

Current Situation and Opportunities of Sichuan Shale Gas Exploration and Development

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and Reform Commission**



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I.General Situation of Sichuan Shale Gas Exploration and Development

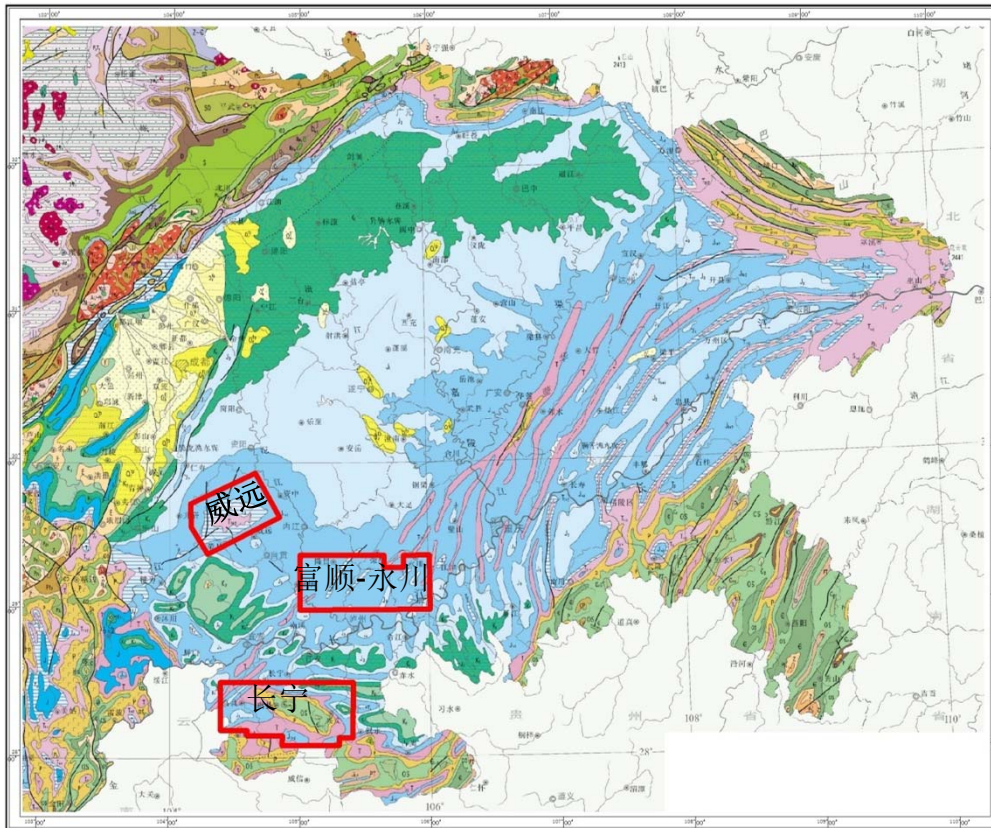
1. Develop History of Sichuan Shale Gas

2009	<ul style="list-style-type: none">➤Own the first shale gas vertical well “Wei 201”➤Sign the joint evaluation agreement with Shell for the Fushun-Yongchuan Block
2010	<ul style="list-style-type: none">➤Finish the preliminary evaluation and research on the Sichuan Basin Shale Gas Resources➤Obtain a breakthrough on the core technologies for Shale gas horizontal drilling, volume fracturing
2011	<ul style="list-style-type: none">➤Own the first shale gas horizontal well “Wei 201-H1”➤Start industrial operation, own shale gas wells
2012	<ul style="list-style-type: none">➤Published “Sichuan Shale Gas Development Plan”➤Approved the setup of Changning-Weiyuan Shale Gas National Demonstration Area
2013	<ul style="list-style-type: none">➤Signed the products sharing agreement with Shell on the Fushun-Yongchuan Block➤Signed joint research agreement with Conoco Philips on Neijiang-Dazu Block
2014	<ul style="list-style-type: none">➤Achieved shale gas industrial production in Changning-Weiyuan block➤Established promotion plan of shale gas industry

I.General Situation of Sichuan Shale Gas Exploration and Development

2. Rich Shale Gas Resources in Sichuan

The total amount of shale gas in Sichuan is about 2.75 billion m³ which is 21% of the total amount in China. The exploitable amount is about 0.44 billion m³ which is 18% of the total exploitable amount in China. The total amount and exploitable amount all ranked No 1 in China.

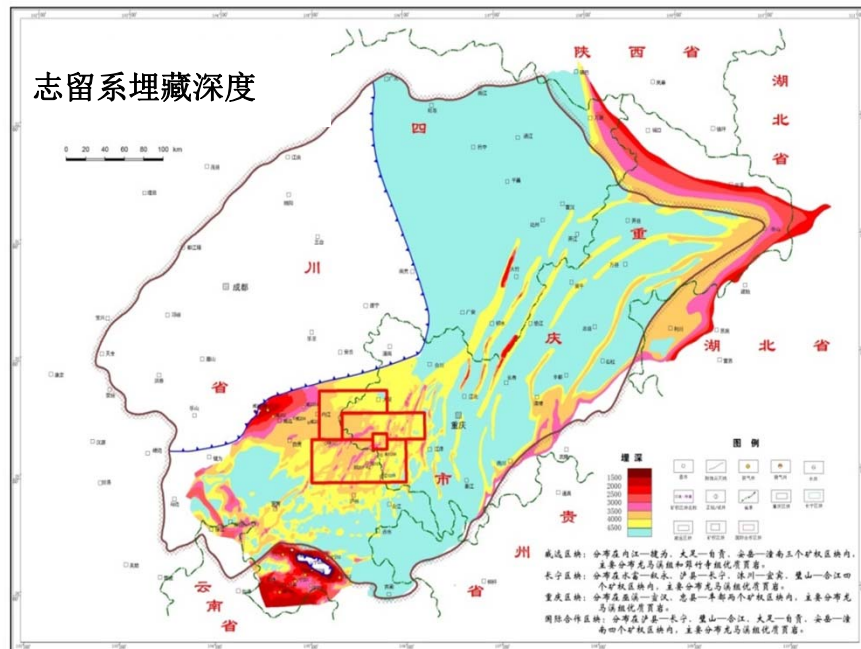


Main Shale Gas Block
Resource Amount

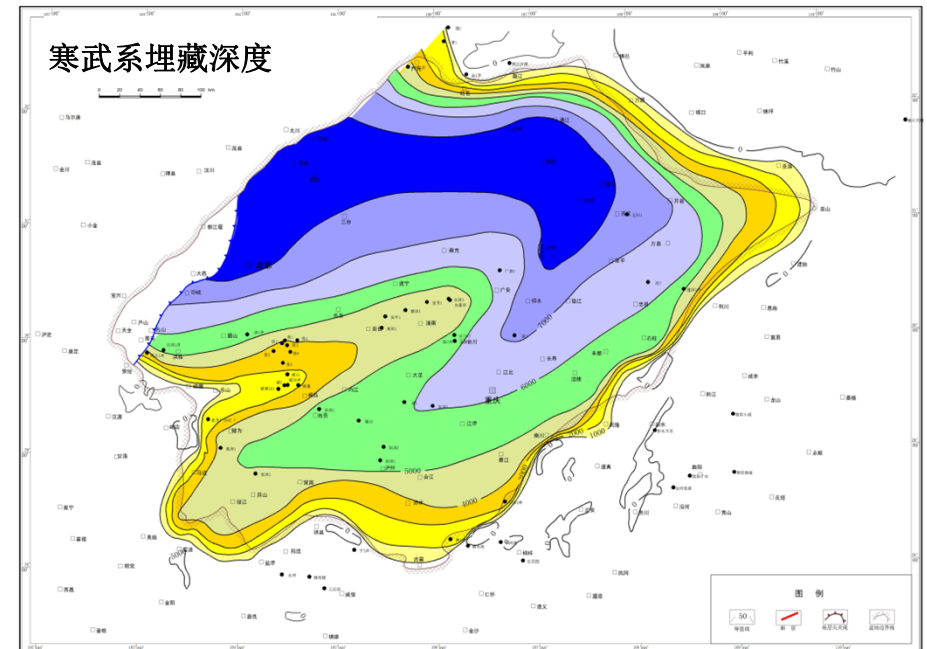
Block	Area (thousand sq.km)	Resource Amount (100M m ³)
Changning Block	2050	9200
Weiyuan Block	4216	18900
Fushun- Yongchuan Block	2000	10000

I.General Situation of Sichuan Shale Gas Exploration and Development

2. Shale Gas Resource Distribution in Sichuan Basin



The total shale gas resource amount in less 4000m depth in LongMaxi, Sichuan Basin reaches $(3.52 \sim 14.41) \times 10^{12} \text{m}^3$, the middle No is $10.41 \times 10^{12} \text{m}^3$



The total shale gas resource amount in less 4000m depth in Hanwuxi Junzhusi, Sichuan Basin reaches $(1.03 \sim 7.76) \times 10^{12} \text{m}^3$, the middle No. is $4.85 \times 10^{12} \text{m}^3$

I.General Situation of Sichuan Shale Gas Exploration and Development

4. Main Achievement of Sichuan Shale Gas Exploration and Development

Company	Main Block	Drilling Well No.	Fracturing Well No.	Producti on Well No.	Production Capacity (10 thousand m³/day)
Petro China Southwest Oil&Gas Field Company	Weiyuan Block	12	8	4	28
Petro China ZheJiang Oil&Gas Field Company	Shaotong Block	5	3	3	20
Sinopec Southwest Oil&Gas Field Company	Jingyan-Jianwei Block	2	1		2
Changning Gas Company	Changning Block	23	16	8	93
Shell	Fushun-Yongchuan Block	17	17	7	152
Total		59	45	22	295

I.General Situation of Sichuan Shale Gas Exploration and Development

~~5. Grasped the technology of Shale Gas Explore and Development which Suitable for Sichuan Province~~

Currently we have a breakthrough of the core technology on the selection on the location, horizontal drilling, volume fracturing and shale gas exploration. Greatly reduced the drilling period.

Periodic Table of Horizontal Drilling in Weiyuan-Changning Block

Item	Well No.	Well Depth	Length of Horizontal drilling section (m)	Drilling Period (day)
1	Wei 201-H3	3647	738	149
2	Ning 201-H1	3790	1045	147
3	Ning H3-1	4010	1000	65
4	Ning H3-2	3877	1000	64
5	Ning H3-3	3784	1000	63
6	Ning H2-2	3786	1200	76
7	Ning H2-3	3503	1010	70
8	Ning H2-4	3548	1000	71

I. General Situation of Sichuan Shale Gas Exploration and Development

6. Remarkable Results on the Cooperation with Foreign Companies

- **The Fushun-Yongchuan Project that Cooperate with Shell**(3818km²)Joint evaluation has been finished, now in the phase of product sharing contract.20 wells have been drilled, 17 wells have been completed and the gas has been collected in every well. The well “Yang 201-H2” acquired 0.43 million m³/d gas. Currently 7 wells have been put in production, and in total 8259m³ gas will be produced.
- **Neijiang-Zazu Block cooperate with Conoco** Philips.The “Joint Research Agreement has been signed.
- Currently, the famous oil field service company including **SLB, Haliburton,Weatherford** etc has been perusing the Shale Gas exploration oil field service in Sichuan



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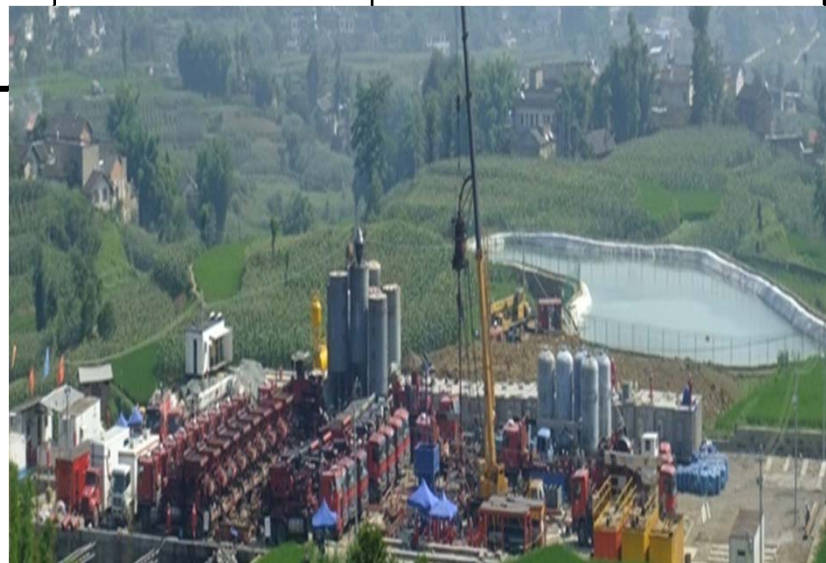
II. Develop goals for Sichuan Shale Gas Industry

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II. Development Goals of Sichuan Shale Gas Industry

1. Shale Gas Development Goals of 13th 5 Year Plan

	Drilling Well No.	Resource Amount (100M m ³)	Production Capacity (100M m ³)	Production Value of Equipment and Service (100M USD)
2015	200	1000 billion	20	30
2017	1100	4000 billion	60	100



II. Development Goals of Sichuan Shale Gas Industry

2.Important Aspects of Cooperation with Foreign Companies

We warmly welcome the companies with capabilities to come to Sichuan to cooperate with us aiming on turning Sichuan into the Shale gas production base, System innovation base and the Equipment production and oil field Service base.

Main Cooperation Contents

Shale Gas Exploration	◆ Risk exploration in Jingyan-Jianwei Block, Muchuan-Yibin Block, Weiyuan-Rongchang Block, Xichang Basin, Yanyuan Basin etc..
Shale Gas Exploration and Development	◆ Expedite the exploration in Fushun-Yongchuan ◆ Participate in the exploration in Changning Block, Weiyuan-Rongchang Block, Jinyan-Jianwei Block as joint venture ◆ All oil field services in exploration block
Technology Research	◆ The shale gas exploration path that suitable for Sichuan Geological characteristics ◆ Safety, environment protection, water treatment, drilling fluid treatment technology

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III. Investment Environment of Sichuan

1. A Country With Rich Natural Resources-A Name Given to Sichuan

- Sichuan is located in southwest of China which is the Province with rich resource, large population and prospect economy.
- Sichuan has very vast territory, which include 21 states, 183 cities with a 485,000 sq km coverage. It is the fifth largest state in China, area-wise. The population of Sichuan is about 90 million. Sichuan also has the second largest Tibetan living area, the largest Yi minority living area and the only Qiang minority living area in China



III. Investment Environment of Sichuan

2. Rich Resources

More than 130 types of minerals have been found and 90 types of proven mineral reserves with different features, vanadium, titanium, natural gas (shale gas) and other 11 types of mineral reserves, ranking first in the country.

Technical and economical exploitable Water resources accounted for 1 / 4 of total volume of the whole country. Hydropower installation capacity ranks first in the country in 2013.

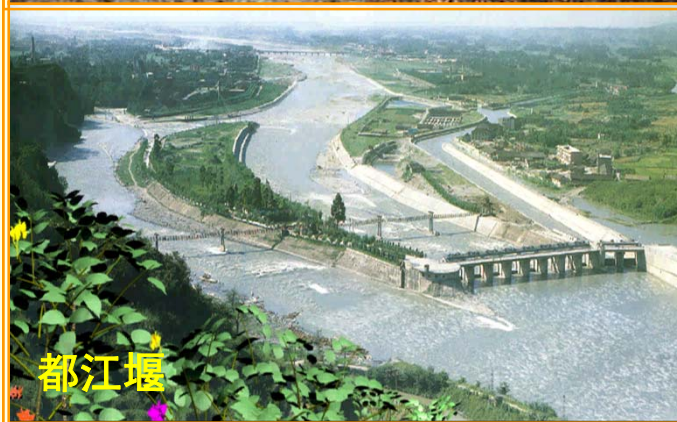


攀枝花钽钛磁铁矿

III. Investment Environment of Sichuan

3. Rich Travelling Resources

Jiuzhaigou, Huanglong, Qingcheng Mountain - Dujiangyan, Emei - Leshan Giant Buddha, panda habitat, together regard as five of the world natural and cultural heritage.



III. Investment Environment of Sichuan

4. Tourism, Trade and Financial Center in West of China

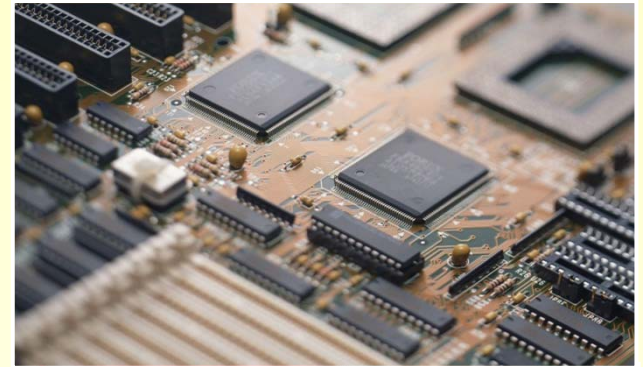
Sichuan is a major tourist province, in 2013, 490 million domestic tourists and 2.1 million foreign tourists in Sichuan, total tourism income reaches 387.74 billion RMB, with an increase of 18.2%. Sichuan is also western Logistics, trade and financial center. The service industry increased to 925.61 billion RMB in 2013.



III. Investment Environment of Sichuan

5. Province of Industry

The province's industrial increased value topped one trillion RMB in 2012 and reached 1.15785 trillion RMB in 2013. Industrialization rate reached 44.1%. Industry with characteristics and strategic emerging industries continue to grow, automobile manufacturing, electronic information, oil and gas and chemical industry take a big leap from small to large, from weak to strong in recent years.



III. Investment Environment of Sichuan

6. Transportation Hub of West China

Sichuan borders with seven provinces, has been relied on by Yunnan-Guizhou provinces for their economic development. Sichuan has a very important position in the countries' the strategic pattern In recent years, the province accelerated the construction of the west integrated transport hub ,currently the frame has been finished, The dram of changing "Quiet Night" to "Quiet Night through" is becoming a reality, conditions to accelerate the development of Sichuan improved significantly.



III. Investment Environment of Sichuan

6. Transportation Hub of West China

Highway: In 2013, highway mileage reaches 5046 km, total length exceeded 30 million kilometers, ranking first in the country.

The Sichuan channel: Sichuan province planned total 51 channels connection Sichuan from outside, including 18 railway, highway 33, 2 waterway (Jialing River - Yangtze River, Minjiang River - Yangtze River). At present, 21 channels has been formed including seven railway, 13 highway and 1 waterways.



III. Investment Environment of Sichuan

6. Transportation Hub of West China

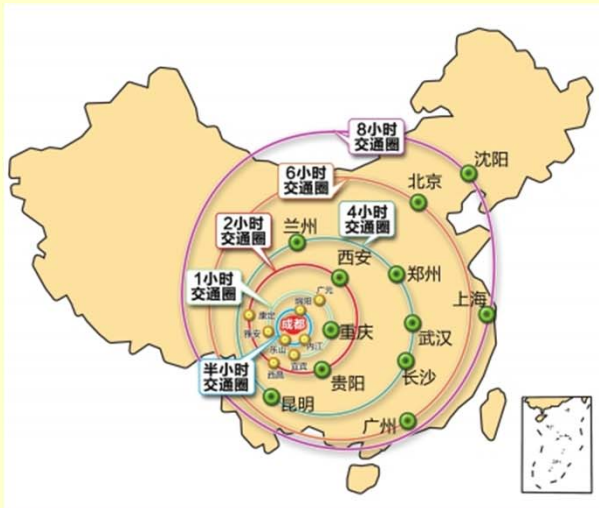
12 civil airport in Sichuan makes Chengdu the 4th largest civil aviation city in China .Passenger throughput reached 33.44 million in Shuangliu airport and won two consecutive "Best Airport in Asia Pacific Achievement Award“ in 2013 and 2014 , and is the only airport in China won the award. The new airport in Chengdu, Nanchong airport expansion and other projects are being preparing or implementing.



III. Investment Environment of Sichuan

6. Transportation Hub of West China

With the improvement of traffic conditions, 1 hour Traffic circle from Chengdu to Chongqing, 2 hours traffic circle from Chengdu to Xi'an, Guiyang, 4 hour traffic circle from Chengdu to Lanzhou, Wuhan, Kunming and 6 hours traffic circle from Chengdu to Beijing, Guangzhou, and 8 hours traffic circle from Chengdu to Shenyang, Shanghai has been formed.



III. Investment Environment of Sichuan

7. West Economic and Trade Center

The province's total imports and exports reaches 64.59 billion U.S. dollars in 2013 with an increase of 9.2 %, ranking No. 11 in China. The service trade import and export reached \$ 10.1 billion with an increase of 49.6%. The first half of 2014, the province's total imports and exports 33.69 billion U.S. dollars, with an increase of 12.5 %, ranking No 11. 11 new Fortune 500 companies settled in Sichuan and the total number of Fortune 500 enterprises reached 280 in Sichuan.



III. Investment Environment of Sichuan

8.Entry-Exit Hub in West China

Sichuan established economic and trade relationships with 216 countries and regions. A total of 10 countries have set up consulate in Sichuan which ranked first in western China, and second in China only next to Shanghai and Guangzhou. Chengdu has become one of the first four city in China, the first city in Middle and west of China implement 72 hours transit visa-free policy.



III. Investment Environment of Sichuan

9. Exhibition City in West China

Three International event-Fortune Global Forum, the Twelfth World Chinese Entrepreneurs Convention, the Fourteenth West Forum has been successfully hold in Chengdu ,Sichuan ,with a total 1.45 trillion RMB investment cooperation projects signed, 10.57 billion U.S. dollars of foreign capital actually **utilized**. In the first half of 2014, foreign investment \$ 5.61 billion had been unitized.



Thank You!

