tai keeps the infrastructural construction in electricity, water supply, traffic and communication in order to improve the economic, living and social environment. Major achievements are reached through these constructions. Chang Tai keeps at a high level of adequate running water and power supply, which satisfies the economic development. With more and more investing in traffic construction, a highly effective and convenient traffic network was formed within the administrative regions of Chang Tai. All towns and villages are covered with postal system and telecommunication system. Urbanization process develops fast. City environment is significantly enhanced, which has been the basic guarantee for travelling, living and investing.

The infrastructural construction of tour industry is especially outstanding. Take the investment in 2009 as an example. In 2009, Chang Tai invested 70 million CNY to modify and beautify roads in a number of tour sites. A number of remarkable projects were finished. For example, the modification of the road from Chenlin bridge to the development region; the road from Houfang NeiZhai to Dongfu Jie; the first tender of Shanchong north-south road; 3.5 kilometer of the second tender of Shanchong north-south road. Other construction and modification of tour site roads include the construction and cleaning of roads outside Shanchong and the construction of the road linking Jiaotai to Tiantong Mountain.

7 "Yuansheng • Jin Luo Bay" Project, Zhengzhou, Henan

1. Project Overview

"Yuansheng · Jin Luo Bay" project is located in Zhengzhou City, in the intersection of Navigation Road and Zijin Road. The total land area is 0.29 million m2. GFA is 1.83 million m2. The project is positioned as a large urban complex, including apartment house, office Building, shopping mall, street shops etc. It includes 16 partitions in total. Phase one is expected 0.68 million m2 land area, due 2014. Now the project is under the preliminary planning stage and will be finished until 2019.

1.1. Transportation

The project is located in the intersection of Navigation Road and Zijin Road. The former runs from east to west while the latter connects north and south. The project also lies in the position where Subway Line 2 and Line 5 interchange. BRT runs across the nucleus sector of the project along with a multitude of bus lines. Since it is situated as a critical transportation junction, sufficient support could be achieved for the development of nearby business district. Express ring roads in the outside layer and quasi-express roads in the nucleus section make the traffic more convenient.

1.2. Supporting Infrastructure

The project's architectural style is quasi-European style. The building facade's layout is three-zone style and the top is a combination of near-level grade and roof. The project is well equipped with infrastructure including high school, primary school, kindergarten, supermarkets and clinics.

1.3. Position

The project is located in the center of the nucleus section of Zihang business district, which is among the six biggest business districts in Zhengzhou. Zihang business district is situated in the intersection of Navigation Road and ZIjinshan Road, the two main roads in Guancheng District in the southeast of Zhengzhou. The business district is 3 km north of ErQi Square and 3 km west of ErQi Area, filling the vacancy of business center in the southeast of the city. The project covers the enclosed area of Longhai, Jingguang, South Ring and Zhongzhou expressway. Its nucleus area covers an area of 2 km2, stretching to Jincheng Street in the north, Chengdong Road in the east, Changjiang Road in the south and Beijing-Guangzhou Railway in the west.

2. Preliminary Study & Condition Analysis of the Low-carbon Connotation in the Project

2.1 Low-carbon Industry

2.2 Low-carbon Spatial Distribution

2.3 Low-carbon Energy

2.4 Low-carbon Architecture

2.5 Low-carbon Standard & Key Technology

2.6 Other Features

3. Implementation & Promotion Plan of the Project

3.1 Project Plan & Implementation

3.2 Working Mechanism & Supporting Measures

3.3 Development Mode and Investment

3.4 Techno-economic Analysis & Economic, Social and Environmental Benefits

8 Qingdao Sino-German Ecological Park

1. Project Overview

Sino-German ecological park is a strategic cooperation between China and German government. In July 2010, Chinese Ministry of Commerce and the Economy and Technology Department of Germany signed the Memorandum of Understanding for the supporting of Sino-German ecological park.

Sino-German ecological park is the first ecological intelligent park constructed by China and Germany. It is the first time two countries cooperate on this field. Sino-German ecological park is also the first national comprehensive standardization demonstrative park.

Sino-German ecological park develops according to the principle of ecologically sustainable. Its developing concept is to use ecological intelligence to improve life and use open and merge to enhance quality. Based upon the basic principle and developing concept, Sino-German ecological park will be developed as a highly integrated, low carbon, sustainable and livable ecological place with its foundation as the natural ecology.

2. Low carbon layout

Sino-German ecological park locates at the west coast of the Jiaozhou Bay in Qingdao, Shandong province, which is also located at the north of the Qindao economic and technological development region. At the very beginning of the project, Qingdao government introduced advanced ecological design conceptions from Germany by entrusting the gmp architecture design firm for conceptual design and planning. All designs stick to the general principles of "ecological technology" and "sustainability". The park used the "city island" layout, which fully preserves existed natural environment and keeps the connections between plants and the river system. Ecological industries are the backbone of the park along with environmental commercial and residential entities. The park is a highly integrated ecological place which occupies about 11.6 square kilometers. The planned gross floor area is 7 million square meters. Planned total population is 60,000. Sino-German ecological park is expected to be finished in 2020.

3. Low carbon indices

In order to realize the four dimensional development of resource, economy, environment and society and achieves the target of ecological and sustainable development, the park established a set of quantitative indices. The indices system is based upon two key elements: ecological development and demonstrative development. There are altogether 40 indices and associated expected objectives covering the fields of economy, environment, recourse and development. These scientific indices are certified by TUVNORD Company, which is one of the three biggest certification agencies in Germany. The park focuses on low energy consumption, low emission, cyclic economy and construction of happy community.

4. Low carbon energy

Sino-German ecological park is based upon the pan energy network platform. The network is powered mainly by using natural gas in conjunction with other auxiliary renewable types of energy include wind power, light power, underground heat, hot water, etc. Highly integrated intelligence control and cloud computing technology will help construct a secured, efficient, smart, low carbon and sustainable modern energy system.

The network will fully utilize natural resources in the park. Meanwhile, it will allocate the residual heat from surrounding areas for comprehensive usage. A new energy acquisition and consumption mode will be developed by smartly coordinate gas, electrical and heat energy. The new mode will enable clean production, interactive supply and demand and efficient energy using.

5. Low carbon industries

The park will concentrate on developing new energy related equipment manufacturing, high end equipment manufacturing and biomedical industry. These industries are established by comprehensive analysis between advantageous industries in German and the industrial direction of Sino-German ecological park. Sino-German set its functionality position as ecological standard setting and applying, low carbon industry cultivation and development and green ecological city construction and promotion. The park prioritizes a number of strategic key new industries for specific cultivation and developing such as new information technology, biology, renewable energy, material science and automobile. With the ecological, green and environmentally friendly as its foundations, the park will build a sustainable international cooperation center with blue ocean economy as its main feature and high end equipment manufacturing as key industry.

6. Low carbon traffi

Green traffic is proposed in the park. Slow and green traffic will be widely promoted. A multi-level, multi-dimensional traffic network will be built to meet the close connection between green traffic system and efficient land utilization.

Major traffic infrastructures, include main roads and nodes are designed by the German company SBA. Main roads use the warm mixed asphalt craft. Branches use ecological water permeable noise reduction design. The ecological traffic system fully takes environment protection and energy saving into consideration.Each individual part of the park will be designed to integrate into the entire organic entity in order to meet the requirement of slow traffic. Slow traffic guarantees the reaching time to any individual part of the park, no matter on foot or riding, less than ten minutes. Special bicycle lane will be planed and 15 nodes will be settled in associate with the bicycle traffic. 300 bicycles will be deployed to the system and green trafficking plans will be proposed with fully use of bicycles.

The park will use non-polluted and emission free vehicles to construct the green traffic system. Clean railway vehicle, electrical cars, bicycles will be introduced to achieve the environmentally friendly traffic system. The entire park will be deployed and organized to let walking as much convenient as possible. CNG and LNG public transportation in conjunction with electrical buses will be introduced to reduce carbon emission. In the meantime, smart monitoring systems include high definition video monitor system, self adaptive signal control system, red light breaking detection, speed limitation detection, traffic directing and traffic flow measuring system will be used to facilitate the maintenance of the intelligent low carbon traffic system.

7. Low carbon building

The park will cooperate with the DGNB organization to reduce terrain change and damage in order to achieve the green construction. Existed trees, grass land, forest, mountain, road and river dike will be preserved to form a vegetated corridor. The construction will be 100% green. Environmental protection manners include setting environment protection standards, strictly control the air, soil, noise, water and light pollution near the construction sites caused by construction will be imposed to reduce environment pollution. The firstly initiated “happy community” program uses the second star national standard for green construction. Over 20 green construction techniques are used. The German Industrial Center project, which is designed according to three star national standard and DGNB golden award green building standard, is the largest project registered in China with golden certification from DGNB.

9 Qinghai Zhongguancun High-technology Industry Base

1. Project OVERVIEW

1.1 Location and scope of the project

Qinghai Zhongguancun High-tech industry base, or Haidong Technology Park, situates in the Haidong Industrial Park of Open Air Comprehensive Development Zone of Willow Bay Village, Ping' an County. The planning area of the project is about 1.45 square kilometers(360acres). It located to the south of Huangshui River, formed by the enclosure of Sixth-Jing Road, No.2 Road and Huangshui River. The whole planning area is long and narrow, with its eastern part taking the shape of a triangle, the central part a rectangle and the western part an irregular fan-shaped parcel.

1.2 Development targets, positioning and economic functions of the project

Taking the opportunity of the national West Development and New Urbanization, as well as following the instructions of the 18th National Congress Party of the Chinese Communist Party to enforce the construction of ecological civilization, to control the total energy consumption, to enhance energy-saving and cost-reducing, to support energy-conservation and low-carbon industries, and to develop new energy and renewable energy sources, Haidong Technology Park has designed its development concepts as construction highlands, emphasizing specialty and pursuing low carbon economy.

Based on the technology, human resources and industrial strength of National Innovation Model of Zhongguancun, as well as its own advantages of location, resources and policy strengths, Haidong Technology Park has brought in new development concepts, technology, capital and development models to emphasize on the development of high-tech industries and strategic emerging industries.

According to the requirements of National Energy Administration APEC low-carbon model town projects, the Haidong Technology Park, which covers an area of 1.45 square kilometers, will emphasize the establishment of low-carbon towns with western features. The project will take advantage of the excellent platform of pilot projects of APEC low-carbon model towns, and focus on the exploring and tackling of ecological, resource and environmental problems that may arise during the West Development and the industrial transfer from eastern China. Through international cooperation and system innovation, the project tries to refine the resource structure of western towns and changing the extensive model of energy consumption. Therefore, the project can coordinate the relationships between economic development and carbon emission so as to avoid the development path of taking remedies and measures after polluting the environments, and achieve real and sustainable development.

1.3 Development of the project

As early as March 2012, top leaders from prefectural Party committee, administrative office, join hands together to plan top-level design and strategic cooperative relationships. On June.6th, 2012, a complementary agreement was officially signed between the management committee of Beijing Zhongguancun Technology Zone and the administrative office of Haidong District of Qinghai Province, marking the official establishment of the Haidong Technology Park.

The Party committee and government of Qinghai Province made a development target and the target is to lay full establishments in the first year, to form the basic situation in the second year, to acquire rudiments in the third year and achieve a certain scale in the fourth year. According to this goal, Haidong Technology Park sticks to science and boost the development of the industry in the park. The Park has made specific low-carbon industry development plans, according to this plan, the park hopes to achieve a total product of 10 billion yuan in 5 years, with middle and small-sized enterprises reaching an amount of 300 and senior personnel of all kinds mounting up to 8000. In 5 years after its establishment, the goal is that of all senior personnel, overseas returnees reach up to 200 or more, PhDs account for more than 200 and leading figures more than 300. The 5223 Project will provide intellectual support and personnel security for the leapfrog development of Haidong and Qinghai Province.

The Haidong Technology Park will carry out its construction plan while keeping a ecological and low-carbon concept. Therefore, the project of water system landscape will go first to coordinate the present greenbelt and water body, forming the ecological basis and low-carbon overall layout of the park.

Substantial achievements have been made in the present phased work

Firstly, the infrastructure construction of the Park has been in full swing. The starting program of Haidong Technology Park, Haidong technological entrepreneurship edifice, whose foundation was laid on June.8th, 2012, will be completed at the early 2014; The program of water system landscape, whose earthwork and foundations started at November 21st, 2012, will be finished by June 2014; the personnel apartment of Zhongguancun base, which started on November 2013, will be finished by September 2014. All the three programs mentioned above have acquired permissions like permission notes for location of construction projects, planning permit of construction engineering, construction site planning permit, environment impact registry form and preliminary documents for construction land use.

Secondly, the work of attracting investments has been fully carried on. Centering on a low carbon industry layout, Haidong Technology Park has been conduction its work of attracting foreign investments under principles of construction, negotiation and reservation. So far, 22 corporations have joined in the Part, of which 5 joined productive projects, while the other 18 being joining incubator projects.

10 Shagangwang APEC Low-Carbon Model Town

1. Project OVERVIEW

The project of Shagongwang APEC Low-Carbon Model Community situates in Zhongmou County of Zheng Zhou, capital city of Henan Province. It lies at the hinterland of Yellow River, at the center of Zheng-Bian District, about 20 minutes to the economy circle. The project is of excellent transportation, to the north of it being the ecological scenic spot of Yanming Lake, to the south being the Cheng Road and the inter-city light rail of Zheng Zhou and Kai Feng. Moreover, the town is immediately next to the Zhengzhou Green Expo Garden, which covers an area of about 485acres, and the Central Park of Zhengzhou and Kaifeng, which is still under planning and covers an area of about 25.8 square kilometers.

The community of Shagangwang is a demonstration zone of the policy of combining villages into towns in Zhengzhou. Following the process of new urbanization, the Shagangwang takes combining villages into towns and placement of residence construction as a point of penetration, and has been laying emphasis on promoting new urbanization. By constructing the modern urbanization system that suits the reality of Zhongmou County, the Shanggangwang Community is a leading project in the coordinate economic development of both urban and rural area in central China.

In order to respond positively towards the requirements of improving low-carbon community and create green low-carbon living environment from both the country and the industry, Shagangwang Community set its energy-saving purpose as low power, low pollution and low emission at the start of its planning phase. Given the facts of unpolluted environment and excellent air quality, the community also determined the guiding ideology of green, low carbon, and energy saving and moreover, enlarge the extent of utilization of renewable resources. The community adopts wide range of new technologies, new resources and new environmental-friendly materials and tries to achieve simultaneous designing, simultaneous planning as well as simultaneous acceptance. At present, the community is trying to shift from the traditional high construction energy consumption and low energy utility to renewable energy so as to make the community a new type of community which is both of low-carbon and livable.

The project covers an area of about 280 acres, with the total building area of about 1.5million square meters and an investment of 7.5 billion yuan. The project is in its planning stage now. The whole project will be finished in three phases, with the first phase having an investment of 2.5 billion yuan and a building area of 500,000 square meters. The first phase is about to start in May 2014 and finish in May 2017. The completion time for the whole project will be in October, 2020.

There are mainly some technological problems to be solve in the project, namely adopting new technology and new materials, raising the standard of energy-saving in the community, and the full utilization of renewable resources.

2. Preliminary study and conditions analyses on the project's content of low-carbonork

1.1. Low carbon industry

1.2. Spatial layout of low carbon industry

The general planning and design of the community utilizes computer simulation to optimize the conditions of wind. By refining the spatial layout of construction and the positions of doors and windows, this design contributes to better indoor air ventilation. The percentage of greenery coverage in the community reaches up to 35%, of which large number of vegetation that absorbs carbon are planted. More than 50 different species of arbor are planted, with the coverage of arbor account for at least 70% of the total percentage of greenery coverage.

1.3. Low carbon energy

The community adopts municipal central heating, with the heat exchange station equipped with a weather compensation device. The weather compensation device senses the weather change outdoors, based on that and the actual temperature indoors, the device adjusts the circulation of water. The indoor heating utilizes low temperature hot water radiant floor heating, and adjusts temperature in separate rooms. At the same time, exhaust ventilation system is installed so as to reduce the heating energy-consumption and operation expenses.

In this project, solar power LED luminaries that are highly efficient, energy-saving and environmental-friendly are installed indoors in public buildings. Moreover, vice control and timing switches help to maximize the saving of energy.

As for the outdoor of public buildings, a Wind-solar hybrid power system was adopted to take full advantage of clean and green energy. The system realizes the goal of no electricity consumption, no emission and no pollution. The solar-wind hybrid power system is characterized by no need for laying transmission lines, no need for digging the ground and laying pipes, and no consumption of electricity. When it is sunny, the illumination of the sun is strong, while the wind is strong when it is cloudy. In summers, the beam of the sun is strong, and during winters, the power of wind is abundant. By combining the complementary properties of solar energy and wind energy, and by the integration system of generating equipment of solar and wind energy, the system can provide electricity supply via an intelligent control system in the night while stocking electricity during the day.

Raylay is installed in the underground garage to bring in more natural lighting. Bringing in natural lighting to underground spaces can not only increase the amenity of the space, but also save the lighting energy consumption during the daylight.

The domestic hot water of residents all adopts the solar water heater system. The system takes the model of concentrated heating collection, water storage in separate residents and household usage. Since all the residents in the project uses the solar water heating system, large amount of electricity and gas can be saved.

1.4 Low carbon transportation

Motor vehicles and human beings are separated in the community with all vehicles go into the underground garage. There are parking and charging spots for public bicycles and electric bicycles, which facilitates the commute of dwellers as well as reducing carbon emission.

1.5. Low carbon architecture

During the construction, more emphases were placed on the thermal function parameters of the maintenance structure. In order to improve the thermal resistance properties of the structure, a new kind of mural materials, polystyrene board, which is characterized by lightness, high intensity and good heat insulation performance has been installed. At the same time, single frame grass SAVILL- DQL with double decks has been installed to increase thermal resistance and achieve the thermal insulation properties. The total rate of energy saving of the peripheral structure can be over 65%.

1.6.Indicator system and key technologies of low carbon

1).Energy intensity

The rate of energy saving of the peripheral construction can be more than 35%, the total account of renewable energy accounts for more than 15% of the total energy consumption.

2).Low-carbon layout.

The construction area of this project is about 1.1 square kilometers, with the total building area of about 1.5 million square meters and the total investment 7.5 billion yuan. The inhabitants of the community are about 380,000. The greenery coverage of the community is more than 35%, of which the rate of arbor plantation accounting for more than 70% and the plantation area of local vegetation more than 70%.

3).The heating system employs low-temperature hot water radiant floor to provide heat. Separate temperature adjust devices are installed in each room. Negative exhaust air ventilation system is equipped indoors.

4).Energy-saving illuminating system is employed in public buildings of the community. What’ s more, energy-saving illuminations are proposed to be used in dwelling areas.

5)New environmental-friendly materials are applied to walls. A new variety of energy-saving doors and windows is also equipped. The total rate of energy saving of the peripheral structure can be over 65%. As for the sidewalks, energy saving and environmental-friendly bricks were applied.

6).The greenery coverage rate of the community is 35%.

7).New structure techniques for fencing are employed in the community.

8).Raylay is set in the underground garage to bring in natural lighting.

9).An illuminating system of the combination of solar photovoltaic and LED is installed in the courtyard lighting.

10).Collection and application of rainwater.

11).Harmless disposal of waste is conducted.

12).Sprinkling irrigation is employed in the irrigation of greenery.

13).Solar water heating system.

1.7.Explanation to other features

A rainwater recycle system is established in the community, and both rainwater pipes and drainage pipes are installed in the earth. The rainwater collecting system on the roof of buildings includes the surface of building roofs, the water assembling groove, rainwater pipes, water storage pond and a simple rainwater processing device. Permeable bricks are employed in the square and sidewalks of the community, so that groundwater can be fed back continuously. The collected rainwater is assembled through pipes, and after processed, can be used for irrigation of the greenery and for scenic use.

Waste is classified and recycling of them is a priority. According to the classification placement, classification collection, classification transportation and classification processing, specific and effective measures are taken towards different varieties of wastes. The waste classification and recycle are preferential means to get rid of the waste in the community.

11 Low-Carbon Model Town in Songhuajiang Farm

1. Project Overview

The APEC Low-Carbon Model Town is located in Songhuajiang Farm, Kenqu Region, Heilongjiang Province, which has an area of 2.75 square kilometers.

Development objective: Aiming at construction "APEC Low-Carbon Model Town", relying on the development of low-carbon industries in Beidahuang Farm Machinery Manufacturing Park and the establishment of ecological city project of "Songhuajiang Town", realizing urban sustainable construction under a low-carbon circumstance, we want to shape the "Songhuajiang Waterfront Town" in Heilongjiang Province into a low-carbon model town with low cost and distinct local features, which will play a pilot role in development of social economy, management of planning and construction, intensive land use, resource conservation and environment protection, energy saving and emission cut, infrastructure and greening, public service, history and culture preservation and so on.

Orientation: with low cost and a low population density, land intensive, environment-friendly, able to be copied and applied in other cases.
Kenqu Region, Heilongjiang Province has the authorities of economic adjustment, market supervision, social management and public service.
The project requires a total investment of 17 billion yuan, including 2 billion yuan as preliminary expense, 7 billion yuan for infrastructure of the town, 8 billion yuan for low-carbon industries (3 billion yuan for new-type farm machinery manufacturing industry, 0.5 billion yuan for old machinery scrap page and circular economy industry, 4 billion yuan for culture industries, 0.3 billion yuan for biomass energy industry and 0.2 billion yuan for green eco-industry).
Construction period: short-term plan to be finished in 2018; long-term plan to be finished in 2030. The short-term plan is to be launched soon and to be finished between 2013 and 2018.
Major problems to be addressed: integral use of energy, vaporization of straw, generation of power and heating system.

2. Introduction of main issues

2.1 Index system

1).Carbon emission: short-term plan—to decrease by 15% by 2015; long-term plan—to decrease by 30% by 2030. Compared to 2005, 5.3tceCO_2/10,000 yuan.
2).Energy intensity: short-term plan—to decrease by 15% by 2015; long-term plan—to decrease by 30% by 2030. Compared to 2005, 1.4tce/10,000 yuan.
3).Low-carbon layout: short-term-plan—by 2015, construction land will reach 1.8 km2, population will reach 8,400, urbanization percentage will reach 99%; long-term plan—by 2030, construction land will reaches 3.04 km2, population will reach 21,460, urbanization percentage will reach 99%.
4).Low-carbon industries: new-type farm machinery manufacturing industry, farm machinery scrap page and circular economy industry, biomass energy industry, green eco-industry, cultural and creative industries.

5).Low-carbon building: short-term plan—energy intensity will lower by 15% by 2015, 100% of gas used in buildings will come from straw vaporization; long-term plan—by 2030, energy intensity will lower by 30%, 100% of gas used in buildings will come from straw vaporization, heating system will be powered by biomass energy.

6).Low-carbon transport: by 2030, we will strengthen the transportation between other cities and the town, push forward the road construction in all areas, let our edges in transport push the regional economy, actively develop a multitude of means of outbound transportation and properly organize the construction of passenger and cargo shipping facilities.

7).Low-carbon energy: short-term plan—by 2015, buildings will save 65% of energy, newly constructed buildings will be equipped with central heating, roof of newly constructed buildings will be installed with solar water heater; long-term plan—by 2030, 100% of buildings will be low-energy ones, energy cost per unit area will be 30% lower than similar models, heating of all buildings will come from biomass energy, all buildings in the area will have solar water heater on their roof.

8).Resource recycling: short-term plan—by 2015, waste sorting percentage will reach 80%, harmless treatment percentage of waste will reach 90%, resourceful utilization percentage will be 20% to 30%, re-utilization percentage of construction waste will be over 10%; long-term plan—by 2030, waste sorting percentage will reach 100%, harmless treatment percentage will reach 100, resourceful utilization percentage will be 40% to 50%, re-utilization percentage of construction waste will surpass 20%.

2.2.Low-carbon layout

The scale of Songhuajiang Farm and the objective conditions make it suitable to launch the low-carbon model town project. The investment scale is controllable. Therefore, the project shows a pilot significance in popularizing low-carbon towns in China, and even in Asia-Pacific region. East China Architectural Design & Research Institute was commissioned to propose a planning scheme for low-carbon town on the basis of its profound research into the resource status, energy scale, population components of the farm, and has composed a long-term plan for the low-carbon town project construction of the farm. Plan for the Low-carbon Town in Songhuajiang Farm has been examined and approved by planning department.

2.3. Low-carbon industries

We will develop new-type farm machinery manufacturing, of which Leiwo Beidahuang Farm Machinery Equipment Co, Ltd. is a backbone enterprise. It has gone into operation, manufacturing over 3,000 large-power tractors. Harvesters will be produced in June. Relying on the potentially vast market for scrapped farm machinery in Kenqu Region, we hope to cooperate with Fangzheng County in circular economy industry of farm machinery. The project has gone through pre-research report and is attracting investment. Relying on the abundance of biomass resources, we are preparing the industry of comprehensive utilization of biomass energy, so as to realize the comprehensive utilization such as biomass densification and briquetting, as well as cogeneration. Relying on the edges of franchet groundcherry industrial base, we will achieve industrialization in franchet groundcherry culture. So far the area of the industrial base has reached 1200 mu. We are deepening our research into refinement of franchet groundcherry.

2.4. Low-carbon energy

We have proceeded two rounds of talks with Datang Power Corporation over the issue of power and heating from straw vaporization, which is now undergoing internal discussion in the company. In 2012, Songhuajiang Farm had 300 tons of output consisting of biomass densification and briquetting products. Also, it recycled 2,000 bags of corn straw.

2.5.Low-carbon buildings

Landmark buildings such as art gallery, gymnasium, central clinic, and apartments were all designed in accordance with the green and energy-saving standards set by the government.

2.6. Low-carbon transport

The area of our farm is 2.75 km2. The transport network in the farm is a non-motorized transport system. In addition, it has convenient logistics passages as well as channels and facilities for passenger transportation.

3. Project implementation, summary and promotion plan

3.1.Planned progress, implementation status and guarantee measures of the project

The plan was completed in October, 2012. The project began in March, 2013 and the project application was submitted in May, 2013. The project will be carried out as a whole in several phases in the 6 approaches of the low-carbon town project. The low-carbon framework centering on low-carbon industries has roughly formed, with low-carbon industries primarily taking shape. The cogeneration project, which is the most difficult one, is going through research and discussion.

"Leading Group of APEC Low-carbon Model Town in Songhuajiang Farm" was established under the authority of Reclamation Bureau, Heilongjiang Province. The Administrative Bureau and the Farm have also set up relevant administrations. The Reclamation Bureau appointed some departments to propose development plans for low-carbon towns in Kenqu Region. It also granted financial support to the APEC Low-carbon Model Town project. At the same time, it helped the Farm acquire financial subsidy policies from the central government. In addition, the Bureau reconciled the local government to favorable policies provided to the construction the project and operating corporations. Moreover, it assisted low-carbon and energy-saving enterprises that entered the Farm with policies such as tax-exemption and so on.

3.2. Development mode and financial support

Development of the low-carbon town gives emphasis on low-carbon industries, low-carbon buildings and low-carbon energy. The project is carried out manly depending on investment, which consists of joint venture, cooperation and sole proprietorship.

3.3. Analysis of technology and economy, and benefits concerning economy, society and environment

Implementation of this project will bring about a qualitative leap to the economy and society in this area. By 2015, the 5 major low-carbon industries will achieve $5 billion value added, creating over 1,000 job positions, speed up the formation of low-carbon and green development mode and realize sustainable development. By developing low-carbon industries, resources will be utilized more properly and effectively and comprehensively; there will be momentum for low-carbon technology, clean manufacturing promotion and environment protection; production, life and ecology will be integrated; the unparalleled eco-environment will be maintained alongside

with rapid economic growth and sustainable utilization of resources will be achieved. The urban system will be planned in a more rational and orderly way, thus making cities and towns develop in accordance with the natural law of development and achieving the harmonious development of man and nature. The town will be a model for low-carbon towns in Kenqu Region, Heilongjiang Province, and even across the country. It will also play a leading and demonstrative role in social economy development, management of planning and construction, intensive land use, resource conservation and environment protection, energy saving and emission cut, infrastructure and greening, public service, history and culture preservation, characteristics construction and so on.

4. Overview of the applicant

Situated in the east part of Sanjiang Plain, Songhuajiang Farm is in the intersection of East Bureau and West Bureau of Kenqu Region, Heilongjiang Province. The Farm lies in the administrative area of Yilan County, Tonghe County and Fangzheng County. The administration is located in Yilan County, on the north bank of middle reaches of Songhua River, at the southern foot of Lesser Khingan Mountains, 284 KM milestone of Harbin-Zhaoting Highway. The Farm lies west on Yinglan Township, Yilan County, east on Tonghe County, north to Yilan County across the the river, south to the mountains. The Farm is surrounded by rivers on the east and west sides. The Shahe Administrative Area, subordinate to the Farm, lies in Fangzheng County, at the north foot of Zhangguangcai Mountain, on the south bank of Songhua River. The place has been praised for its perfect location and beautiful environment since ancient times.

Descendant of Testing Farm for Farm Machinery of the 8th Ministry of Machinery and Industry, Songhuajiang Farm was established in 1961, and later was transformed into Yilan Harvester Work, a famous farm machinery manufacturing base across the country at that time.In 1992, Songhuajiang Farm split from Yilan Harvester Work. It once subordinated to the Economic Bureau, Beidahuang Group and Reclamation Institute and is now under the administration of Harbin Administrative Bureau, Reclamation Bureau, Heilongjiang Province. It governs an area of 11,290 hectares, including 5,355 hectares of farmland and 4,530 hectares of forest. There are 2,843 households in total, with a population of 7,704. The employed population is 3,793. The Farm is a new-type state-run farm with complete corporate management bodies and sufficient social service system. In 2012, it achieved 262.75 million yuan GDP, of which the primary industry achieved 60.55 million yuan, secondary industry 15.628 million yuan and tertiary industry 45.9 million yuan. The proportion of each industry was 23:60:17. Per capita income was 20,823 yuan.

Development strategy: invigorate farm machinery industry, maintain a sustainable development, build a water front town, pursue low-carbon development and protect the environment.

Development concept: low-carbon development, wealthy people and prosperous farm.

12 Low-Carbon Town in Sanshan Village, Dongshan Town, Wuzhong District, Suzhou City

1. Project Overview

The project lies in Sanshan Village, Dongshan Town, Wuzhong District, Suzhou City, Jiangsu Province. Sanshan(three mountains) Village is situated in Taihu Lake, 50 km southeast of Suzhou City. The name of the village was given due to the three mountains in the village, Beishan Mountain, Xingshan Mountain and Xiaogu Mountain. The village enjoys fantastic landscape of islands and lake. It consists of the Main Island, Zeshan Island, Jueshan Island, Lishushan Island and so on, which comprise an area of 2.8 km2. The village is made up of 5 unincorporated villages and 6 groups of villagers and has over 290 households, which make up the population of 800. Sanshan Village has a long history featuring Wu culture. In 1984, Paleolithic and palaeo vertebrate's fossils that can date back to 12,000 years ago were excavated. This great culture was named Sanshan Culture, a proof that Taihu Lake area is also an origin of Chinese nationals and Chinese culture. In 2012, Sanshan Village achieved 12.8 million yuan income. Tourism brought 45 million yuan benefit to the whole village. Per capita income of the villagers was 28,500 yuan.

After the 11th 5 Year Plan was launched, with the help of superior government and under the guidance of Environment Protection Bureau at district and municipal levels, relying on its unique natural resources and edges of eco-resources, Sanshan Village seized the great opportunities of building "National Wetland Park", "National 5A Tourist Attraction", "National Agri-tourism Pilot Site" and "National Ecological Village". Standing on the realities of the village, relying on the island landscape, focusing on environment protection, insisting on premium planning, and multiple promotion, giving emphasis to the development of low-carbon industries, Sanshan Village carried out the project step by step and made efforts to develop ecological industries for the purpose of overall and coordinated development of village economy, maintaining a comfortable eco-environment and boosting the villagers' income.

Especially since 2012, centering on low-carbon concept, Sanshan Village has paced up its ecological civilization construction. After finishing the construction of ecological wetland of 2,000 mu, which is the first phase, it started the second phase—ecological wetland in Taihu Lake of 3,000 mu in 2013. Meanwhile, it planned for low-carbon agriculture, upgraded its low-carbon tourism, low-carbon transport, low-carbon buildings and low-carbon energy, so as to turn the Sansha Island into a low-carbon island and Sanshan Village into a low-carbon model village. As a result, it achieved great success. Sanshan Village was conferred the titles of "National Geopark", "National 5A Tourist Attraction", "National Agri-tourism Pilot Site", "National Famous Characteristic Landscape Village", "China Low-carbon Tourism Model Base", "National Wetland Part Pilot Site", "National Eco-village", "Eco-village in Jiangsu Province", "Special Agricola Village in Jiangsu Province", "Model Village in New Rural Construction in Jiangsu Province", "Wetland Park in Jiangsu Province".

1.1. Objective and orientation

Standing on Sanshan Island’ s rich historical and cultural fortune, unique location in Taihu Lake, ecological environment and wetland resources, on the basis of national eco-village and wetland park, we will endeavor to construct a low-carbon village. We will transform Sanshan Village in low-carbon industry, space layout, low-carbon transport, low-carbon buildings, low-carbon energy and other aspects, in order that Sanshan Village will become a model for APEC Low-carbon pilot town and national low-carbon ecological model village. Hopefully, it will lead the way in low-carbon and ecological development of towns in east China, and even across China.

1.2. Construction plan

We will invest 50 million yuan in 2013 and 2014 for transformation in ecological wetland, low-carbon industry, low-carbon transport, low-carbon buildings, low-carbon energy and so on.
The key task in 2013 was the construction of wetland, low-carbon buildings and low-carbon transport. We have finished the construction of 2,000 mu wetland and transformed all the vehicles and boats from oil-driven into electricity-driven. Transformation of low-carbon buildings in Agricola is under construction. We have also finished the pipe network for rain-sewage diversion.
In 2014, we will finish construction of 3,000 mu wetland, proceed low-carbon energy project centering on solar power utilization and ground source heat pump, pace up construction of low-carbon tourism and low-carbon agriculture and finish low-carbon transformation of all buildings in Agricola, oil-sewage diversion in food waste, and comprehensive utilization of food waste.

1.3.Main problems to be addressed

The current main technical problem is acquiring the techniques for oil-sewage diversion of food waste and comprehensive utilization of food waste.

1.4. Relevant procedures for the project

The project has received approval and support from governments of all levels and has gone through necessary procedures.

2. Research into the low-carbon implications and analysis of conditionserview

Analysis of condition

2.1. Location and traffic

Situated in the middle part of Yangtze River delta, Suzhou lies west on Shanghai, north on Jiaxing and Huzhou, Zhejiang Province, on the east bank of Taihu Lake. It borders Wuxi, and is located on the south bank of Yangtze River.
Sanshan Village is 50 km southeast of Suzhou, right in the Taihu Lake. The wetland park is 60 km from downtown Suzhou, 85 km from Wuxi, 150 km from Shanghai, 190 km from Hangzhou, and 250 km from Nanjing. Shanghai-Nanjing railway, Shanghai-Nanjing expressway, Suzhou-Jiaxing-Hangzhou expressway, Suzhou Ring expressway, Taihu Lake Ring expressway run through this area. Wuxi Shuofang Airport and Suzhou High Speed Railway Station are within accessible distance, which shows its convenient traffic conditions.

2.2. Space layout

Looking from a broader view, Sanshan Island is in a space structure that features three islands and two belts, namely Sanshan Island, Jueshan island, Zeshan island and the two belts of water that separates them. However, only looking at Sanshan island, it also has a structure of three mountains and two belts—Dashan mountain, Xingshan mountain and Xiaogu Mountain and the two belts of residence that separate them. The residence complex and residents' distribution show the space structure of Sanshan Island Scenic Spot. At present, residence in Sanshan administrative village gathers Sanshan island, mainly distributing in plain valleys between Dashan Mountain, Xiaoshan Mountain, Dongpo Mountain and Xihu Mountain, as well as valleys between Xingshan Mountain and Xiaogu Mountain. The Sanshan administrative village governs residence in 5 unincorporated villages: Qiaotou, Xihubao, Dongpo, Xiaogu and Shandong. The plain layout centers on Qiaotou, forming a narrow belt. The land use is relatively uninventive and stretches towards both sides, to Xiaogu and Dongpo.

2.3. Natural conditions

Sanshan village lies in the subtropical climate zone, enjoys distinct seasons, sufficient sunlight and rainfall. Plantation in Sanshan village consists of natural secondary forest, economic plantation, farmland and some ornamental plants. Mixed coniferous broad leaved forest dominates secondary forest, including sapium, camphor tree, thorny elaeagnus, oak, moor besom, silk tree, chinaberry, Chinese sumac tree, slash pine, fir and other arbors, holly, bamboo, Chinese holly, box, and other shrubs, and vines such as fleece-flower root. In addition, by Taihu Lake grow large quantities of weeds, lotus and other aquatic plants.

So far, tourism has become the pillar industry in economic development of Sanshan village, as well as a main source of income of the villagers. In 2012, ticket income was 10.5 million yuan. The number of households that operate Agricola increased to 110. They have developed a unique style of agri-dishes featuring river fishes, eco-chicken, Motuo duck and home-grown vegetables. Development of tourism pushed the development of agriculture and sideline products, catering, transportation in Sanshan village and neighboring areas. Tourism has brought 45 million yuan social benefits. In 2012, villagers' income rose steadily, reaching 28,500 yuan per capita.

3. Planned progress and implementation status

3.1 Project plan

The key task in 2013 was the construction of wetland, low-carbon buildings and low-carbon transport. In the first half of the year, we have finished the construction of 2,000 mu wetland and transformed all the vehicles and boats from oil-driven into electricity-driven. Transformation of low-carbon buildings in Agricola is under construction. We have also finished the pipe network for rain-sewage diversion. In the rest of the year, we completed the low-carbon transformation of Agricola buildings.

In 2014, we will finish planning for low-carbon transformation, including low-carbon transport, low-carbon buildings, intelligent system for green disposal of food waste, low-carbon energy and space layout design.

In the first 6 months, we will finish construction of 3,000 mu wetland, proceed low-carbon energy

project centering on solar power utilization and ground source heat pump, pace up construction of low-carbon tourism and low-carbon agriculture and finish low-carbon transformation of all buildings in Agricola, oil-sewage diversion in food waste, and comprehensive utilization of food waste. As for the second half of the year, the main task is rectification and acceptance inspection.

3.2 Implementation progress

So far we have finished:

1).planning for Taihu Lake wetland, planning for Agricola transformation, planning for overall environment in Sanshan village

2).construction of 2,000 mu wetland

3).transformation of vehicles and boats from oil-driven into electricity driven on the island

4).pipeline for rain-sewage diversion on the island

3.3. Tasks to finish

1). planning for low-carbon agriculture, low-carbon energy and space layout, design for resource recycling

2). construction of 3,000 mu wetland

3).low-carbon transformation of Agricola buildings, oil-sewage diversion of food waste, comprehensive utilization of food waste

4).ow-carbon energy projects such as solar power utilization and ground source heat pump

5).design for resource recycling

6).construction of low-carbon agriculture and low-carbon tourism

13 Tongzhou Bay New Town, low carbon demonstration city, Nantong City, Jiangsu Province

1. Project Overview

Tongzhou Bay New Town (New Town demonstration project) is located in north wing of Yangtze River, between Yangkou Harbor and Lvsi Harbor. Lying in the junction between Yangtze River economic belt and coastal economic belt, this area attains superior conditions. It is considered a core connection between north and south, and a new portal to the world.With a total construction land of 30 square kilometers, the project includes new town initiating area, CBD, science and education area, tourist resort, modern agricultural developing area.

The new town initiating area mainly develops industrial projects. So far, Zhongnan Construction Science and Technology Industrial Park, Lide Green Buildings Industrial Park, Aviation Manufacturing Industrial Park and Huadian Equipment Industrial Park in Southern area are under construction. While in the North, the equipment manufacturing industry and new materials and new energy industries are developing. CBD centers on commercial and economy development projects include Zhongnan Binhai new town, Huadian logistics information center, Nanjun commercial complex and Mingfu residential development. Science and education area and tourist resort focus on scientific and educational projects as well as eco-tourism. Modern agricultural developing area carries forwards eco-agriculture development, agricultural tourism and healthy city project.The project centers on the establishment of modernized new urban area, promoting the green, recycling and low-carbon development in an all-round way, striving to establish a modern area with a distinguishing city feature, supporting infrastructure, advanced tertiary industry, clean environment and anti-radiation ability.

Besides the reliance on the nation’s coastal development strategy and Yangtze River delta integration strategy, the project also obtains advantageous conditions in environment, transportation and harbor resources. With a new city functional orientation, the town is determined to be a modern port city with rapid rise.
Starting from 2013, the construction period of this new town is to be ended in 2020. The project cardinally focuses on the co-development of harbor, industry, city, and society. The final goal is to establish large industrial bases near ports on China’s east coast, large comprehensive logistics bases and the aggregation of manufacturing of heavy equipment in northern part of Yangtze River delta together with primary energetic base and national eco-tourism resort in the coastal areas of Jiangsu Province before 2020.
The Master Plan (2013-2030) of Tongzhou Bay New Town (Nantong Binhai City) has been basically compiled till now.

2. The preresearch and analysis of the essence of low-carbon project

2.1. Low-carbon Industry

1).Harbor developing orientation: 0.1 million-tonnage port at early development, while seeking opportunities to develop 0.1-0.2 million-tonnage port; 0.3 million-tonnage port is

in expectation. The Harbor is aim to become key energy reserve base and heavy chemical industry base in the country and national strategic industry base.
2).Manufacturing cluster: strives to develop port-centered industry and form an internationally competitive manufacturing cluster; enhances the strategic status of Nantong City.
3).New service industry cluster: prioritizes the development of trade transportation services, financial services, Information and technology, management consulting services, Industrial design services as well as educational and scientific research service.
4).Coastal vacation spot and fishery base: develops coastal eco-tourism, ecological fishery and food industry, exploits high-end tour products;
5).Strives to develop marine economy includes port transportation, fishery, tourism, marine energy resource and marine biomedicine.

2.2.Low-carbon Distribution

The new town is developing into a green, ecological and civilized new town by promoting new industries in initiating area, tourism in tourist resort and modern agricultural development.

2.3. Low-carbon Energy

1).Develops clean energy includes solar and wind. The heat supplied by clean energy ratio is expected to reach 40% by 2015.
2).With the investment from Huandian Co. Ltd., the project strives to develop distributed photovoltaic application projects and CCHP projects to enhance energy recycling utilization and Renewable energy application ratio.
3).Promotes the construction of liquefied gas station and gas regulator station, improvs gas storage facilities reserve base.
4).Plans to build CCHP project.

2.4.Low-carbon Transportation

1).Incorporates comprehensive transportation system: Perfects harbor transportation system and constructs transportation of water, road, and rail, enhances the external connection by frequent communication and using airport.
2).Prioritizes public transportation, extends urban pathway; establishes Line S1 from Nantong BinhaiIndustrial Park to West Station and Line S2 from Nantong BinhaiIndustrial Park to Haimen, and two lines for advanced tramway.
3).Optimizes the non-motorized system which includes pedestrian streets, landscape belt and bicycle path.
4).Optimizes parking facility:a distribution with regional difference and bus priority, a parking structure of spot parkingmainly, off-road parkingsecondly and thirdly on-road parking.

2.5.Low-carbon Buildings

1).Vigorously promotes the renewable building application in a large scale, and utilization of solar energy, Ground Source Heat Pump and LED lights.
2).Carries forward the reform of building energy efficiency in air conditioning, heating and lighting etc. improves the energy efficiency and management level.
3).Enlarges the scale and proportion of green building material utilization, and popularizes the green building material. Enhances the development of building insulation systems and materials with good fire insulation performance and sintered hollow products, aerated concrete products, multifunctional wall material, integrated roofing, low-E glass, doors and windows of insulation, shading systems and other building materials.

2.6.System of low-carbon indicators and key technology

1).Eco-health indicator
Good environmental condition: regional quality of atmosphere, regional surface water quality, tap water compliance rate, functional area noise compliance rate, carbon intensity per unit GDP, net loss of natural wetlands
Harmonious artificial environment: the proportion of green building, native plants index, public green per capita

2).Social harmony and progress indicators
Healthy lifestyle, daily water consumption per capita, the amount of waste generated per day, the proportion of green travel, infrastructure improvement, garbage collection efficiency, free sports facilities within 1,000 meters' walking distance of residential areas, rate of hazardous waste and municipal solid waste(harmless)treatment, the coverage of barrier-free facilities, municipal pipe network penetration, management mechanisms, affordable housing, low-rent housing accounted for the proportion of the total residential area.

3).Efficient booming economy indicators
Sustainable economic development, renewable energy utilization, utilization of non-conventional water resources, technological innovation active per 10,000 labor force in R&D scientists and engineers in full-time employees, employment balance, the balance btween employment and housing.

2.7. Description of other features

New Town demonstration project will rely on the advantages of low-carbon demonstration projects in Nantong Binhai City, to vigorously develop the marine industry, the port industry, maritime logistics, and on the abundant marine resources in the southern Huang Sea to exploit the wind power, photovoltaic power generation, marine farming and other green low-carbon projects to improve the living environment of the residents while at the same time steadily increase the revenue.

14 Guantang New Town, Zhenjiang City

1. Project Overview

Guantang area is connecting major districts in Zhenjiang and transitional area between high tech industry area and old town, with Shanghai-Nanjing Intercity Railway to the east. It plays an important role in connecting North and South, communicating East and West, determined to be core area in the south of Zhengjiang City and engine for the new city development. Functionally, it works as an extension of existing economic activities in the city.
Total land area is 13.92 square kilometers. Zhenjiang Transport Investment Construction Co. Ltd.is responsible for the construction.

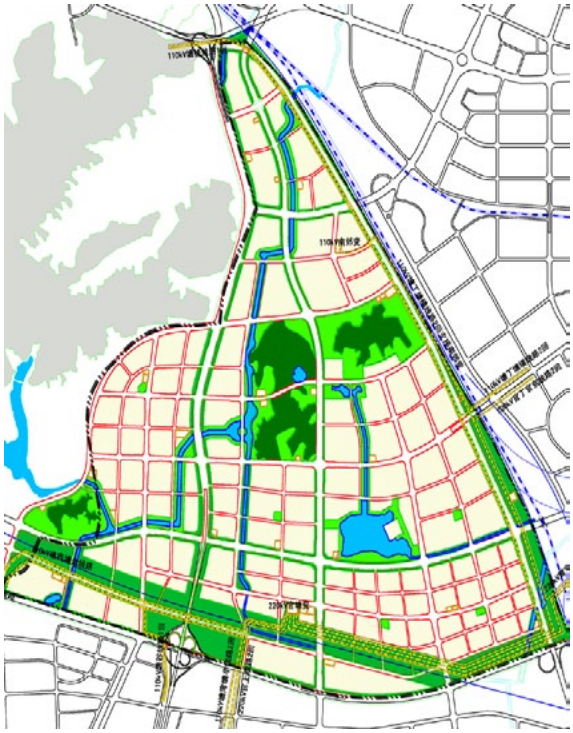
Guantang New Town is adjacent to the No. 312 Highway to the south and connecting the downtown area in the north. The Shanghai-Nanjing Intercity Railway and Beijing-Shanghai High Speed Railway are right cross the area. It is a key joint from Shanghai-Nanjing Highway to downtown area. With downtown in the north, Dingmao Scientific Park in the east, Nanshan National Forest Park to the west and opposite to Dantu New Town, Guantang New Town is one of the core districts.

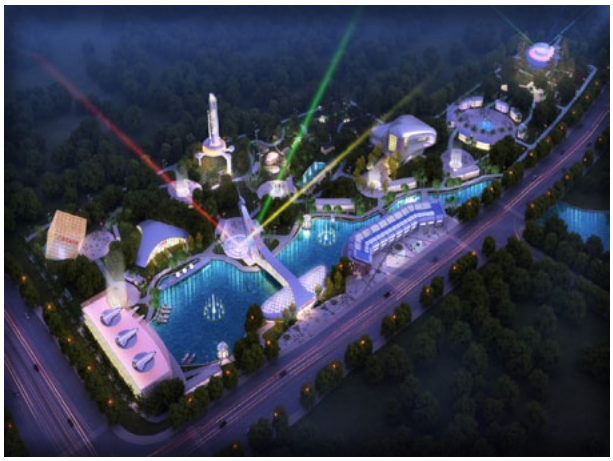
2. Project Development Mode

A mode involves the government, society and market. The local governmental ministries' low-carbon construction by means of regulations, planning, instruction and service. Companies serve as a major body to invest, construct, operate and develop the new town. With two separated body devoted in different realm, we can distinguish better from administration to construction.
2.1.Non-operational items include urban road, public greenbelt, environmental drainage system and administrative center etc., which are mainly invested by the government with funds from land revenue. The project also welcomes the social investment through multiple modes such as BT, and then it is repurchased by the government in return or give land for compensation
2.2.Quasi-operational items include public school, Science and Technology Museum, hospital etc., shall implement the principle of "whoever invests, benefits" via PPP modes. This not only welcomes more investment but also promotes the industrialization of public resources. Functionally, with government administration and company operation, it achieves equal and selective competition.
2.3.Operational items include tap water, gas, heat, sewage, energy station and refuse treatment etc. adopt BOT modes to welcome public investment via biddings. To those incomes cannot cover the cost, the government will encourage PPP modes for joint construction or subsidize in return.
There are three sources of funding, namely, government financial support, credit funds and market raised funds. At the same time, the project is seeking for more political and financial support from the provincial and national government.

The total investment for first class development is 18.303 billion RMB, including 3,784 billion for land expropriation, 6.318 billion for house demolition, 1.284 billion for landscape construction, 4.324 billion for municipal infrastructure construction, 0.226 billion for up-front fees, 0.215 billion for indirect expenses and 0.216 billion for period expenses.

The first class development of the project is expected to complete in 2017: the establishment of infrastructure, namely roads and pipelines; water system improvement; landscape construction etc.





15 Tianjin Yujiapu Economic Area

1. Project Overview

Tianjin Yujiapu Economic Area is 45km from Tianjin, next to Binhai International Airport, Tianjin Port, and only 45-minute by Tianjin intercity high-speed train. Tianjin Yujiapu Economic Area is the integration of five market formats: traditional finance, modern finance, commercial residential, exhibition and educational training. It will become a leading, world-class, fully functional area of financial service. Tianjin Yujiapu Economic Area covers an area of 3,860,000 m2, surrounded by North Sea in East, West, South. 120 buildings are planned to construct here with a total gross floor area of 9.7 million square meters, including 18 public green lands with an area of 126 hectares, 26% of the total land use planning.

In June, 2010, the 9th APEC Energy Ministerial Meeting was held in Fukui, Japan. During the meeting, Tianjin Yujiapu Economic Area was nominated as the first demonstration area of APEC Low-Carbon Model Town Project.

2. Construction process of low-carbon cities

2.1.Greenhouse gas emissions inventory
2.2.Low-carbon targets and visions
2.3.Low-carbon route and low-carbon development indicators
2.4.Key direction
2.5.Embodiments

3. Special indicators of low-carbon city indicators system

3.1.Carbon emissions target：20% decrease in 2020 than in 2010, 30% decrease in 2030 than in 2010.
3.2.Carbon intensity target：Carbon intensity less than 150 ton per million dollar GDP (2020)
3.3.Carbon emissions per capita target: Carbon emissions per capita less than 4.4 ton (2030)

Innovative Features of indicator System

4. 5+1 Elements of low-carbon city development and construction

1. The utilization of low-carbon energy
2. Low-carbon transportation
3. Low-carbon building
4. Public service
5. Management of low-carbon systems
+1. Display technology demonstrative facilities, equipment in the region

5. Introduction of main content

5.1.Low-carbon building

Here located supreme skyscrapers with the green coverage of 100%; among which about 70 % are over two-star green buildings. Low-carbon building also includes multi-level utilization of underground space, multifunctional utilization of underground space, microclimate analysis. Based on the micro-climate analysis, the summer temperature of the one side of exhibition center near Yuquan Road, west side of Youyi Road, two sides of Yuquan Road, west side of Yuxin North Road is higher than external region for more than 3 degrees Celsius. Combined with construction period of Yujiapu Economic Area, a building called "home for builders" for participators are constructed for comfortable living environment, and professional services and management, while reducing energy and materials consumption.

5.2Low-carbon energy utilization

Establishment of eight centralized regional energy station; service area of about 6,907,000 square meters; accounted for 72.9% of the planned construction area. Saving about 12110t of coal; saving approximately 88428t of water; reduction about 31487t of co2.

5.3 Low carbon transport.

Rail service area coverage of over 80%,100% coverage of intelligent transportation, entrance to each building less than 250 meters from the bus station; transferrable to two or more kinds of public transportation within a radius of 200 meters.

5.4.Public service.

"Pilot of Tianjin Green Supply Chain Management" became the first demonstration project carried out based on the research projects policies in the country; Yujiapu Economic Area requires that candidate suppliers must be domestic brands and had batter pass through the ISO14001 environmental management system certification, and the project must have the required professional qualifications, safety qualifications, and credit conditions. Currently, the starting area of Yujiapu Economic Area consists of 15 buildings. The super high-rise office building of 2.37 million square meters is being constructed, some of which will go into the decoration stage.

6.The Incubation platform of industry in Tianjin Yujiapu Economic Area

6.1.Green supply chain service center
6.2.First pacific of new finance
6.3.New financial carbon homes
6.4. New financial perception
6.5. New financial security
6.6. New financial Suez

Epilogue

Asian-Pacific Economic Cooperation (APEC) is the largest regional international organization and is also the vital platform for China's international energy cooperation. In 2010, China and Japan jointly proposed the low carbon town demonstration program at the 9th APEC Energy Ministers Conference. Since then, China actively proposed the low carbon town demonstration program many times at the APEC leader summit. In order to realize China's proposal, publicize China's achievements in low carbon related fields and promote our cooperation with APEC on low carbon town program, National Energy Bureau will launch the promotion of APEC low carbon town demonstration program.

APEC low carbon town program will launch a series of activities from July 2013 to January 2014: Promotion initiation of demonstrative low carbon town; Expert discussion on low carbon town index system; Establishing the international cooperation union of APEC low carbon town and low carbon development; APEC innovative discussion on low carbon town developing mode; Fieldwork on Dong Xiang county cross-strait low carbon ecological industrial park; Establishing APEC sustainable energy center; Draft the guide of global promotion and publicity of low carbon town program; Hold the World Energy Conference (WEC); Hold the international discussion seminar of Asia-Pacific low carbon town energy index system; Hold the high end seminar of Chinese low carbon town program; Hold the international bidding seminar of APEC low carbon town global promotion; Hold the APEC energy index discussion forum of low carbon demonstrative town program.

APEC low carbon town program has 13 demonstrative towns in total. These towns have the main features with low carbon industry, low carbon space layout, low carbon energy, low carbon traffic, low carbon systems, low carbon index system and key technologies, renewable energy, etc.

The Yanxi Lake demonstrative ecological developing region in Beijing is designed with the concept of low carbon environmentally friendly, technological innovative and with strong Chinese characteristics. The region will be constructed as the key window for the capital's international communication, first class ecologically developing region and a high quality cultural entertaining resort. Solar photovoltaic panels are deployed at the surface of the conference center for energy saving. Other energy conserving applications include light guide illumination technology and LED lighting in public places. Shenzhen international low carbon city is one of the top ten strategic developing regions for priority promotion. The objective of this low carbon city is to set a demonstrative example for industrial transferring from the outdated high carbon development to low carbon development, which enables Shenzhen's leap development. The leap development will make remarkable contribution to the economy increasing of Shenzhen. Also, it will motivate the green low carbon development over the entire Pearl River Delta region. The project, which is a comprehensive experiment on low carbon developing in Shenzhen, has four main aspects: 1, first area of climate friendly design. The area will serve as the pilot for climate friendly city promotion; 2, new low carbon industrial gathering area. It will provide demonstrative experiences on low carbon industry and low carbon economy for China; 3, low carbon lifestyle area. The area will guide a socialized recycle system guiding low carbon lifestyle; 4, demonstrative low carbon international cooperation area. The cross-strait low carbon ecological park of Dongxiang county in Jiangxi province will construct the ecological residence, low carbon low carbon technology research and

developing center and so forth. The whole project is planned to be finished in three to five years, which will turn out as an influential low carbon ecological demonstrative region in home and abroad. The primary objective of this project is to boost the low carbon town development of China's central region and eventually turns low carbon development mode as the energy for the new round of economic growth. Beijing Jinneng Weilai gas-heat-electricity cogeneration program actively develops regional clean energy for heat supply. The project utilizes cold and hot gas in conjunction with heat and electricity energy for joint heat supply. Multiple new energy technologies are applied in this project. The project aims at building a national energy demonstrative region by establishing a multidimensional energy supply system with major concern of new types of energy. Mentou Gou new city demonstrative area in Beijing is another low carbon town. The construction is guided by the general concept of "modern new town". Major objectives of the low carbon town include obvious urbanization, matched fundamental functionalities, well developed tertiary industry, neat environment, strong absorbing and radioactive capability, etc. Taima Yang town in Fujian province boosts its development in hydro, traffic and communication infrastructural construction. It is now moving fast to be a low carbon ecological town. The whole county is now covered with telecommunication and postal networks. Good natural environment becomes the foundation to attract tourists and investments. The Yuanshen Jinluo Bag in Zhengzhou Henan is designed with brand new living conceptions with new elements like innovation, culture, fashion and high end experience mingle into its architecture clusters. The Sino-German ecological park in Qingdao follows the principle of "ecological and sustainable" and is guided by the design conception of intelligent, ecological, open, high end and inclusive life. The Sino-German ecological park will be built as a low carbon, integrated and sustainable park with natural ecological system as its foundation. The park will provide comfortable living and working condition and will be ready for international cooperation on multiple aspects. Zhongguan village in Qinhai province is established under the great trend of urbanization and the west development. Zhongguan village sets the development concept of high ground and low carbon construction. The village will become the shepherd leading the development of nearby cities. It will attract talented people for technological innovation and industrial expansion. The Shagang Wang APEC low carbon demonstrative town is led by the new urbanization spirit. Key development feature of this project is to combine villages as cities, which is a strong movement of modern urbanization. Shagang Wang village will help form a practical urbanization system by combining the current situation of Zhongmou. The Songhua River farm sets the APEC low carbon demonstrative town as its developing target and will be developed as a low cost, low carbon town with strong regional characters along the Songhua River in Heilong Jiang province. The Sanshan village of Suzhou accelerates its civilization construction with low carbon consuming based upon its unique natural and ecological resources. Since

From the above descriptions of 13 demonstrative towns, one can see the general layout of China's APEC low carbon demonstrative town development is centered at Zhengzhou, Henan and has Beijing and Heilong Jiang, Shenzhen, Qinghai, Suzhou and Shanghai as the north, south, west and east boundaries. These major cities will serve as nodes for the promotion of low carbon town development all around China.

Part Two

Event Carbon Emission Analysis and Evaluation

I Low Carbon Conference Proposal

II Carbon Inventory Report for the Ec2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting

I Low Carbon Conference Proposal

1 Introduction

Recently, the greenhouse gas (GHG) emission causes global warming and raises the international community attention, and just the meetings will bring huge carbon emissions. According to the relevant departments: the Climate Change high-level meeting held in New York, United State in 2007 brought 500 tons of CO2, and need $ 16,000 to build a small hydropower station in the northern town of La Esperanza, Honduras to offset this carbon emissions about the conference [1];the United Nations Climate Change Conference was held in Copenhagen, the capital of Denmark in 2009 caused 46,200.00 tons CO2 emissions, and it is the equivalent of more than 500,000 Ethiopians emissions every year and the amount of CO2 can fill nearly 10,000 Olympic swimming pools [2]; In 2010, Cancun meeting caused about 20,000 tons CO2 emission, where was held in Mexico [3]. In order to protect our common planet, low carbon emission reduction is of great urgency.

Low Carbon means to reduce GHG (mainly CO2) emissions through a series of measures. Low Carbon conference, that is, participants select low carbon transportation, simple venue layout, paperless meetings, to reduce the use of disposable supplies and so on, in order to reduce conference CO2 emissions. So far, APEC meeting is the largest and highest-economic and multilateral diplomacy activities. In 2013, seven thousand participants from various countries participated APEC summit held in Indonesia, and in 2014 APEC meeting if we follow the concept of low-carbon meeting from many details such as the layout and participants' behaviors, then the APEC meeting will reduce greatly the amount CO2 emissions.

2 Meeting Carbon Emission Sources

2.1 Basic Instructions

According to "The Greenhouse Gas Protocol", carbon emissions accounting categories include : Ⅰ direct GHG emissions, companies report GHG emissions from sources they own or control as scope; Ⅱ electricity indirect GHG emissions, companies report the emissions from the generation of purchased electricity that is consumed in its owned or controlled equipment or operations as scope; Ⅲ other indirect GHG emissions, it includes the causing carbon emissions because of the

purchased material production, the use of product, outsourcing, vehicles belonging to contractors, waste disposal and employee business travel and so on. According to this protocol, the carbon emissions accounting conferences border is in the following table 1 as an example.

Table 1 The examples of meeting carbon emission sources

Types of GHG	Examples about the emission sources
Ⅰ Direct GHG emissions	Natural gas, LPG, etc.: hotel kitchen GHG due to the activity using gas emissions
Ⅱ Electricity indirect GHG emissions	Electricity, heat, etc.: the emissions of the use of GHG because of the activities of purchasing electricity, heat generated
Ⅲ Other indirect GHG emissions	Food and drinks: GHG from the food and drinks emissions during the event
	Souvenirs: the GHG emissions by the souvenir
	Consumables: In addition to souvenirs of emission sources, such as paper, boards and other greenhouse gas emissions
	Transportation: GHG emissions because of the activities of participants traffic emissions

2.2 The cases study from different sizes meeting carbon emissions

In order to analyze meeting carbon emissions widely and deeply, we select three different sizes meeting as examples: a large-scale international conference, a medium-sized industry association summit, a small business summit, the scopes of its accounting are different but there is a strong representation. Carbon emissions analysis about three meetings of as follows:

2.2.1 The large-scale international conference

The conference A is an international conference, and the conference GHG accounting boundary is: Electricity indirect GHG emissions – the GHG emissions by purchasing electricity and heat, other indirect GHG emissions - the GHG emissions causing by transport, cargo transport, paper, garbage.

Within the scope of the conference, transport carbon emissions as the largest source of emissions is 85.00% of total emissions, which domestic flights constitute to 49.87%, international flights constitute to 8.45%, the subway constitutes to 19.91%, the taxi constitutes to 3%, the bus constitutes to 2.93%, and the train constitutes to 0.12%. Apart from the transport carbon emissions, the carbon emissions causing for meeting heating, electricity consumption, garbage, paper, transportation constitutes

respectively to 9.00%, 6.20%, 0.50%, 0.09%, 0.03% (Figure 1).

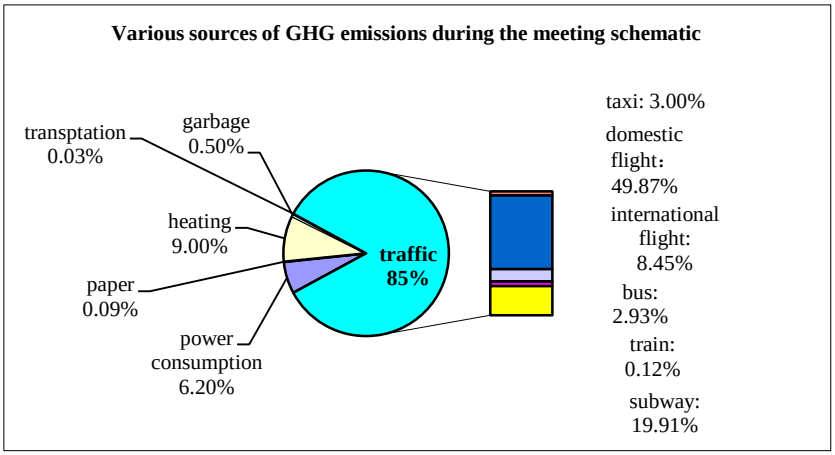


Figure 1 Schematic view of the on GHG emissions on the international conference A

2.2.2 Medium Industry Association Summit

In 2012, a domestic industry associations summit B was held, and the accounting boundary as follows: Ⅰ direct GHG emissions - natural gas combustion, Ⅱ electricity indirect GHG emissions - electricity, Ⅲ other indirect GHG emissions - food and drinks , transport, consumables, souvenirs.

The total carbon emissions of the industry associations summit B was 240.71tCO2e, in which food and drinks are the largest source and constitute 51.85% to the total emissions; the larger is the traffic emissions, and constitute 36.26% to the total emissions; the consumable, souvenirs and the purchasing electricity causing carbon emissions are relatively small, and each is 4.93%, 4.66%, 2.12% of total emissions.

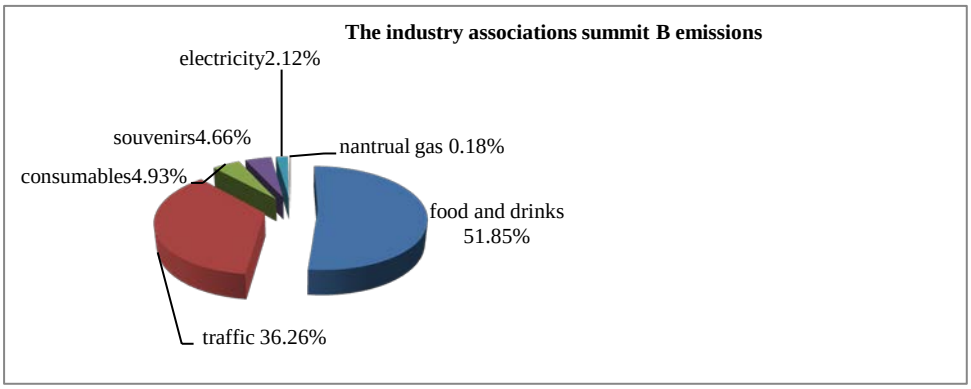


Figure 2 in 2012 the summit B emissions statistics of each emission source

2.2.3 Small Business Summit

Company C held forums in Beijing, Shanghai and Shenzhen, and the total amount of GHG emissions is 7.59 t CO2e during summits. The classifications of the summit emission source are: Ⅰ direct GHG emissions - gas consumption during the summit, Ⅱ electricity indirect GHG emissions - the venue consumption facilities, the venue

heating, Ⅲ other indirect GHG emissions - transport emissions, waste disposal .

The amount of delegates transport carbon emissions is 66.66% of total emissions, and the carbon emissions amount caused by energy consumption facilities is 30.57% of total emissions in the venue; during the conference, carbon emissions from the gas of luncheon on and coffee, venue heating and the waste processing are respective 1.07%, 1.25% and 0.45% of the total value, as shown in Figure 3.

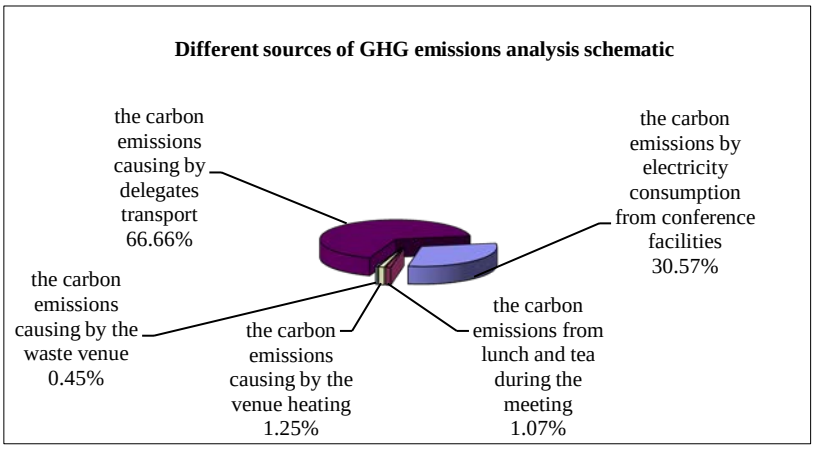


Figure 3 Meeting sources of GHG emissions schematic

Among the above meetings, the Beijing venue GHG emissions are below figure 4.

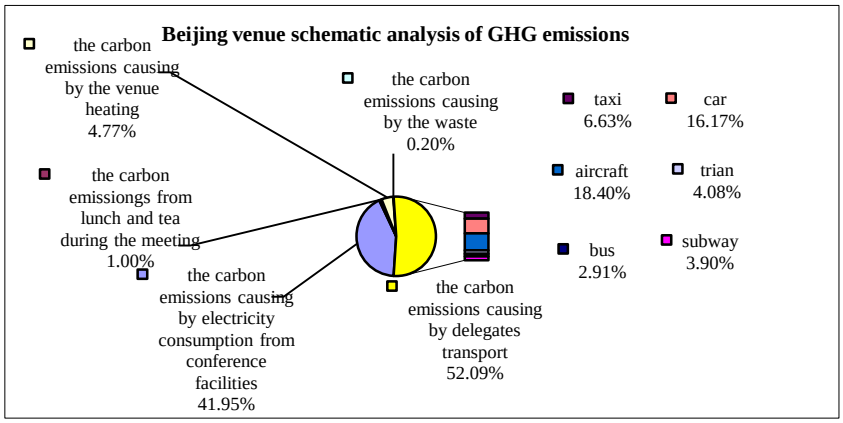


Figure 4 the specific circumstances analysis chart about Beijing venue GHG

According to Figure 4, we can summary that the transportation carbon emission is the largest proportion of total emissions, and the carbon emissions from the aircrafts and cars is the highest proportion in the traffic sources.

2.2.4 Case Summary

From the above three case, we can summarize up: the different accounting boundaries of the conference A, the summit B and the little company summit C lead to the different accounting results. We often determine the accounting data boundary according to the difficulty degree, and some data sources are no corresponding

recorded, little emissions, or difficulty to estimate technically, or to estimate it need too much money, so we do not account the emission sources. As can be seen from the A, B, C meeting emissions cases, transportation carbon emissions, food and drinks carbon emissions are the major sources, and sources of carbon emissions in transportation, participants produce the most amounts of the carbon emissions by taking a plane or a car, so we should encourage people to use public transport.

3 Low-carbon Meeting Measures

For part of the second meeting of carbon emissions and the emission source accounting boundary description and examples of in-depth analysis, we recommend participants and organizers the following carbon reduction measures:

3.1 Choosing the clean type transportation

- ✧ Using biofuels passenger ride, choosing the shortest air route.
- ✧ Select walking, cycling, public transport.
- ✧ Just pressing down on an elevator, trying to ride an elevator.

3.2 Low-carbon diet

- ✧ Preferring the buffet, advocating "No Residual" program and eliminating waste.
- ✧ Trying to select drinks, food nearby.
- ✧ The menu should mainly be made up of vegetables, reducing the number of meat, the fried, the grilled food.

3.3 The arrangements of conference venue and equipment

- ✧ Taking full advantage of natural light and natural ventilation.to conference rooms.
- ✧ Selecting conference rooms, depending on the number of participants, avoiding meeting room too large.
- ✧ Improving efficiency and reducing the meeting time.
- ✧ Cutting off the power when conference equipment does not be used.
- ✧ Reducing the use of big backplanes, plates and LED screens.
- ✧ No using lighting and stage equipment at the venue.
- ✧ Useless meeting tablecloths, reducing cleaning after the meeting.

3.4 Selecting paperless meetings

- ✧ Encouraging video conferences.
- ✧ Trying to use e-mail and electronic conference materials.
- ✧ Using recycled and secondary paper as the meeting draft paper .

3.5 Reducing the use of the disposable supplies

- ✧ Encouraging carrying ourselves cups, we will not provide the bottle water, but we will provide some thermos bottle and glass cups.
- ✧ Carrying a handkerchief to reduce the use of disposable paper towels.
- ✧ Participants are encouraged to bring their own towels and toiletries, reducing the cleaning of the bedding.
- ✧ The recycling of Posts Banner.

3.6 Encourage the carbon neutral transaction after the meeting

We can offset the meeting carbon emissions by planting trees, buying carbon credits or other environmental projects, and finally come true zero carbon emissions meeting. It is our common mission to care for the environment and conserve our energy. To promote low carbon at APEC meeting will become a model and good reference for global carbon emissions conference. Low carbon is the inevitable choice for the global sustainable development, and all of us should take responsibility, positive actions, and firmly push towards global low-carbon and eco-direction development.

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II Carbon Inventory Report for the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting

Project Fact Sheet

Report Date	18th December, 2014
Project Name	Carbon Inventory of the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting
Project Description	This project is to quantify greenhouse gas emissions of activities and consumables at the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting held on 5th December, 2014, taken place in China Hall of Science and Technology, Beijing.
Project Period	5th December, 2014，9:00——20:30

Disclaimer

This technical report is intended for guidance only. While the information contained in this report is provided in good faith and has been based on reliable sources available at the time this report is prepared, is to be relied upon at the client's own discretion. No representations or warranties are made with regards to its completeness and no liability will be accepted for damages, indirect or consequential loss whatsoever resulting from the use of or reliance on the information.

Executive Summary

The conference was held at China Hall of Science and Technology, NO.3 Fuxing Road, Beijing on 5th December, 2014. The conference was lasted for 11.5 hours from 9:00 to 20:30. The GHG emissions arising from the conference was reported in this document in response to the increasing concern of sustainability. In taking reference to different related guidelines and taking consideration to the characteristics of the event, operational boundaries for GHG quantifications were defined and shown in following table.

Operational boundaries for GHG quantifications

TYPE OF GHG EMISSIONS	EMISSION SOURCE
Direct GHG Emissions	Natural Gas
Electricity Indirect GHG Emissions	Electricity
Other Indirect GHG Emissions	Food and Drinks
	Consumables
	Transportation

The reported GHG emissions are presented in CO2e. The quantification methodology of GHG emissions is based on GHG activity data multiplied by GHG emission factors. The total GHG emissions of the event were 35.18tonnes CO2e. GHG emissions from various emission sources were showed in the following table. The results revealed that the GHG emissions from transportation were the most significant among all the sources, contributing 93.11%. Following will be GHG emissions from food and drinks, consumables, electricity and natural gas, the respective ratios of 3.42%, 1.85%, 1.09% and 0.53%. Recommendations are also included in this report for future consideration.

GHG Emissions of the EC2-APEC Conference

DESCRIPTION OF EMISSION SOURCE	%	GHG EMISSIONS TOTAL (tonnesCO_2e)
Electricity [b]	**1.09**	**0.3851**
Natural Gas [a]	0.53	0.5292
Transportation [c]	93.11	93.1110
Food & Drinks [c]	3.42	3.4184

Consumables [c]	1.85	1.8468
Total Emissions	100	35.18

Remarks:

a Direct GHG Emissions

b Electricity Indirect GHG Emissions

c Other Indirect GHG Emissions

1 Introduction

The EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting was organized by Europe-China Clean Energy Centre (EC2), and was supported by Tianjin University, China Energy Conservation and Environmental, Shenzhen Institute of Building Research Co. Ltd, Shenzhen International Low-Carbon Research Institute, Xuwei New Area Energy-saving and Environmental Protect Association, Tianjin Innovative Finance Low Carbon Institute. We formed a project team to quantify the carbon footprint of the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting. It aims at encouraging all participants to be aware of the Greenhouse gas (GHG) emissions in daily activities and looking for any opportunity for continuous improvement.

On 5th December 2014, the conference was held at China Hall of Science and Technology, No. 3 Fuxing Road, Beijing.

2 Boundaries & Reporting Period

2.1 Geographic Boundaries

This project is to quantify GHG emissions of activities and consumables at the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting held on 5th December 2014, taken place in the China Hall of Science and Technology, No.3 Fuxing Road, Beijing. (refer to Annex 1).

2.2 GHGs to be Reported

All the GHG Emission Sources listed in this study are based on the GHG listed in Table 2.14 of IPCC 2007. The GHG emissions are presented in CO_2e.

2.3 Operational Boundaries

The GHG emissions in the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting are classified in three types. Table 1 shows the types of GHG emissions and their corresponding emission sources.

Table1. Operational boundaries for GHG quantification

TYPE OF GHG EMISSIONS	EMISSION SOURCE
Direct GHG Emissions	Natural Gas GHG emissions from the use of cooking.
Electricity Indirect GHG Emissions	Electricity GHG emissions from the use of purchased electricity to support the event operations.
Other Indirect GHG Emissions	Food and Drinks GHG emissions from the food and drinks consumed during the event. Consumables GHG emissions sources excluding souvenirs were grouped as consumables which include decorations, LED screen and the paper used. Transportation, GHG emissions from taking plane, train, bus, taxi, coach and subway

2.4 Reporting Period

This project is to quantify GHG emissions of activities and consumables at the EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting held on 5th December 2014. The conference was lasted for11.5 hours from 9:00 to 20:30.

2.5 Methodology

The quantification methodology of GHG emissions is based on GHG activity data multiplied by GHG emission factors.

3 Information on GHG Emissions

All the activity data related to the GHG emissions of the event were provided by APSEC (event host), China Hall of Science and Technology (venue owner), and EC2 (event organizer) and/or otherwise, assumptions made by onsite inspection during the event. Table 2 shows the sources for activity data.

Table 2 Sources of activity data

ACTIVITY DATA	SOURCE
Electricity	China Hall of Science and Technology
Natural Gas	China Hall of Science and Technology
Transportation	Onsite Traffic Information Survey
Food & Drinks	China Hall of Science and Technology
Consumables	APSEC

The total emissions for the event were 35.18tonnes CO_2e. There were totally 97 delegates participating in this event, including local Europe-China Clean Energy Centre (EC2), and was supported by Tianjin University, China Energy Conservation and Environmental, Shenzhen Institute of Building Research Co. Ltd, Shenzhen International Low-Carbon Research Institute, Xuwei New Area Energy-saving and Environmental Protection Association, Tianjin Innovative Finance Low Carbon Institute and other invited guests. The average GHG emission per delegate of this event was 362.68kgCO_2e. Table 3 shows the overall GHG emissions of the event as well as the distribution from different emission sources. Table 4 shows the percentages of GHG emissions from different emission sources.

Table 3.Overall GHG emissions

DESCRIPTION OF EMISSION SOURCE	GHG EMISSIONS (tonnesCO2e)
Electricity	0.3851
Natural Gas	0.5292
Transportation	93.1110
Food & Drinks	3.4184
Consumables	1.8468
Total Emissions	**35.18**

Table 4.Percentages of GHG emissions from different emission sources

DESCRIPTION OF EMISSION SOURCE	GHG EMISSIONS (%)
Electricity	1.09
Natural Gas	0.53
Transportation	93.11
Food & Drinks	3.42
Consumables	1.85
Total Emissions	100

The results revealed that the GHG emissions from transportation were the most significant among all the sources, contributing 93.11%. Following will be GHG emissions from food and drinks, consumables, electricity and natural gas with the respective ratios of 3.42%, 1.85%, 1.09% and 0.53%.

3.1 Electricity

GHG emissions from electricity =0.3851tCO_2e

The duration of use and power rating of indoor lightings, cooking, air conditioning and other electrical appliances (microphone, stereo equipment, stage lighting etc.) were used to estimate the electricity used in the event. Assumptions were made that the rooms were in full occupancy at the event day, all electrical appliances except stereo equipment were operated under power rating, stereo equipment was operated under half power rating. The GHG emissions from electricity were calculated based on the data available in China's provincial grid average CO_2 emission factor 2010. The GHG emissions from electricity are presented in Table 5.

Table 5 GHG emissions from electricity

Electricity consumption for indoor lightings(kWh)	21.24
Electricity consumption for cooking (kWh)	134
Electricity consumption for air conditioning (kWh)	216
Electricity consumption for other electrical appliances (kWh)	93.2
Duration(hour)	12
Electricity consumption (kWh)	464.44
Electricity Emission Factor (kgCO2e/ kWh)	0.8292
GHG emissions (tonnesCO2e)	0.3851

3.2 Food and Drinks

GHG emissions from food and drinks = 1.2026tCO_2e

Seventeen dishes were served at each table at lunch and eighteen dishes were served at each table at dinner of the event. The food menu is appended in Annex 2. Four tables comprising of 42 delegates at lunch and seven tables comprising of 60 delegates at dinner were held at the event. A variety of drinks were provided during lunch and dinner, including red wine and soft drinks.

The GHG emissions from the food and drinks were evaluated based on the data available in USA Input Output Database 98, DK Input Output Database 99, Ecoinvent system process version 2.1and LCA Food DK. Transportation and packaging of the food & drinks as well as the fuel used for the cooking of the food were excluded in the carbon inventory. The GHG emissions from food and drinks are presented in Table 6. Table 7 shows GHG emissions per head from food and drinks.

Table 6 GHG emissions from food and drinks

No	Type	Quantity	Unit	Total tCO2e
		Food		
1	Fish[1]	21.2	kg	0.0691
2	Fruit[2]	34.7923	USD	0.1612
3	Fungi [2]	19.8083	USD	0.0725
4	Grains[3]	27.885	kg	0.0493
5	Seafood[1]	10.4	kg	0.1045
6	Vegetables[2]	56.4080	USD	0.2064
7	Beef[1]	3.8	kg	0.2645
8	Pork(tenderloin) [1]	7.1	kg	0.0230
9	Pork (feet) [1]	6	kg	0.0197
10	Pork (with bone) [1]	7.1	kg	0.0233
11	Goose [1]	8.75	kg	0.0269
12	Chicken[1]	10.9	kg	0.0353
13	Mutton(with bone) [3]	2.8	kg	0.0053
14	Egg[1]	3.36	kg	0.0066
	Total			1.0677
		Drinks		
1	Soft drinks[1]	60.8315	USD	0.0641
2	Red wine[2]	55.7865	USD	0.0708
	Total			0.1349

Reference:

1 LCA Food DK

2 USA Input Output Database 98

3 Ecoinvent system process version 2.1

Table 7. GHG emissions per head from food and drinks

GHG EMISSION SOURCE	GHGEMISSIONS PER HEAD (kgCO2e/PERSON)
Food	10.4676
Drinks	1.3225

3.3 Consumables

Total GHG emissions from consumables = 0.6497tCO_2e

The following items are categorized as consumables. Photographs of selected consumables are in Annex 3.

(a) Backplane

(b) Photo board

(c) Paper use for invitation letters, attendance books, signposts, stickers, table cards and place cards etc.

The GHG emissions from the consumables were quantified based on the emission factors available in Ecoinvent system process version 2.1 and USA Input Output Database 98.Table 8 shows the GHG emissions from consumables.

Table 8. GHG emissions from consumables

No.	Type	Material	Quantity	Unit	Total tCO2e
1	Paper1	paper	188.25	kg	0.2833
2	Backplane 1	PVC	13.824	kg	0.0316
3	Photo board1	Polywood	0.672	m3	0.3348
Total					0.6497

Reference:

1 Ecoinvent system process version 2.1

3.4 Transportation

GHG emissions from transportation= 32.7560tCO_2e

The delegates adopted the travel mode of transportation, including taxi, plane, train, bus, subway, car, coach and walking. The GHG emissions factors of the transportation was from《guidelines GHG conversion factors》Annex 6, Table 6k. 《guidelines GHG conversion factors》 Annex 6, Table 6l. and《guidelines GHG conversion factors》

Annex 6, Table 6c.Table 9 shows the GHG emissions from transportation.

Table9. GHG emissions from transportation

No.	Type	Distance Travel(km)	Total tCO2e
1	Taxi	4282.20	0.7825
2	Plane	241354.946	29.1369
3	Train	23366.00	1.5211
4	Bus	38.80	0.0062
5	Subway	1295.90	0.1096
6	Coach	4076.80	1.1996
Total			32.7560

Reference:

《guidelines GHG conversion factors》.

3.5 Natural Gas

GHG emissions from natural gas= 0.1862tCO$_2$e

In this event the GHG emissions from natural gas was mainly from the use of cooking. Table 10 shows the GHG emissions from natural gas.

Table 10 GHG emissions from natural gas.

Natural Gas consumption (m^3)	Low calorific value of Natural Gas (MJ/m^3)	Unit heat caused by GHG emissions	Total tCO2e
85.00	38.931	56.2548	**0.1862**

Reference:

IPCC Guideline-2006

4 Impacts on the Environment

For the ease of understanding the impact of GHG generated to the environment, the number of new planted trees required to remove the GHG generated during the reporting period were estimated in Table 11.

Table11. Number of newly planted trees required for offsetting GHG emissions

EMISSION	TOTAL GHG	REMOVAL FACTOR [1]	NO.OF NEW

SOURCES	EMISSIONS (kgCO2e)	(kgCO2/TREE/YEAR)	TREES REQUIRED
Electricity	385.1	23	17
Natural Gas	186.2	23	9
Transportation	32756.0	23	1425
Food & Drinks	1202.6	23	53
Consumables	649.7	23	29
Total			1533

Reference:

Environmental Protection Department and Electrical and Mechanical Services Department, 2008. Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong. Hong Kong: EPD and EMSD.

5 Summary

The EC2-APEC Low Carbon Model Town Joint Projects & EU-China City Matching Meeting was held at China Hall of Science and Technology, No. 3 Fuxing Road, Beijing, on 5th December, 2014. The conference was lasted for 11.5 hours from 9:00 to 20:30.The GHG emissions arising from the conference was reported in this document in response to the increasing concern of sustainability. In taking reference to different related guidelines and taking consideration to the characteristics of the event, operational boundaries for GHG quantifications were defined and shown in Table 12.

Table 12. Operational boundaries for GHG quantifications

TYPE OF GHG EMISSIONS	EMISSION SOURCE
Direct GHG Emissions	Natural Gas
Electricity Indirect GHG Emissions	Electricity
Other Indirect GHG Emissions	Food and Drinks
	Consumables
	Transportation

The reported GHG emissions are presented in CO_2e. The quantification methodology of GHG emissions is based on GHG activity data multiplied by GHG emission factors.

The total GHG emissions of the event were 35.18tonnes CO_2e. GHG emissions from various emission sources were showed in Table13. The results revealed that the GHG emissions from transportation were the most significant among all the sources, contributing 93.11%. Following will be GHG emissions from food and drinks, electricity, consumables and natural gas, with the respective ratios of 3.42%, 1.85%, 1.09 and 0.53%.

Table13. GHG Emissions of the EC2-APEC Conference

GHG EMISSIONS		
DESCRIPTION OF EMISSION SOURCE	%	TOTAL (tonnesCO2e)
Electricity[1]	1.09	0.3851
Natural Gas[2]	0.53	0.5292
Transportation[3]	93.11	93.1110
Food & Drinks[3]	3.42	3.4184
Consumables[3]	1.85	1.8468
Total Emissions	100	35.18

Remarks:

1 Indirect GHG Emissions

2 Electricity Direct GHG Emissions

3 Other Indirect GHG Emissions

6 Observations and Recommendations

6.1 Venue Selection

Venue of event is a controlling factor of GHG emissions because electricity from lightings and air-conditioning systems is one of the major emission sources. During the event on 5th December 2014, air-conditioning systems for this event were opened and ventilations were also on.

Therefore, during venue selection, it is recommended to consider venue with "Green Actions" such as applying of natural ventilation or energy-saving lamps to reduce its own environmental impacts.

6.2 Consumables

Paper used on 5th December 2014 was left on site after the event. Recommendations were made to collect all the waste paper for recycling purpose. Type of paper and printing method with low environmental impact were also recommended to include in consideration of consumables preparation.

Signs with "Green Slogans" were recommended to mark on wall, desks and conference manual to highlight the "Low carbon" theme for this event. The "Green Slogans" are able to cover the topics about low carbon actions and declaration of carbon emissions on activities and consumables.

Photo board was one of the GHG emission source in the event. Recommendations to decrease GHG emissions of photo board were made from 3 aspects: alternative design for venue ornament, alternative materials selection with less environmental impact and board size decreasing.

6.3 Food and drinks

Even though meat and seafood are known to have high GHG emissions, it may not be practical to replace it by the consideration of the food variety and quality. However, the event organizer should pay attention to it during food selection. Food from local suppliers is also encouraged during food selection.

Food wastage is a hot issue and concern due to insufficient capacity of waste treatment by landfill. Feedback about the large amount of food wastage generated during the event and the opportunities in reducing over-quantity should be considered.

Venue with green method to manage food wastage such as composting and biodiesel/bio methane generation is recommended to include in consideration of venue selection.

6.4 Transportation

Transportation was the biggest GHG emission source in the event. So recommendations were made to encourage people to walk or choose public transport, and held a teleconference if it is convenient.

7 References

1. Department of Climate Change, National Development and Reform Commission (http://cdm.ccchina.gov.cn/web/index.asp). China's Regional Baseline Emission Factors 2011.

2. Intergovernmental Panel on Climate Change (IPCC) (2007). IPCC Fourth Assessment Report: Climate Change 2007 (AR4).

3. Nielsen PH, Nielsen AM, Weidema BP, Dalgaard R and Halberg N (2003). LCA food database. www.lcafood.dk.

4. SIMAPro Database for product carbon footprint estimation: DK Input Output Database 99 (1999). Swiss Centre for Life Cycle Inventories.

5. SIMAPro Database for product carbon footprint estimation: Ecoinvent v2.1 (2009). Swiss Centre for Life Cycle Inventories.

6. SIMAPro Database for product carbon footprint estimation: USA Input Output Database 98 (1998). Swiss Centre for Life Cycle Inventories.

7. World Resources Institute (WRI) /World Business Council for Sustainable Development (WBCSD)(2007).The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard(Revised Edition).

Annex

Annex 1

The address of China Hall of Science & Technology

Annex 2

Food menu and the photos of drinks

午餐菜单， 4 桌

每桌 2500 元（6 个凉菜 11 个热菜），5 日实到 42 人午餐

精 美 六 味 碟

水晶肴肉、爽拌时蔬、话梅酿仔排

天水萝卜皮、荠菜马蹄、官府煮鱼

清蒸太湖白鱼（2 斤）

清汤鲜松茸（位上）

水 晶 虾 仁

韩国泡菜肥牛

黑猪肉炒茭菇

特色凤凰豆腐

肉 汁 萝 卜

秘制 椒麻鸡

油 浸 蚕 豆

砂 锅 山 药

塔菜 炒冬笋

天水生煎包（10 只）

荠菜虾仁馄饨（2 份）

精美水果拼盘

饮料酒水：每桌 1 瓶可乐+1 瓶果粒橙，共 4 瓶可乐+4 瓶果粒橙

晚餐菜单，7 桌

每桌 2648 元（6 个凉菜，12 个热菜），5 日实到 60 人晚餐。

精 美 六 味 碟

葱烤鲫鱼、话梅酿仔排、彩椒海蜇头

砂锅茄子、桂木糖藕、榨汁西葫芦

小米椒炒长江虾（0.8 斤）

红烧长江回鱼（2 斤）

虫草花炖老鸡（位上）

风味小炒黑山羊

飘香 牛肋骨

美 汁 老 鹅

咸香 扇子骨

特色凤凰豆腐

肉 汁 萝 卜

青蟹 粉丝煲

农家 蛋饺煲

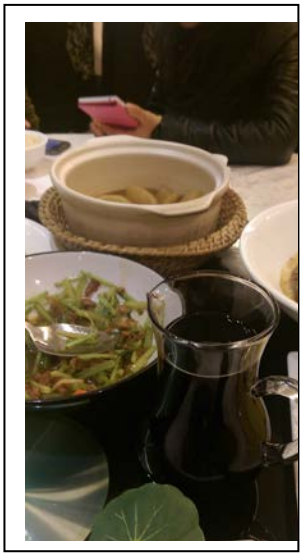
塔菜 炒冬笋

玉米南瓜馒头

天水 阳春面

精美水果拼盘

饮料酒水：总共消耗 25 瓶汇源果汁（每瓶 1 L）+5 瓶葡萄酒（每瓶 750ml）



Red wine

Peach juice

Annex 3

Selected photography of consumables

Poster

Backplane

Part Three

Research on Green Supply Chain Management of Yujiapu Financial District

1 Research Background and Objective

1.1 Research background

Under the current macro background of integration of global economy and globalization of environmental issues, green supply chain as the most direct and effective means to solve pollution problems of enterprises on the supply chain has come into people's vision. Green supply chain aims to generate an incentive effect under a market mechanism through the procurement and consumption forces of the governments, enterprises and the public and promote enterprises to reduce environmental pollution and raise efficiency through supply chain management so as to raise the environmental control efficiency of the whole supply chain system and promote green upgrading of the whole industrial chain. This innovative environmental management means tries to form an incentive and advocating measure through market force and encourage related enterprises on the supply chain to carry out green reform, raise environmental performance and make them cleaner, more low carbon and greener.

In September 2010, Yujiapu Financial District was determined as the First Low-Carbon Model Town of APEC. Hence it started a long and complex road for the research and construction of a low-carbon model town. By now, preliminary result has been achieved. Yujiapu Financial District will realize the goal of 100% green buildings and 70% high-star green buildings in the district. Meanwhile, during operation, Yujiapu Financial District will realize low-carbon traffic operation, low-carbon energy management, low-carbon system management, green utilities service and other management systems. Apart from this, in the process when the State vigorously pushes on a green supply chain management system, Yujiapu Financial District will give active response to government calls, actively carry out the research work relevant with green supply chain management in the district and build a demonstration area for green supply chain management.

In order to boost economic restructuring and green transformation of Tianjin, promote harmonious development of economy, society and environment and implement the management work of green supply chain organized by the State, Tianjin Municipal Government issued the Implementation Plan for the Pilot Project of Tianjin for Green Supply Chain Management in November2013. The Plan explicitly specifies Yujiapu APEC green commodity service demonstration area project shall be the key work of Tianjin for implementing the pilot project of green supply chain.

1.2 Research objective

Under the above background, Yujiapu Financial District will give active response to the call of China Council for International Cooperation on Environment and Development (CCICED), carry out related research on green supply chain management, integrate the establishment of a green supply chain with the construction of a Low-Carbon Model Town and make Yujiapu Financial District not only a real Low-Carbon Model Town but also a demonstration area for green supply chain management in the future.

This research will carry out research work in focus on the following few parts:

（1）Concept and development significance of green supply chain management;

（2）Summarize domestic and foreign experience in the development of green supply chain and the revelation on the development of green supply chain management in Yujiapu Financial District ;

（3）Formulate a technical route and work plan for the development of green supply chain management in Yujiapu Financial District.

1.3 Research methods

(1) Literature consultation: Conclude and sort the experience of domestic and foreign government departments and enterprises in the development of green supply chain by method of consulting literature, and find bases from which Yujiapu Financial District may borrow when it establishes a green supply chain.

(2) Field survey: Pay field visit to Environmental Defense Fund, SinoChina Innovation & Investment Co., Ltd., Coca Cola, IKEA and other government departments and enterprises, which have carried out the research of green supply chain management, and analyze the practice and experience of advanced cases for green supply chain management.

(3) Questionnaire survey: Select some enterprises, survey the implementation effect, development bottlenecks, existing problems and challenges of green supply chain management in form of questionnaire survey, analyze the problems during green supply chain management, know the policy demand of enterprises for implementation of a green supply chain and seek solutions.

(4) Case study: Select typical enterprises and carry out case study on the implementation of a green supply chain.

2 Basic Concept and Development Significance of Green Supply Chain

2.1 Basic concept of green supply chain

The complete concept of green supply chain was first put forth by the manufacturing research association of American Michigan State University in 1996. The purpose of putting forth this concept is to consider the development issue of the supply chain in the manufacturing industry based on environmental impact from the perspective of optimized resource utilization. That is to say, tracking and control are conducted from the raw material purchase period of products and the products observe the regulations of environmental protection in product design and R&D stage, thus reducing environmental harm from products in the use period and recovery period.

At present, no unified definition of green supply chain is formed and most domestic experts and scholars think green supply chain may be defined as that when enterprises consider environmental impact of their products, they not only consider their own flows but also should trace back the acquisition of raw materials, use after product manufacturing and even the condition after product abandonment, i.e.: environmental impact of products in all stages of their life cycle[1].

2.2 Basic significance of the development of green supply chain

Vigorous development of a green supply chain may raise the benefit of the whole supply chain and make it an important means for raising market competitiveness of enterprises. From the market, enterprises look for partners with whom they jointly establish and develop a green supply chain, conduct green integration with their upstream and downstream partners and form a situation of complement with each other’s advantage and association between strong enterprises. Meanwhile, the enterprises implementing green supply chain management may establish information about product safety and reliability and assumption of social responsibility, thus raising corporate image and market competitiveness. Therefore, the development of green supply chain may bring economic benefit, social benefit and environmental benefit to enterprises.

[1]Practice and innovation of green supply chain

Many countries, economically advanced countries in particular, all attach importance to ecological issues and have established corresponding technical conditions and environmental regulations in order to maintain ecological peace. In order to realize development in these countries, enterprises must reach a specific level of environmental protection and observe corresponding conventions and laws. The implementation of a green supply chain will enable these enterprises to evade these green technical trade barriers, reach corresponding standards and meet their requirements, thus realizing development.

Besides, after green products enter the market, they may bring green benefit to customers while protecting environment, thus raising value of customers.

2.3 Factors hindering the development of a green supply chain

The development of a green supply chain should have the backup of relatively perfect environmental laws, regulations and management policies, industrial standards and taxation systems, but China lacks related content.

Although green supply chain may raise the efficiency of resource utilization and reduce cost, certain economic price has to be paid at resource recycling and waste treatment, so the implementation of a green supply chain might cause negative financial effect.

During development, enterprises mainly consider their own development rather than maximization of social benefit. Enterprises hope their cooperative partners can profusely adopt green processes to reduce their own cost, the trust relationship among enterprises will also become a factor hindering their development.

The production technology, waste treatment technology, resource recycling technology and other management technologies for green products are still not advanced in China, so China lacks technical backup to the development of green supply chain and more efforts should be made in technical R&D.

3 Overview of Domestic and Foreign Research

3.1 Current development status of green supply chain in the United States

The United States as an initiator of green supply chain started earlier than China did and has outstanding achievements in green supply chain management. It has many forerunners in the practice of green supply chain management and has accumulated a great many empirical results which are worth learning.

3.1.1 High attention from government and enterprises and vigorous support from related organizations

Under the policy guidance of green supply chain, the American government has formulated a series of forceful and flexible laws and regulations on the basis of science, such as: the policies and regulations for control of pollution sources, restriction of traffic volume, control of traffic flows, prevention of food contamination and protection of consumers' health, rights and interests and has established effective supervision systems.

In order to establish a good international image, more and more leading American enterprises are dedicated to a globally unified environmental standard, for example, requiring all the branches in the world to pass ISO14001 certification; many enterprises consider acquisition of environmental reputation as a main driving force of environmental management; some enterprises as pacemakers of green supply chain management also position themselves as the leaders of green supply chain management. They not only have formulated the goals for resource conservation, waste reduction, pollution avoidance and green design, which are higher than the provisions of related laws but also actively raised the environmental protection level of the whole supply chain and even the whole industry.

3.1.2 The government formulates market incentives to influence environmental behaviors of enterprises

American government has formulated a series of tax policies and economic measures to influence the financial decisions of enterprises, prompt them to introduce brand-new design ideas, economically design their supply chains and realize optimum environment of the whole supply chain through close cooperation of the partners on the supply chain. In order to reduce the total energy consumption of the supply chain,

American government introduced a series of market incentive measures, mainly including: loans at a low interest rate, loan guarantee and green sci-tech subsidies, to stimulate the investment, R&D and use of new equipment and new energies.

3.1.3 Guide enterprises on disclosure of environmental information of the supply chain

American government requires every enterprise must disclose environmental impact information in all links of its supply chain. U.S. Environmental Protection Agency established a “Toxics Release Inventory” and requires enterprises to disclose information of the emission amount of all the harmful chemicals in the Inventory.

Besides, the United States also actively promotes a system for voluntary reporting of environmental information. Domestic enterprises and foreign funded enterprises all must periodically report their financial status and management status to government departments. The report content is under strict supervision of government departments and needs to be disclosed periodically. The report content also includes detailed information about the operation and external cooperation of the enterprises. The reports on environmental information mostly are voluntary reports, such as: disclosure of carbon emission information and sustainable development reports.

3.1.4 Vigorously practice green government procurement system

During formulation of a government procurement system, the United States explicitly requires the purchased facilities and office supplies must be green and environment friendly products with minimum impact on environment and human health. It also specifies priority shall be given to the brands designated by U.S. Environmental Protection Agency (EPA) when the amount of procurement exceeds 10,000 dollars. For this, EPA formulated a procurement catalog.

3.1.5 Enterprises need to establish cooperative systems on the basis of green supply chain

Good American enterprises are rather prudent during selection of suppliers. They pay great attention to environmental impact. During selection of suppliers, the ability in environmental protection is one of the important inspection indicators. According to the requirements of laws, regulations, EPA and enterprises, enterprises have established their own supplier inspection systems. Analysis and evaluation result on supplier indicators is used as a basis for supplier assessment. After suppliers are determined, the enterprises will also provide guidance and support to them, for example, organizing forums and supplier training relevant with environmental protection.

3.2 Development status of green supply chain in EU

EU took the lead in putting forth the concept of green product. It realizes that there are close interest relations on product supply chain, so it actively promotes green supply chain, legislates some content of environmental protection and requires all links of a supply chain shall comply with the principle of green production. Meanwhile, EU hopes to upgrade global manufacturing industry into green manufacturing by relying on the huge EU market.

3.2.1 Proposition of EU environmental act

In 2003, EU officially announced a recovery standard of ten categories of motors and electronic equipment and required that by July 1, 2006, the ten categories of motors and electronic equipment may not contain Pb, Cd, Hg, Cr6+ and brominated flame retardants and other harmful substances. In 2012, EU promulgated Waste Electrical & Electronic Equipment (WEEE) Directive and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment. The release of these two directives effectively guarantees the recycling o electronic products in the territory of EU and reduces the environmental destruction caused by recovery of electronic products. In the same time, the two directives have made strong impact on global electronic goods producers and made them suffer “green trade barrier”. In order to sell their products to EU, the producers and other suppliers have to try to improve their production technologies to meet the requirements of EU.

3.2.2 Eco-labeling system of EU

In 1992, Europe established an eco-labeling system on a voluntary basis, thus encouraging the development of environment-friendly products and services. During granting of an eco-label, the product will be evaluated in its full life cycle. Eco-labeling is accepted in all of the 27 member states of EU. At present, EU is trying to enlarge the range of products covered by this label.

3.2.3 EU actively promotes green public procurement.

In 2008, EU proposed green public procurement and explained that this procurement system would reduce life-cycle environmental impact of products compared with conventional procurement. Green public procurement prompts the manufacturers to vigorously develop green technologies and green commodities, generate huge impact on the market and promote the market to leave a huge space for the development of green products. Just for this reason, enormous change has taken place to European market.

3.3 Development status of domestic green supply chain

In the recent years, China carried out policy reform and issued some measures during macroscopic control of national economy, such as: closing many SMEs with high energy consumption and heavy pollution. At present, China has realized the importance of environmental protection and resource conservation in the course of fast economic development. Meanwhile, Chinese enterprises have started the research on the production technologies of various green products and the greening of supply chain. Many Chinese enterprises only pay attention to the green management of their own products, while whether the products and technologies of upstream and downstream products meet the requirements for environmental protection does not arouse enough attention. Moreover, the product waste treatment technology and recycling technology of Chinese enterprises do not reach an advanced level. Therefore, China has not reached the level of life-cycle green management of products and is still in a preliminary stage for the development of green supply chain.

4 Plan of Yujiapu Financial District for Establishment of a Green Supply Chain

4.1 Brief introduction of Yujiapu Financial District

Located in the core area of Yujiapu Financial District，Tanggu Haihe River north shore District, and is surrounded by water on east, west and south, covers 3.86 million square meters of land and is the core area of Binhai New Area CBD. Yujiapu Financial District will focus on the development of financial services, a modern business, commercial and other high-end modern service industry, to build the Bohai ring area financial center, trade center, business service center and high-quality international ecological livable city.

Yujiapu Financial District was established as the APEC First Low Carbon Model Town in September, 2010. Adhering to the "development of the concept of green building, low carbon city", to carry out a full range of low carbon planning implementation from the regional planning, the architectural design to the engineering construction. Energy saving as the goal, to green building technology as the standard, the implementation of green development policy from the composite architecture of the traffic network, the humanities affinity ecological environment to regional energy concentrated supply and management, and strive to build a low carbon financial business district.

Yujiapu Financial District as a low-carbon modern business district has its unique advantages to develop green supply chain, Tianjin Municipal Government will implement green supply chain management as one of tasks, organize the project demonstration zone located in the green goods and services to the Yujiapu Financial District.

4.2 Preliminary work for green supply chain management service of Yujiapu Financial District

4.2.1 The first case for APEC Low-Carbon Model Town construction has produced preliminary result, providing a favorable condition for introducing the means of green supply chain management.

Yujiapu Financial District is planned and built in strict compliance with a green low-carbon concept. On June 19, 2010, the 9th APEC Energy Ministerial Meeting was held in Fukui, Japan. The meeting determined Yujiapu Financial District as the first APEC Low-Carbon Model Town. The external environment and work mechanism for low-carbon town construction are being improved day by day. In order to promote APEC Low-Carbon Model Towns, APEC established APEC Low-carbon Town Work Group on the basis of the original AECE Energy Work Group and set up an exchange and communication mechanism. It holds two special meetings a year. Chinese government pays great attention to it. At the 18th APEC Leaders' Meeting in 2011, Chinese state leaders proposed for "strengthening cooperation in Low-Carbon Model Town". This proposal was included in the Leaders' Declaration of the 19th APEC Meeting held in 2012. The International Cooperation Department of National Energy Administration worked with the Energy Research Institute of National Reform and Development Commission and the International Department of the Ministry of Foreign Affairs to promote the implementation of related research, cooperation and projects. Tianjin Municipal Development and Reform Commission and Binhai New Area CBD Administrative Committee are concretely responsible to coordinate and promote the construction of Yujiapu Low-Carbon Model Town.

Yujiapu Financial District achieved outstanding effect in the construction of low-carbon town. It has successively completed the Guideline on Sustainable Development of Yujiapu, Feasibility Study on Low-carbon Town, APEC Low-carbon Town Indicator System and other guiding documents and implemented them one by one in view of engineering construction progress. It completed the green building evaluation of seven high-rise office buildings. Four of them have obtained green building design labeling certificates and signs issued by the Ministry of Housing and Urban-Rural Development. It completed the planning design and technical standards of regional energy center, low-carbon landscape, and bicycle lease system, electric

vehicle charging piles and other low-carbon facilities of Yujiapu Financial District and determined investment and operation models. The construction of the regional energy center and piping network utility tunnels has been started smoothly.

The effect of Yujiapu Financial District as a low-carbon model is getting more obvious. While strengthening self-building and standard research, Yujiapu Financial District took active effort in external exchange and publicity. It assisted National Energy Administration undertaking Forum on APEC Low-Carbon Town twice; held expert review on APEC Low-Carbon Model Towns three times; received the visits of construction authorities from Singapore, Japan, Thailand, Taiwan and other APEC economies as well as Beijing, Shanghai, Chongqing, Anhui, Shanxi and other provinces; assigned an expert panel to attend the examination of Thai Samui Island, Vietnamese Da Nang and other low-carbon towns at the invitation of APEC low-carbon town work group.

The strength of Yujiapu Financial District in low-carbon technology grows quickly. It cooperated with Tenio Architecture and Engineering Co., Ltd. to establish Tianjin Innovative Finance Low-carbon Institute (Low-carbon Institute), playing an important role in technical support to the construction of Yujiapu Financial District. In response to the construction of Yujiapu Financial District, Low-carbon Institute actively introduced high-caliber professionals and carried out a series of major research projects. It concretely undertook the preparation of more than ten technical documents, including the first low-carbon town indicator system of APEC - Low Carbon Town Indicator System of Yujiapu Financial District, and Low-carbon Launch Plan of Yujiapu Financial District. The institute as the first professional low-carbon town research institute of which establishment was supported by APEC has rapidly grown into a core technical supporting force to low-carbon towns of APCE and carried out many domestic and foreign technical output services.

4.2.2 Yujiapu Financial District attended in the whole process the initial research and policy demonstration of the pilot project of Tianjin for green supply chain management. Significant progress has been made in the pilot project.

Yujiapu Financial District attended in the whole process the initial work of the pilot project of Tianjin for green supply chain management and was selected as a pilot area for green supply chain management in Tianjin. Yujiapu Financial District designated a professional research institute to carry out project study of the Plan for Green Supply Chain Management of Yujiapu Financial District. On January 23, 2014, it initiated the first green purchase of building materials, involving ceramic tiles, sanitary ware, lamps, carpets, gypsum boards, sunshades and other bulk building materials and covering five high-rise office buildings and underground business streets in the starting area of Yujiapu Financial District.

China Environment Certification Center of the Ministry of Environment and other domestic leading green low carbon service institutions were introduced to establish Tianjin Low-Carbon Development and Green Supply Chain Management Service Center (Green Supply Chain Service Center). Since establishment in October 2013, breakthrough has been made in business. The center took part in carbon inventory of the first batch of carbon trading pilot enterprises in Tianjin. As one of the first carbon quota trading buyers in Tianjin, it bought 5000 tons of carbon quota indicator. It put forth a green design specification for the bidding of the design of fine decoration of business buildings and underground business streets of the TIFI and provided full-process service for green purchase of Yujiapu Financial District. The Chinese version of its website was launched on January 23 and bidding announcement was published. It undertook the project of Tianjin Municipal Development and Reform Commission for research on a model for sustainable carbon trading and a cooperative platform of APEC for green supply chain management. It participated in the research on the plan for Northeast Asia Financial Center. The draft of the plan is basically completed. It involved in the management planning, standard formulation and related project study of the green supply chain of Yujiapu Financial District.

Besides, the green supply chain service center actively developed green certification business, set up a green certification department, researched service rules and flows, strengthened shareholder and external cooperation and formed green product certification, certification of green building materials and decorative materials, consultation of green building certification, carbon inventory, the development, operation and maintenance of the electronic information system of enterprise greenhouse gas reports and other service abilities. In combination with the first procurement of green buildings of Yujiapu Financial District, it is studying a work plan for promotion of regional green procurement. The green and low-carbon training service is mature. It may provide training service of “carbon manager” qualification under the Ministry of Human Resources and Social Security and is applying for training on “green supply chain manager” qualification. Headway has been made in the development of green financing rating service.

4.2.3 Yujiapu Financial District will exert effort to develop industrial finance and green low-carbon modern service system.

Yujiapu Financial District established China Financial Lease Co., Ltd. after reorganization and establishment of Tianjin Innovative Finance Low-carbon Institute, Galaxy Dahua Low-Carbon Industrial Fund Management, Innovative Finance Smart City Operation Company, Suez Energy Center Operation Company, Green Supply Chain Service Center and other institutions. It established relations of strategic cooperation with many leading Chinese and foreign green low-carbon enterprises and public institutions and built up core competence of green low-carbon industry.

Tianjin Innovative Finance Low-carbon Institute is also one of the main executive agencies for implementing the work ask of green supply chain of Tianjin. In the initial work process, the Low-carbon Institute completed the compilation of Yujiapu Financial District indicator system; the consultation and application of green building evaluation for the starting area of Yujiapu Financial District; low-carbon energy research, low-carbon traffic research and smart city research of Yujiapu Financial District.

4.3 Work approach and main objective for green supply chain management service of Yujiapu Financial District

Yujiapu Financial District is spearheaded by promoting facilitation of green investment and trade, actively takes part in the research and practice of green trade and investment facilitation of the free trade zone, centers on the construction of APEC Low-Carbon Model Town, explores an innovative model for applying market means of green supply chain management to promote green low-carbon urbanization, relies on green supply chain management service platform, low-carbon research institutions and other supporting entities, drive standard formulation and popularization, rating, certification, purchase, trading, technical R&D application, logistics and other market services of green low-carbon commodities, puts forth diversified innovative services for green finance, researches and introduces supporting regional support policies, strives for supporting policies for the free trade zone in order to promote facilitation of green investment and trade, develops landmark green buildings with a carrier function, accelerates gathering of industries, funds, technologies and talents, builds an APEC green supply chain service center and develops Northeast Green Finance Center.

Following the deepening of the construction of a Low-Carbon Model Town of Yujiapu Financial District, while implementing the work task of a green supply chain, the district will gradually play its advantage as a shareholder of the service center, allies with low-carbon research institutions, strengthens external cooperation, develops a business team and forms regular business and the ability of continuous profitability as soon as possible. It will integrate resources, exert effort in the R&D of innovative and knockout products and introduce commercialized services in the shortest possible time. It will establish a market network, focus on key customers and upgrade its service brand. It will develop an integrated service platform for electronic information of green supply chain management and raise service capability and management level.

4.4 Executive agency for green supply chain management service of Yujiapu Financial District

Tianjin Innovative Finance Investment Co., Ltd.(hereinafter referred to as “TIFI”) is a city operator of Yujiapu Financial District and undertakes the overall planning, development, construction, investment promotion and operation management of Yujiapu Financial District.

Tianjin Low-Carbon Development and Green Supply Chain Management Service Center (“Service Center”) is China’s first market-based integrated service platform for green supply chain management. As an important result of a demonstration project of China Council for International Cooperation on Environment and Development (CCICED) for green supply chain management policy, the Service Center is dedicated to providing one-stop service for green supply chain management under the guidance of CCICED and related departments.

Tianjin Innovative Finance Low-carbon Institute (hereinafter referred to as “Low-carbon Institute”) as a support unit to the low-carbon construction of Yujiapu Low-Carbon Model Town carries out systematic research, practice and promotional activities in the whole process including planning, design, construction and operation. The institute is the first research institute which is specialized in low-carbon town and whose establishment is supported by APEC. Under the guidance of National Energy Administration, it has quickly grown into a core technical supporting force to APEC Low-carbon Town, carried out a number of projects for domestic and foreign technical output service and held “Low-Carbon Town Tour in China” program.

4.5 Main task for green supply chain management service of Yujiapu Financial District

4.5.1 Strengthen plan research and standard formulation of Yujiapu Financial District relevant with green supply chain.

When implementing the work tasks of Tianjin for green supply chain, Yujiapu Financial District needs to formulate Special Plan for Green Urban Area of CBD, and Regulations for Management of Green Buildings in CBD to manage and guide the planning design, development and construction of construction projects, and define regulations for green procurement. It should summarize the experience in the planning and implementation of green buildings in the starting area of Yujiapu Financial District, promote the green urban planning of the areas outside the starting area of

Yujiapu and Tianjin Business Area, and determine a green building star-rating standard and road map in a scientific and reasonable manner. It should formulate Mid/Long-term Plan for Green Supply Chain Management of Yujiapu Financial District, an action plan and a road map. It should formulate Measures for the Administration of Green Buildings and Green Procurement of Yujiapu Financial District, organize the research of a green standard of building materials, establish Technical Standard of Yujiapu for Green Building Materials and introduce by stage A List of Green Building Materials in Yujiapu. It should formulate Measures for the Administration of Green Certification in Yujiapu Financial District, Plan for Development of a Green Procurement Platform of Yujiapu Financial District, Business Rules, and Plan for Pilot Project of Green Trade and Investment Facilitation of Yujiapu Financial District and release in an appropriate time the Measures for the Administration of Green Trade and Investment Facilitation of Yujiapu Financial District.

4.5.2 Carry forward the construction of the first APEC Low-Carbon Model Town, realize regional green low-carbon objective and create demand for green consumption

Deepen and refine the low-carbon indicator system of Yujiapu Financial District and guide the planning, construction and operation management of subsequent projects by the research results of the indicator system. Implement the Low-carbon Town Indicator System of Yujiapu Financial District and the Low-carbon Launch Plan of Yujiapu Financial District and form demonstrative effect of low-carbon towns as soon as possible. Encourage enterprises in the district to make innovation in concepts, adopt low-carbon operation and introduce the Measures for the Administration of Low-carbon Commerce of Yujiapu.

Build an urban area with at least 10 million square meters of green buildings and accelerate the design labeling review and evaluation of green buildings in the starting area. Through “advance planning, meticulous design, optimized technology and scientific operation”, develop an urban district of green buildings with the highest standard in China, realize high-standard green buildings at a low price, ensure the projects in the starting area realize at least 30% of high-star-rated buildings in an urban area of green buildings as required by the Ministry of Housing and Urban-Rural Development, and strive to reach 70%. Emphasize low-carbon operation of buildings, realize full-life cycle green buildings and ensure all property companies in the district must pass the certification of ISO14001 environmental system and the energy saving rate of buildings reaches 50% or above.

The first financial district adopting intensive energy supply was built up. In 2012, French Suez, one of Global 500, established presence in Yujiapu Financial District, the investment and construction of the energy center in the starting area was initiated

and effort will be made to ensure it is put into service synchronously with the buildings in the starting area. Through intensive energy supply and intelligent efficiency management means, it is predicted that the emission of more than 30,000 tons of carbon dioxide may be reduced.

Perfect low-carbon traffic planning and operating model and establish an integrated low-carbon traffic system. Build underground space and surrounding buildings synchronously, realize seamless connection of public transit and promote the building of an intelligent traffic system, bicycle leasing, electric vehicle charging piles and other low-carbon facilities. Build waterfront low-carbon landscape, and enrich low-carbon demonstration and low-carbon culture in the area. Rely on roof greening, popularize urban agriculture and explore low-carbon potential.

4.5.3 Practice green procurement, apply green supply chain management means and drive green transformation of suppliers.

Carry out a comprehensive green procurement system in a planned and step-by-step way, and expand from incentive transition to compulsory transition, from building materials and components to daily procurement, from commodity procurement to whole-process service procurement, and from Yujiapu Financial District to CBD and Binhai New Area. Realize green procurement and sunshine procurement through an open, transparent and unified green bidding and procurement platform, apply market means to drive industrial upgrading of upstream construction enterprises and suppliers and lower the overall environmental low-carbon footprint of Yujiapu Financial District. Organize demonstrative trading, explore experience, discover problems and optimize the flow. Do well in demonstrative trading of green procurement for fine decoration of the five plots in the starting area of Yujiapu Financial District and the underground business street, and accelerate its reproduction and popularization.

Support the service center to carry out certification service of green building materials. Provide service for green procurement of Yujiapu Financial District, start with green tender agent service, establish a sound service platform, continuously enlarge the scope of green procurement, and gradually extend service to CBD, Binhai New Area and other areas.

4.5.4 Support development of key research institutions and strengthen standard research, and technology R&D, popularization and application.

Increase support to Tianjin Innovative Finance Low-carbon Institute, and carry out related standard R&D in focus on the core issues concerning the pilot project for Low-Carbon Model Town construction and green supply chain management of Yujiapu Financial District. Demonstrate and lead the practice of APEC Low-Carbon

Model Town construction in coordination with the activities of 2014APEC China Year, aim at building a green supply chain market service system and mainly support the Low-carbon Institute to organize and carry out the R&D and application of low-carbon technologies, policies and industries. Support the Low-carbon Institute to carry out evaluation of green buildings and building efficiency, perfect the special plan of Yujiapu and the green urban area of CBD and implement the objective of all coverage of green buildings by starting with land sorting and assignment. Push on the development and service of carbon inventory and carbon verification standards for the construction and operation of public buildings. Support the Low-carbon Institute to carry out the R&D, application and popularization of underground space environment quality, roof landscape agriculture and other low-carbon technical industry and enlarge the industrial connotation of the supply chain.

Quicken the building of service ability of the service center, develop flagship enterprises of green supply chain, and provide one-stop service for the pilot project of green supply chain management. Enlarge the scope of service products of the service center, formulate business rules and develop a business group. Take the lead in carrying out certification standard development and verification and certification service of green commodities, green buildings, building materials, components and decorative materials under the support of related government departments, integrate resources, exert effort in the R&D of green innovative products for financing rating and put forth commercialized service as soon as possible. Perfect carbon inventory and verification service, and try to make the service center obtain the qualification of a third party service institution for carbon verification in Tianjin in 2014. Provide technical support for related departments to develop carbon emission report system and carbon asset management system and provide technical service for enterprises to develop carbon emission report systems and carbon asset management systems. Promote training and education, initiate “carbon manager” training course under the Ministry of Human Resources and Social Security, gradually enlarge training scale, and apply for and carry out “green supply chain manager” training course under the Ministry of Human Resources and Social Security. Undertake major empirical research and project demonstration of green supply chain management.

4.5.5 Perfect the green supply chain management market service platform and exert effort to raise comprehensive service ability.

Support the green supply chain service center and take the lead in carrying out green certification service of building materials, components and decorative materials in Yujiapu Financial District. Build a market network in focus on the key business of the service center, actively develop a green procurement platform service, establish a sound membership system, perfect member service and actively expand the market. Designate the green supply chain service center as green tender agency of Yujiapu

Financial District, support it to develop an integrated service platform for electronic information of green supply chain management, and organize information publication and green bidding of green building material procurement of Yujiapu Financial District. Integrate resources, exert effort in the R&D of green innovative products for financing rating and introduce commercialized service as soon as possible.

Formulate and carry out related service software development and background construction as per the service rules and flows of the service center, and put up a unified electronic information service platform consisting of main blocks including green supply chain information bank, green certification system, green rating system, green procurement platform, green low-carbon online education system and carbon emission information report system.

In the same time, support the green supply chain service center to get carbon verification business of Tianjin in 2014, provide the services for development, operation and maintenance of enterprise carbon emission report electronic information system and carbon asset management system, undertake major empirical research projects, cooperate in capacity building, organize and carry out “carbon manager” training course under the Ministry of Human Resources and Social Security, apply for and carry out “green supply chain manager” training course under the Ministry of Human Resources and Social Security, do well in serving the pilot units for green supply chain of the city, develop key customers, build service brands and establish an integrated service platform for electronic information of green supply chain management.

4.5.6 Research and introduce supporting regional policies and measures and reform the models of financial and tax support to green low-carbon industries and projects.

Yujiapu Financial District will research and introduce regional supporting policies and measures and reform the model of financial and tax support to green low-carbon industry and projects. Research and introduce promoting measures and incentive policies of green urban areas and buildings, attract green industry investment and encouragement policies, as well as related fiscal reward and subsidies, tax preference and other supporting support policies. Research an innovative mechanism for integrating and revitalizing special fiscal support funds to energy conservation and emission reduction, reform fund innovation mechanism and fund appropriation model, provide financial subsidies and rewards not longer based on whether the project is started but based on the actual energy conservation benefit verified by an independent third-party audit institution, raise the use efficiency and transparency of financial fund, strengthen public supervision and drive development of third-party service institutions.

4.5.7 Build an APEC green supply chain service center and help the development of Northeast Asia Green Financial Center

Establish Northeast Asia Financial Center, set up a green financial fund platform, explore innovative green financial service and develop landmark green buildings with a carrier function. Seize the opportunity that Tianjin is trying to develop a national reform and innovation area, strengthen regional exchange and cooperation, attract private investment and support funds of Northeast Asia, establish Northeast Asia green and environmental protection parallel fund and government guidance fund, develop Galaxy Dahua Low-Carbon Industry Fund, and strengthen green low-carbon financial lease business of China Financial Lease Company. Integrate and upgrade the existing environment-friendly, low-carbon and free finance and related specialized services in Binhai New Area, Tianjin, rely on professional service for green supply chain management market, attach importance to developing a standard evaluation system which serves the environmental protection industry and links green finance, introduce various kinds of innovative services for green finance, and earnestly solve the fund bottlenecks holding back the development of green industries. Develop Northeast Asia Green Finance Center Building, increase hardware support, promote industrial incubation and attract the gathering of low-carbon industries, funds, technologies and talents. Establish Northeast Asia Green Finance Center with scientific concept, complete functions, smooth mechanism and controllable risk.

Develop the service center into an APEC green supply chain service center, practically play the role of market platform and make it serve the building of Northeast Asia Green Finance Center. Strive for policy support of related departments of the State and the city, strengthen international cooperation, accelerate development of green financing rating service products of the service center, formulate a green rating standard, model and business guidelines, put up a bridge between green low-carbon industry and financial market, provide a market-based solution to solve the fund bottlenecks of green low-carbon development and provide technical support for the development of green finance.

Northeast Asia Green Finance Center will settle down in the starting area of Yujiapu Financial District. The proposed site is plots 3-15. It will attract a great many international financial institutions. The Low-carbon Institute will, on the basis of the green building design of this project, continue to deepen the research and application of advanced low-carbon energy-saving technologies and the management means of the intelligent system, consider “intelligence and low carbon” as the objectives, optimized design of green buildings and integration of low-carbon advanced applied technologies as the support, and build the buildings of Northeast Asia Green Finance Center into a key demonstration project of Yujiapu Financial District.

4.5.8 Explore an innovative mechanism for promoting facilitation of green trade, strive for supporting policies for the free trade zone, establish APEC green supply chain service center and provide assistance in undertaking an APEC round table conference for green development.

Seize the opportunity that China hosts the 2014APEC Conference, persuade China and other member economies of APEC into supporting the establishment of APEC green supply chain cooperation platform, and develop APEC green supply chain management service center in Yujiapu Financial District, Tianjin. Seize the opportunity of development of a free trade zone, take an active part in the national pilot project for trade and investment facilitation in Tianjin, give play to the dominant role of the market, explore commercialized solutions in such aspects as green supply chain building and performance improvement, and the development and popularization of standards for environmental products and environmental service, arrangement of international mutual recognition, service relating to green low carbon certification and verification, green rating and credit rating system, total solution of green credit, and technical service and international trading platforms for innovative financial products and open and transparent green commodities, and strive for green customs clearance of environmental products and other national pilot policies.

Support and actively participate in the 2014 APEC round table conference for green development undertaken by related departments of the State and Tianjin, learn related foreign experience, further enlarge the influence of Yujiapu Financial District among the member states of APEC, invite the experts in the industry to hold various seminars, academic forums and other activities, actively undertake related APEC conferences for green supply chains and raise the influence of Yujiapu pilot project for green supply chain management.

4.6 Measures for green supply chain management service of Yujiapu Financial District

4.6.1 Establish a green supply chain industry alliance and carry out research on industrial standards for green commodities in each industry

The building of a green supply chain management system mainly caters for “green commodities”. Developing a green supply chain management system is a fundamental guarantee in the full life cycle of green commodities and an important basis for construction of green cities. It is good for realizing institutional innovation of green transformation and provides an important industrial backup for implementing the strategic goal of energy conservation and emission reduction. It is an intrinsic requirement for promoting traditional industries to adapt to the changes in

international market environment. Chinese green commodity system develops fast in the recent years, but it has always faced the restriction from lack of industrial standards. What are “green commodities” and how to identify a commodity as a “green commodity” are always the questions the participants of green supply chain think over.

Yujiapu Financial District has been determined as a demonstrative area for implementing green supply chain in Tianjin. When implementing the work of green supply chain, Yujiapu Financial District should actively organize the leading enterprises of all commodity production enterprises to set up a green supply chain industry alliance. In the system of the green supply chain industry alliance, the leading enterprises in each industry play a leading role, the research work on industrial standard for green commodities is conducted for the industry and a green commodity evaluation standard system is completed, laying a solid foundation for nationwide green commodity evaluation in the future.

Meanwhile, while Yujiapu Financial District implements work tasks for green supply chain, it shall also support green commodity certification enterprises to settle down in Yujiapu Financial District, support the subordinate enterprises to join the green supply chain industry alliance to become the shareholders or controllers of the laboratories relevant with green commodity certification, and support subordinate enterprises to carry out the research and popularization of standard systems relevant with green commodity certification.

4.6.2 Demonstrative trading of green building materials in Yujiapu Financial District

While implementing the work tasks of green supply chain, Yujiapu Financial District will take the lead in implementing procurement of green building materials during construction of a Low-Carbon Model Town. At present, the principal buildings in the plots of the starting area of Yujiapu Financial District are basically completed. In the next step, secondary structure and interior decoration works will be conducted. In the secondary structure and interior decoration works of the buildings in the starting area of Yujiapu Financial District, all the related building material products adopt green products.

At present, the procurement of green building materials for the construction of Yujiapu Financial District has completed the formulation of a green design specification and green building material standard for the starting area, and requirements for green procurement have been put forth for some building material products related during construction of the starting area. Meanwhile, with the help of the pilot project for construction of the starting area, the first demonstration trade of green building materials was initiated. The plots participating in the first

demonstration trade of green building materials in the starting area of Yujiapu Financial District are mostly the buildings owned by Innovative Finance Company. Through this demonstration trade of green building materials, the reactions of market participants were collected to know market situation, inspect the reasonableness and applicability of technical standards, accumulate preliminary experience for green building material procurement of more plots and more buildings and gradually promote demonstration trade of green building materials to Baolong Building, Shenglong Group, Cognition Building and the construction of buildings in other plots of Yujiapu Financial District. Eventually all the building materials involved during construction of all the plots and buildings in Yujiapu Financial District will be green building materials.

4.6.3 Procurement of green office supplied in Yujiapu Financial District

During construction of a Low-Carbon Model Town, Yujiapu Financial District not only guaranteed the related building materials are all green buildings, and the office furniture, office supplies and office equipment inside buildings in the future all shall be green products.

In the future, after the buildings of Yujiapu Financial District are completed, the work relating to the formulation of standards for green furniture and green office supplies needs to be done, definite requirements for the office furniture, office supplies and office equipment selected by the organizations in the district shall be set forth, and the selected office furniture, office supplies and office equipment must all conform to the provisions of green products.

Or a “green brand database” may be established for the office furniture, office supplies and office equipment selected in Yujiapu Financial District to collect the brands of all the office furniture, office supplies and office equipment that meet the green product standard. The brands of the office furniture, office supplies and office equipment selected by the organizations in Yujiapu Financial District must be the brands in this database. The brands not in the database may not be used in the buildings inside Yujiapu Financial District.

4.6.4 Establishment of a green commodity trading platform of Yujiapu Financial District

While implementing the work tasks of green supply chain, Yujiapu Financial District will also carry out the service of green commodity trading, establish a green commodity network trading platform, apply the trading system established in the early period to the construction of a network platform, and build a C2C e-commerce model. The traded products must meet the requirements for green commodities. By relying

on the urban construction of Yujiapu Financial District and by taking green building materials as the cut-in point of traded products, the district will build China's first green commodity network trading platform. After the trading platform is mature, the scope of traded products will be gradually enlarged. They mainly include: energy-saving lamps, electric vehicles and other energy saving environment friendly products.

The green commodity network trading platform of Yujiapu Financial District shall attract all kinds of low-carbon environment-friendly product suppliers and becomes China's first low-carbon environment-friendly product e-commerce platform. The green commodity network trading platform mainly cater for corporate procurement and government procurement.

4.6.5 Visit and survey institutions relevant with the establishment of a green supply chain

While implementing the work tasks of green supply chain, Yujiapu Financial District should tighten the ties with other domestic and foreign places where the work tasks of green supply chain are implemented and establish relations of strategic cooperation with them. In order to actively absorb the successful experience of various areas in the establishment of a green supply chain, Innovative Finance Company as the owner of Yujiapu Financial District and an organization responsible to implement green supply chain needs to go out and visit the competent government departments, technical consulting institutions and local green supply demonstration zones, such as: the Ministry of Environmental Protection, Environmental Defense Fund, National Development and Reform Commission, the Ministry of Finance, Shanghai Green Supply Chain Demonstration Area and other related departments, observed and researched them, knew related policies, green supply chain development trend, current technical condition, market-based model, market intention, successful cases, development potential and development directions, draw on the research results and practical experience of all departments and areas, and design the realization path of green supply chain of Yujiapu Financial District as one of the basic support conditions for establishing a green supply chain of Yujiapu Financial District.

4.6.6 Organize or undertake meetings relevant with green supply chain

Green supply chain is an emerging industry in China, even the whole world. At present, no uniform model has been formed in China in regard to standard formulation, institutional building and industrial development direction of green supply chain, and there exists a large policy blank, market blank and technical blank in the field of green supply chain in China. Strengthening exchange and learning of domestic and foreign

experience in the establishment of a green supply chain is a necessary means to perfect Yujiapu Financial District and develop a green supply chain project.

Therefore, during implementation of the work tasks of green supply chain, in order to realize better and faster development of green supply chain in Yujiapu Financial District, Yujiapu Financial District should strengthen contacts with other areas and organizations which implement the work tasks of green supply chain, and acquire experience. For this reason, Yujiapu Financial District should organize or undertake many meetings relating to green supply chain, carry out exchange, study and cooperation with related domestic and foreign government departments, research institutions and operating institutions, know domestic policies and international trends relating to green supply chain, extensively absorb experience for the implementation of green supply chain in Yujiapu Financial District, and broaden the road for establishment of green supply chain of Yujiapu Financial District.

4.6.7 Promote green consumption and cultivate green consumption culture

While implementing the work tasks of green supply chain, Yujiapu Financial District not only should realize 100% procurement of green building materials and 100% procurement of green office supplies for self-construction but also should actively promote green consumption among the enterprises in the district and local people, cultivate green consumption culture of Yujiapu Financial District and build a green supply chain.

Green consumption is a necessary choice for the development of human consumption pattern. Yujiapu Financial District is a Low-Carbon Model Town. The establishment of a green consumption pattern is a necessary choice for realizing a Low-Carbon Model Town of Yujiapu Financial District. It relies on consumption education to change consumption concept, thus changing consumer’s consumption behaviors. Therefore, in the operating stage of Yujiapu Financial District, vigorous effort should be made to cultivate people’s awareness on ecological civilization, encourage the people to take part in low-carbon consumption, stimulate green consumption, establish a correct consumption concept, form a lifestyle of moderate consumption and meanwhile highlight environmental education of enterprises and consumers.

4.6.8 Establish an independent green commerce support system of Yujiapu Financial District

In order to more effectively implement a green supply chain of Yujiapu Financial District, Tianjin Municipal Government has defined “Yujiapu Green Commodity

Service Demonstration Area" project as key work for the establishment of a green supply chain in Tianjin. Therefore, in the future investment promotion of Yujiapu Financial District, active effort should be made to attract the enterprises relevant with green supply china to settle down in Yujiapu Financial District. It is suggested to research and formulate "green entry standard" for business entities in Yujiapu Financial District. The main content includes: shop design, packaging, sold commodities, and condition of upstream and downstream suppliers relating to the organizations in the district, making it a yardstick during investment promotion of Yujiapu Financial District. The organizations which conform to this standard in this district may obtain honorary rewards or policy subsidies, making them star enterprises in the category of green supply chain of Yujiapu Financial District.

4.6.9 Actively apply for APEC green commodity demonstration area

Tianjin Municipal Government has included the construction of Yujiapu APEC green commodity service demonstration area into the Implementation Plan for the Pilot Project of Tianjin Green Supply Chain Management. In the period to come, the building of APEC green commodity demonstration area will become a key task for implementing a green supply chain of Yujiapu Financial District. Therefore, the future work should seize the opportunity that China will host APEC Annual Conference this year in China and effort should be made to have high-level international conferences relevant with green supply chain settle down in Yujiapu or reflect the elements of Yujiapu. Meanwhile, Yujiapu Financial District will strive to obtain support of the Ministry of Environmental Protection, China Council for International Cooperation on Environment and Development (CCICED) and other departments and institutions, actively apply for green commodity service demonstration area and bring the model of Yujiapu Financial District for implementing the work tasks of green supply chain to the world.

4.7 Develop flagship enterprises for green supply chain management service of Yujiapu Financial District

In order to implement the work tasks of Tianjin green supply chain, Innovative Finance Company as the owner of Yujiapu Financial District led and allied with Sino Carbon Innovation & Investment Co., Ltd., China Environment Certification and related enterprises to establish Tianjin Low-carbon Development and Green Supply Chain Management Service Center. The establishment of the service center aims to more effectively implement the work tasks, develop Yujiapu Financial District into a demonstration area of green supply chain in the range of APEC, and build itself into a flagship enterprise at home and even in the range of APEC.

In the future, the main business of the service center should focus on the following few aspects:

（1）The service center will be developed into a green procurement service platform of Yujiapu Financial District. The work on procurement of green building materials and green office furniture will be spread from points to a surface. It starts with the procurement of green building materials for the buildings owned by Innovative Finance Company in the starting area of Yujiapu Financial District, is gradually spread to the whole starting area and finally to the whole Yujiapu Financial District and CBD, and forms a regional center of Binhai New Area for the establishment of a green supply chain.

In the same time, the service center should establish a green commodity trading system of Yujiapu Financial District, carry out related research on the trading models and give full consideration to the links and interactions among key influencing factors of green commodity trading. It should establish a green commodity trading platform of Yujiapu Financial District, gather green commodity manufacturers, agents and consumers, enhance the financial vitality of green commodity trading in Yujiapu Financial District and establish a perfect green commodity trading assessment system.

(2) Promote industrial clustering of green supply chain. When pushing on the establishment of a green supply chain in Yujiapu Financial District, the service center should actively bring related financial institutions, certification institutions, low-carbon research and consultation institutions, trading centers and other related enterprises into Yujiapu Financial District and form industrial clustering of the green supply chain. It should prompt the establishment of a green supply chain in the starting area of Yujiapu and gradually transfer it from procurement of green building materials to green procurement of commercial and office products and other industries.

(3) Carry out low-carbon training service. Training courses with different content and objects should be introduced and mainly fall into two categories, including: green supply chain training and low-carbon training. In the range of Tianjin, “low-carbon economist”, “carbon manager”, “carbon inspector”, “low-carbon auditor”, “low-carbon financier” and popular training courses will be opened at first. Meanwhile, related qualification assessment and identification will be undertaken and training classes will be opened for enterprises. “Green supply chain manager” qualification training course accepted by the Ministry of Human Resources and Social Security will be researched and developed. Training courses for the party and government organs of Tianjin at all levels and financial institutions will be developed and implemented as soon as possible.

(4) Expand carbon inspection and verification business. The service center will establish and improve rules and service flows for carbon verification business, and obtain related qualifications for carbon inspection and verification. It should provide training service for initial inventory and counseling for pilot carbon trading in the area. As a chartered service institution, it should provide carbon verification service for pilot carbon trading enterprises in Tianjin and for voluntary carbon emission reduction projects. It should take the lead in carrying out carbon verification of public buildings in Yujiapu Financial District at first and then gradually spread it to the whole CBD and even Binhai New Area.

(5) Promote the establishment of a green commodity certification system. During investment promotion, the service center should support green commodity certification enterprises to settle down in Yujiapu, cooperate with the institutions or laboratories relevant with green commodity certification, carry out the research on standard systems and policies relevant with green commodity certification in combination with the construction of a Low-Carbon Model Town and the implementation of the work tasks of a green supply chain in Yujiapu Financial District, and gradually carry out green credit rating and certification.

(6) Organize publicity of green supply chain. The service center as a flagship enterprises for the implementation of the work on green supply chain should actively organize the publicity relevant with green supply chain, enlarge its influence in all fields and popularize related knowledge. Meanwhile, the service center as a platform implementing the work of green supply chain in Yujiapu Financial District should organize the publicity work of Yujiapu Financial District from the perspective of establishment of a green supply chain and enlarge its popularity and influence in the field of green supply chain. In Yujiapu Financial District, it may publicize the achievements and latest trends of Yujiapu Financial District for implementation of work tasks of green supply chain on the websites of Innovative Finance Company and the service center, and meanwhile may organize publicity activities relevant with green commodity trading inside Yujiapu Financial District, such as: green commodity exposition and technical exchange meeting for green commodities. Outside Yujiapu Financial District, the service center may cooperate with China Council for International Cooperation on Environment and Development (CCICED) and APEC, jointly organize or attend meetings and activities relevant with green supply chain and publicize the establishment of a green supply chain in Yujiapu Financial District at such meetings or activities. 2014APEC Green Development Forum will be opened in Tianjin. Yujiapu Financial District is also a major participant. On this occasion, the service center may publicize its achievements made during implementation of the work tasks of green supply chain and its future development trends, thus raising its influence in the field of green supply chain.

5 Conclusion

On June 19, 2010, Yujiapu Financial District was determined as the first APEC Low-Carbon Model Town. Since then, Yujiapu Financial District has carried out enormous research and practice relevant with Low-Carbon Model Town. According to the deployment and requirements of Tianjin Municipal Party Committee and Municipal Government, Yujiapu Financial District as a supporting service base for the financial reform and innovation of Tianjin established the planning and design standards for environmental protection, low carbon, energy conservation and emission reduction at the very beginning of planning. Moreover, the construction and development objectives of Yujiapu Financial District are highly consistent with the goal of implementing the work of green supply chain issued by Tianjin Municipal Party Committee and Municipal Government, so Yujiapu Financial District possesses the good basic conditions for the implementation of the work of green supply chain. According to the construction approach of Yujiapu Financial District, Yujiapu Financial District will rely on its unique location advantage, policy advantage and environmental advantage, gradually carry out and implement the concrete work on the work task of green supply chain, establish an APEC green commodity service demonstration area in Yujiapu and eventually develop Yujiapu Financial District into a demonstration district in the process of implementing the work of green supply chain.

Attachment No.1

Work Plan for the Pilot Project of Green Supply Chain Management of Yujiapu Financial District

In order to implement the *Decision on Intensively Implementing the Spirit of the Important Speech Made by General Secretary Xi Jinping during His Visit to Tianjin and Building a Beautiful Tianjin* made at the Third Session of Tianjin Tenth Municipal Party Committee and the *Implementation Plan for the Pilot Project of Green Supply Chain Management of Tianjin* issued by Tianjin Municipal People's Government (Jin-Zheng-Ba-Fa [2013] No. 94) and actually promote the pilot project of green supply chain management of Yujiapu Financial District, this implementation plan is hereby formulated.

1. Executive agency

Tianjin Innovative Finance Investment Co., Ltd.(hereinafter referred to as "TIFI") is a city operator of Yujiapu Financial District and undertakes the overall planning, development, construction, investment promotion and operation management of Yujiapu Financial District.

Tianjin Low-Carbon Development and Green Supply Chain Management Service Center ("Service Center") is China's first market-based integrated service platform for green supply chain management. As an important result of a demonstration project of China Council for International Cooperation on Environment and Development (CCICED) for green supply chain management policy, the Service Center is dedicated

to providing one-stop service for green supply chain management under the guidance of CCICED and related departments.

Tianjin Innovative Finance Low-carbon Institute (hereinafter referred to as "Low-carbon Institute") as a support unit to the low-carbon construction of Yujiapu Low-Carbon Model Town carries out systematic research, practice and promotional activities in the whole process including planning, design, construction and operation. The institute is the first research institute which is specialized in low-carbon town and whose establishment is supported by APEC. Under the guidance of National Energy Administration, it has quickly grown into a core technical supporting force to APEC Low-carbon Town, carried out a number of projects for domestic and foreign technical output service and held "Low-Carbon Town Tour in China" program.

2. Preliminary work basis

(1) The first case for APEC Low-Carbon Model Town construction has produced preliminary result, providing a favorable condition for introducing the means of green supply chain management.

Yujiapu Financial District is planned and built in strict compliance with a green low-carbon concept. On June 19, 2010, the 9th APEC Energy Ministerial Meeting was held in Fukui, Japan. The meeting determined Yujiapu Financial District as the first APEC Low-Carbon Model Town. The external environment and work mechanism for low-carbon town construction are being improved day by day. In order to promote APEC Low-Carbon Model Towns, APEC established APEC Low-carbon Town Work Group on the basis of the original AECE Energy Work Group and set up an exchange and communication mechanism. It holds two special meetings a year. Chinese government pays great attention to it. At the 18th APEC Leaders' Meeting in 2011, Chinese state leaders proposed for "strengthening cooperation in low-carbon model town". This proposal was included in the Leaders' Declaration of the 19th APEC Meeting held in 2012. The International Cooperation Department of National Energy Administration worked with the Energy Research Institute of National Reform and Development Commission and the International Department of the Ministry of Foreign Affairs to promote the implementation of related research, cooperation and projects. Tianjin Municipal Development and Reform Commission and Binhai New Area CBD Administrative Committee are concretely responsible to coordinate and promote the construction of Yujiapu Low-Carbon Model Town.

Yujiapu Financial District achieved outstanding effect in the construction of low-carbon town. It has successively completed the *Guideline on Sustainable Development of Yujiapu, Feasibility Study on Low-carbon Town, APEC Low-carbon Town Indicator System* and other guiding documents and implemented them one by

one in view of engineering construction progress. It completed the green building evaluation of seven high-rise office buildings. Four of them have obtained green building design labeling certificates and signs issued by the Ministry of Housing and Urban-Rural Development. It completed the planning design and technical standards of regional energy center, low-carbon landscape, and bicycle lease system, electric vehicle charging piles and other low-carbon facilities of Yujiau Financial District and determined investment and operation models. The construction of the regional energy center and piping network utility tunnels has been started smoothly.

The effect of Yujiapu Financial District as a low-carbon model is getting more obvious. While strengthening self-building and standard research, Yujiapu Financial District took active effort in external exchange and publicity. It assisted National Energy Administration undertaking Forum on APEC Low-Carbon Town twice; held expert review on APEC Low-Carbon Model Towns three times; received the visits of construction authorities from Singapore, Japan, Thailand, Taiwan and other APEC economies as well as Beijing, Shanghai, Chongqing, Anhui, Shanxi and other provinces; assigned an expert panel to attend the examination of Thai Samui Island, Vietnamese Da Nang and other low-carbon towns at the invitation of APEC low-carbon town work group.

The strength of Yujiapu Financial District in low-carbon technology grows quickly. It cooperated with Tenio Architecture and Engineering Co., Ltd. to establish Tianjin Innovative Finance Low-carbon Institute (Low-carbon Institute), playing an important role in technical support to the construction of Yujiapu Financial District. In response to the construction of Yujiapu Financial District, Low-carbon Institute actively introduced high-caliber professionals and carried out a series of major research projects. It concretely undertook the preparation of more than ten technical documents, including the first low-carbon town indicator system of APEC - *Low Carbon Town Indicator System of Yujiapu Financial District*, and *Low-carbon Launch Plan of Yujiapu Financial District*. The institute as the first professional low-carbon town research institute of which establishment was supported by APEC has rapidly grown into a core technical supporting force to low-carbon towns of APCE and carried out many domestic and foreign technical output services.

(2) Yujiapu Financial District attended in the whole process the initial research and policy demonstration of the pilot project of Tianjin for green supply chain management. Significant progress has been made in the pilot project.

Yujiapu Financial District attended in the whole process the initial work of the pilot project of Tianjin for green supply chain management and was selected as a pilot area for green supply chain management in Tianjin. Yujiapu Financial District designated a professional research institute to carry out project study of *the Plan for Green Supply*

Chain Management of Yujiapu Financial District. On January 23, 2014, it initiated the first green purchase of building materials, involving ceramic tiles, sanitary ware, lamps, carpets, gypsum boards, sunshades and other bulk building materials and covering five high-rise office buildings and underground business streets in the starting area of Yujiapu Financial District.

China Environment Certification Center of the Ministry of Environment and other domestic leading green low carbon service institutions were introduced to establish Tianjin Low-Carbon Development and Green Supply Chain Management Service Center (Green Supply Chain Service Center). Since establishment in October 2013, breakthrough has been made in business. The center took part in carbon inventory of the first batch of carbon trading pilot enterprises in Tianjin. As one of the first carbon quota trading buyers in Tianjin, it bought 5000 tons of carbon quota indicator. It put forth a green design specification for the bidding of the design of fine decoration of business buildings and underground business streets of the TIFI and provided full-process service for green purchase of Yujiapu Financial District. The Chinese version of its website was launched on January 23 and bidding announcement was published. It undertook the project of Tianjin Municipal Development and Reform Commission for research on a model for sustainable carbon trading and a cooperative platform of APEC for green supply chain management. It participated in the research on the plan for Northeast Asia Financial Center. The draft of the plan is basically completed. It involved in the management planning, standard formulation and related project study of the green supply chain of Yujiapu Financial District.

Besides, the green supply chain service center actively developed green certification business, set up a green certification department, researched service rules and flows, strengthened shareholder and external cooperation and formed green product certification, certification of green building materials and decorative materials, consultation of green building certification, carbon inventory, the development, operation and maintenance of the electronic information system of enterprise greenhouse gas reports and other service abilities. In combination with the first procurement of green buildings of Yujiapu Financial District, it is studying a work plan for promotion of regional green procurement. The green and low-carbon training service is mature. It may provide training service of “carbon manager” qualification under the Ministry of Human Resources and Social Security and is applying for training on “green supply chain manager” qualification. Headway has been made in the development of green financing rating service.

(3) Yujiapu Financial District exerts effort to develop industrial finance and green low-carbon modern service system.

It established China Financial Lease Co., Ltd. after reorganization and establishment

of Tianjin Innovative Finance Low-carbon Institute, Galaxy Dahua Low-Carbon Industrial Fund Management, Innovative Finance Smart City Operation Company, Suez Energy Center Operation Company, Green Supply Chain Service Center and other institutions. It established relations of strategic cooperation with many leading Chinese and foreign green low-carbon enterprises and public institutions and built up core competence of green low-carbon industry.

Tianjin Innovative Finance Low-carbon Institute is also one of the main executive agencies for implementing the work ask of green supply chain of Tianjin. In the initial work process, the Low-carbon Institute completed the compilation of Yujiapu Financial District indicator system; the consultation and application of green building evaluation for the starting area of Yujiapu Financial District; low-carbon energy research, low-carbon traffic research and smart city research of Yujiapu Financial District.

3. Work Approach and Main Objective

Yujiapu Financial District is spearheaded by promoting facilitation of green investment and trade, actively takes part in the research and practice of green trade and investment facilitation of the free trade zone, centers on the construction of APEC Low-Carbon Model Town, explores an innovative model for applying market means of green supply chain management to promote green low-carbon urbanization, relies on green supply chain management service platform, low-carbon research institutions and other supporting entities, drive standard formulation and popularization, rating, certification, purchase, trading, technical R&D application, logistics and other market services of green low-carbon commodities, puts forth diversified innovative services for green finance, researches and introduces supporting regional support policies, strives for supporting policies for the free trade zone in order to promote facilitation of green investment and trade, develops landmark green buildings with a carrier function, accelerates gathering of industries, funds, technologies and talents, builds an APEC green supply chain service center and develops Northeast Green Finance Center.

Following the deepening of the construction of a low-carbon model town of Yujiapu Financial District, while implementing the work task of a green supply chain, the district will gradually play its advantage as a shareholder of the service center, allies with low-carbon research institutions, strengthens external cooperation, develops a business team and forms regular business and the ability of continuous profitability as soon as possible. It will integrate resources, exert effort in the R&D of innovative and knockout products and introduce commercialized services in the shortest possible time. It will establish a market network, focus on key customers and upgrade its service brand. It will develop an integrated service platform for electronic information

of green supply chain management and raise service capability and management level.

4. Main tasks

(1) Strengthen plan research and standard formulation of Yujiapu Financial District relevant with green supply chain.

When implementing the work tasks of Tianjin for green supply chain, Yujiapu Financial District needs to formulate *Special Plan for Green Urban Area of CBD*, and *Regulations for Management of Green Buildings in CBD* to manage and guide the planning design, development and construction of construction projects, and define regulations for green procurement. It should summarize the experience in the planning and implementation of green buildings in the starting area of Yujiapu Financial District, promote the green urban planning of the areas outside the starting area of Yujiapu and Tianjin Business Area, and determine a green building star-rating standard and road map in a scientific and reasonable manner. It should formulate *Mid/Long-term Plan for Green Supply Chain Management of Yujiapu Financial District*, an action plan and a road map. It should formulate *Measures for the Administration of Green Buildings and Green Procurement of Yujiapu Financial District*, organize the research of a green standard of building materials, establish *Technical Standard of Yujiapu for Green Building Materials* and introduce by stage *A List of Green Building Materials in Yujiapu*. It should formulate *Measures for the Administration of Green Certification in Yujiapu Financial District*, *Plan for Development of a Green Procurement Platform of Yujiapu Financial District*, *Business Rules*, and *Plan for Pilot Project of Green Trade and Investment Facilitation of Yujiapu Financial District* and release in an appropriate time the *Measures for the Administration of Green Trade and Investment Facilitation of Yujiapu Financial District*.

(2) Carry forward the construction of the first APEC Low-Carbon Model Town, realize regional green low-carbon objective and create demand for green consumption

Deepen and refine the low-carbon indicator system of Yujiapu Financial District and guide the planning, construction and operation management of subsequent projects by the research results of the indicator system. Implement the *Low-carbon Town Indicator System of Yujiapu Financial District* and the *Low-carbon Launch Plan of Yujiapu Financial District* and form demonstrative effect of low-carbon towns as soon as possible. Encourage enterprises in the district to make innovation in concepts, adopt low-carbon operation and introduce the *Measures for the Administration of Low-carbon Commerce of Yujiapu*.

Build an urban area with at least 10 million square meters of green buildings and accelerate the design labeling review and evaluation of green buildings in the starting area. Through “advance planning, meticulous design, optimized technology and scientific operation”, develop an urban district of green buildings with the highest standard in China, realize high-standard green buildings at a low price, ensure the projects in the starting area realize at least 30% of high-star-rated buildings in an urban area of green buildings as required by the Ministry of Housing and Urban-Rural Development, and strive to reach 70%. Emphasize low-carbon operation of buildings, realize full-life cycle green buildings and ensure all property companies in the district must pass the certification of ISO14001 environmental system and the energy saving rate of buildings reaches 50% or above.

The first financial district adopting intensive energy supply was built up. In 2012, French Suez, one of Global 500, established presence in Yujiapu Financial District, the investment and construction of the energy center in the starting area was initiated and effort will be made to ensure it is put into service synchronously with the buildings in the starting area. Through intensive energy supply and intelligent efficiency management means, it is predicted that the emission of more than 30,000 tons of carbon dioxide may be reduced.

Perfect low-carbon traffic planning and operating model and establish an integrated low-carbon traffic system. Build underground space and surrounding buildings synchronously, realize seamless connection of public transit and promote the building of an intelligent traffic system, bicycle leasing, electric vehicle charging piles and other low-carbon facilities. Build waterfront low-carbon landscape, and enrich low-carbon demonstration and low-carbon culture in the area. Rely on roof greening, popularize urban agriculture and explore low-carbon potential.

(3) Practice green procurement, apply green supply chain management means and drive green transformation of suppliers.

Carry out a comprehensive green procurement system in a planned and step-by-step way, and expand from incentive transition to compulsory transition, from building materials and components to daily procurement, from commodity procurement to whole-process service procurement, and from Yujiapu Financial District to CBD and Binhai New Area. Realize green procurement and sunshine procurement through an open, transparent and unified green bidding and procurement platform, apply market means to drive industrial upgrading of upstream construction enterprises and suppliers and lower the overall environmental low-carbon footprint of Yujiapu Financial District. Organize demonstrative trading, explore experience, discover problems and optimize the flow. Do well in demonstrative trading of green procurement for fine decoration of the five plots in the starting area of Yujiapu Financial District and the

underground business street, and accelerate its reproduction and popularization.

Support the service center to carry out certification service of green building materials. Provide service for green procurement of Yujiapu Financial District, start with green tender agent service, establish a sound service platform, continuously enlarge the scope of green procurement, and gradually extend service to CBD, Binhai New Area and other areas.

(4) Support the development of key research institutions and strengthen standard research, and technology R&D, popularization and application.

Increase support to Tianjin Innovative Finance Low-carbon Institute, and carry out related standard R&D in focus on the core issues concerning the pilot project for low-carbon model town construction and green supply chain management of Yujiapu Financial District. Demonstrate and lead the practice of APEC Low-Carbon Model Town construction in coordination with the activities of 2014APEC China Year, aim at building a green supply chain market service system and mainly support the Low-carbon Institute to organize and carry out the R&D and application of low-carbon technologies, policies and industries. Support the Low-carbon Institute to carry out evaluation of green buildings and building efficiency, perfect the special plan of Yujiapu and the green urban area of CBD and implement the objective of all coverage of green buildings by starting with land sorting and assignment. Push on the development and service of carbon inventory and carbon verification standards for the construction and operation of public buildings. Support the Low-carbon Institute to carry out the R&D, application and popularization of underground space environment quality, roof landscape agriculture and other low-carbon technical industry and enlarge the industrial connotation of the supply chain.

Quicken the building of service ability of the service center, develop flagship enterprises of green supply chain, and provide one-stop service for the pilot project of green supply chain management. Enlarge the scope of service products of the service

center, formulate business rules and develop a business group. Take the lead in carrying out certification standard development and verification and certification service of green commodities, green buildings, building materials, components and decorative materials under the support of related government departments, integrate resources, exert effort in the R&D of green innovative products for financing rating and put forth commercialized service as soon as possible. Perfect carbon inventory and verification service, and try to make the service center obtain the qualification of a third party service institution for carbon verification in Tianjin in 2014. Provide technical support for related departments to develop carbon emission report system and carbon asset management system and provide technical service for enterprises to

develop carbon emission report systems and carbon asset management systems. Promote training and education, initiate “carbon manager” training course under the Ministry of Human Resources and Social Security, gradually enlarge training scale, and apply for and carry out “green supply chain manager” training course under the Ministry of Human Resources and Social Security. Undertake major empirical research and project demonstration of green supply chain management.

(5) Perfect the green supply chain management market service platform and exert effort to raise comprehensive service ability.

Support the green supply chain service center and take the lead in carrying out green certification service of building materials, components and decorative materials in Yujiapu Financial District. Build a market network in focus on the key business of the service center, actively develop a green procurement platform service, establish a sound membership system, perfect member service and actively expand the market. Designate the green supply chain service center as green tender agency of Yujiapu Financial District, support it to develop an integrated service platform for electronic information of green supply chain management, and organize information publication and green bidding of green building material procurement of Yujiapu Financial District. Integrate resources, exert effort in the R&D of green innovative products for financing rating and introduce commercialized service as soon as possible.

Formulate and carry out related service software development and background construction as per the service rules and flows of the service center, and put up a unified electronic information service platform consisting of main blocks including green supply chain information bank, green certification system, green rating system, green procurement platform, green low-carbon online education system and carbon emission information report system.

In the same time, support the green supply chain service center to get carbon verification business of Tianjin in 2014, provide the services for development, operation and maintenance of enterprise carbon emission report electronic information system and carbon asset management system, undertake major empirical research projects, cooperate in capacity building, organize and carry out “carbon manager” training course under the Ministry of Human Resources and Social Security, apply for and carry out “green supply chain manager” training course under the Ministry of Human Resources and Social Security, do well in serving the pilot units for green supply chain of the city, develop key customers, build service brands and establish an integrated service platform for electronic information of green supply chain management.

(6) Research and introduce regional supporting policies and measures and

reform the model of financial and tax support to green low-carbon industry and projects.

Research and introduce promoting measures and incentive policies of green urban areas and buildings, attract green industry investment and encouragement policies, as well as related fiscal reward and subsidies, tax preference and other supporting support policies. Research an innovative mechanism for integrating and revitalizing special fiscal support funds to energy conservation and emission reduction, reform fund innovation mechanism and fund appropriation model, provide financial subsidies and rewards not longer based on whether the project is started but based on the actual energy conservation benefit verified by an independent third-party audit institution, raise the use efficiency and transparency of financial fund, strengthen public supervision and drive development of third-party service institutions.

(7) Build an APEC green supply chain service center and help the development of Northeast Asia Green Financial Center

Establish Northeast Asia Financial Center, set up a green financial fund platform, explore innovative green financial service and develop landmark green buildings with a carrier function. Seize the opportunity that Tianjin is trying to develop a national reform and innovation area, strengthen regional exchange and cooperation, attract private investment and support funds of Northeast Asia, establish Northeast Asia green and environmental protection parallel fund and government guidance fund, develop Galaxy Dahua Low-Carbon Industry Fund, and strengthen green low-carbon financial lease business of China Financial Lease Company. Integrate and upgrade the existing environment-friendly, low-carbon and free finance and related specialized services in Binhai New Area, Tianjin, rely on professional service for green supply chain management market, attach importance to developing a standard evaluation system which serves the environmental protection industry and links green finance, introduce various kinds of innovative services for green finance, and earnestly solve the fund bottlenecks holding back the development of green industries. Develop Northeast Asia Green Finance Center Building, increase hardware support, promote industrial incubation and attract the gathering of low-carbon industries, funds, technologies and talents. Establish Northeast Asia Green Finance Center with scientific concept, complete functions, smooth mechanism and controllable risk.

Develop the service center into an APEC green supply chain service center, practically play the role of market platform and make it serve the building of Northeast Asia Green Finance Center. Strive for policy support of related departments of the State and the city, strengthen international cooperation, accelerate development of green financing rating service products of the service center, formulate a green rating standard, model and business guidelines, put up a bridge between green

low-carbon industry and financial market, provide a market-based solution to solve the fund bottlenecks of green low-carbon development and provide technical support for the development of green finance.

Northeast Asia Green Finance Center will settle down in the starting area of Yujiapu Financial District. The proposed site is plots 3-15. It will attract a great many international financial institutions. The Low-carbon Institute will, on the basis of the green building design of this project, continue to deepen the research and application of advanced low-carbon energy-saving technologies and the management means of the intelligent system, consider “intelligence and low carbon” as the objectives, optimized design of green buildings and integration of low-carbon advanced applied technologies as the support, and build the buildings of Northeast Asia Green Finance Center into a key demonstration project of Yujiapu Financial District.

(8) Explore an innovative mechanism for promoting facilitation of green trade, strive for supporting policies for the free trade zone, establish APEC green supply chain service center and provide assistance in undertaking an APEC round table conference for green development.

Seize the opportunity that China hosts the 2014APEC Conference, persuade China and other member economies of APEC into supporting the establishment of APEC green supply chain cooperation platform, and develop APEC green supply chain management service center in Yujiapu Financial District, Tianjin. Seize the opportunity of development of a free trade zone, take an active part in the national pilot project for trade and investment facilitation in Tianjin, give play to the dominant role of the market, explore commercialized solutions in such aspects as green supply chain building and performance improvement, and the development and popularization of standards for environmental products and environmental service, arrangement of international mutual recognition, service relating to green low carbon certification and verification, green rating and credit rating system, total solution of green credit, and technical service and international trading platforms for innovative financial products and open and transparent green commodities, and strive for green customs clearance of environmental products and other national pilot policies.

Support and actively participate in the 2014 APEC round table conference for green development undertaken by related departments of the State and Tianjin, learn related foreign experience, further enlarge the influence of Yujiapu Financial District among the member states of APEC, invite the experts in the industry to hold various seminars, academic forums and other activities, actively undertake related APEC conferences for green supply chains and raise the influence of Yujiapu pilot project for green supply chain management.

Attachment No.2

Work Plan for the Pilot Project of Green Supply Chain Establishment of Yujiapu Financial District (Annex)

1. Background for establishment of a green supply chain in Yujiapu Financial District

The 21st century is full of new prospects and challenges. At present, the economy in the Asia-Pacific Region is being recovered from global financial crisis and getting more influential, but the challenges from increasing energy demand and climatic changes are becoming more prominent. APEC leaders claimed the theme in 2010 was "develop low-carbon economy and ensure energy security - realize sustainable development of APEC through a common energy solution". Former Chinese President Hu Jintao pointed out at the 2007 15thAPEC Leaders' Informal Meeting, "we should make more efforts in the R&D and popularization of energy saving technologies, environmental protection technologies and low-carbon energy technologies, increase financial input and vigorously promote technical cooperation and transfer". At the 2011 19thAPEC Leaders' Informal Meeting, former Chinese President Hu Jintao stressed again, "we should actively push on cooperation in low-carbon town demonstration project, and strengthen international cooperation in the fields of new

energy and renewable energy, energy conservation, emission reduction, cyclic economy and efficiency raising.

On June 19,2010, the 9th APEC Energy Ministerial Meeting was held in Fukui, Japan. The meeting determined Yujiapu Financial District as the first APEC "Low-Carbon Model Town". Developing Yujiapu Financial District into "a green ecological zone" is a future development goal of Yujiapu Financial District. In order to implement the *Reply of the State Council on the Overall Plan for Comprehensive and Supporting Reform Test of Binhai New Area, Tianjin*, push ahead economic restructuring and green transformation, promote harmonious development of economy, society and environment, and establish an energy saving and environmental protection system and mechanism integrating administration, economy, law and market. Tianjin Municipal Government plans to develop Yujiapu Financial District, CBD, Binhai New Area into a green city and a green supply chain center. On the basis of Yujiapu Financial District as the first APEC Low-Carbon Model Town, it will build a green city and green supply chain of the CBD. Yujiapu Financial District is the first APEC Low-Carbon Model Town and is also one of the first pilot projects of Tianjin for green supply chain management.

Yujiapu Financial District will realize construction of its blocks according to the concept and standard for green city, build green buildings by using green building materials and building commodities, build a green city by using green buildings, meanwhile establish a green supply management system of Yujiapu Financial District, realize all-round harmonious and sustainable development, develop an ecological city where human and nature exist in harmony and try to realize all-round low carbon in the area.

2. Principle for establishment of a green supply chain in Yujiapu Financial District

(1) In the construction and planning stage, Yujiapu Financial District will plan and design the city and its blocks according to the concept and standard for green city.

(2) In the construction process, Yujiapu Financial District will build a green urban area by using green building materials and building commodities. After built-up, Yujiapu Financial District will realize 100% coverage of green buildings.

(3) During operation in the future, Yujiapu Financial District will build a green business district by using green furniture and green office supplies and realize low-carbon operation management and green supply chain management of

Yujiapu Financial District.

(4) With the building of the first APEC Low-Carbon Model Town as a carrier, the procurement of green building materials as a cut-in point, and the characteristic industries of Yujiapu as reliance, Yujapu Financial District will gradually build a modern green supply chain demonstration zone covering building materials, electronic products, auto parts as well as green technologies and green consultation.

3. Work tasks for the establishment of a green supply chain in Yujiapu Financial District

1) Establish a green supply chain industry alliance and carry out research on industrial standards for green commodities in each industry

The building of a green supply chain management system mainly caters for “green commodities”. Developing a green supply chain management system is a fundamental guarantee in the full life cycle of green commodities and an important basis for construction of green cities. It is good for realizing institutional innovation of green transformation and provides an important industrial backup for implementing the strategic goal of energy conservation and emission reduction. It is an intrinsic requirement for promoting traditional industries to adapt to the changes in international market environment. Chinese green commodity system develops fast in the recent years, but it has always faced the restriction from lack of industrial standards. What are “green commodities” and how to identify a commodity as a “green commodity” are always the questions the participants of green supply chain think over.

Yujiapu Financial District has been determined as a demonstrative area for implementing green supply chain in Tianjin. When implementing the work of green supply chain, Yujiapu Financial District should actively organize the leading enterprises of all commodity production enterprises to set up a green supply chain industry alliance. In the system of the green supply chain industry alliance, the leading enterprises in each industry play a leading role, the research work on industrial standard for green commodities is conducted for the industry and a green commodity evaluation standard system is completed, laying a solid foundation for nationwide green commodity evaluation in the future.

Meanwhile, while Yujiapu Financial District implements work tasks for green supply chain, it shall also support green commodity certification enterprises to settle down in Yujiapu Financial District, support the subordinate enterprises to join the green supply chain industry alliance to become the shareholders or controllers of the laboratories

relevant with green commodity certification, and support subordinate enterprises to carry out the research and popularization of standard systems relevant with green commodity certification.

2) Demonstrative trading of green building materials in Yujiapu Financial District

While implementing the work tasks of green supply chain, Yujiapu Financial District will take the lead in implementing procurement of green building materials during construction of a Low-Carbon Model Town. At present, the principal buildings in the plots of the starting area of Yujiapu Financial District are basically completed. In the next step, secondary structure and interior decoration works will be conducted. In the secondary structure and interior decoration works of the buildings in the starting area of Yujiapu Financial District, all the related building material products adopt green products.

At present, the procurement of green building materials for the construction of Yujiapu Financial District has completed the formulation of a green design specification and green building material standard for the starting area, and requirements for green procurement have been put forth for some building material products related during construction of the starting area. Meanwhile, with the help of the pilot project for construction of the starting area, the first demonstration trade of green building materials was initiated. The plots participating in the first demonstration trade of green building materials in the starting area of Yujiapu Financial District are mostly the buildings owned by Innovative Finance Company. Through this demonstration trade of green building materials, the reactions of market participants were collected to know market situation, inspect the reasonableness and applicability of technical standards, accumulate preliminary experience for green building material procurement of more plots and more buildings and gradually promote demonstration trade of green building materials to Baolong Building, Shenglong Group, Cognition Building and the construction of buildings in other plots of Yujiapu Financial District. Eventually all the building materials involved during construction of all the plots and buildings in Yujiapu Financial District will be green building materials.

3) Procurement of green office supplied in Yujiapu Financial District

During construction of a Low-Carbon Model Town, Yujiapu Financial District not only guaranteed the related building materials are all green buildings, and the office furniture, office supplies and office equipment inside buildings in the future all shall be green products.

In the future, after the buildings of Yujiapu Financial District are completed, the work relating to the formulation of standards for green furniture and green office supplies needs to be done, definite requirements for the office furniture, office supplies and office equipment selected by the organizations in the district shall be set forth, and the selected office furniture, office supplies and office equipment must all conform to the provisions of green products.

Or a “green brand database” may be established for the office furniture, office supplies and office equipment selected in Yujiapu Financial District to collect the brands of all the office furniture, office supplies and office equipment that meet the green product standard. The brands of the office furniture, office supplies and office equipment selected by the organizations in Yujiapu Financial District must be the brands in this database. The brands not in the database may not be used in the buildings inside Yujiapu Financial District.

4) Establishment of a green commodity trading platform of Yujiapu Financial District

While implementing the work tasks of green supply chain, Yujiapu Financial District will also carry out the service of green commodity trading, establish a green commodity network trading platform, apply the trading system established in the early period to the construction of a network platform, and build a C2C e-commerce model. The traded products must meet the requirements for green commodities. By relying on the urban construction of Yujiapu Financial District and by taking green building materials as the cut-in point of traded products, the district will build China’s first green commodity network trading platform. After the trading platform is mature, the scope of traded products will be gradually enlarged. They mainly include: energy-saving lamps, electric vehicles and other energy saving environment friendly products.

The green commodity network trading platform of Yujiapu Financial District shall attract all kinds of low-carbon environment-friendly product suppliers and becomes China’s first low-carbon environment-friendly product e-commerce platform. The green commodity network trading platform mainly cater for corporate procurement and government procurement.

5) Visit and survey institutions relevant with the establishment of a green supply chain

While implementing the work tasks of green supply chain, Yujiapu Financial District should tighten the ties with other domestic and foreign places where the work tasks of green supply chain are implemented and establish relations of strategic cooperation

with them. In order to actively absorb the successful experience of various areas in the establishment of a green supply chain, Innovative Finance Company as the owner of Yujiapu Financial District and an organization responsible to implement green supply chain needs to go out and visit the competent government departments, technical consulting institutions and local green supply demonstration zones, such as: the Ministry of Environmental Protection, Environmental Defense Fund, National Development and Reform Commission, the Ministry of Finance, Shanghai Green Supply Chain Demonstration Area and other related departments, observed and researched them, knew related policies, green supply chain development trend, current technical condition, market-based model, market intention, successful cases, development potential and development directions, draw on the research results and practical experience of all departments and areas, and design the realization path of green supply chain of Yujiapu Financial District as one of the basic support conditions for establishing a green supply chain of Yujiapu Financial District.

6) Organize or undertake meetings relevant with green supply chain

Green supply chain is an emerging industry in China, even the whole world. At present, no uniform model has been formed in China in regard to standard formulation, institutional building and industrial development direction of green supply chain, and there exists a large policy blank, market blank and technical blank in the field of green supply chain in China. Strengthening exchange and learning of domestic and foreign experience in the establishment of a green supply chain is a necessary means to perfect Yujiapu Financial District and develop a green supply chain project.

Therefore, during implementation of the work tasks of green supply chain, in order to realize better and faster development of green supply chain in Yujiapu Financial District, Yujiapu Financial District should strengthen contacts with other areas and organizations which implement the work tasks of green supply chain, and acquire experience. For this reason, Yujiapu Financial District should organize or undertake many meetings relating to green supply chain, carry out exchange, study and cooperation with related domestic and foreign government departments, research institutions and operating institutions, know domestic policies and international trends relating to green supply chain, extensively absorb experience for the implementation of green supply chain in Yujiapu Financial District, and broaden the road for establishment of green supply chain of Yujiapu Financial District.

7) Promote green consumption and cultivate green consumption culture

While implementing the work tasks of green supply chain, Yujiapu Financial District not only should realize 100% procurement of green building materials and 100% procurement of green office supplies for self-construction but also should actively

promote green consumption among the enterprises in the district and local people, cultivate green consumption culture of Yujiapu Financial District and build a green supply chain.

Green consumption is a necessary choice for the development of human consumption pattern. Yujiapu Financial District is a Low-Carbon Model Town. The establishment of a green consumption pattern is a necessary choice for realizing a Low-Carbon Model Town of Yujiapu Financial District. It relies on consumption education to change consumption concept, thus changing consumer's consumption behaviors. Therefore, in the operating stage of Yujiapu Financial District, vigorous effort should be made to cultivate people's awareness on ecological civilization, encourage the people to take part in low-carbon consumption, stimulate green consumption, establish a correct consumption concept, form a lifestyle of moderate consumption and meanwhile highlight environmental education of enterprises and consumers.

8) Establish an independent green commerce support system of Yujiapu Financial District

In order to more effectively implement a green supply chain of Yujiapu Financial District, Tianjin Municipal Government has defined "Yujiapu Green Commodity Service Demonstration Area" project as key work for the establishment of a green supply chain in Tianjin. Therefore, in the future investment promotion of Yujiapu Financial District, active effort should be made to attract the enterprises relevant with green supply china to settle down in Yujiapu Financial District. It is suggested to research and formulate "green entry standard" for business entities in Yujiapu Financial District. The main content includes: shop design, packaging, sold commodities, and condition of upstream and downstream suppliers relating to the organizations in the district, making it a yardstick during investment promotion of Yujiapu Financial District. The organizations which conform to this standard in this district may obtain honorary rewards or policy subsidies, making them star enterprises in the category of green supply chain of Yujiapu Financial District.

9) Actively apply for APEC green commodity demonstration area

Tianjin Municipal Government has included the construction of Yujiapu APEC green commodity service demonstration area into the *Implementation Plan for the Pilot Project of Tianjin Green Supply Chain Management*. In the period to come, the building of APEC green commodity demonstration area will become a key task for implementing a green supply chain of Yujiapu Financial District. Therefore, the future work should seize the opportunity that China will host APEC Annual Conference this year in China and effort should be made to have high-level international conferences relevant with green supply chain settle down in Yujiapu or reflect the elements of

Yujiapu. Meanwhile, Yujiapu Financial District will strive to obtain support of the Ministry of Environmental Protection, China Council for International Cooperation on Environment and Development (CCICED) and other departments and institutions, actively apply for green commodity service demonstration area and bring the model of Yujiapu Financial District for implementing the work tasks of green supply chain to the world.

4. Develop flagship enterprises for green supply chain management service of Yujiapu Financial District

In order to implement the work tasks of Tianjin green supply chain, Innovative Finance Company as the owner of Yujiapu Financial District led and allied with Sino Carbon Innovation & Investment Co., Ltd., China Environment Certification and related enterprises to establish Tianjin Low-carbon Development and Green Supply Chain Management Service Center. The establishment of the service center aims to more effectively implement the work tasks, develop Yujiapu Financial District into a demonstration area of green supply chain in the range of APEC, and build itself into a flagship enterprise at home and even in the range of APEC.

In the future, the main business of the service center should focus on the following few aspects:

1) The service center will be developed into a green procurement service platform of Yujiapu Financial District.

The work on procurement of green building materials and green office furniture will be spread from points to a surface. It starts with the procurement of green building materials for the buildings owned by Innovative Finance Company in the starting area of Yujiapu Financial District, is gradually spread to the whole starting area and finally to the whole Yujiapu Financial District and CBD, and forms a regional center of Binhai New Area for the establishment of a green supply chain.

In the same time, the service center should establish a green commodity trading system of Yujiapu Financial District, carry out related research on the trading models and give full consideration to the links and interactions among key influencing factors of green commodity trading. It should establish a green commodity trading platform of Yujiapu Financial District, gather green commodity manufacturers, agents and consumers, enhance the financial vitality of green commodity trading in Yujiapu Financial District and establish a perfect green commodity trading assessment system.

2) Promote industrial clustering of green supply chain.

When pushing on the establishment of a green supply chain in Yujiapu Financial District, the service center should actively bring related financial institutions, certification institutions, low-carbon research and consultation institutions, trading centers and other related enterprises into Yujiapu Financial District and form industrial clustering of the green supply chain. It should prompt the establishment of a green supply chain in the starting area of Yujiapu and gradually transfer it from procurement of green building materials to green procurement of commercial and office products and other industries.

3) Carry out low-carbon training service.

Training courses with different content and objects should be introduced and mainly fall into two categories, including: green supply chain training and low-carbon training. In the range of Tianjin, “low-carbon economist”, “carbon manager”, “carbon inspector”, “low-carbon auditor”, “low-carbon financier” and popular training courses will be opened at first. Meanwhile, related qualification assessment and identification will be undertaken and training classes will be opened for enterprises. “Green supply chain manager” qualification training course accepted by the Ministry of Human Resources and Social Security will be researched and developed. Training courses for the party and government organs of Tianjin at all levels and financial institutions will be developed and implemented as soon as possible.

4) Expand carbon inspection and verification business.

The service center will establish and improve rules and service flows for carbon verification business, and obtain related qualifications for carbon inspection and verification. It should provide training service for initial inventory and counseling for pilot carbon trading in the area. As a chartered service institution, it should provide carbon verification service for pilot carbon trading enterprises in Tianjin and for voluntary carbon emission reduction projects. It should take the lead in carrying out carbon verification of public buildings in Yujiapu Financial District at first and then gradually spread it to the whole CBD and even Binhai New Area.

5) Promote the establishment of a green commodity certification system.

During investment promotion, the service center should support green commodity certification enterprises to settle down in Yujiapu, cooperate with the institutions or laboratories relevant with green commodity certification, carry out the research on standard systems and policies relevant with green commodity certification in combination with the construction of a Low-Carbon Model Town and the implementation of the work tasks of a green supply chain in Yujiapu Financial District, and gradually carry out green credit rating and certification.

6) Organize publicity of green supply chain.

The service center as a flagship enterprises for the implementation of the work on green supply chain should actively organize the publicity relevant with green supply chain, enlarge its influence in all fields and popularize related knowledge. Meanwhile, the service center as a platform implementing the work of green supply chain in Yujiapu Financial District should organize the publicity work of Yujiapu Financial District from the perspective of establishment of a green supply chain and enlarge its popularity and influence in the field of green supply chain. In Yujiapu Financial District, it may publicize the achievements and latest trends of Yujiapu Financial District for implementation of work tasks of green supply chain on the websites of Innovative Finance Company and the service center, and meanwhile may organize publicity activities relevant with green commodity trading inside Yujiapu Financial District, such as: green commodity exposition and technical exchange meeting for green commodities. Outside Yujiapu Financial District, the service center may cooperate with China Council for International Cooperation on Environment and Development (CCICED) and APEC, jointly organize or attend meetings and activities relevant with green supply chain and publicize the establishment of a green supply chain in Yujiapu Financial District at such meetings or activities. 2014APEC Green Development Forum will be opened in Tianjin. Yujiapu Financial District is also a major participant. On this occasion, the service center may publicize its achievements made during implementation of the work tasks of green supply chain and its future development trends, thus raising its influence in the field of green supply chain.

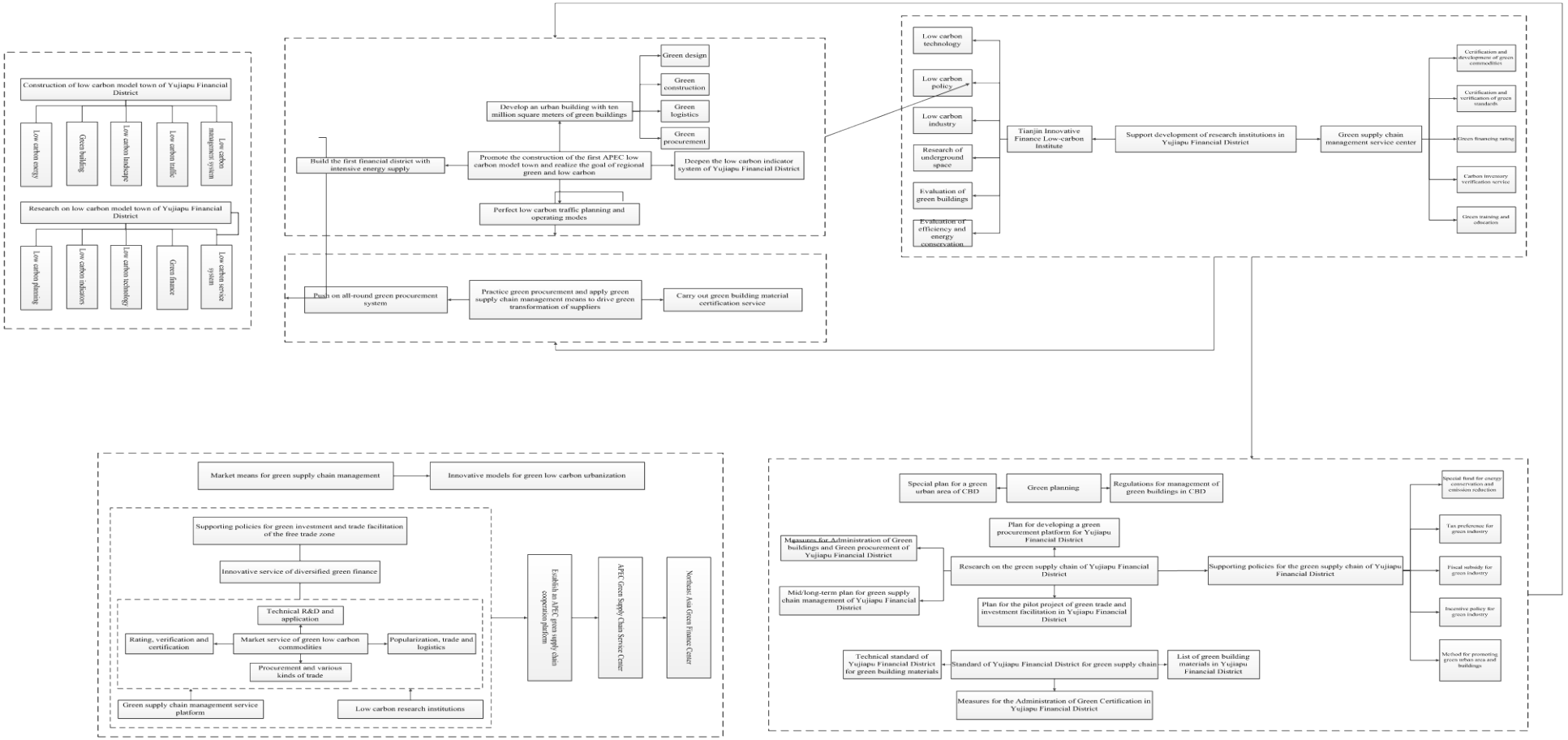
5. Summary

On June 19, 2010, Yujiapu Financial District was determined as the first APEC Low-Carbon Model Town. Since then, Yujiapu Financial District has carried out enormous research and practice relevant with Low-Carbon Model Town. According to the deployment and requirements of Tianjin Municipal Party Committee and Municipal Government, Yujiapu Financial District as a supporting service base for the financial reform and innovation of Tianjin established the planning and design standards for environmental protection, low carbon, energy conservation and emission reduction at the very beginning of planning. Moreover, the construction and development objectives of Yujiapu Financial District are highly consistent with the goal of implementing the work of green supply chain issued by Tianjin Municipal Party Committee and Municipal Government, so Yujiapu Financial District possesses the good basic conditions for the implementation of the work of green supply chain. According to the construction approach of Yujiapu Financial District, Yujiapu Financial District will rely on its unique location advantage, policy advantage and environmental advantage, gradually carry out and implement the concrete work on the work task of green supply chain, establish an APEC green commodity service

demonstration area in Yujiapu and eventually develop Yujiapu Financial District into a demonstration district in the process of implementing the work of green supply chain.

Attachment No.3

Technology Road for green supply chain technology in Yujiapu Financial District



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Project Overseer Contact
Wang Zhong
Tel: 86-22-59891888
Email: wangzhong@tenio.com

Executor Contact
Lu Xiaotao
Tel: 86-22-59891888
Email: deco921@163.com

Product By
Tianjin Innovative Finance Low Carbon Institute
Tianjin University
SinoCarbon Innovation & Investment Co., Ltd
Tianjin Green Supply Chain Service Centre

For
Asia-Pacific Economic Cooperation Secretariat
35 Heng Mui Keng Terrace
Singapore 119616
Tel: (65) 68919 600
Fax: (65) 68919 690
Email: info@apec.org
Website: www.apec.org

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