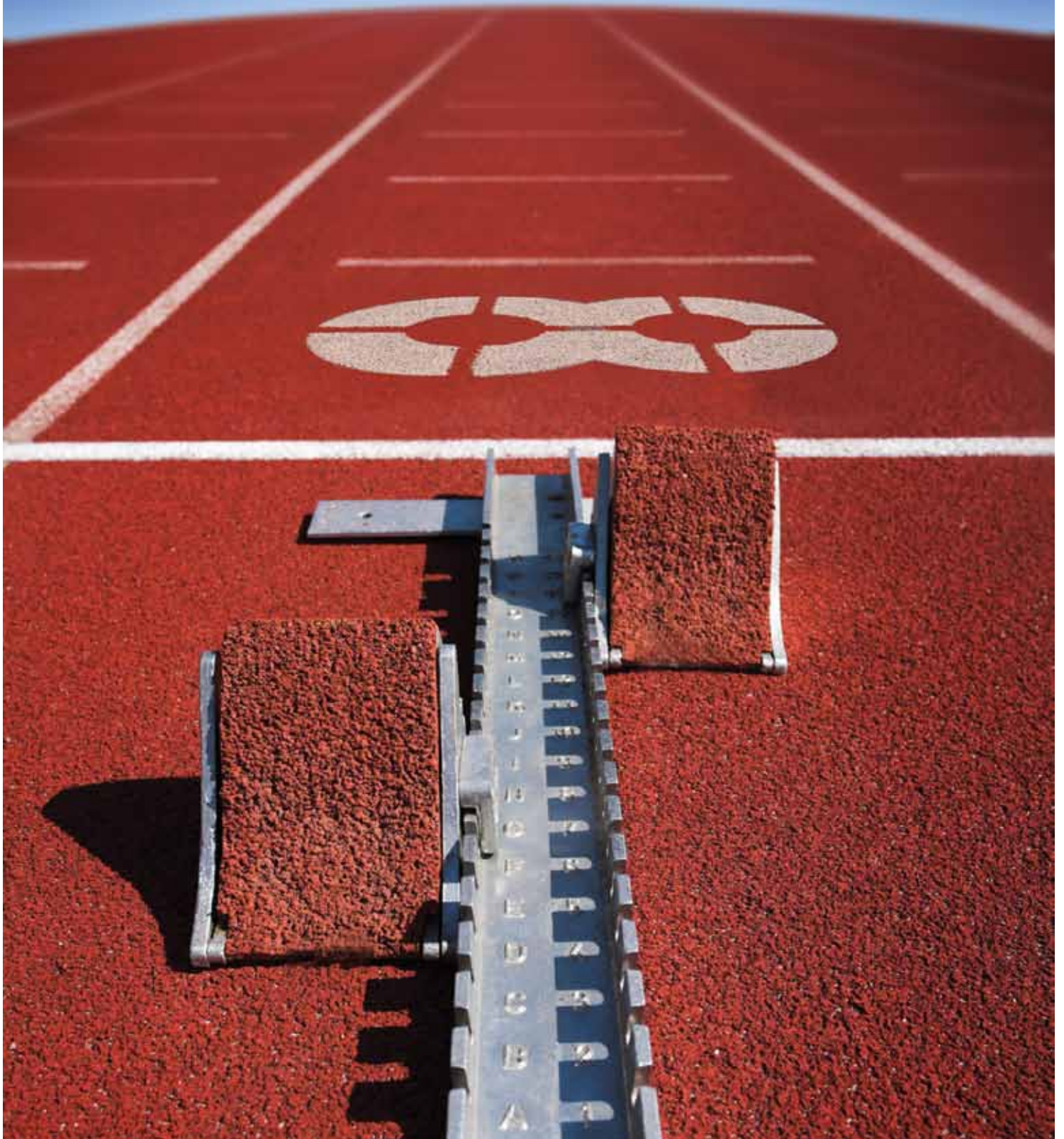


# Race for Supply

The Future of China's Gas Markets

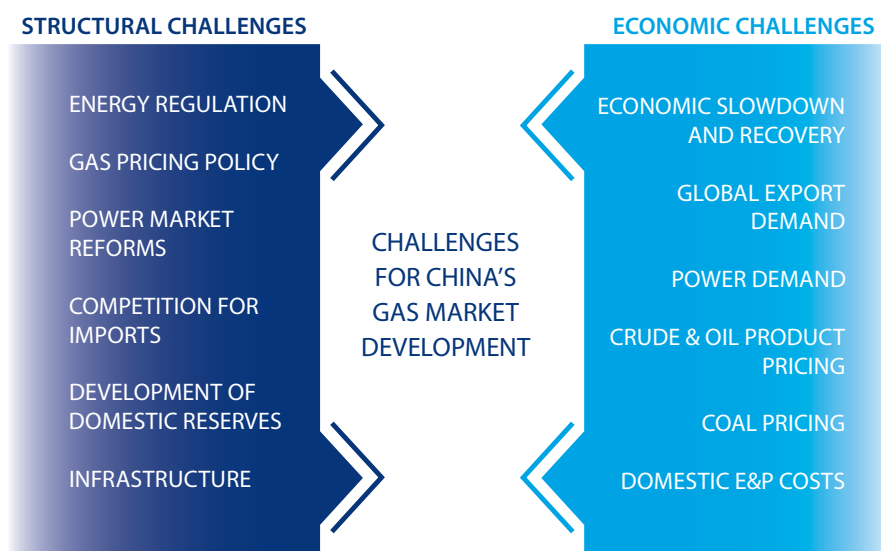


## “...now China is the centre today of the new LNG compass”

H.E. Abdullah al-Attiyah, Qatari Energy Minister, 12/05/2009

Though the overall energy economy continues to be dominated by coal, gas markets in China's coastal provinces remain under-supplied, despite being economically capable of paying higher prices to meet their strong demand needs. With recession denting demand for gas across Europe, North America and North East Asia, China's continued growth in gas consumption is increasingly the focus of gas suppliers globally. For those with upstream positions in China, export potential from Central Asia and South East Asia, or LNG projects seeking contracts to underpin FID decisions, coastal China is now a core target market.

Despite continued strong growth, China's gas markets are far from homogenous. There exists significant variance in scale, demand, pricing and pace of growth in gas markets across the country. Given the wide contrast in regional gas market development within China, understanding supply, infrastructure, demand, regulation and pricing therefore requires analysis at the provincial and local level. China's gas markets are also an area of rising quantitative and qualitative uncertainty, as government at both state and provincial levels seek to introduce reforms to encourage economically rational demand growth and pricing structures that recognise and reflect the true value of gas.



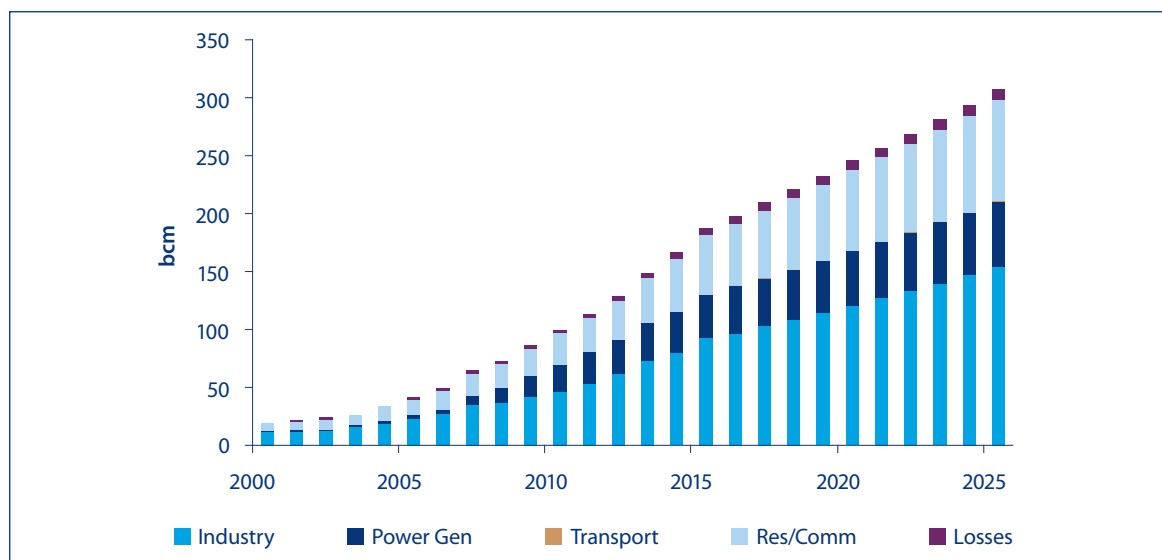
## Can China satisfy domestic gas demand?

At around 80 bcm pa (8 bcf/d), China's gas market has tripled since 2000, making it approximately the world's 7th largest gas market just behind the United Kingdom. This rise in demand has been driven by the country's well-documented economic growth, with export-led coastal provinces from Guangdong to Liaoning (including Shanghai, Beijing and Tianjin) accounting for over 40% of domestic demand in 2008, up from 22% in 2000. Unsurprisingly, these are also the provinces in China with the highest levels of GDP per capita, the most rapid urbanisation and the greatest regulatory and policy support for increased gas consumption.

That China's gas demand is robust and rising is undoubted. However, despite the development of a number of key infrastructure projects in recent years, markets continue to be gas short and it is this level of unmet demand that is driving present levels of investment in both domestic and imported supply projects. Many of the current signs are positive. Chinese buyers are understood to be in advanced stages of negotiations for contracting significant volumes of LNG from several potential new projects. In addition, the recent commissioning of the Sichuan-Shanghai Pipeline, the rapid pace of construction of the second West East gas pipeline and the development of deepwater gas reserves in the South China Sea will continue to boost supply, particularly into the coastal markets. China's unconventional gas reserves, including CBM, remain acutely under-developed and offer the potential for significant future production growth.

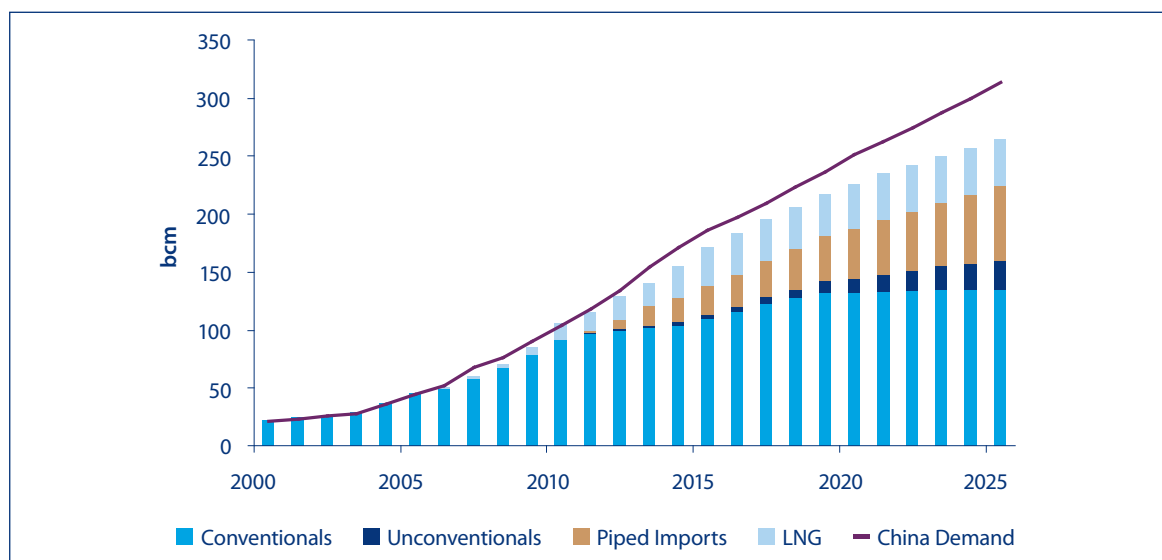
While this level of investment is encouraging for meeting demand through the mid-term, it is expected that China's gas markets will still require significant additional volumes of gas through to 2025, primarily from imports. Meeting this demand will require continued investment in domestic E&P and infrastructure, procurement of LNG and piped imports, the development of a more robust regulatory framework and reforms of pricing through the entire value chain.

### China Gas Demand By Sector



Source: Wood Mackenzie

### China Gas Supply Mix



Source: Wood Mackenzie

Ultimately, the success of this will rely upon the willingness of both the government to push ahead with gas sector reform consumers to meet the rising cost of future supply. It is both the ability of China to pay higher prices and the corresponding impact of rising prices on demand that are driving the key debates around the future of coastal China's gas markets – how much gas can China consume, what will the delivered cost be to the consumer, how will demand respond to these pricing signals and who will be the ultimate winners in the **race for supply?**

## Study Scope

In response to these developments, Wood Mackenzie is undertaking a new multi client study that addresses the relevant commercial elements in China's gas market, with a focus on the key coastal provinces. This will be of value to those who need to go beyond the macro-level and require an understanding or re-assessment of the opportunities individual gas markets within China will offer.

### The study will answer the following key questions:

How rapidly will China's coastal gas markets grow, which projects will be supplying these markets, how will gas be priced in these markets and what will this mean for gas market participants and for the regional gas markets?

<b>External Environment</b>	<p><b>How is the economic environment impacting the Chinese gas sector?</b></p> <ul style="list-style-type: none"> <li>› Has the slowdown in export markets impacted China's gas demand profile?</li> <li>› Is global recession creating opportunities for China to secure additional LNG?</li> </ul>
<b>Chinese Government Policy</b>	<p><b>What will be the Government's policy for the gas sector?</b></p> <ul style="list-style-type: none"> <li>› When will the government introduce the new energy law?</li> <li>› How will demand growth affect policies towards gas pricing and market liberalisation?</li> </ul>
<b>Coastal Gas Demand</b>	<p><b>How will domestic gas demand develop in the future?</b></p> <ul style="list-style-type: none"> <li>› How rapidly will coastal China gas demand grow?</li> <li>› What are the levels of price tolerance in coastal China?</li> <li>› What pricing levels are required to encourage industry to burn gas?</li> </ul>
<b>Domestic Gas Supply</b>	<p><b>What is the outlook for domestic Chinese production?</b></p> <ul style="list-style-type: none"> <li>› What is the future supply profile from existing discoveries?</li> <li>› What is the Yet-To-Find potential in China?</li> <li>› What is China's unconventional gas supply outlook?</li> <li>› What will be the cost of developing new fields relative to imports?</li> <li>› How will the development of pipeline infrastructure determine the quantity and delivered location of future gas supply?</li> </ul>
<b>LNG Supply</b>	<p><b>How much LNG will China be importing by 2025?</b></p> <ul style="list-style-type: none"> <li>› Which projects will be supplying coastal China in the future?</li> <li>› What type of contracts will Chinese buyers be looking for?</li> <li>› Are there midstream and downstream investment opportunities?</li> </ul>
<b>Central Asia and Russia</b>	<p><b>How much piped gas will China be importing by 2025?</b></p> <ul style="list-style-type: none"> <li>› What role will Central Asia and Russia play in the gas balance?</li> <li>› To what extent will regional geopolitics define gas supply?</li> <li>› What will delivered gas prices be from Central Asia and Russia?</li> </ul>
<b>Gas Market Dynamics</b>	<p><b>How will supply and demand balance in China?</b></p> <ul style="list-style-type: none"> <li>› What will be the optimal matching of producers and markets?</li> <li>› Will government policy or market forces decide this?</li> </ul>
<b>Gas Pricing</b>	<p><b>What is the future of gas pricing in China?</b></p> <ul style="list-style-type: none"> <li>› What are the upper and lower pricing boundaries across coastal China?</li> <li>› What is the future weighted average cost of gas into coastal markets?</li> <li>› At what pricing levels will we begin to see demand destruction?</li> </ul>

## How will Wood Mackenzie answer these questions?

### A Credible Industry Adviser

- › Wood Mackenzie is the leading consultant in energy market analysis and has developed a reputation as an independent industry adviser on gas markets globally
- › Wood Mackenzie has advised numerous IOCs and NOCs on the Chinese gas sector

### Unique Upstream Database

- › Over the last 35 years Wood Mackenzie has developed an asset by asset database of the key production assets, which together with GEM (Wood Mackenzie's Global Economic Model) gives us unrivalled capacity to analyse production volumes and the relative economics of supply
- › Wood Mackenzie's China Upstream Service consists of 50 detailed assets analyses with cash flows for all of the key producing projects in China
- › Wood Mackenzie's China Upstream Service also contains up to date knowledge of the fiscal terms and regulatory framework that impact the Chinese upstream sector

### Detailed China Coal Sector Knowledge

- › Incorporating Wood Mackenzie's China coal research team (Barlow Jonker) into the study will allow for a understanding of the role of coal in China and its competitive position relative to gas in each market

### China Midstream and Downstream Oil Sector Knowledge

- › Wood Mackenzie's Asia downstream team will contribute to our view on China's oil demand profile, including LPG, which will be used as a core focus in order to understand the competing fuel position of oil products in China

### China Industrial Demand Knowledge

- › Through a combination of Wood Mackenzie's dedicated Energy Markets research team, our Beijing-based coal research team (Barlow Jonker) and our Beijing-based metals industrial demand team (Brook Hunt), we have a detailed understanding of the nature of industrial demand growth for energy and raw materials

### Demand Modelling and Optimisation Capability

- › Wood Mackenzie will use its in-house expertise in gas market modelling, which employs a distinctive 'bottom up' and integrated approach to the gas market. We use Wood Mackenzie's upstream analysis to examine both domestic and regional gas supply in detail. This supply view is integrated into our detailed demand analysis by sector
- › Wood Mackenzie's Global Gas Model links our world class supply, infrastructure and demand analysis with an advanced optimisation tool. The Global Gas Model will be used to analyse the dynamics of all potential LNG supply as well as future piped gas flows from Central Asia, Russia and South East Asia to demand centres in China and across Asia Pacific. This provides an integrated and detailed view of the market space for imports.
- › Wood Mackenzie will work closely with our local partner CBI China to develop our core historical and current demand and market database for the study. CBI China is a leading service and data provider on Chinese commodity markets and will commit a research team to support the project

## Methodology

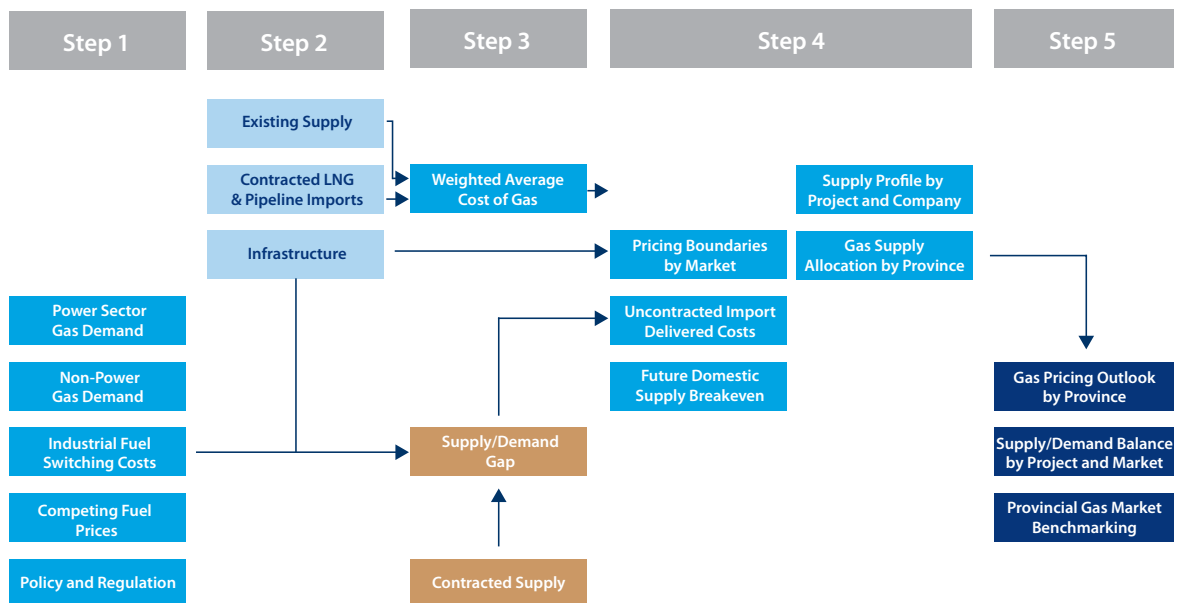
Following our analysis of the overall levels of future gas demand in China, the study will provide detailed forecasts of gas demand by province across coastal China. This will be focused on three core regions:

- › **South China/Pearl River Delta** - Guangdong, Fujian, Hong Kong, Macau
- › **East China/Yangzi River Delta** - Zhejiang, Shanghai, Jiangsu
- › **North China/Bohai Rim** – Liaoning, Beijing, Tianjin, Hebei and Shandong

In addition to our demand modelling, we will focus on the competitiveness of gas within each provincial energy economy versus substitute fuels and examine the switching costs for gas into each market for power and key industries. In order to understand how gas markets have developed within coastal China we will undertake detailed studies of the provincial gas markets, including Beijing and Shanghai, with analysis of how gas prices have developed, how the government has regulated the gas sector and how prices can be expected to evolve.

Each potential domestic supply project will be characterised, with estimates of the uncontracted gas reserve base, gas reserve upside and breakeven cost of supply. In addition, we will model all contracted imported supply in order to determine the future supply/demand gap for each province. At the provincial level we will also assess the pricing tolerance of gas and the true level of demand based on the requirement for higher-cost imported supply. This will allow us to model the expected future supply position into each market and the pricing levels likely to be achieved.

### Methodology Process



## **Methodology Process**

### **Step 1**

Wood Mackenzie will begin by modeling the overall macro energy demand forecast for China through to 2025, including total gas demand. We will then undertake detailed demand modeling for China's coastal provinces (Guangdong, Hong Kong, Macau, Fujian, Zhejiang, Shanghai, Jiangsu, Shandong, Hebei, Beijing, Tianjin, Liaoning). Step 1 will provide the overall provincial demand forecasts used in the study.

### **Step 2**

Wood Mackenzie will model all existing domestic supply projects currently supplying coastal provinces as well as those under-development on a contracted basis. In addition, we will model all contracted LNG supply (including MoU, HOA, etc) into China and imported piped gas supply. Step 2 will also include analysis of existing and planned infrastructure capacity in order to identify gas flows by project and market as well as potential supply constraints. The combination of modeling the cost of upstream supply and infrastructure will then be used to identify the weighted average cost of contracted gas into each of the coastal markets.

### **Step 3**

Based on the analysis undertaken in Steps 1 and 2, Wood Mackenzie will identify the supply/demand gap for China and in each coastal province through to 2025. This will be used to determine the requirement for additional uncontracted gas by province.

### **Step 4**

Step 4 will provide an assessment of the future supply options available to China in order to allocate future uncontracted supply to each coastal province based on the breakeven cost of delivery into each market and the expectation of end-user prices within these provinces. Domestic supply will be modeled based on assumptions of uncontracted and yet-to-find reserves, including conventional production and CBM and tight gas, and infrastructure. For future uncontracted imported supply we will utilize Wood Mackenzie's Global Gas Model to determine the optimal supply of imported gas into each province.

### **Step 5**

Incorporating our demand forecasts for each province and our assessment of contracted and uncontracted gas supply will form the basis for analysis of the development of end-user gas pricing in coastal China. These forecasts will be based on the weighted average cost of supply, our assumptions of competing fuel prices in each province, and the competitiveness of gas into power and key industrial sectors. Step 5 will also include the overall results of the supply/demand balance by province. This final step will then allow us to benchmark the coastal provincial gas markets in terms of unmet demand, gas pricing tolerance and attractiveness for suppliers. This will also allow for an assessment of the corporate positions of key players in the markets going forwards.

## Study Contents

### Overview of China's Current Gas Sector

- › Role of gas in the Chinese energy economy
- › Gas sector structure and regulation
- › Domestic gas pricing policy
- › Development of gas pricing in China
  - Gas pricing structures and formula
  - Wholesale and end-user prices in China
- › Policy for the Chinese power sector and impact on gas
- › Role of NOCs and independent gas producers in China
- › Current climate for investment by international companies
- › Prospects for future regulatory reform of the gas sector

### External Environment

- › Economic outlook and GDP forecasts for coastal provinces
- › Industrial and commercial structure of coastal province economies
- › Impact of global economic downturn on coastal provinces and influence on energy demand

### Coastal Province Demand Analysis

- › Macro-level forecast of China gas and energy demand through to 2025
- › Forecast of gas demand for three core regions, by province
  - Guangdong, Hong Kong, Macau, Fujian
  - Shanghai, Jiangsu, Zhejiang
  - Beijing, Tianjin, Liaoning, Hebei, Shandong
- › Power and industrial sector demand and long-term switching costs for key sectors
- › Prospects for the replacement of coke/synthetic gas with natural gas in industry

### Supply Assessment

- › Domestic production forecast from existing discovered fields through to 2025
- › Contracted imports
  - Central Asia pipeline
  - Myanmar pipeline
  - LNG
- › Analysis of future domestic supply capability and breakeven costs
- › Potential impact of unconventional gas supply development in China
- › Future uncontracted import gas supply options and costs
- › Analysis of future weighted average cost of supply into coastal provinces
- › Domestic transmission and distribution costs and margins
- › Corporate breakdown of supply

### Infrastructure Development

- › Existing major gas infrastructure projects; pipeline, LNG, provincial gas grids
- › Investment plans for:
  - Development of domestic pipeline network and key infrastructure projects
  - LNG
  - Import pipelines
- › Additional required infrastructure investment through to 2025

### **Supply and Demand Balance**

- › Identification of supply-demand gap in coastal provinces through to 2025
- › Major gas flows, by source, destination and transportation route
- › Key bottlenecks in gas transportation infrastructure

### **Gas Pricing and Future Pricing Boundaries**

- › Competitive position of domestic, LNG and imported piped gas in coastal markets
- › Gas pricing boundaries relative to key competing fuels by province and sector
- › Wholesale and end-user future pricing by province

### **Assessment of the Future Corporate Make-Up of the China Gas Sector**

- › Will China's NOCs continue to dominate?
- › The role of private domestic companies and international companies
- › Assessment of likely strategies for key companies in the Chinese gas sector

### **Implications of China's Gas Market Development**

- › What will be the domestic and regional impact of China's gas market development on:
  - Piped gas projects
  - LNG imports
  - Unconventional gas development
  - International investors in China's E&P sector

## Deliverables

The results of the study will be delivered via Wood Mackenzie's client web portal, with reports and accompanying data available online and for download. Following completion of the study all subscribers will be invited to participate in a Beijing-based workshop to discuss the results and share views on the future development of the China gas market.

### **The study will have the following specific deliverables**

- › Study report (in PDF format) outlining the project aims and objectives, methodology and results and conclusions
- › Study report available via dedicated Wood Mackenzie client web portal
- › Supporting data results downloadable in MS Excel
- › Early subscribers will be invited to join a project steering group. This is intended to allow input into the key assumptions and areas of study focus through in-house meetings at project kick-off
- › Workshop for subscribers on completion of the study in Beijing

### **The key benefits to the subscriber are as follows**

- › International oil and gas companies – understand the impact of developments in the Chinese gas markets on the current and future supply of domestic gas, piped imports and LNG
- › LNG Sellers – assess the future markets, timings and pricing points across coastal China
- › LNG Buyers – consider how the development of the China gas market could impact your procurement strategy
- › Utilities – understand the development, pricing and regulation impacting downstream investment and gas procurement opportunities
- › National oil and gas companies – understand the outlook for global and regional flows of gas into China
- › Governments and policy makers – assess the impact of China's rapidly developing coastal gas markets on gas procurement strategies and security of supply

## Timing and Costs

**The study is scheduled for completion in Q2 2010. Study delivery will be followed by a subscriber workshop in Beijing.**

- › The cost of the study will be US\$45,000
- › The study will be undertaken within Wood Mackenzie's standard Terms and Conditions, which are available on request

## The Study Team

### **Gavin Thompson, Head of North East Asia Regional Development – Project Director**

- › Gavin joined Wood Mackenzie's Asia-Pacific energy team in 1997, managing the Asia-Pacific Energy Markets Service and gaining a deep understanding of Asian economic development and its link to growing energy markets. Gavin has been particularly involved in issues surrounding the development of gas and power markets in China, including working in Beijing in 2001 with Wood Mackenzie's former parent Deutsche Bank in its role as advisor to PetroChina on the first West-East pipeline
- › Since 2003, Gavin has been based full-time in Beijing as Wood Mackenzie's China country manager responsible for the development of our understanding of the Chinese gas market

### **Femi Sastrena, Managing Consultant - Project Manager**

- › Femi is based in Wood Mackenzie's Singapore office and has worked on various gas and power assignments in South East Asia, including market fundamentals analysis, gas monetization and procurement and business strategy
- › Before joining Wood Mackenzie, Femi was a Senior Manager of financial advisory services in PricewaterhouseCoopers, Jakarta and Singapore. In PwC, his seven years experience was mostly in the infrastructure and energy sectors in the Asian region
- › Femi has an MBA from Lincoln University, US, as well as a Graduate Diploma from UC Berkeley Extension, US

### **Upstream Supply and Infrastructure**

#### **Andrew Fang (Fang Zongli), Upstream Analyst – South East Asia and China**

- › Since joining Wood Mackenzie in 2007, Andrew has been responsible for the ongoing research for South East Asia and leads our analysis of upstream assets and regulation in China. He co-authors the South East Asia Upstream Service and has worked on a range of research and consulting engagements across the region involving both NOCs and IOCs
- › Andrew holds a BSc in Economics from the National University of Singapore

#### **Ian Thom, Lead Upstream Analyst - Caspian Region**

- › Ian joined Wood Mackenzie in 2005, covering the former Soviet Union region. In September 2008 he took on the role of Lead Analyst for the Caspian region (Caucasus and Central Asia). Ian has worked on a number of consulting projects analysing the key gas export projects from the region and is responsible for Wood Mackenzie's upstream research on these projects
- › Prior to joining Wood Mackenzie, he worked as a research scientist and holds a PhD in Physical Chemistry from St Andrews University

#### **Leslie Lie (Li Qingjiang), Upstream Analyst - South East Asia and China**

- › Leslie is an upstream analyst, covering China and South East Asia. Since joining Wood Mackenzie in January 2007, he has led the analysis of regional gas supply and upstream infrastructure and worked on a number of gas and power related consulting projects
- › Prior to joining Wood Mackenzie, he worked as an analyst at the Energy Market Authority of Singapore, including assessment of LNG imports into Singapore and gas market development

#### **Noel Tomnay - Head of Global Gas Service**

- › Noel heads up Wood Mackenzie's global gas group developing the company's view on global gas issues. Previously Noel established Wood Mackenzie's Asia Pacific consultancy practice in Singapore where he advised widely in Pacific basin gas working with NOC's, Majors and Independents. In addition Noel has developed and led a number of Wood Mackenzie multi client studies addressing gas and established the company's Asia gas and power product suite
- › Noel joined Wood Mackenzie in 1998, having started his career as a facilities engineer with BP International and has worked in the UK, Indonesia and Eastern Africa. He graduated with a B.Eng from the University of Glasgow in 1989, is a Chartered Engineer (C.Eng) and holds an MBA from the University of Edinburgh

## **Energy Markets and Demand**

### **Fu Qiang, Senior Analyst - China Coal Team**

- › Fu Qiang is a senior coal analyst based in Wood Mackenzie's Beijing office. Fu Qiang joined Wood Mackenzie in 2008, and works to provide coal supply research covering all the major coal producing regions of China and also works on the analysis of the coal markets in China. Prior to joining Wood Mackenzie, Fu Qiang worked as a Business Analyst and Business Development Advisor in Shell, and Strategy & Investment Manager in COFCO. He holds a Bachelor of Engineering degree in Tongji University, and is pursuing MBA in Peking University

### **Gabriel Wayne, Analyst - South East Asia Gas and Power Research**

- › Gabriel is a Gas Market Analyst in Wood Mackenzie's South East Asia Gas and Power Service team, based in Singapore. He leads the analysis of gas markets, fundamentals, pricing, regulation and policy
- › Through in-depth consulting engagements with close client team involvement, Gabriel has gained insight in developing long-term LNG contract negotiation strategy. This was focused primarily on LNG buyers in China and Japan. His experience in analyzing market dynamics on the Gas & Power front as well as his close following of the global LNG business is key in the generation of Wood Mackenzie view of LNG's potential in South East Asian gas markets
- › Prior to joining Wood Mackenzie, Gabriel spent seven years working in various positions in the gas practice for PFC energy, in Washington, DC and Kuala Lumpur

### **Irfan Choudhry, Consultant - Asia Pacific Gas & Power**

- › Irfan is a Consultant with Wood Mackenzie and is responsible for its Gas and Power Consulting offerings for the Asia Pacific region, including detailed gas market analysis
- › Prior to joining Wood Mackenzie in 2007, Irfan has spent nine years in the financial sector with a focus on the energy sector companies. His last assignment was with CRISIL (A Standard & Poor's company) where he was responsible for performing credit ratings analysis for a portfolio of India's leading companies in the power, gas and oil sectors. Irfan was also responsible for providing advice to the Government of India in the areas of power sector regulation, utility financial turnaround and policy initiatives for market competition. Irfan's past work experience also includes six years with the Indian national financial institution, Power Finance Corporation where he was responsible for financial & technical appraisal of private sector power projects. Irfan holds an MBA in Finance from International Management Institute, New Delhi and a BBA degree from Delhi University, India

### **Neil Semple, Senior Analyst - South East Asia Gas and Power Research**

- › Neil is a senior analyst in Wood Mackenzie's South East Asia Gas and Power Service team, based in Singapore. He is responsible for the detailed, integrated gas and power modelling and analysis of the core markets published
- › Since joining Wood Mackenzie in 2004, he has led expert analysis on a number of gas and power consulting projects focusing on Indonesia, Malaysia, Singapore, Thailand and Vietnam
- › Before joining Wood Mackenzie, Neil had over ten years experience in South East Asia, including being Associate Director at ABN Amro Asia Securities in Bangkok
- › Neil holds an MA in Economics from University of Aberdeen in the UK

### **Yong Hui Lin, Consultant - Asia Pacific Gas & Power**

- › Hui Lin joined Wood Mackenzie's Asia Pacific Gas & Power consulting team in 2006 as an analyst and has worked on various consulting assignments across Asia Pacific. Her main responsibilities include analysing gas market fundamentals and providing commercial advisory services to various clients on internationalisation and resource monetisation strategies. She also works on transaction support related assignments where she analyses gas pricing outlook and cost of new supplies
- › Prior to joining Wood Mackenzie, Hui Lin has worked for Schlumberger Business Consulting, a Singapore listed company and a subsidiary of a Japanese trading house. Her previous experience focused on process re-engineering, QHSE and integrated resource management and business development for utilities, oil & gas and polymer industries

## **Competing Fuels and Fuel Switching**

### **Graham Freedman, Senior Managing Consultant - Gas and Power**

- › Graham has worked in the energy business for 28 years; 15 years in the gas industry with BG and 13 years in energy consulting with Global Insight, Purvin & Gertz and Wood Mackenzie. He has broad experience in providing consulting advice throughout the gas chain and beyond. This includes assignments covering natural gas, LNG, power generation and oil products. He has worked on assignments in Europe, Asia-Pacific, the Middle East and the United States
- › Graham holds a BSc (Hons) in Chemical Engineering (1980) and a post graduate Diploma in Management Studies

### **Graham Tyler, Manager - South East Asia Gas and Power Research**

- › Graham is the Manager of the South East Asia Gas and Power Service, and has been at Wood Mackenzie since 2000
- › Graham spent his initial six years in the Gas and Power Consulting team where he led and participated in a number of gas and power consulting assignments including transaction analysis, strategic assessments and price forecasting of markets in Europe, Asia and Australia
- › Previously he spent three years with National Power's international business, working on strategy, market analysis, and M&A and asset transactions. Prior to this he worked in National Power's UK wholesale trading business, which he joined from the supply business of the regional company Seeboard.
- › Graham holds an MBA from Warwick University and a BSc in Economics from Surrey

### **Rajnish Goswami - Head of Asia Gas and Power Consulting**

- › Rajnish heads the Gas and Power Consulting team in Singapore. He is responsible for Gas and Power Consulting with a focus on gas in the Asia-Pacific and Middle East
- › Rajnish has undertaken a number of advisory assignments relating to gas markets, corporate strategy and the competitive environment. He has extensive experience of having led assignments for the international oil companies (IOCs) and national oil companies (NOCs) in the Qatar, Iran, UAE, Oman, Egypt, Algeria, India, Bangladesh, Vietnam and Thailand
- › Along with his regional focus, Rajnish is also responsible for developing Wood Mackenzie's Gas Commercialisation Offering which includes commercial and strategic evaluation of various gas monetisation options like LNG and GTL. In the gas commercialisation space, Rajnish has led a number of assignments across Middle East, Africa and Latin America, advising on the relative economics of LNG and GTL and strategic considerations involved in choosing the optimal gas commercialisation option
- › Rajnish holds an MBA with distinction from the University of Edinburgh; and has fifteen years experience in the energy consulting business

## **Core Data and Market Insight**

### **CBI China**

- › Wood Mackenzie will be working with CBI China on the core historical and current data collection for this project. Founded in 1999, CBI China is one of the most significant providers of data and analysis covering the Chinese commodity markets. CBI China specialises in the energy, chemical, iron & steel, non-ferrous metal, and pulp & paper sectors, providing market intelligence to a broad range of companies

### **Wong Kim Feng, Senior Associate**

- › Kim was previously the Asian senior editor for Platts LNG Daily, covering Asian LNG and gas supply and markets including tracking spot LNG market prices, trends and overall industry developments such as new plants, changes in demand supply patterns, government regulations and their impacts and changes in trade flows. Previous to this Kim worked as the Asia Editor for Argus, providing analysis on the Asian gas and power and LNG sectors



*To order the Multi-client study:*

*'Race for Supply – the Future of China's Gas Markets'*

**Please return this form to:**

Eileen Goh,  
Commercial Marketing Manager  
Wood Mackenzie Asia Pacific Pte Ltd  
3 Church Street  
#29-01 Samsung Hub  
SINGAPORE 049483  
Singapore  
Tel: + 65 6518 0852  
Fax: +65 6518 0801  
e-mail: [eileen.goh@woodmac.com](mailto:eileen.goh@woodmac.com)

*I would like to subscribe to the Study*

**US\$45,000**

Name: \_\_\_\_\_

Company: \_\_\_\_\_ Position: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode/ZIP: \_\_\_\_\_ Country: \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

The Study will be undertaken within Wood Mackenzie's standard Terms and Conditions, which are available on request.

#### Global Contact Details

**Europe** +44 (0)131 243 4400  
**Americas** +1 713 470 1600  
**Asia Pacific** +65 6518 0800  
**Email** [energy@woodmac.com](mailto:energy@woodmac.com)  
**Website** [www.woodmac.com](http://www.woodmac.com)

#### Global Offices

Australia	Japan	United Kingdom
Brazil	Malaysia	United States
Canada	Russia	
China	Singapore	
India	United Arab Emirates	



 **INVESTORS  
IN PEOPLE**

Wood Mackenzie is the most comprehensive source of knowledge about the world's energy and metals industries. We analyse and advise on every stage along the value chain - from discovery to delivery, and beyond - to provide clients with the commercial insight that makes them stronger. For more information visit: [www.woodmac.com](http://www.woodmac.com)