



东莞电化实业股份有限公司
IGCC在东莞的研发、应用和推广

Dong Guan Power & Chemical Industry CO., Ltd.

The Demonstration & Promotion of IGCC in Dong Guan

2007.05

Beijing



Content

- Background and Process
- Objective
- Strategies of Realization
- Mean and Plan of Development



Background and Process

- Introduction of the DGPC
- Background
- Process



Introduction of DGPC

DGPC is a company mainly invested in power generation, which has four power plants, with a total capacity of 880MWe. In recent years, in the cooperation with the top technique associations in China, DGPC has the capacity of building and operation the large combined cycle power plants.



东莞电化实业股份有限公司
DONG GUAN POWER&CHEMICAL INDUSTRY CO.,LTD

Owned Power Plants



Tong Ming Power Plant



Humen Power Plant



Tian Ming Power Plant



Headquarter of DGPC



Dong Hua Power Plant



Background

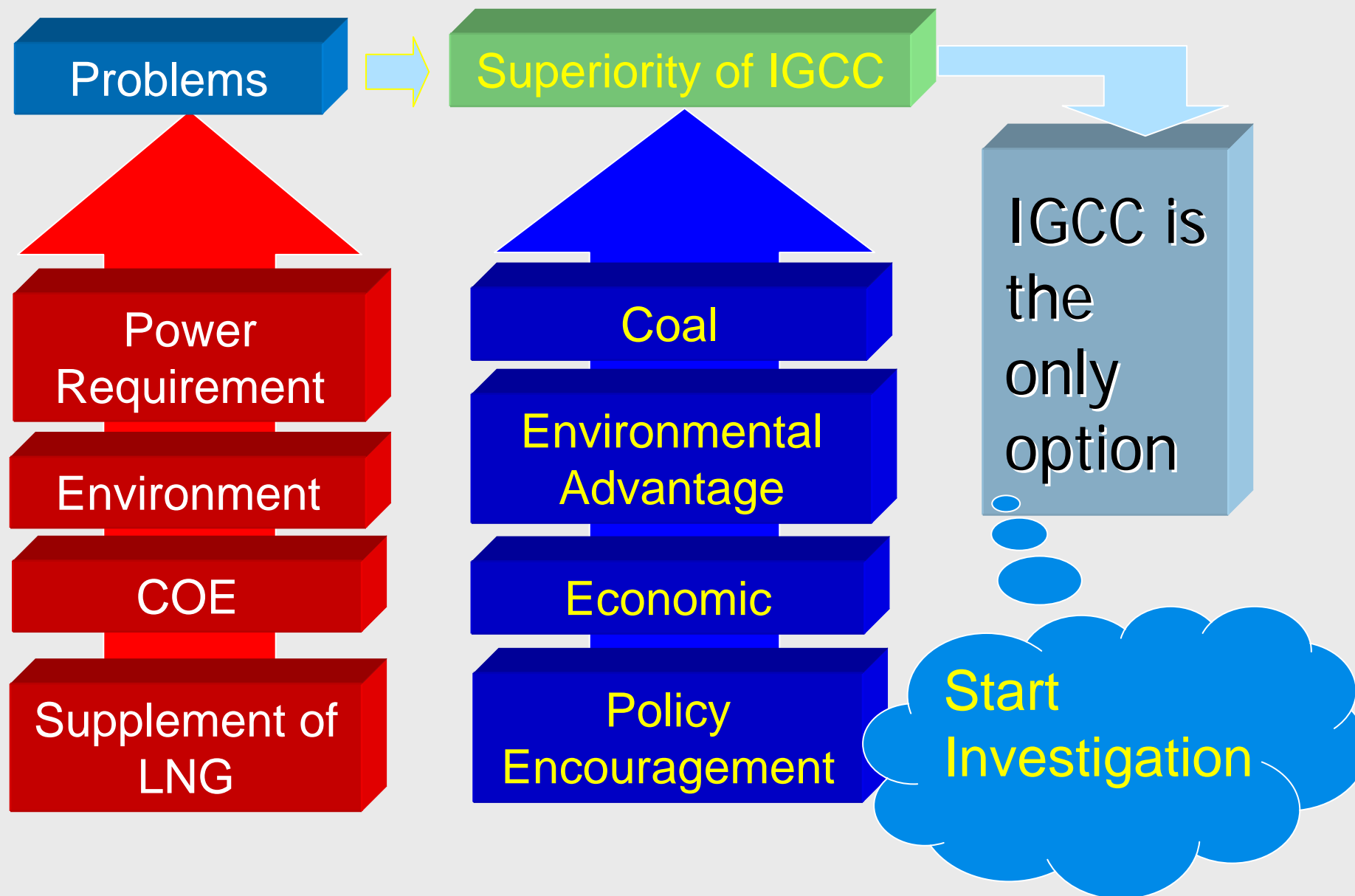
Difficult Position

120 MWe Combined Cycle Power Plants:

•2004: oil price 1800 RMB/ton, profit 0.13 RMB/kwh

•2006: oil price 3500 RMB/ton, deficit 0.1 RMB/kwh

- Combined Cycle Power Plants faces serious problems:
 - Oil price climbed continuously, COE is higher than price on the grid
 - Emissions
- LNG Supply insufficient and uncertain



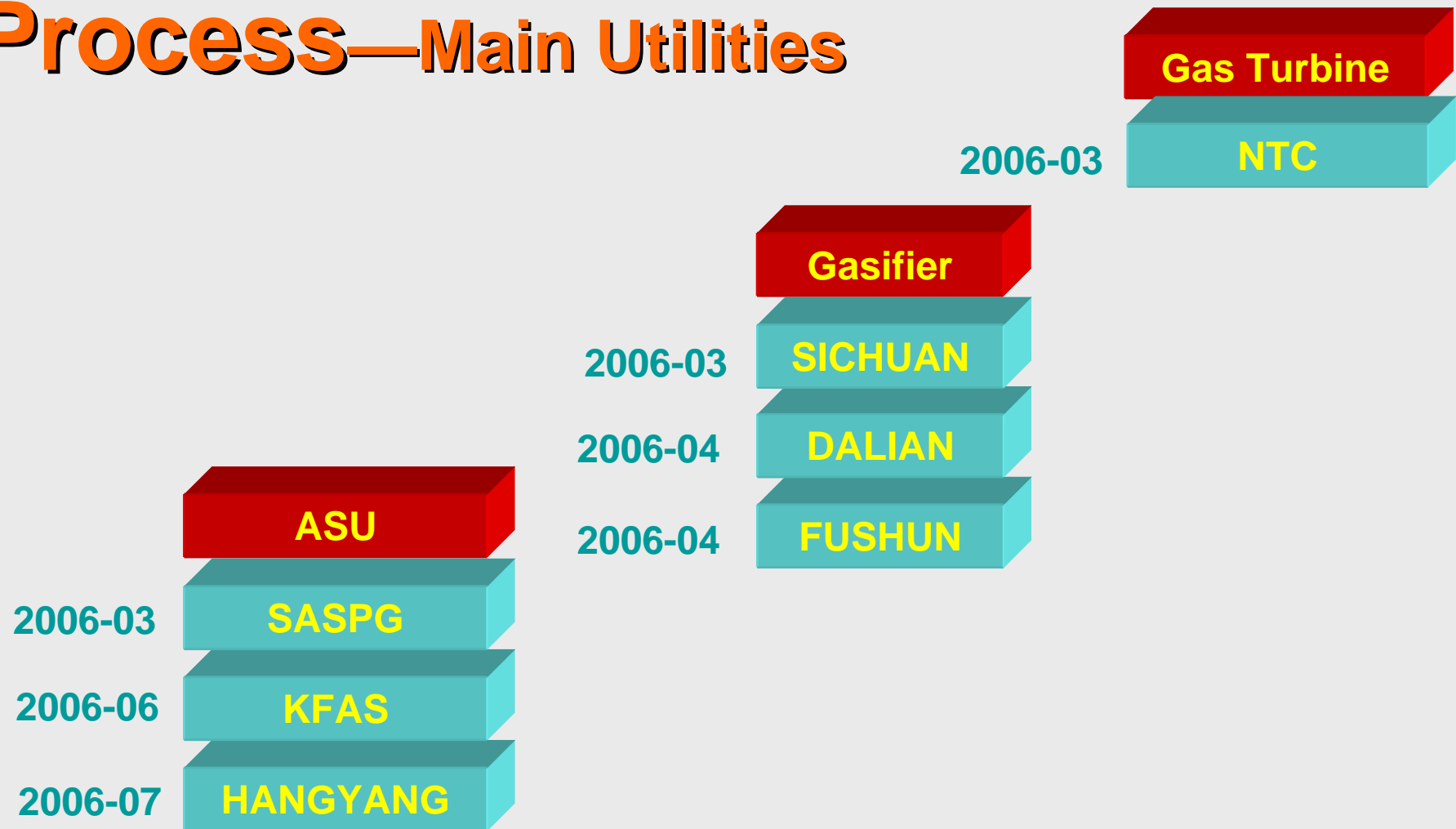


Process—Gasifier Selection

	Type	Company
2002-11	Texaco	Lunan
2006-03	New Type Slurry	Guotai
2006-03	Lurgi	Tianji
2006-04	Two-Stage Gasifier	TPRI
2006-05	Ende Gasifier	Jingdezhen
2006-08	Shell	Shuanghuan
2006-09	Fuel-Flexible	IET
2006-11	Transport Gasifier	Southern Company
2006-11	Texaco	Tampa

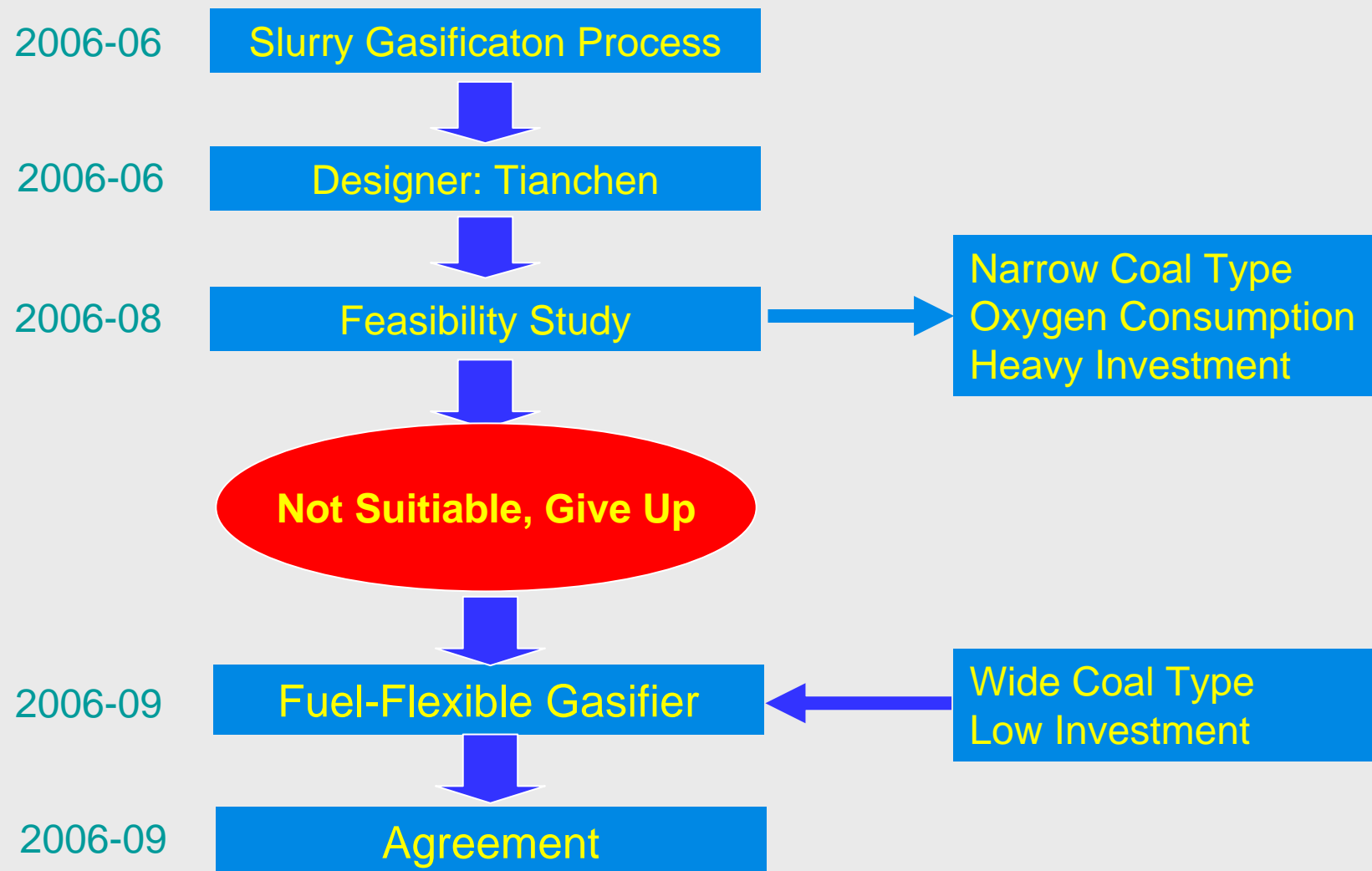


Process—Main Utilities





Process—Main Technology





Objectives

- Total Objectives
- Mainly Indexes
- R&D Contents



Total Objective

- Establish a 120MWe IGCC and at least one 200MWe IGCC power plant
- Demonstrate the key technologies of IGCC, such as system design, large gasification technology and operation and controlling
- provide a typical form for China and promote the IGCC development in China



Indexes

➤ IGCC of 120MWe

- Power Generated > 120MWe
- Gross Efficiency > 39%
- Net Efficiency 37%
- $\text{SO}_2 < 45\text{mg/Nm}^3$ (@16% O_2)
- $\text{NOx} < 80\text{mg/Nm}^3$ (@16% O_2)

➤ IGCC of 200MWe

- Power Generated > 200MWe
- Gross Efficiency > 45%
- Net Efficiency 41%
- $\text{SO}_2 < 45\text{mg/Nm}^3$ (@16% O_2)
- $\text{NOx} < 80\text{mg/Nm}^3$ (@16% O_2)



R&D Contents

- System design, integration, engineering assort, debug and demonstration of the 120MWe and 200MWe IGCC
- Demonstrate the key technologies of the IGCC
- Data Collection and verification the element and system model, IGCC system estimation and promote the direction of improvement.

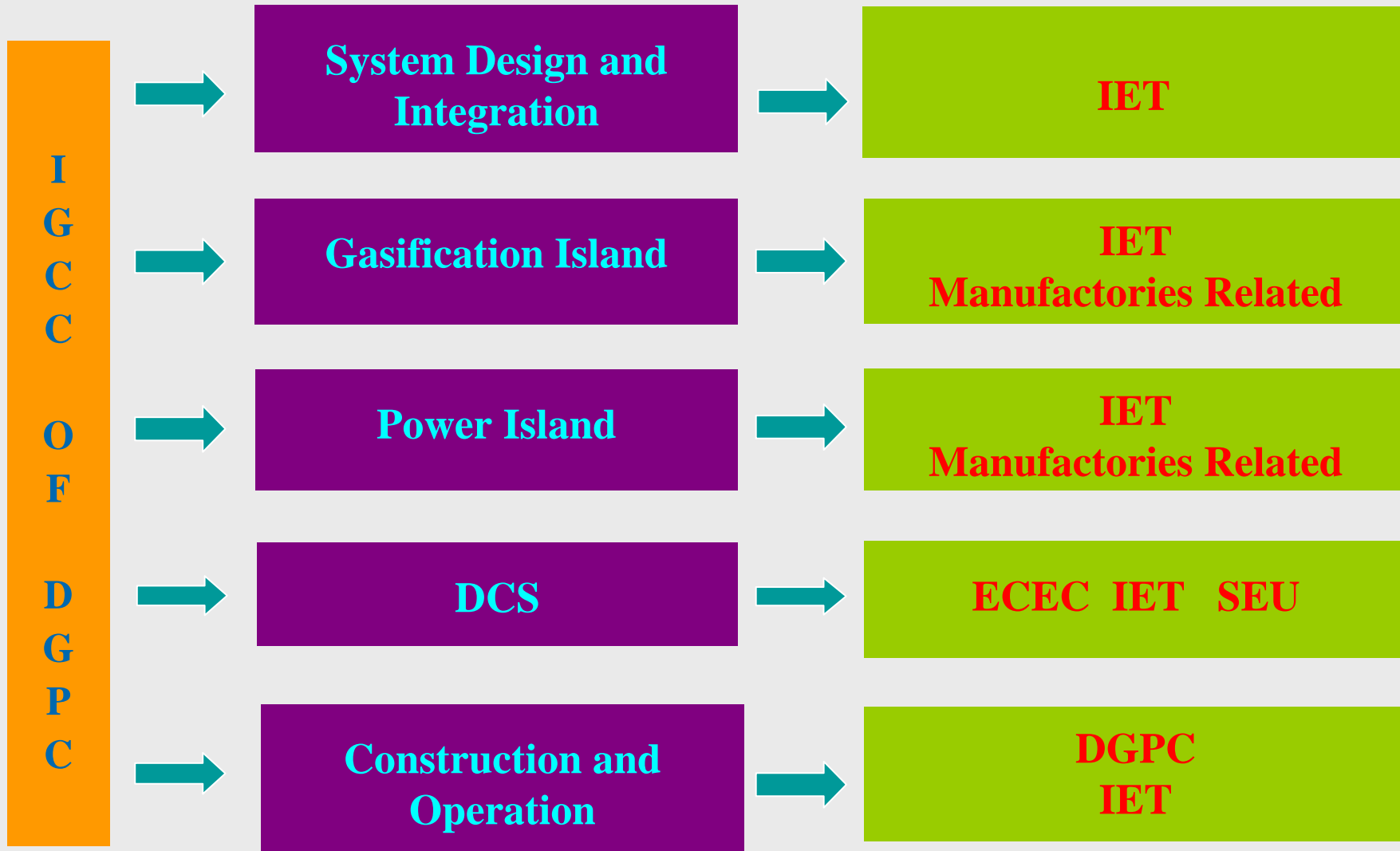


Strategies of Realization

- Definition of R&D
- Management
- Route Line of R&D
- Progress Plan
- Achievements

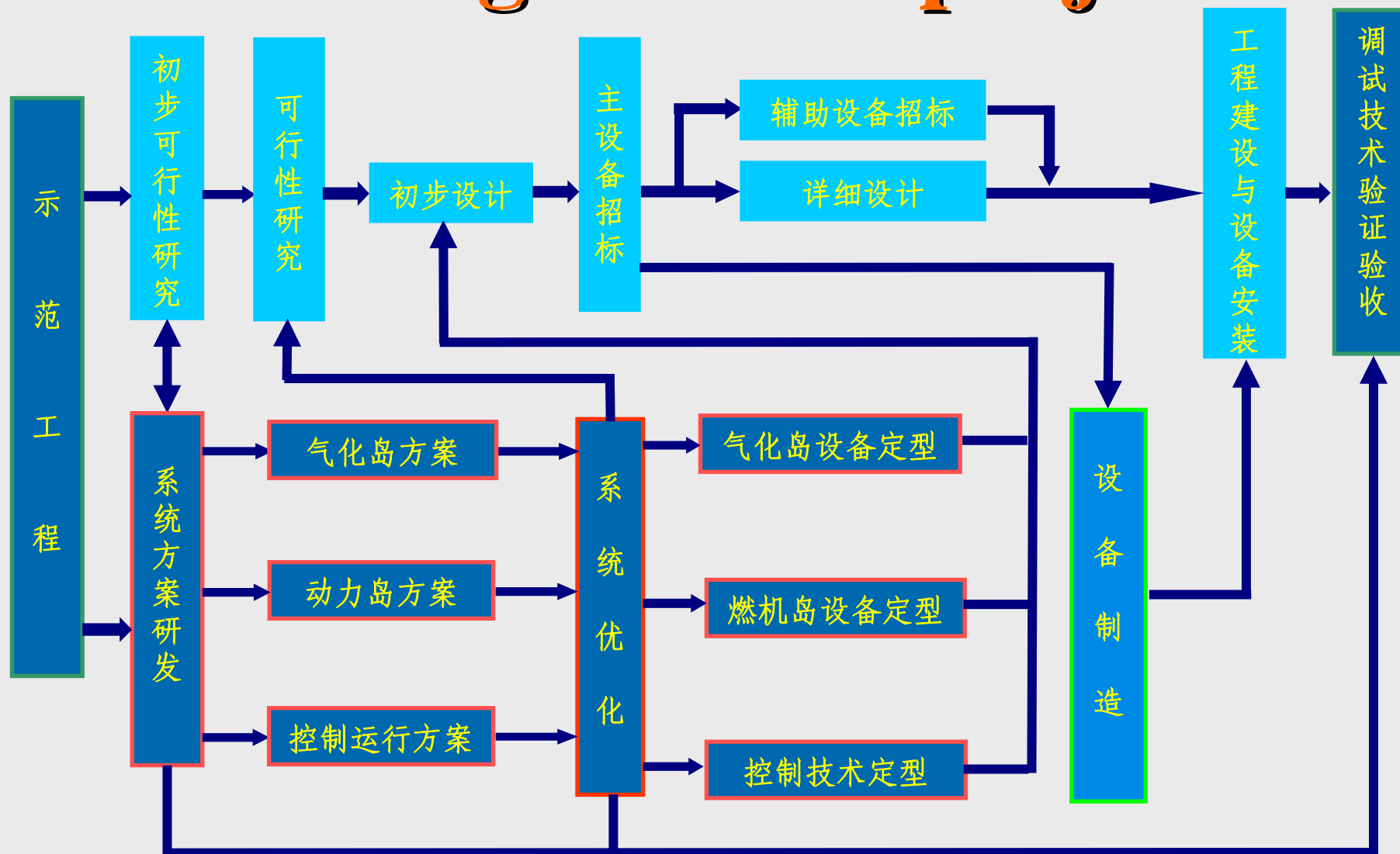


Definition of R&D



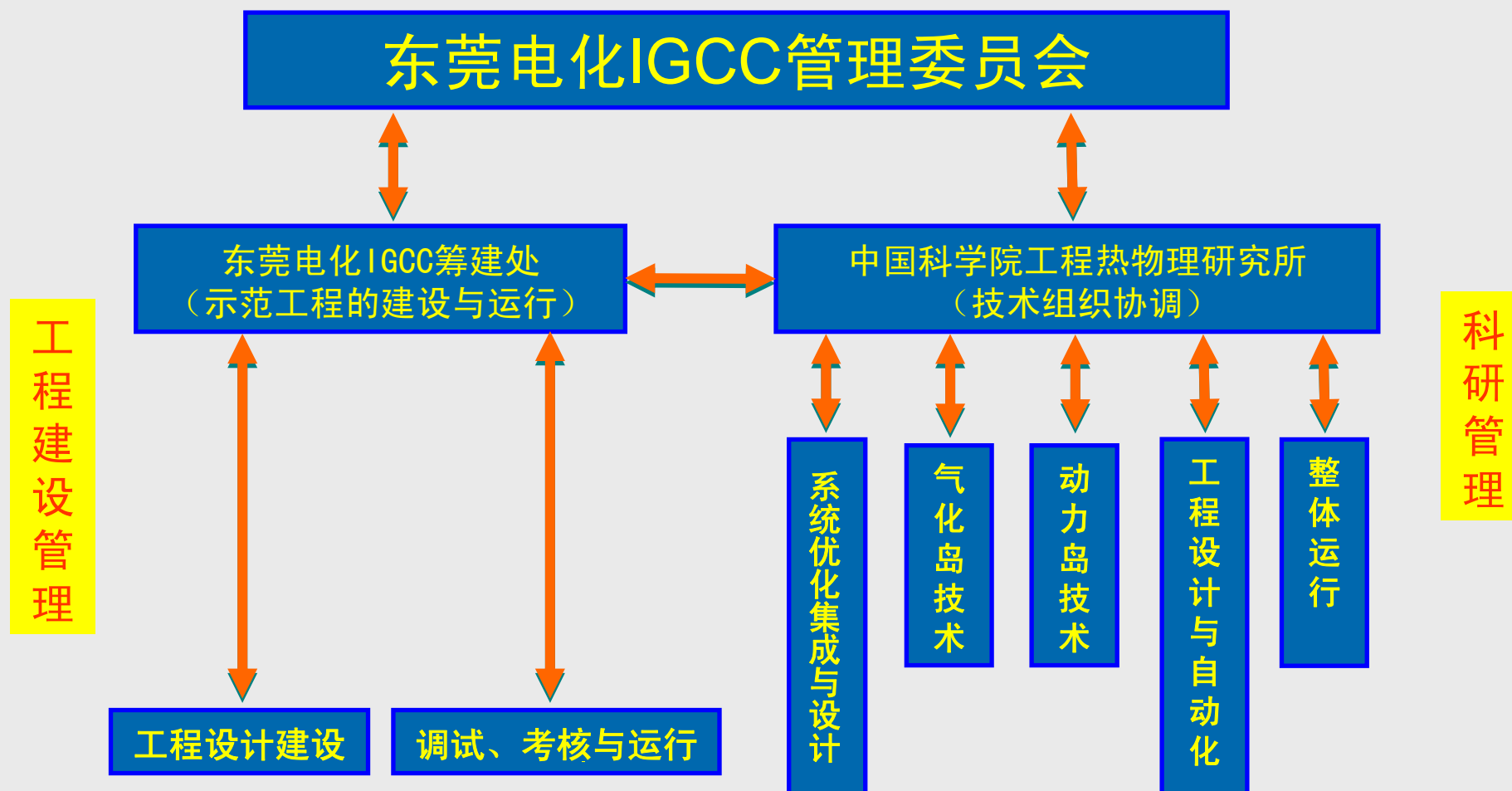


Management of project



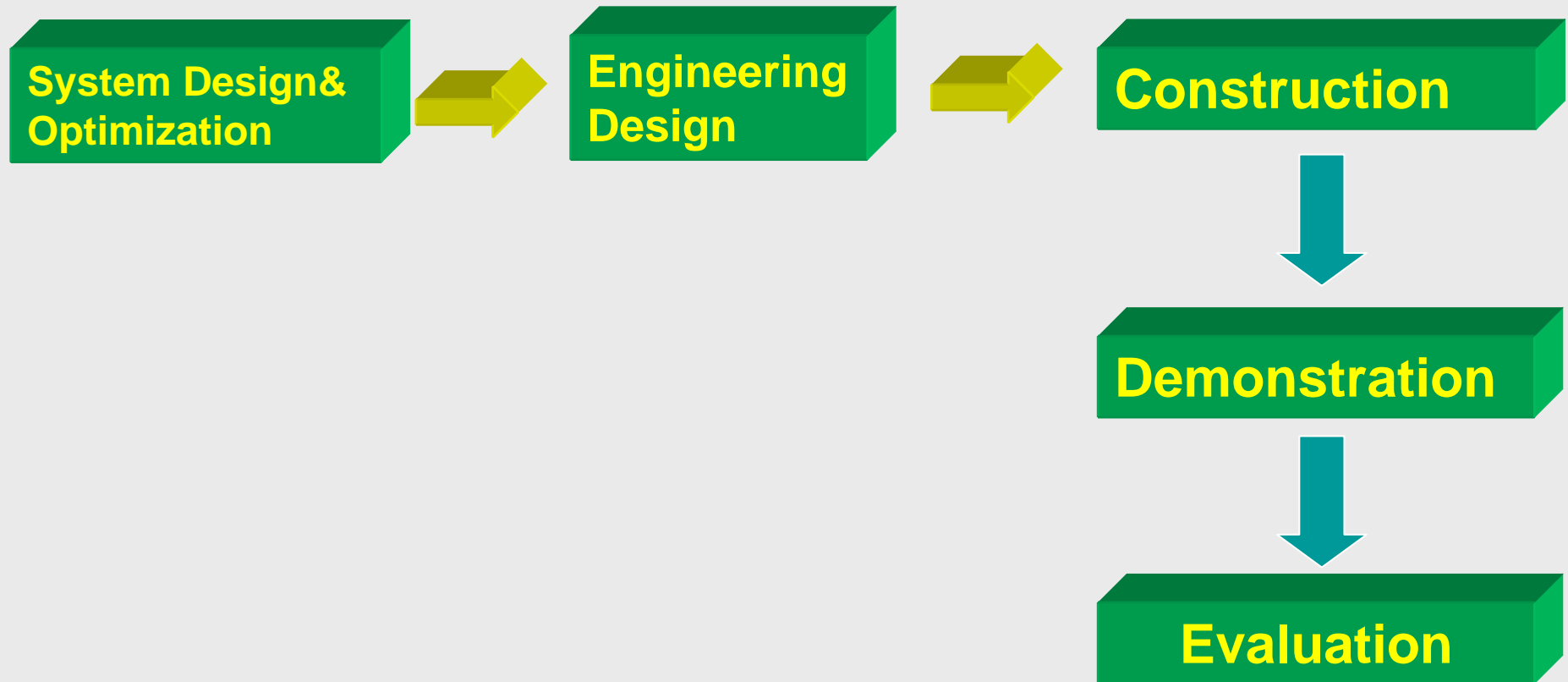


Organization of the project





Route Line





Progress Plan





东莞电化实业股份有限公司
DONG GUAN POWER&CHEMICAL INDUSTRY CO.,LTD

Achievements—Feasibility Study

东莞电化实业股份有限公司
2 × 600 吨/天粉煤加压密相输运床
气化炉及配套工程

可行性研究

东华工程科技股份有限公司
中国科学院工程热物理研究所
二〇〇七年四月于合肥

东莞电化实业股份有限公司
2 × 600 吨/天粉煤加压密相输运床
气化炉及配套工程

可行性研究报告

编号: K466B

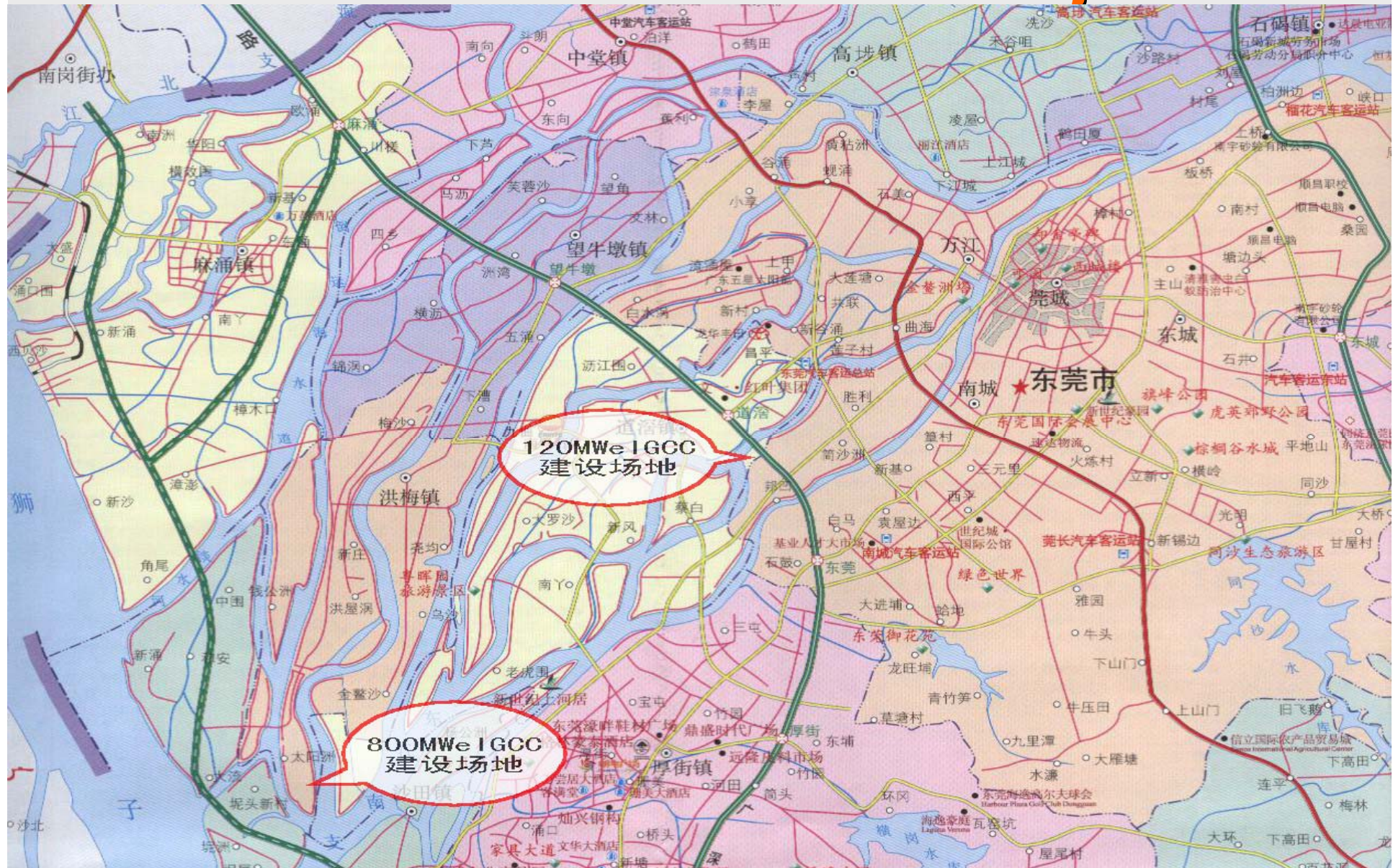
编制负责人: 章黎
总经济师: 张绘锦 (副)
总工程师: 吴越峰 (副)
总经理: 吴光美

东华工程科技股份有限公司
工程咨询证书 证书编号: 2031215001
二〇〇七年四月于合肥



东莞电化实业股份有限公司
DONG GUAN POWER & CHEMICAL INDUSTRY CO., LTD

Achievements——Site of the Project





东莞电化实业股份有限公司
DONG GUAN POWER&CHEMICAL INDUSTRY CO.,LTD

Achievements——Site of 120MWe IGCC





东莞电化实业股份有限公司
DONG GUAN POWER&CHEMICAL INDUSTRY CO.,LTD

Achievements——Site of 200MWe IGCC





Mean and Plan of Development

- Plan of 11th five-year Plan
- Plan in a Long Time
- Means of IGCC of DGPC



Plan of 11th five-year Plan

- Establish 120MWe and 200MWe IGCC Power Plant
- Demonstrate the key technologies of IGCC



Long Time Plan

- Scale up by conformity the small diesel power plants
- Develop the power-chemistry Co-production
- Engaged in the FUTUREGEN Alliance and develop the zero emission energy system
- Become the typical IGCC of China



Meanings

- Demonstration and verify the key technologies of IGCC
- Demonstrate the key technologies of IGCC supported in domain
- Provide a typical form of IGCC development for China and promote the IGCC development in China



东莞电化实业股份有限公司
DONG GUAN POWER&CHEMICAL INDUSTRY CO.,LTD

Thank you for attention

