

Natural Gas Use Policy Trends in China

Li Zhidong

Visiting Researcher, IEEJ

Professor, Nagaoka University of Technology

On October 14, the government revised its natural gas use policy for the first time in five years. The revision expanded the policy's coverage to include shale gas, coalbed methane and coal-based syngas from coal gasification in addition to conventional natural gas in order to promote and support gas for town gas services, electricity generation, cogeneration and distributed use. The revised policy puts greater emphasis on price rationalization and comprehensive support as safeguards for expanding gas use.

On October 14, the National Development and Reform Commission released a new natural gas use policy, representing the first policy revision in five years, since 2007. I would like to pay attention to the following three key points of this important policy that defines the future direction of natural gas use.

First, the policy's coverage was expanded to include shale gas, coalbed methane and coal-based syngas from coal gasification in addition to conventional natural gas (including liquefied natural gas) to back up greater gas use. The government's 12th five-year natural gas development plan vows to expand natural gas consumption to 230 billion cubic meters and supply capacity to 260 billion cubic meters in 2015ⁱ. To achieve these targets, China will have to increase conventional natural gas output to 130 billion cubic meters and imports to 100 billion cubic meters in 2015 while expanding unconventional gas use. The 12th five-year coalbed methane development and use plan released in December 2011 set a coalbed methane production target in 2015 of 30 billion cubic meters and the 2011-2015 shale gas development plan announced in March 2012 put the year's shale gas production target at 6.5 billion cubic meters (Table 1). Meanwhile, supply of coal-based syngas from coal gasification mainly in Xinjiang has been expanding rapidly. Coal gasification capacity under construction and planning in Xinjiang has exceeded 150 billion cubic meters including 76.7 billion cubic meters incorporated into Xinjiang's 12th five-year development plan. A gas pipeline with a transportation capacity of 30 billion cubic meters was completed in August 2012ⁱⁱ.

Table 1 Gist of 12th Five-Year Plan for Unconventional Natural Gas Development

<p>12th Five-Year coalbed methane Development and Use Plan (prepared by the National Development and Reform Commission and National Energy Administration, December 2011)</p>	<ul style="list-style-type: none"> •Expand coalbed methane production from 9 billion cubic meters in 2010 to 30 billion cubic meters in 2015. Raise the coal layer gas utilization rate from 44% to 95% or more Breakdown: Expand surface output from 1.5 billion cubic meters to 16 billion cubic meters and raise the utilization rate from 80% to 100%. Expand coal mine gas recovery from 7.5 billion cubic meters to 14 billion cubic meters and raise the utilization rate from 31% to 60% or more •Expand thermal power generation capacity using coalbed methane to 2.85 million kilowatts or more in 2015. Increase the number of households using coalbed methane to 3.2 million or more in the year •Increase proven geological reserves by 1 trillion cubic meters in five years •Invest 37.8 billion yuan in the Qinshui Basin and 20.3 billion yuan in the eastern Ordos basin for primary development in five years to complete the two major coalbed methane industrialization bases in 2015
<p>Shale Gas Development Plan (2011-2015) (Prepared by the National Development and Reform Commission, Ministry of Finance, Ministry of Land and Resources, and China Energy Administration, March 2012)</p>	<ul style="list-style-type: none"> •Complete shale gas resources assessment, establish a number of exploration and development zones and realize improvement of core development technologies and domestic production of major equipment by 2015. Create national standards for shale gas and a relevant industrial policy system to pave the way for development in and after 2016 •Discover and prove 600 billion cubic meters in geological shale gas reserves and 200 billion cubic meters in recoverable reserves in five years •Set the shale gas production target at 6.5 billion cubic meters for 2015 •Expand output to 60-100 billion cubic meters in 2020

Source: Prepared by the author based on the government plans specified in the table.

The second key point is that the new policy divided natural gas use into a greater number of categories and increased the number of priority categories substantially from four to 12 (Table 4). The policy promotes and supports town gas services, distributed gas use with an overall use efficiency of 70% or more, gas cogeneration and gas thermal power generation excluding the generation in coal-mining areas, and gas for stopgap and storage facilities contributing to stable supply. At the same time, it restricts or bans natural gas use for chemical production other than hydrogen manufacturing. The policy attempts to expand the natural gas market in an orderly and efficient manner and to support wind power and photovoltaic generation by promoting distributed gas use including gas thermal power generation and cogeneration to enhance load-following capabilities.

Table 2 Gist of Natural Gas Use Policy

Categories for priority	Categories for approval	Categories for restriction	Categories for prohibition
<p><Town gas></p> <p>1. Cooking, hot-water supply, etc. for residents in urban regions (including large and mid-sized cities)</p> <p>2. Public service facilities (airports, government agencies, schools, hospitals, hotels, restaurants, office buildings, passenger transportation stations, etc.)</p> <p>3. Natural gas vehicles (urban transit systems, taxis, logistic delivery vehicles, garbage trucks, etc.)</p> <p>4. Centralized heat supply in urban centers and new residential zones.</p> <p>5. Gas air conditioners</p>	<p><Town gas></p> <p>1. Distributed heat supply</p>	<p><Natural gas chemical production></p> <p>1. Additional ammonia production lines using natural gas as material, switching from coal to natural gas as material</p> <p>2. Acetylene, chloromethane and other chemical projects using methane as material</p> <p>3. New projects for manufacturing nitrogen using natural gas as material</p>	<p><Natural gas power generation></p> <p>1. Base-load gas power plants (excluding coalbed methane plants) in the locations for the 13 major coal mining districts in Shaanxi Province, the Inner Mongolia Autonomous Region, Shanxi Province, Anhui Province, etc.</p>
	<p><Industrial fuel></p> <p>2. Substitution for oil or LPG in building materials, machinery, electrical machinery, spinning, petrochemical, metallurgical and other industrial sectors</p> <p>3. New natural gas users in building materials, machinery, electrical machinery, spinning, petrochemical, metallurgical and other industrial sectors</p> <p>4. Substitution for coal for high environmental and economic effects in building materials, machinery, electrical machinery, spinning, petrochemical, metallurgical and other industrial sectors</p> <p>5. Switching to natural gas as fuel for industrial boilers in urban centers (including those in extra-large and large cities)</p>		
<p><Industrial fuel></p> <p>6. Users that can suspend gas use in building materials, machinery, electrical machinery, spinning, petrochemical, metallurgical and other industrial sectors</p> <p>7. Natural gas-based hydrogen manufacturers that can suspend gas use</p>	<p><Natural gas power generation></p> <p>6. Natural gas power generation (excluding the 12th category for priority and the 1st category for prohibition)</p>	<p>Down one category from the 2007 version</p>	<p>Unchanged from the 2007 version</p>
<p><Other use></p> <p>8. Distributed natural gas use with an overall use</p>	<p><Natural gas chemical production></p> <p>7. Natural gas-based hydrogen manufacturing (excluding the 7th category)</p>		

<p>efficiency of 70% or more</p> <p>9. Natural gas (including LNG) for transport ships for rivers, lakes and coastal waters</p> <p>10. Natural gas storage facilities for stopgap and peak demand adjustment functions in urban regions</p> <p>11. Coalbed methane power generation</p> <p>12. Natural gas cogeneration</p>	<p>for priority)</p> <p><Other use></p> <p>8. Small LNG facilities for peak demand adjustment and storage</p> <p>Down one category from the 2007 version</p>		
<p>Up eight categories from the 2007 version</p>			

Source: Prepared by the author based on National Development and Reform Commission, “Natural Gas Use Policy” (National Development and Reform Commission Ordinance No. 15, October 14, 2012); National Development and Reform Commission, “Natural Gas Use Policy” (Energy Development and Improvement [2007] No. 2155, August 30, 2007)

The final key point is that the new policy puts greater emphasis on price rationalization and the role of the comprehensive support policy. For example, the new policy allows local governments to independently provide incentives for land purchases, lending, cost collection and other measures for priority categories of gas use.

Contact: report@tky.ieej.or.jp

ⁱ At the 2012 China National Gas Work Conference on October 25, 2012, National Energy Administration director Liu Tienan outlined the 12th five-year natural gas development plan and priority operations for next year. But the original text of the plan has yet to be published as of November 13, 2012. For details, see the National Energy Administration website (http://www.nea.gov.cn/2012-10/26/c_131932476.htm).

ⁱⁱ Jia Yuanpei, “Accelerating Construction of Pipeline for Outward Transportation of coal-based syngas from Coal Gasification in Xinjiang,” China Energy News, November 5, 2012, p.14