

Guidelines for Invitations to Invest
in Qingdao Industries
(2009 Version)

A. Mainstream Industries

(A) Home Appliance and Electronic Products

1. Innovative home and commercial appliances

- a. Special air conditioners, ultra-low temperature refrigerators;
- b. Energy-saving equipment such as heat pump air conditioners and heat pump water heaters;
- c. Flexible production line for home appliances;
- d. Production line for high performance components and elements such as inverter compressors and inverter controllers as well as spare parts and special materials;

2. Multimedia equipment

- a. Digital radio broadcast and multimedia broadcast technology;
- b. Satellite radio and TV broadcast technology;
- c. Hi-definition audio/video radio transmission technology;
- d. Design and application of energy-saving and environmental protection technology for flat panel television.

3. New type of displaying devices

- a. Liquid-crystal display (TFT-LCD) over six generation production line, plasma display panel production line;
- b. Raw materials and components such as driving circuits, glass

substrate, color filters and polarizing filters for flat display panels, and photoelectric materials and components for laser display panels.

4. Communication equipment and computers

- a. Research, develop and manufacture of 3G and 3.5G mobile telephone handsets and intelligent mobile phone handsets;
- b. Optical communication technology;
- c. Manufacture of digital-microwave synchronous transmission equipment and photo timing transmission equipment, manufacture of broad-band network communication system equipment;
- d. Manufacture of communication equipment such as program-controlled exchangers, mobile stations, and radar and satellite navigation systems;
- e. Manufacture of computer operation systems such as computer-aided design (three-dimensional CAD), computer-aided test (CAT), computer-aided manufacture (CAM), and computer-aided engineering (CAE);
- f. Know-how for designing and manufacturing of portable computers.

5. Software and system integration

- a. Embedded operation system and embedded application software for intelligent control equipment;
- b. Application software for information processing in the financial, social security, tax revenue, logistics and transportation sectors;
- c. Key technology for intelligent transportation;
- d. Contracting of software services for areas like Japan, ROK,

Europe and America.

6. Integrated circuitry

a. Design of integrated circuits and manufacture of large scale integrated circuits with width of lines not wider than 0.18 microns, manufacture of analogue and digital-analogue integrated circuits with line widths not wider than 0.8 microns, as well as advanced encapsulation and testing like BGA, PGA, CSP, MCM;

b. Technology for through silicon drilling;

c. Large-size liquid-crystal display television chips, digital TV chips, communication chips, intelligent home appliance chips, and driving chips.

7. Other electronic and electric appliances

a. Bio-electronic technology, electronic printing technology, radio-frequency identification(RFID) technology and memristor technology;

b. Manufacture of innovative electronic components (surface mounted components, frequency components, mixed integrated circuits, power-supply electronic components, photo-electronic components, sensitive components and sensors, new-type electromechanical components, hi-density printed circuits and flexible printed circuits;

c. Research, develop and manufacture of plastic and resistor memories;

d. Electronic products, apparatus and systems for automobiles, ships, machine tools as well as industrial controls and tests.

e. Manufacture of hi-tech and environment-friendly batteries such as

photovoltaic cells, new lithium batteries, Hg-free alkali manganese batteries, nickel hydrogen batteries, hi-capacity service-free sealed lead-acid batteries, fuel cell and cylinder-shaped zinc air batteries, etc.

(B) Petroleum Chemistry

1. Petroleum chemistry

a. Alkenes products such as ethylene, polyethylene and butadiene, and aromatic hydrocarbon products such as benzene, methylbenzene and xylene;

b. Products and materials for electronics and information industries such as PC polycarbonate, fluorescing, fluorocarbon oil, polyimide, photo-etching agents, etc;

c. Materials and products for the auto machinery industry such as polypropylene, silicon rubber, silicon resin, ethylene propylene rubber(EPR), acryl nitrite-butadiene rubber, butyl rubber, isoamyl rubber and polyformaldehyde , etc;

d. Differential and special products and materials for light industries and aromatic synthetic fibers and hi-performance fiber, etc;

e. Design and manufacture of new instruments and equipment for petroleum prospecting and development.

2. Rubber tires and related products

a. Research and development of radial ply tires for automobiles, hi-performance heavy-duty tires, tubeless tires, green tires, anti-slipping tires, super-high-mileage tires, super-light and leak-and-run tires, and tires for the aviation industry;

b. Fine rubber products such as conductor rubber and switch rubber

for the electronics industry, medical rubber-ware, rubber sleeper pads, vehicle rubber pipes, industrial rubber belts, rubber sealing tape and rings for vehicles, rubber anti-corrosion linings, etc;

c. Key and important technologies and common technologies for the tire production industry.

3. Fine chemistry and new chemical materials

a. New dyestuff, coatings, agents, photosensitive materials, information chemicals, adhesives, film materials, bio-chemicals and high polymers.

4. Farm chemicals

a. Secondary-processing technology for fertilizer;

b. Substitute for high-toxic organ phosphorus pesticides and chemicals against underground pests, weedicide suitable for light-cultivation in water fields and new weedicide for non-irrigated farmland, new germicide and anti-virus agents for vegetables and fruits, and high-efficiency agriculture biological antibiotics.

(C) Automobile and Rolling-stock

1. Automobile

a. Research, development and manufacture of medium and high end cars, medium and heavy-duty trucks, light-duty trucks, crossover vehicles and special vehicles;

b. Research, development and manufacture of electric vehicles, new-energy vehicles, special and key components;

c. Research, development and manufacture of special vehicles such as vehicles for highways, concrete pump vehicles, fire-engines,

wheel-type armored vehicles, special semi-trailers, etc;

d. Research, development and manufacture of high-power diesel engines, small-displacement petrol engines, and multi-power automobile engines;

e. Research, development and manufacture of key components for steering systems, braking systems, transmission systems and suspension systems;

f. Design and manufacturing technology for advanced automatic gear changers (including step less automatic gear changers, wet & dry double clutch automatic gear changers, electro-mechanic automatic gear changers for heavy-duty trucks, and AT automatic gear changers with 6 gears and above);

g. Manufacturing technology for upper vehicle bodies such as mass-cutting of raw materials, centralized coating, welding lines, flexible assemble lines for special vehicles;

h. Advanced assembly and technology for air suspension, disc braking and electronic control systems such as ABS/TCS/ESP;

i. New energy, integrated CAD/CAE/CAM, automation of production processes and management techniques, design and manufacturing techniques for electronic auto control systems;

j. Technology for dismantling, recovery, conversion and crushing of obsolete vehicles.

2. Rolling stock

a. Design and manufacturing technology for rolling stock for high-speed, intercity and urban railway systems;

- b. Design and manufacture of high-plateau, urban and luxury railway carriages as well as their components and spare parts;
- c. Manufacture of railway signal equipment, air conditioner assemblies, transport safety monitoring and testing equipment, and electric railway equipment and materials;
- d. Staple spares such as windows, doors for high-grade carriages and illumination equipment;
- e. Core technology and key techniques for system integration, bogie, brake, train network controls, traction and traction control, train safety, comfort, lightness, air-tightness, electromagnetic compatibility and noise control;

(D) Ship and Marine Engineering

1. Ship Industry

- a. Designs for hi-tech, high-added-value and low-carbon vessels and vessels over 100,000 ton displacement;
- b. Designs and manufacturing technology for related ship equipment (power systems, power stations, large capacity and medium-high voltage generators, below deck machinery, ship controls and automation, communication and navigation, instruments and apparatus);
- c. Design and manufacturing technology for ship equipment promoted by international marine organizations;
- d. Design and manufacturing technology for ocean fishing vessels, high-end yachts and related equipment.

2. Marine Engineering

- a. Design and manufacturing techniques for marine engineering and

related equipment;

b. Design, manufacture and servicing of marine engineering

equipment;

c. World sixth generation 3000 meter underwater semi-submerging drilling platform;

d. Marine engineering related systems such as single point mooring, deep-sea mooring and underwater platform location.

B. Traditional Industries

(A) Textile and garment industries

1. Textile

a. Technology and equipment for the production of home textile and hotel textile products;

b. Development and production of special textile products such as new-type geotextile synthetic materials, agricultural textile products, bio-medical textile products, auto textile products, hi-tech filtering materials, etc;

c. Development and production of functional fibers, differential fibers, compound fibers, and green and environment-friendly fibers (shell fiber and seaweed fiber);

d. Development and production of high-grade embroidery and drawn work products;

e. Weaving, dyeing and processing technologies for high-grade fabrics.

2. Garments

- a. Development, design and production technologies and equipment for high-grade men's wear and personalized medium-high-grade women's wear;
- b. Design and production of knitted outer clothing and knitted fashion clothing.

3. Textile machinery

- a. Development and manufacture of advanced innovative and full-set textile machinery;
- b. Development and manufacture of full-set non-woven fabric machinery, full-set special weaving machinery and industrial textile processing equipment;
- c. Development and manufacture of high-efficiency, continuous and short-process energy-saving and emission-reduction dyeing and processing machinery and on-line energy and material reclamation and recycling systems;
- d. Design and manufacture of high-speed, high-precision and wear-resisting textile machinery accessories and components.

4. Surface materials and subsidiaries

- a. Production technology and equipment for surface materials and subsidiaries;
- b. Development and production of natural fiber surface materials, chemical surface materials, blended fibers interwoven surface materials and high-grade knitted surface materials;
- c. Development and production of fire-resistant surface materials

and electromagnetic-radiation-proof surface materials;

d. Market for high-grade surface materials and subsidiary materials.

(B) Food and Beverage Industry

1. Food and Edible Oils

a. Development and production of additives for function and natural foods;

b. Production technology and equipment for special flour, reinforced nutrition flour and compound flour;

c. Technology and equipment for comprehensive utilization of by-products from peanut processing;

d. High-grade vegetable oil and peanut products, refined oil, mixed oil and peanut deep-processing product series;

e. Oilseed pressing, dilation and pretreatment technology, fragrant-creation-and-retention technology in peanut oil production, and soybean lecithin production technology;

d. Computer-aided management system for wheat flour processing;

e. High productivity, multi-resistant and quality wheat, corn, peanut and soybean breeds and their planting bases.

2. Vegetables and Fruits

a. High pressure water jet cutting, concentrated vegetable and fruit juice technologies;

b. Technology and equipment for dehydration and ultra-low temperature freezing of vegetables and fruits, and processing of canned foods;

c. High-grade fruit beverages, fruit jam, fruit powder, fruit wine and

healthy food extracted from vegetables and fruits;

d. Modern processing technologies for traditional fruit and nut varieties;

e. Cool storage and transportation chain, logistic information platforms and total quality control systems for vegetables and fruits;

f. High productivity, multi-resistant and high quality vegetable and fruit breeds and their planting bases.

3. Livestock

a. Fine and deep processing as well as logistic technology for cooled meats, frozen and fresh poultry, fermented and functional meat products;

b. Processing technologies for new dairy products such as enriched baby milk powder and active immune peptides;

c. Production technology and equipment for new egg products such as liquid eggs and high-performance special egg powder;

d. Technology for automatic on-line grading systems for carcasses, computer image identification and microorganism forecasting;

e. Ultra-high pressure technology for meat products;

f. Technology for the production of high-productivity, disease-resistant and fast-growing feedstock for breeding pigs and other animals (cattle, chickens, goats).

4. Aquatic Products

a. Technology for ultra-low temperature freezing, fresh-keeping during storage and transportation, and drying of fish, shrimp and crabs;

b. Technology for the testing and removing of harmful algae and extraction of active substances;

- c. Technology for low F-value germicides, monomer fast-freezing, ultra-micro grinding and gene engineering;
- d. Super-high pressure technique for seafood processing;
- e. Technology for the production of high-productivity, disease-resistant and fast-growing breeding fish (shrimp, shells, crabs and seaweed).

5. Beer and Beverage

- a. FMS flexible processing, energy-saving and environment-friendly new packing materials, bacteria-free packed beverages;
- b. Technology and equipment for production of nutritious and functional vegetable-fruit compound beverages;
- c. Development and production of beverages from farm produce.

6. Food Safety

- a. Technology and equipment for control and degradation of aflatoxin;
- b. Technology for control and testing of remaining toxic substances (pesticides, medicines for livestock, heavy metals, addictives, etc.) in farm produce;
- c. Techniques for tracing quality and safety problems in farm produce.

(C) Machinery and Steel Industry

1. Machinery and equipment

- a. Design and manufacturing technology for pent-axle-engaged machining, design and manufacturing technology for precision numerical-controlled lathe and lathing center, manufacturing technique

for numerical control systems and servo devices;

b. Research, develop and manufacture of photoelectric conversion equipment;

c. Design and manufacture of high-grade moulds, precision numerical controlled cutters, new-type rollers and hydraulic machinery;

d. Advanced technology for remote control, step motor and computer integration.

2. Hardware and Electromechanical Equipment

a. Research and development of high-efficiency energy-saving inverter motors;

b. Development of environment-friendly high-voltage switches and products integrating electronic information technology and traditional electromechanical techniques;

c. Research, development and manufacturing of large scale, precise, high-strength, compound, high efficiency, complex and durable hardware products.

3. Power Transmission and Distribution

a. Development and manufacturing of 110 kv and 220 kv oil-free current transformers;

b. Research, development and manufacturing of 750 kv ultra-high-voltage transformers and oil-free transformers;

c. Comprehensive automation systems for power stations;

d. Manufacturing of full-set high-voltage parallel condensers.

4. Instruments and meters

a. Development and manufacturing of instruments and meters for

the monitoring and testing of atmospheric and aquatic environments, intelligent instruments and special automation instruments (automatic management of multi-storey buildings and automatic storage management, etc.);

b. Sampling systems and automatic environment monitoring and testing control systems;

c. Master control systems based on field-bus technology;

d. Design and manufacturing technology for electronic measuring instruments.

5. Cable and Wire

a. Production of contact wire networks for high-speed electric railways, self-control temperature cables and accessories, development and application of superconductive cables;

b. Research and development of carbon fiber compound core products;

c. Research, development and production of electronic cable and wire, and thin-insulation, heat-proof, low-voltage automobile wires and wire-clusters;

d. Development and manufacturing of cable and wire for special electric equipment.

6. Power Station Boilers and Accessories

a. Manufacture of steam turbines using residue heat and pressure, and work-driving steam turbines;

b. Design and manufacturing technology for gas turbines for power generation;

c. Manufacture of special equipment for dust-removal, water treatment and solid waste disposal.

7. Steel Structures

a. Manufacture of steel pipe tower-structures;

b. Technology for manufacture and installation of large-span framework;

c. Large-scale construction steel structures, boiler steel structures and plant support steel structures;

d. Accessories for steel structures such as high-strength bolts, connecting parts and various heat-insulation materials.

8. Iron and Steel Products

a. Advanced smelting and processing technology and equipment;

b. Sintering and desulphurizing technologies for steel plants;

c. Technology for deep-processing and utilization of coke oven gas;

d. Technology for the manufacture of slag and utilization of waste heat;

e. Technology for utilization of medium and low temperature residue heat in metallurgy;

f. Manufacturing technology for high-end products such as high-strength automobile plate, high-grade oriented silicon steel, ultrahigh strength steel wire for tyre, low-carbon and easy-cut steel, spring steel for vehicle suspension systems, quality steel plate and high-grade steel bar, etc.

C. New Industries

(A) New Energy Resources

1. Research, development and manufacturing of 3.0 megawatt wind-powered grid generators and key components;
2. Design and manufacturing technology for wind-powered generator converters;
3. Modular plate heat collection technique;
4. Research, development and manufacturing of photo thermal and photoelectric products such as solar energy water heaters and air conditioners;
5. Development and utilization of bio-energy, geothermal energy and marine energy;
6. Technology and manufacture of full set equipment for large scale bio-energy and biogas.

(B) New Materials

1. Engineering plastic, high-performance synthetic rubber, degradable polymers;
2. Environment-friendly wall-building materials, green concrete materials, energy-saving and functional glass, high-performance adhesives and resource-recycling materials;
3. High-performance and low-cost iron and steel materials, magnesium, aluminum and titanium alloys;
4. Nano materials, special functional materials, high-performance structure materials, high-performance sealing materials and innovative catalytic agents;

5. Compound materials, special fiber materials, film materials and components;

6. LED lining material, epitaxial slice and components.

(C) Biological and Pharmaceutical Products

1. Marine medicines, gene medicines, synthetic medicines, medical diagnostic and monitoring devices, modern Chinese medicine and biological medical materials;

2. Marine organism active substances and biological products;

3. New anti-cancer medicines, new medicine for prevention and treatment of cardiovascular, cerebrovascular and other important diseases;

4. Biological reaction and separation technology, key techniques and important products in ferment engineering;

5. Medical information technology and remote medication;

6. Image diagnosis equipment, therapeutic equipment, low-temperature storage equipment, sterilization equipment, high-added-value medical equipment and material, and biology chips;

7. Techniques for utilizing high-efficiency, low-residue farm chemicals and veterinary medicines (including biological prevention and treatment techniques).

(D) Energy-saving and Environment-protection

1. Key techniques and the manufacture of full-set equipment for seawater desalination, seawater pretreatment, anticorrosion and anti-organism-adhesion;

2. Manufacturing technology for high performance reverse osmotic

films for seawater desalination;

3. Development and manufacturing of high performance and low energy consumption sewage treatment and recycling technology and equipment, manufacture of equipment for the prevention and control of water pollution;

4. Manufacture of equipment for environmental protection and production safety such as intelligent monitoring and testing apparatus and robots for high risk work;

5. Production of energy-saving lighting devices and equipment;

6. Manufacture of power-source equipment for commercial use and LED production equipment;

7. Manufacture of full-set equipment for dismantling obsolete home appliances and re-treading tires;

8. Manufacture of full-set equipment to treat kitchen waste and for the disposal and recycling of construction waste.