CHAPTER 5: Emergency response systems of individual IEA partner countries

Recognising that oil consumption and net imports in some non-member IEA economies are increasing rapidly, the IEA promotes dialogue and information-sharing on oil security policies; it also shares information and experience about creating national emergency oil stocks with key transition and emerging economies, such as China, India and the countries of the Association of Southeast Asian Nations (ASEAN). Expanding international co-operation with all players in global energy markets to improve market transparency through the collection of more accurate and timely data is also a critical component of the work of the IEA towards greater energy security.

This chapter provides a profile of the emergency response systems of China and India, countries belonging to ASEAN and a detailed overview of Chile, an IEA candidate country. As in the previous chapter, much information in this chapter is based on Emergency Response Assessments (ERAs) or reviews conducted in several of the countries represented: notably Thailand (2010), Chile (2011) and India (2013).

The profiles are presented in the following general sequence, subject to the availability of data in particular cases:

**Key data**
- Key oil data, 1990-2018
- Key natural gas data, 1990-2018
- Total primary energy source trend, 1973–2012

**Infrastructure map**

**Country/regional overview**

**OIL**
- **Market features and key issues**
- Domestic oil production
- Oil demand
- Imports/exports and import dependency
- Oil company operations
- **Oil supply infrastructure**
- Refining
- Ports and pipelines
- Storage capacity
- **Decision-making structure**
- **Stocks**
- Stockholding structure
- Crude or products
- Location and availability
- Monitoring and non-compliance
- Stock drawdown and timeframe
- Financing and fees

**GAS**
- **Market features and key issues**
- Gas production and reserves
- Gas demand
- Gas import dependency
- Ports and pipelines
- Storage
- **Emergency policy**
- Emergency response measures

**Other measures**
- Demand restraint
- Fuel switching
- Other
The People's Republic of China

Key data

Table 5.3.1 Key oil data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production (kb/d)</td>
<td>2 774</td>
<td>3 262</td>
<td>3 639</td>
<td>4 124</td>
<td>4 134</td>
<td>4 125</td>
<td>4 409</td>
</tr>
<tr>
<td>Demand (kb/d)</td>
<td>2 333</td>
<td>4 642</td>
<td>6 748</td>
<td>9 085</td>
<td>9 471</td>
<td>9 840</td>
<td>11 959</td>
</tr>
<tr>
<td>Net imports (kb/d)</td>
<td>441</td>
<td>1 380</td>
<td>3 109</td>
<td>4 961</td>
<td>5 337</td>
<td>5 715</td>
<td>7 550</td>
</tr>
<tr>
<td>Import dependency (%)</td>
<td>19</td>
<td>30</td>
<td>46</td>
<td>55</td>
<td>56</td>
<td>58</td>
<td>63</td>
</tr>
<tr>
<td>Refining capacity (kb/d)</td>
<td>N/A***</td>
<td>N/A***</td>
<td>N/A***</td>
<td>12 587</td>
<td>13 020</td>
<td>13 410</td>
<td>17 710</td>
</tr>
<tr>
<td>Oil in TPES** (%)</td>
<td>14</td>
<td>19</td>
<td>18</td>
<td>17</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Forecast.
** TPES data for 2012 are estimates.
*** Comparable data are not available.

Table 5.3.2 Key natural gas data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production (mcm/y)</td>
<td>15 300</td>
<td>27 200</td>
<td>49 320</td>
<td>94 848</td>
<td>103 100</td>
<td>109 364</td>
<td>172 728</td>
</tr>
<tr>
<td>Demand (mcm/y)</td>
<td>15 990</td>
<td>24 503</td>
<td>46 764</td>
<td>105 526</td>
<td>130 950</td>
<td>142 000</td>
<td>295 000</td>
</tr>
<tr>
<td>Net imports (mcm/y)</td>
<td>690</td>
<td>2 697</td>
<td>2 556</td>
<td>10 678</td>
<td>27 850</td>
<td>32 636</td>
<td>-</td>
</tr>
<tr>
<td>Import dependency (%)</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>10</td>
<td>21</td>
<td>23</td>
<td>-</td>
</tr>
<tr>
<td>Natural gas in TPES (%)</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* 2012 data are estimates.
** Forecast.

Note: This section on China was written by the IEA, based on public information, IEA statistics, press reports and reports from various energy analysts, and does not represent the official view of the Chinese government. All errors and omissions are solely the responsibility of the IEA.
Figure 5.3.1  Total primary energy source (TPES) trend, 1973-2012
Map 5.3.1 Oil infrastructure of China

This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.
Map 5.3.2  Gas infrastructure of China

This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.
Country overview

Although coal is the dominant energy source in China, accounting for some 68% of the country’s total primary energy supply (TPES) in 2011, oil and gas are also essential energy sources. Despite strong growth in the consumption of oil, its share of TPES fell from 21% in 2002 to 16% in 2011, as coal use rose even faster to meet the burgeoning demand for electricity. A strong policy push boosted natural gas supplies, particularly to residential customers, so that the share of natural gas doubled from 2% in 2000 to 4% in 2011.

China is an important oil and natural gas-producing country. In 2012, China’s crude oil production exceeded 4.1 million barrels per day (mb/d). However, with strong and sustained economic growth, its demand for oil has also increased, from 4.6 mb/d in 2000 to some 9.8 mb/d in 2012. Overall demand is expected to continue along this increasing trend. China’s primary oil demand will rise to around 12 mb/d in 2018. Although China is the world’s fourth-largest oil producer, the country has been a net oil importer since 1993. In 2012, China imported over 5.4 mb/d of crude oil, accounting for about 55% of its total demand. Around 50% of its total crude oil imports came from the countries of the Middle East.

To prevent a potential shock to the economy caused by an oil supply disruption, the Chinese government has been steadily building an oil stock reserve system. China has completed four stockpiling facilities with a capacity of around 103 mb in the first phase of its Strategic Petroleum Reserve (SPR) plan, and has begun construction of its second phase. Together with the completion of the third phase, the country expects to boost its SPR capacity to approximately 500 million barrels by 2020. Stockholding obligations for industry may be considered, but were not a formal part of the emergency response system as of 2013. Legislation to that effect is still in preparation.

Domestic natural gas production surged from about 27 billion cubic metres (bcm) in 2000 to 109 bcm in 2012, or a compound average growth of 12% annually. In 2012, domestic supplies met more than 70% of domestic consumption.

As the use of natural gas grew, China began importing liquefied natural gas (LNG) in 2006 and became a net importer in 2007. In 2012, gas demand reached around 149 bcm, while it is forecast to increase to 295 bcm by 2018. China imports natural gas both in the form of LNG and through gas pipelines. In 2012, China imported natural gas from Turkmenistan (19.3 bcm or 49% of its total imports) through pipelines, and LNG from Qatar (6.9 bcm or 17%), Australia (4.8 bcm or 12%) and Indonesia (3.3 bcm or 8%).

The key elements of China’s approach to gas security are to further promote its domestic production from both conventional and unconventional resources, to expand its reserves, to construct gas storage facilities and to accelerate construction of LNG terminals and interregional gas pipelines in order to strengthen the supply of gas imports. Although China does not have government gas stocks or mandatory industry stocks, the government promotes the expansion of natural gas storage facilities to cope with seasonal demand fluctuations.
**Oil**

**Market features and key issues**

**Domestic oil production**

In 2012, China’s crude oil production increased to 4.13 mb/d (206 million tonnes [Mt]), from 4 mb/d (200 Mt) in 2011.

Exploration in the northwest and offshore has contributed to the growth of China’s remaining proven oil reserves since 2000. China’s offshore oil production rapidly increased, while oil production in the northeast has gradually decreased each year.

To secure oil supplies, in recent years the main state-owned oil companies have enhanced investment in domestic and foreign oil exploration. Total crude oil production is expected to continue increasing at least to 2018, reaching 4.4 mb/d.

**Oil demand**

China’s total oil demand in 2012 averaged around 9.84 mb/d. It has been rising rapidly from 4.6 mb/d in 2000, increasing by a compound average growth rate of 6.5%. Overall demand is expected to continue increasing gradually along this trend. The *Medium-Term Oil Market Report 2013* sees China’s primary oil demand rising to around 12 mb/d by 2018.

**Figure 5.3.2** Oil consumption by product 1998-2011

The transportation sector accounted for over 45% of oil consumption in 2011, with motor gasoline, gas/diesel oil being the main transportation fuels. It is expected that demand for those oil products will be the main component of the total oil demand of the country. The industry sector accounted for 24% of total consumption and the residential sector for 7%.

By product, demand for oil products increased from 2002 to 2011, with the exception of residual fuels. Demand for diesel and gasoline doubled during the last decade, while demand for naphtha and jet/kerosene also increased significantly by 98% and 78% for the same time period.
Imports/exports and import dependency
With sustained demand growth, China's oil imports have also continued to increase. The country has been a net oil importer since 1993 and a net crude oil importer since 1996. According to data from China Oil, Gas and Petrochemicals (China OGP), in 2012, China imported some 5.47 mb/d of crude oil, accounting for around 55% of total demand.

Figure 5.3.3  Crude oil imports by origin, 2012

According to China OGP, China is highly dependent on the Middle East for its imports of crude oil, which accounted for around half of total crude imports in 2012, followed by Africa (24%) and the Former Soviet Union (13%). By country, Saudi Arabia (20% of the total) was the biggest import source of crude oil in 2012, followed by Angola (15%), the Russian Federation (9%), Iran (8%) and Oman (7%).

In addition, China exported around 0.49 mb/d of oil products (about 24 million tonnes [Mt]) in 2012, while the country imported around 0.8 mb/d of oil products (about 40 Mt).

Oil company operations
The Chinese oil market is dominated by four major national oil companies (NOCs): China National Petroleum Corporation (CNPC), China Petrochemical Corporation (Sinopec), China National Offshore Oil Corporation (CNOOC) and China National Chemicals Import and Export Corporation (Sinochem).

CNPC, established in 1988, is a comprehensive energy company that has integrated a broad range of upstream and downstream oil and gas businesses. The company also manages technical services for oil and gas development projects, including logistics and manufacturing. In 2012, CNPC's domestic crude oil production was about 2.2 mb/d (110 Mt/year) and its share in overseas production was 0.8 mb/d (42 Mt/year). CNPC produced 79.9 bcm of natural gas domestically and its share in overseas production reached 13.7 bcm. PetroChina is the internationally listed subsidiary of CNPC.

Sinopec was established in the 1980s from the assets of the former Ministry of Petroleum Industry. The company has an integrated system covering oil production, refining and sales. The petrochemical business is also a core activity, including maintenance of a comprehensive retail network. Sinopec's subsidiary, the China Petroleum and Chemical Corporation, went through an initial public offering by listing the stocks on global stock exchange markets. In 2012, Sinopec produced 0.9 mb/d of crude oil and some 17 billion cubic metres (bcm) of natural gas.

CNOOC is the third-largest oil company in China and was established to exploit China's offshore oil and gas resources. In 2012, CNOOC crude oil production stood at around 0.7 mb/d; that year, it also produced 10 bcm of natural gas.
Sinochem is a large NOC that produces oil, fertiliser and chemical products, and is also involved in the trade and sale of these products. Its activity extends to overseas oil exploration, production and refining, including oil storage services. Its oil equivalent production stood at around 64 kb/d in 2012.

**Oil supply infrastructure**

**Refining**

China's oil refining industry has vigorously promoted large-scale reorganisation and integration of its refineries. China's crude distillation capacity increased from about 7 mb/d in 2005 to around 12 mb/d in 2010, and then to 13.4 mb/d in 2012.

China's refining industry is commonly divided into two groups: independent refiners and major refiners. There are about 80 major refineries belonging to CNPC, Sinopec, CNOOC, Shaanxi Yanchang Petroleum Group (SYPG) and China North Industries Group Corporation (CNGC). The total capacity of these major refiners in 2012 was 10.1 mb/d.

Large refineries are mainly located in three areas, namely in the Yangtze River Delta, the Pearl River Delta and the Bohai Rim.

In line with increasing refinery capacity, refinery throughputs have also kept increasing steadily. Chinese refinery crude runs reached a record high of 10.2 mb/d in December 2012. While refinery processing has been more modest in 2013, averaging 9.5 mb/d in the first ten months of 2013, this is still a considerable increase compared with 2.7 mb/d in 2005 and 8.5 mb/d in 2010 (and 9.3 mb/d for 2012 on average). The product output of gasoline in 2012 was around 1.8 mb/d, while for diesel it was 3.3 mb/d and kerosene reached around 0.5 mb/d.

**Ports and pipelines**

China's oil pipelines have been rapidly expanding as well. The country is estimated to have over 22 000 km of crude oil pipelines. Pipelines run mainly in the northeast, the northwest and the coastal areas. It is estimated that around 70% of China's domestically produced crude oil is transported through pipelines. In the near future, it also plans to build around 10 000 km of crude oil pipelines.

The China-Russia spur of the Eastern Siberia-Pacific Ocean oil pipeline (ESPO) with a capacity of 300 kb/d or 15 million tonnes (Mt/year), became operational in 2010. The second phase of the Kazakhstan-China oil pipeline is planned for completion by the end of 2013. This will boost China's total transport capacity to 400 kb/d or 20 Mt/year. The China-Myanmar oil pipeline (around 440 kb/d or 22 Mt/year) is also planned to become operational in 2014.

Regional oil product pipelines have also been constructed, mainly in the northwest, the southwest and in the Pearl River Delta. China has built around 20 000 km of refined product pipelines, which are projected to transport around 20% of total oil products.

As China has a long coastline, it has around 60 operating oil ports. According to China OGP, around 60% of China's crude and oil product imports arrived at five main port areas in 2011: Ningbo, Quingdao, Hangzhou, Dalian and Zhanjiang.

**Storage capacity**

China has been committed to the construction of its Strategic Petroleum Reserve (SPR). The government plans to complete 500 mb (or around 80 mcm) of SPR capacity in three progressive phases by 2020.
The first phase (SPR-I) includes four storage facilities with a capacity of 103 mb (or 16.4 mcm). These were completed and fully filled with crude oil by 2010.

In the second phase (SPR-II), according to the Yearbook of China National Petroleum Corporation 2011, China plans to build a total additional capacity of 207 mb (or 33 mcm) in eight locations. However, as the government treats the SPR as a state secret, information on capacity increases and stock levels remains elusive. According to public information, it is likely that the second phase will include more than 207 mb of storage capacity. Although completion of the second phase was forecast for the end of 2013, it appears that it has been delayed until 2015.

The third phase (SPT-III) provides for the building of the remaining capacity. Available estimates suggest that this phase will range from 150 mb to some 200 mb/d of additional capacity, thus boosting total SPR capacity to 500 mb by 2020. Construction of SPR sites in SPT-III has not been started.

While building the SPR, the government has also encouraged domestic oil companies to increase their commercial reserves in order to meet fast-growing domestic oil demand.

As China is projected to see a large growth in its global refining capacity, potentially adding over 4 mb/d by 2018, its new refineries will require significant storage capacity to hold operating stocks of both crude and refined products.

However, the total commercial inventory level is still unclear, as there is much ambiguity surrounding commercial storage expansion, perhaps in part because of an unclear distinction between SPR sites and commercial storage.

**Decision-making structure**

The State Council, comprised of the premier, vice-premiers, state councillors and ministers, is the main decision maker and has the authority to order releases from the SPR. The National Development and Reform Commission (NDRC), the National Energy Administration (NEA) and the Ministry of Finance co-operate on the implementation of orders from the State Council. The National Oil Reserve Center (NORC) is a core body and responsible for SPR construction and oil procurement. The NORC is overseen by the National Oil Reserve Office of the NEA. Major NOCs, such as CNPC, Sinopec and Sinochem, serve as contractors for operations of strategic oil reserves.

While building the SPR, China is considering placing a minimum stockholding obligation on industry, thus creating a comprehensive national reserve system – the National Petroleum Reserve. This is expected to be composed of government stocks and obligatory industry stocks, and will include both crude oil and products. The NEA is reported to be considering public subsidies to support industry’s stockholding requirements.

The legislation governing the National Petroleum Reserve is still in draft form but is considered to stipulate the detailed rules and regulations.

**Stocks**

**Stockholding structure**

In order to prevent and mitigate the damage caused by oil supply disruptions, since 2001 China has been steadily moving forward with the building of an oil stock reserve system. In 2001, China’s Tenth Five-Year Plan (2001-2005) called for the establishment of a national strategic oil stockholding system to improve China’s energy security. In 2003, the Chinese government announced the construction of four stockpiling facilities (NORC bases) in the first phase of its SPR plan. Having completed the first phase of its SPR plan
in the coastal areas, it has begun construction of its second phase, which is considered to be made up of eight storage facilities, not only in the coastal areas but also in the northwest and the centre of the country. Although crude oil is considered for storage under these SPR plans, China also reportedly has a plan to set up a refined oil reserve.

Under the SPR-I, four storage facilities were built between 2004 and 2008: Zhenhai, Zhoushan, Huangdao and Dalian, which have a total capacity of 16.4 mcm (103.2 mb). According to the NEA’s Report on China’s Energy Development for 2011, these bases are located near refining centres on the east coast and have been filled with crude oil since 2010.

SPR-II may include more than eight storage facilities with more storage capacity. Among them, the Dushanzi and Lanzhou sites (both with a capacity of 18.9 mb) were already completed in the second half of 2011 and Tianjin (22 mb) was completed in 2012. The complete list of locations has not been officially disclosed, although the other four potential facilities are believed to be underground, located inland near refinery centres and important pipelines, or to be expansions of existing storage sites.

With the SPR-III, China aims to complete construction of its total SPR capacity. Many regional administrations have expressed an interest in holding stocks but it is uncertain whether these are included under the national SPR plan. Several reports indicate that sites earmarked for development may include Wanzhou, Hainan and Caofeidian, although information concerning capacity at individual sites remains obscure.

Stock drawdown and timeframe
When oil market supply is subject to significant changes or unforeseen incidents, the NEA will propose to the State Council its plan for releasing the emergency oil reserves. Following State Council approval, the NEA will carry out the approved actions in cooperation with other stakeholders such as the NDRC, related ministries and the NOCs.

Other measures
Other than using the SPR, China has not yet prepared alternative measures for short-term oil crisis management, such as demand restraint or fuel-switching measures. However, the government has proposed longer-term policies and measures focusing on a more stable and energy efficient economy through promotion of energy efficiency and energy diversification.

Furthermore, although not specifically to reduce oil in an emergency, the Beijing municipal government is reported to be considering the introduction of odd/even licence plate driving restrictions, for the purpose of mitigating pollution. Similar measures were already taken for the Beijing Olympic Games in 2008. Other cities have also conducted a trial run for a similar ban. This experience can be a good example for the future if the country needs to deploy demand restraint measures for oil supply disruptions.

Gas

Market features and key issues

Gas production
China’s natural gas production has surged from 27 bcm in 2000 to an estimated 109 bcm in 2012, with a compound average growth rate of about 12%. Coalbed methane (CBM) output reached 12.5 bcm but only 5.2 bcm was utilised, while the rest was flared.
China’s natural gas reserves are mainly distributed in nine basins, the main three being Ordos, Sichuan, and Tarim.

Natural gas production in China is expected to reach 137 bcm in 2015 and 172 bcm in 2018, which will make the country the fourth-largest producer behind the United States, the Russian Federation and Qatar. Long-term gas production growth will be supported by a substantial increase in proven gas reserves: 3.5 trillion cubic metres (tcm) for conventional gas, 1 tcm for CBM and 0.6 tcm for proven geological shale gas.

**Gas demand**

With the development of natural gas pipeline networks, China’s demand for natural gas has rapidly increased from 28 bcm in 2000 to around 149 bcm in 2012. It is expected to reach 295 bcm in 2018 – a 12% annual increase since 2012. This is roughly in line with the CNPC’s forecasts that Chinese gas demand will reach 350 bcm by 2020. Among the key uncertainties are the pace of GDP growth over the coming years, the timeliness of foreign supplies, notably new LNG supplies (contracted under long-term contracts) and Central Asian gas and the development of unconventional gas.

**Figure 5.3.5  Natural gas consumption by sector 1973-2011**

In 2011, the transformation/energy sector represented about 36% of the country’s total gas consumption, followed by industry (23%), residential (23%) and transport (10%). Gas demand for power generation is expected to increase to 91 bcm, which is almost one-third of China’s total gas use. This is entirely dependent on the expansion of gas-fired capacity planned in the Twelfth Five Year Plan. In the transport sector, growth is foreseen to increase from 11 bcm in 2011 to 39 bcm by 2018.

**Gas import dependency**

China became a net importer of natural gas in 2007. Since then, China’s gas imports have gradually increased. It is estimated that China imported about 43 bcm of natural gas in 2012: about 20 bcm in the form of LNG and 23 bcm through pipelines from Central Asia countries such as Turkmenistan and Uzbekistan. With the fastest-growing gas market in the world, China’s imports are expected to rise to 122 bcm by 2018.
While Uzbekistan began exporting small amounts of pipeline gas to China in August 2012, the bulk of pipeline gas supplies continue to come from Turkmenistan (19.3 bcm in 2012). Turkmenistan plans to increase its natural gas exports to China to 40 bcm per year by 2015 and up to 65 bcm by 2020. Kazakhstan also plans to start exporting to China by 2015, after the completion of the Beineu-Shymkent gas pipeline.

China's LNG imports increased from 16 bcm in 2011 to 20 bcm in 2012. Almost 34% of total LNG imports came from Qatar, while the remaining LNG imports came from Australia (24%), Indonesia (16%) and Malaysia (13%).

**Figure 5.3.6 LNG imports by source in 2012**

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qatar</td>
<td>34%</td>
</tr>
<tr>
<td>Australia</td>
<td>24%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>16%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>13%</td>
</tr>
<tr>
<td>Yemen</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Gas company operations**

China’s upstream natural gas sector is dominated by CNPC, Sinopec and CNOOC.

CNPC is and will remain the largest gas producer, with three-quarters of its production concentrated in the Changqing, Sichuan and Tarim basins. The company aims to produce 120 bcm by 2015 (from 80 bcm in 2012) and 150 bcm by 2020.

Sinopec is the second-largest gas producer with most of its production coming from Puguang, which reached its plateau of 10 bcm in 2012. Part of Sinopec’s incremental gas production is set to be provided by the Daniudi field, whose target lies between 6 bcm and 10 bcm (from 3.7 bcm in 2012).

As for gas distribution, distribution companies are owned and managed by local governments, while most natural gas is delivered to major industrial users directly by producers. Over the past years, the three NOCs have been investing in the downstream sector to get a foothold in the residential sector.

**Gas supply infrastructure**

**Ports and pipelines**

China has developed its domestic natural gas pipelines and will continue to meet its growing natural gas demand. The total length of China’s natural gas pipelines is estimated at nearly 50,000 km. This includes: the transnational pipeline used mostly for imports (via the West-East II pipeline - east section, the China-Central Asia pipeline - line C, and the West-East III pipeline); 6,000 km of pipelines linking with LNG terminals; and over 12,000 km of major branch and trunk lines, along with 2,054 km of CBM pipelines. China is also expected to increase its pipeline network to over 90,000 km by 2015. Regional gas pipeline networks have been formed in the southwest, the Bohai Rim, Yangtze River Delta, the central south and the northwest.
Regarding transnational pipelines, the West to East Pipeline has a total length of 3,843 km running from the Tarim Basin in Xinjiang to Shanghai with an importing capacity of 12 bcm per year. The West to East Pipeline II (8,704 km long) became operational in 2012 with a capacity of 30 bcm per year, running from Horgos in Xinjiang province to Shanghai, Guangzhou and Hong Kong. Construction started on the eastern part of the West-East Pipeline III in May 2013. It will be 7,378 km long (of which 5,220 km will be trunk line) with a capacity of 30 bcm per year. This third phase is expected to become fully operational by 2015.

CNPC also brought the China-Myanmar gas pipeline into full operation in October 2013. It consists of a 793 km long trunk line in Myanmar with 1,727 km in China. This pipeline has a combined send-out capacity of 12 bcm to Yunnan province in South China.

China is expanding not only its pipeline capacity but also its LNG regasification capacity. The country started importing LNG in 2006 and has ten LNG terminals in operation with a total regasification capacity of some 46 bcm. Eight LNG terminals are reported to be under construction or being expanded. This would increase China’s total LNG regasification capacity to around 70 bcm in the coming years.

Storage

In order to prevent a repeat of the gas shortage in the winter of 2009, the Chinese government has promoted the construction of gas storage facilities. Gas storage at Jintan, Dagang and the Huabei field have contributed to improving the natural gas network for seasonal peak shaving.

In addition to these, CNPC brought into operation the country’s largest underground gas storage facility in Hutob in July 2013. This facility has a combined storage capacity of 10.7 bcm for the West-East Gas Pipeline. CNPC has been constructing five other large gas storage facilities. Sinopec’s second gas storage facility has also been developed in Zhongyuan, with a capacity of 10.4 bcm, in addition to its existing capacity of around 0.5 bcm. It is reported that China has plans to construct over 35 underground storages in total to boost its storage capacity to 35 bcm by 2015 and to 60 bcm by 2020.

China’s LNG terminals also have a combined storage capacity of 2.2 bcm. When all its LNG terminals being planned or under construction are completed, they will add over 4.2 bcm to China’s combined storage capacity at LNG terminals.

Emergency policy

Since China was not a net importer until 2007 and its consumption of natural gas was quite limited compared to other fossil fuels, an emergency policy for natural gas disruption was not highly prioritised. However, in addition to the gradually increasing demand for natural gas and after a gas shortage in the winter of 2009, in 2010 the NDRC and the NEA started to formulate a response plan in co-operation with oil and gas companies. The key elements of this plan are to further promote domestic natural gas production, to construct gas storage facilities and to accelerate construction of LNG terminals and interregional gas pipelines in order to strengthen the supply of gas imports.

Since this plan is not public, detailed information is not available. However, the government is considering enhancing its readiness and preparedness for gas supply disruptions as natural gas becomes an important energy source. In November 2013, the NOCs are reported to have started to cut natural gas supplies to industrial consumers, and the chemical sector in particular, to ensure natural gas supply for the residential and transport sectors.