

ChinaCoalChem

Monthly Report

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Table of Contents

Insight China	4
To analyze the competitive advantages of various material routes for fuel ethanol from six dimensions	4
Could fuel ethanol meet the demand of 10MT in 2020? 6MTA total capacity is closely promoted.....	6
Development of China's polybutene industry.....	7
Policies & Markets	9
Comprehensive Analysis of the Latest Policy Trends in Fuel Ethanol and Ethanol Gasoline.....	9
Companies & Projects	9
Baofeng Energy Succeeded in SEC A-Stock Listing	9
BG Ordos Started Field Construction of 4bnm ³ /a SNG Project	10
Datang Duolun Project Created New Monthly Methanol Output Record in Apr	10
Danhua to Acquire & Reorganize Sierbang PC for Listing	10
Donghua/CSCEC 8th Division Consortium Won Kailuan 400kt/a EG EPC Contract	11
Updated progression of Ordos major Coal Chemical Projects	11
Jiayuan Coker Gas Conversion Project On Line for Environment Publicity	12
Fujian Shenyuan Hydrogen/Ammonia Signed Consortium Loan Contract	12
Guangxi Huayi Started Work on Gas Cleaning/CO Separation Units in Gas Island.	12
Bijie, Guizhou 2Mt/a CTL Project Passed Plot Planning Argumentation	12
Guanghui Began Construction of Hami Spent Gas Conversion to 400kt/a EG Project	13
Hami Hengyou Energy Chemical to Build MTO/PP Project.....	13
Golden Earth 450kt/a Ammonia Unit Reached Full Load Rate.....	13
Hubei Energy Group to Lay CNY56bn for Major Project Promotion.....	14
Progression of Hubei Xiangyun 300kt/a Ammonia Relocation Project.....	14
Jiutai PET New Material Project Shown On-Line for Environment Publicity	14
Environment Audit Publicity for Inner Mongolia Ruizhi Electric Furnace Off-Gas to Methanol Project.....	15
Wison Engineering Completes 600 KTA MTO and 100 KTA Butadiene Project in High-quality.....	15
Ningbo Fortune Held Conference to Launch PPB-MO ₂ FD Copolymer Grade	15
Shanxi Coking Coal Group Held argumentation on 600kt/a MTO Project.....	16
SCCIG Energy New 300kt/a EG Project Received Environment Approval	16
Shaanxi Planned CNY12.19bn for 2019 Continued & New Coal Chemical Constructions.....	16
Gasifiers the Core Equipment Placed on Position in Weihua EG Project	17
Progression of Shenmu Fuyou Full Hydrogenation Project.....	17
Shenyang Blower Awarded with Contract for China Coal Ordos Methanol Polygen.	18
Environment Expert Consultation Held for Xinjiang Zhongtai Co-Refinery Project... ..	18
Yan'an Energy Chemical HDPE Unit Succeeded in New Grade Shifting.....	18

After successfully testing the world's first coal-based syngas-to-ethanol demonstration project, Yanchang Zhongke is implementing 500kt/a syngas-to-ethanol project	18
Yangquan Coal Pingding Chemical Phase II EG Project Kicked off PDP Design	20
Yulin Chemical Signed ASU Contract for 1.80Mt/a EG Project	20
First Major Piece Arrived Yulin Energy Chemical LDPE/EVA Construction Site.....	21
Zhong'an United CTO Project Start-up Scheme Passed Preliminary Audit	21
China Coal Ordos Project Kept Over 200d Gasifier Continuous Operation	21
SINOPEC Zhijin 600kt/a CTO Project Began Work on Site Leveling	22
Chongqing Yihua Held Kick-off Meeting for Gasification Process Upgrading	22
Products & Prices	23
Monthly Coal Price of China Market up to May 2019.....	23
Monthly Crude Oil Prices up to May 2019.....	23
Monthly Asia Ethylene&Propylene Prices up to May 2019	24
Monthly Price for Imported & Exported Coking Coal up to May 2019	24
Monthly Prices of Imported Methanol, Ethylene&Naphtha up to May 2019	25
Monthly prices of East China Market Methanol&DME up to May 2019.....	25
Crude Oil Prices in May 2019.....	26
Methanol Prices in YRD Area in May 2019	26
MEG Prices in YRD Area up to May 2019	27
New Projects Database.....	27
New Coal Chemical Projects in China up to May. 2019.....	27
Company Report	39
The profile and SWOT analysis of ChinaCoal.....	39
Technology & Innovation	41
Industrial WCS Gasification Process Passed Mid-Term Exam.....	41
Lu'an, SXICC and Johnson Matthey Held OCM Process Consultation.....	41
China Salt HSF EG Process R&D/Commercial Project Passed Inspection	41
Shandong Longlive company will introduce cellulosic fuel ethanol technology and industrial development.....	42
Jincheng Coal and SEDIN Jointly Promote Anthracite Lump Coal HP Gasification Process Upgrading	44
Baofeng Coker Gas to Syngas Unit Passed 72h Performance Test	44
Shanxi Huanqiu Engineering and Jiangsu Dalton Jointly Promote DMMn Process..	45
Progression of Yanchang Petroleum Yulin High Carbon Alcohol Test Project.....	45

Insight China

To analyze the competitive advantages of various material routes for fuel ethanol from six dimensions

According to the "Implementation Plan for Expanding the Production of Biofuel Ethanol and Promoting the Use of Ethanol Gasoline for Vehicles" issued by the National Energy Administration, by 2020, the use of ethanol gasoline for vehicles will be promoted nationwide, and full coverage will be achieved. It is estimated that the national gasoline consumption in 2020 is about 150 million tons, and the demand for fuel ethanol is expected to be 15 million tons. Currently, the nationally approved biofuel ethanol production is less than 3 million tons, and there is still a market gap of 12 million tons. In the face of new market opportunities, the non-biomass fuel ethanol route has gradually moved from behind the scenes to the front, and began to market the biomass fuel ethanol.

At present, there are three relatively mature technologies on the market: biomass fermentation process, coal-to-ethanol process, and industrial syngas fermentation process. Each process has its limitations and unique competitive advantages. In the face of this new market opportunity, which process will stand out and become the king of the market?

This sharing will be analyzed from the following six dimensions to comprehensively evaluate the competitive advantages of the three processes at different levels.

The first dimension: market status

The current market situation is: the biomass fermentation route is the mainstream route for fuel ethanol production.

The second dimension: resource endowment

According to the 2018 data of the Ministry of Natural Resources, by the end of 2017, China's total coal resources were 5.9 trillion tons, the predicted resource was 3.88 trillion tons, and the resource reserves were 1.6 trillion tons. According to BP's data, China's remaining technology recoverable reserves are 0.13 trillion tons, accounting for 13.4% of the world, ranking fourth, with a reserve-production ratio of 39 years. In 2018, China's raw coal output was 3.68 billion tons, and the total consumption was 4.64 billion tons of standard coal. The production and consumption were ranked first in the world.

According to the statistic of China's "Renewable Energy Medium and Long-term Development Plan", China's biomass resources can be converted into energy potential of about 500 million tons of standard coal. With the expansion of afforestation area and economic and social development, the potential of China's biomass resources are

converted into energy is up to 1 billion tons of standard coal.

In the short run, coal production of ethanol has the advantage of resources. In the long run, biomass resources have more potential for development.

The third dimension: technical competition

Biomass ethanol: Biomass starch production of ethanol using biological fermentation process, is mature technology, has high production efficiency and strong market competitiveness in the short term. The use of straw cellulose to produce ethanol is the mainstream technological development route in the world. Reducing energy consumption and increasing ethanol yield are important technical goals.

Coal-to-ethanol route: including synthesis gas catalytic ethanol production, acetic acid esterification hydrogenation to ethanol, dimethyl ether carbonylation to ethanol.

Industrial Syngas Fermentation Process: A process developed by Shougang Lanze Tech New Energy Technology Co., Ltd. to produce ethanol by biological fermentation using the gas from the steel plant.

The use of starch to produce ethanol is currently a mature technology.

The other three technologies are undergoing demonstrations of industrialization and need to be further tested by the market.

The fourth dimension: economic competition

Cost analysis of the three technical routes to compare their economic competitive advantages will be discussed.

The fifth dimension: environmental effects

Conduct carbon emissions analysis on three technical routes to compare their environmental impacts.

The sixth dimension: policy bias

Judging from the national implementation plan and related standards, the state supports the biomass ethanol route, and there is no clear attitude towards the process of using coal to synthesize ethanol.

3rd Fuel Ethanol Technologies and Market Forum 2019 will be held in Jinan, Shandong Province **on June 26-27**. Expert from Henan Tianguan Group will make a keynote report on the competitive advantages of various material routes for fuel

ethanol from six dimensions.

Could fuel ethanol meet the demand of 10MT in 2020? 6MTA total capacity is closely promoted

The national policy plan will promote the use of ethanol gasoline for vehicles nationwide by 2020. In August 2018, the State Council determined the overall layout of the bio-fuel ethanol industry. In addition to the existing 11 pilot provinces, ethanol gasoline will be further promoted in 15 provinces including Beijing, Tianjin and Hebei province.

According to China's currently promoted E10 ethanol gasoline (blending 10% ethanol), fuel ethanol in China has a huge potential market space. China's annual production of fuel ethanol is only 2-3Mt of scale. **Could fuel ethanol meet the demand of 10MT in 2020? 2019 is a key year for ethanol industry, there are 6MTA fuel ethanol total capacity is closely promoted.**

In May 2019, **Inner Mongolia Liniu Biochemical Co., Ltd. used the idle capacity to produce 150kt/a of fuel ethanol** technical transformation project environmental impact assessment public participation in the first public announcement. The project is located in Tongliao City, Inner Mongolia. The company's existing alcohol plant production capacity of 100kt/a and 60kt/a solvent plant, the addition of a set of molecular sieve device based on the original old device, can achieve an annual output of 150kt/a of fuel ethanol. The total investment is CNY132 million.

In April 2019, the second information disclosure of the environmental impact assessment of the **300kt/a biofuel ethanol project** in Jidong County, Heilongjiang Province was published. The project is located in the Jidong Coal-Electric Recycling Economy Demonstration Base of Heilongjiang Province. SDIC Bio-Energy (Jidong) Co., Ltd. will build a 300kt/a biofuel ethanol project, which was started construction on October 28, 2018.

In April 2019, CNCEC Tianchen Company won the bid to win the **300kt/a biofuel ethanol project of SDIC Bio-Energy Jidong**, and once again won the bid for the EPC contract of the annual production of **300kt/a of fuel ethanol project of SDIC Bio-Energy (Hailun)**. SDIC Bio-Energy (Hailun) uses corn as a raw material to build a production capacity of 300kt/a fuel ethanol and 258kt/a DDGS. The total investment is about CNY1.3 billion. It is expected to be completed and put into operation in 2020.

In February 2019, it was learned that the **300kt/a biofuel ethanol project of SDIC Bio-Energy Diaobingshan** has been put into trial operation and is scheduled to be put into production in April. The project was approved by the Liaoning Provincial DRC in June 2017 and started construction. It was jointly invested by SDIC Bio-Energy (Tieling) Co., Ltd. and Tiefa Coal Industry (Group) Co., Ltd. with a total investment of CNY1.199 billion and a designed annual output of 306kt/a fuel ethanol.

In February 2019, the Inner Mongolia Autonomous Region Energy Bureau approved the establishment of a **600kt/a fuel ethanol project by COFCO Biochemical** (Xing'an League) Co., Ltd. The project construction site is located in Xing'an League Economic and Technological Development Zone. The project produces 600kt/a fuel ethanol and 520kt/a DDGS feed and 120kt/a carbon dioxide. The total investment of the project is CNY2.98bn.

In January 2019, the environmental impact assessment of the annual production of **300kt/a corn fuel ethanol project of Heilongjiang Wanli Runda** Biotechnology Co., Ltd. was publicly announced. The project plans to use corn from Baoqing County and surrounding areas as raw materials, with an annual output of 300kt/a tons of fuel ethanol, and a by-product of DDGS feed of 240kt/a. The total investment of the project is CNY980mn. The project resumed work in February this year and plans to commission in October.

According to data from ASIACHEM Consulting, the total production capacity of fuel ethanol projects under construction and planning in China is currently over 6MTA. **3rd Fuel Ethanol Technologies and Market Forum 2019** will be held in **Ji'nan, Shandong on June 26-27**, the upcoming conference focus on China's fuel ethanol & ethanol gasoline policy and market trends; China's fuel ethanol 2019 new supply and demand pattern; Technical progress and commercial application of biomass/coal (syngas) to ethanol, etc.

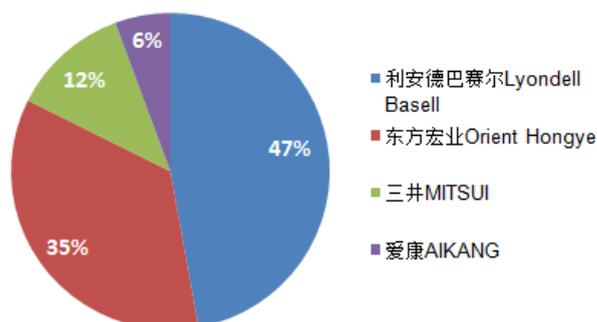
Development of China's polybutene industry

Polybutene (PB-1) is a polymer material obtained by polymerizing pure butene-1 monomer. Industrialized polybutene is mainly a homopolymeric material that synthesizes high isotactic structure (higher than 90%) and high crystallinity (crystallinity of 50%-70%).

Compared with other polyolefin materials, polybutene has outstanding resistance to thermal creep; environmental stress crack resistance; good toughness; high tensile strength; good chemical resistance, etc. **It is regarded as one of the most advanced chemical materials in the world. Coupled with the high price, polybutene has earned the reputation of "gold in plastics".** Polybutene is widely used in high-end plastic pipes, medical appliances, sealing and stripping, aerospace and other fields, and has broad market prospects.

As early as 1964, polybutene realized industrial production, **due to the difficulty of polymerization technology and limited raw materials, which limited the industrialization production of polybutene.** For a long time, only the Netherlands, Lyondell Basell, was able to produce polybutene. Currently, the company is still the world's largest polybutene producer. **In addition to Lyondell Basel, China's Orient Hongye, Japan's Mitsui, Korea's Aikang are also the world's leading producers of polybutene.**

全球聚丁烯主要生产商
Global Main PB-1 Producers



The demand for polybutene in China has increased year by year, but it has not yet formed a matching production scale. Data shows that the import volume of polybutene in China is around 30kt/a, the import price is between 2000-4000USD/t.

Under the background of the rapid development of China's ethylene industry, a large number of carbon four resources have been by-produced. How to rationally use them to further improve the economic benefits of the equipment and expand the downstream product chain is an important issue for the long term development of the industry. The development of butene-1 polymerization technology, and the production of high value-added product is one of the solutions to the problem.

How is the development of China's polybutene industry?

In 2008, Qingdao University of Science and Technology and Shouguang Tianjian Technology Co., Ltd. jointly conducted industrial trial production of polybutene. Subsequently, it cooperated with Orient Hongye Chemical Co., Ltd. to build China's first polybutene production line in Shouguang, Shandong Province in December 2013 with a capacity of 50kt/a. The products are mainly used in building pipes, floor heating pipes, etc.

In 2010, Heilongjiang Qihua Group Co., Ltd. transformed a small bulk polypropylene plant with a capacity of 20kt, and trial-produced polybutene resin and achieved good results, but its performance still needs to be improved compared with imported products.

In 2017, Shandong Ruida Chemical Co., Ltd. built a 60kt/a polybutene plant in Tengzhou, Shandong Province, which has not yet been put into operation.

In 2018, Jingbo Petrochemical and Qingdao University of Science and Technology Research Team and Yellow River Delta Jingbo Chemical Research Institute Co., Ltd. made major breakthroughs in the commercial production of polybutene alloy technology, and developed a polybutylene alloy resin new material (PB-A) for high quality floor heating pipes. broke the long-term foreign technology monopoly and blockade in the field.

3rd C4 High-value Utilization & MTBE Transformation 2019 will be held on **June 27-28** in Jinan.

[Back to Content](#)

Policies & Markets

Comprehensive Analysis of the Latest Policy Trends in Fuel Ethanol and Ethanol Gasoline

National policies boost the development of the fuel ethanol industry. The national policy plan will **promote the use of ethanol gasoline for vehicles nationwide by 2020.** In August 2018, **the State Council determined the overall layout of the bio-fuel ethanol industry.**

The Tianjin Municipal Government announced the **“Implementation Plan for Promoting the Use of Ethanol Gasoline for Vehicles in Tianjin”**, which requires the orderly promotion and use of ethanol gasoline for vehicles since September 30, 2018. This is the first municipality to announce the implementation of the national fuel ethanol and vehicle ethanol gasoline policy in September 2017. Since May 2019, Guangdong Province has started the promotion of ethanol gasoline in Zhanjiang city.

On February 26, 2019, the NEA held a symposium on bio-fuel ethanol companies in Beijing to listen to suggestions from enterprises. In early March, the NEA issued a notice on the establishment of a monthly information system for expanding the production of bio-fuel ethanol and promoting the use of ethanol gasoline for vehicles. **Later, the NEA conducted a survey on the bio-fuel ethanol production and the promotion and use of ethanol gasoline in Anhui Province and Guangxi Autonomous Region.**

3rd Fuel Ethanol Technologies and Market Forum 2019 will be held in Jinan, Shandong Province **on June 26-27.** Expert from the CNPC will make a report to thoroughly interpret the latest policies on fuel ethanol and ethanol gasoline for vehicles and analyze the development trend of the industry.

[Back to Content](#)

Companies & Projects

Baofeng Energy Succeeded in SEC A-Stock Listing

On May 16th 2019, Ningxia Baofeng Energy Group Stock Co Ltd (“Baofeng Energy” as

listed, code 600989) was announced successful listing on Shanghai Security Exchange. Baofeng Energy reported 733mn shares IPO at price of CNY11.12 per share, to raise in total CNY8.155bn of fund.

BG Ordos Started Field Construction of 4bnm³/a SNG Project

On May 9th 2019, BG (Beijing Enterprises Group Co Ltd) Ordos held Spring 2019 field work inauguration ceremony in Dalu Industrial Park for the company's 4bnm³/a coal to synthetic natural gas project.

Of CNY23.26bn capital investment, the project received approval from NDRC on May 16th 2017, laid corner stone on Sep 15th the same year. The project to be built on a site of 3935.1mu area is designed to employ advanced powdery/pulverized coal HP gasification process, with coal as starting material and through the steps of gasification, reforming, gas cleaning and methanation to obtain SNG product, followed by initial gate station boosting and dehydration to enter long distance pipeline and ship to users. The project was scheduled to begin field construction before may 16th 2019 and accomplish CNY300mn investment this year.

Datang Duolun Project Created New Monthly Methanol Output Record in Apr

In Apr 2019, Datang Inner Mongolia Duolun Coal Chemical Company accomplished 105% of scheduled refined methanol production. By the high and stable plant operation, consumption figures of normalized coal equivalence, raw water and outside purchased electricity per ton methanol output were decreasing continuously, to record the best performance of the general process.

Duolun coal chemical project is the first in China converting low-rank lignite in the process of coal to polypropylene as a modern coal chemical process demo. The project operation was once not sufficiently smooth owing to problems in coal species and process. The situation has been gradually improved since 2016 and, after the repeated creation of new output level and eventually reached 1.42Mt of annual production in 2018 the last year, first time in the plant history fulfillment of yearly schedule, the production reached a new height in Apr this year.

Danhua to Acquire & Reorganize Sierbang PC for Listing

On the evening of May 30th, Danhua Technology made announcement that the company is planning a major asset acquisition, to buy in 100% equity of Jiangsu Sierbang PC Co Ltd by issuance of new stocks. The transaction is expected to reorganize the acquired company as a listing company.

Danhua Chemical Technology Stock Co Ltd was set up in 1993 and soon became one of the leading coal chemical listing companies in China. Business scope of the company covers profound R&D, engineering and licensing of chemical industry front edge technologies for coal chemicals, petrochemicals and their derivatives.

Located in PC industry park of Xuwei New District, Lianyungang City, Jiangsu Sierbang PC Co Ltd 3.60Mt/a methanol-polygen phase I project is invested and built by Shenghong PC (Lianyungang) Co Ltd (wholly owned subsidiary under Shenghong Holding Group), based on outsourced methanol as starting material to build a methanol to olefin (MTO) complex and downstream process units for high-end fine chemicals, organic intermediates, synthetic fiber monomers, and functional polymer materials etc.

Donghua/CSCEC 8th Division Consortium Won Kailuan 400kt/a EG EPC Contract

On May 15th 2019, Donghua Technology made statement that the company and CSCEC 8th Engineering Division formed a consortium and was chosen by Inner Mongolia Kailuan Chemical Co Ltd as the first candidate of engineering/procurement/construction (EPC) general contracting for latter's 400kt/a coal to ethylene glycol project.

According to the statement, the project is to be built in Eastern Industrial Park of Dalu New District, Junggar County, Ordos City of Inner Mongolian Autonomous Region. Construction scope shall cover 400kt/a CTEG process line and accessory utility and auxiliary facilities, work division of the EPC contract shall include main process units, utility and auxiliary devices, other accessories, service units and technical services etc.

Updated progression of Ordos major Coal Chemical Projects

In 2019, Ordos City plans to execute 32 major chemical projects of above CNY100mn capital, including 20 new and 12 continuation, with totalized CNY133.487bn investment, 16.862bn to be accomplished this year. Up to end of Apr, 15 of them, with 5.70Mt/a design capacity in total, have started or resumed work, accomplished CNY2.63bn investment. These include 5 new, of 915kt/a capacity in total accomplished CNY640mn investment and 10 continuation, of 4.79Mt/a design capacity and accomplished CNY1.99bn investment.

By categories, the CTL/SNG projects are Huineng 1.6bnm³/a SNG (phase II) project new resumed general work, and Yitai 2Mt/a coal indirect liquefaction demo and BG 4bnm³/a SNG projects both entered front preparatory stage, having accomplished in total CNY300mn capital in total up to the end of Apr.

EG projects include the new construction of Jiutai Energy 500kt/a and Jinchengtai 300kt/a and continuation of Rongxin Chemical 400kt/a, in addition to other four syngas/coker gas to EG projects. In total the 7 will cost CNY 28.133bn capital to furnish 2.14Mt/a capacity. 4

of them, with 1.40Mt/a aggregated capacity, have started/resumed work by the end of Apr, accomplishing CNY440mn investment.

Jianyuan Coker Gas Conversion Project On Line for Environment Publicity

On May 22nd 2019, Etoque County Jianyuan Coal Chemical coker gas combined conversion project was displayed on line for first time environment impact assessment publicity.

Located in Qipanjing Industrial Park, Etoque County, Inner Mongolia, the project is designated to convert coker gas from Jianyuan Coal Chemical Tech Co Ltd 4.20Mt/a coker unit as starting material for the production of 360kt/a LNG, 600kt/a liquid ammonia and 400kt/a urea.

Fujian Shenyuan Hydrogen/Ammonia Signed Consortium Loan Contract

On May 23rd 2019, a bank consortium loan contract signature was held for coal to hydrogen/ammonia project invested by Fujian Shenyuan Mew Material Co Ltd, a member of Hengshen Holding Group.

As reported, the hydrogen/ammonia project is a critical loop section in Shenyuan phase II 400kt/a polyamide integration construction. The project based on CNY3bn capital investment is planned consisting of a 75000Nm³/h super purity hydrogen unit and a 300kt/a liquid ammonia unit. Field construction is scheduled to begin in Jun 2019 and hit completion in Jun 2021.

Guangxi Huayi Started Work on Gas Cleaning/CO Separation Units in Gas Island

On May 28th 2019, field construction work for gas cleaning and CO separation units in Gungxi Huayi industrial gas island project was officially announced to start.

Huayi Qinzhou chemical new material integrated production base is a CNY71bn investment covering the four process chains of coal chemical, hydrocarbon cracking, salt chemical and petrochemical at downstream. "Huayi Industrial Gas Island" is the phase I of Huayi Qinzhou integration base, based on CNY14bn budgetary capital and expected to be on-stream in 2020.

Bijie, Guizhou 2Mt/a CTL Project Passed Plot Planning Argumentation

May 11th thru 12th 2019, Bijie, Guizhou 2Mt/a coal to clean liquid fuel project plot planning argumentation was summoned in CAS Synfuels Engineering Stock Co Ltd, Beijing.

Next step CAS Synfuels Engineering the general engineering contractor shall further optimize the plot plan based on comments and suggestions contributed by expert panel and other attendant units, to lay a solid foundation for the project basic and detailed engineering packages.

Guanghui Began Construction of Hami Spent Gas Conversion to 400kt/a EG Project

On May 28th, a centralized inauguration ceremony was held in Yiwu Industry Park, Hami City for 2019 major investment soliciting and infrastructure construction projects. Four projects, of CNY6.275bn capital in total, were involved, to bring 1000 new jobs for the local residence.

One of them is Hami Guanghui Environment Tech Co Ltd spent gas combined conversion to 400kt/a ethylene glycol project based on CNY3.69bn investment. The project is to apply advanced process and environment protecting techniques in conversion of 2.65bnNm³/a spent gas from upstream coal species quality upgrading project in 400kt/a EG production.

Another is Hami Hengyou Energy Chemical Tech Co Ltd 700kt/a methanol/light HC to polypropylene project, which is a CNY1.51bn investment to convert 700kt/a methanol supplied from upstream producers in the same park for 200kt/a PP production, to further extend the process chain and increase value added to the final product.

Hami Hengyou Energy Chemical to Build MTO/PP Project

On Apr 23rd 2019, Hami Hengyou Energy Chemical Technology Co Ltd 700kt/a methanol based olefin to polypropylene project environment impact report was displayed online for publicity before approval.

The project of CNY1.5bn capital investment is located at Naomaohu Lake Town, Yiwu County, Hami Prefecture, Xinjiang, to choose a self-developed methanol to propylene + ethylene process, with methanol raw material supply from Xinjiang Guanghui etc for construction of 700kt/a MTO to PP capacity. Output of the project will include 199.2kt/a polypropylene, 58.3kt/a styrene, 57.5kt/a mixed aromatics, 41.1kt/a LPG and 15.8kt/a MTBE.

Hami Hengyou Energy Chemical Technology Co Ltd is a limited liability majority held by Beijing Huiersanji Green Chem-Tech Co Ltd, set up in Aug 2018.

Golden Earth 450kt/a Ammonia Unit Reached Full Load Rate

On May 8th 2019, Henan Golden Earth ammonia unit daily output reached above 1800t

by working on 100% load rate. The two Jinhua 3.0 Gasifiers produced 145t/h 7.0MPa HP steam, or 1.94t steam per ton ammonia output, from the attached waste boilers, while the whole process by-produced steam reached 4.6t per ton ammonia output, and whole process ton ammonia electricity consumption reduced to 240KWh, indicating significant energy saving effect.

In 2017 Golden Earth invested CNY7.2bn in Wuyang County, Luohe City, to build phase III project composed of 450kt/a ammonia, 600kt/a alkalines, 800kt/a salt and 5 x 240t boilers.

Hubei Energy Group to Lay CNY56bn for Major Project Promotion

News reported on May 7th 2019 that Hubei Province Energy Group is to invest CNY56bn capital for construction of major energy projects dealing with the bottleneck of coal and natural gas energy supply of the province.

First of all the project plans to invest CNY38bn for construction of Jiangling, Jingzhou 4bnm³/a SNG project, which is expected to meet above 2/3 of the province's natural gas resource demand. The project has been listed in national developing program and is now at the stage of front-end preparation.

Progression of Hubei Xiangyun 300kt/a Ammonia Relocation Project

Apr 29-30th 2019, Xiangyun Stock and the work team of China Wuhuan/Jiangnan Engineering jointly held a project coordination and promotion conference. The parties decided to, based on practical progression on the field, determine the end of Jun as the deadline for the handover of construction site, and the date for project completion and first batch of product off-line to be Oct 1st 2020.

The project of CNY1.8bn capital investment, registered at development & reform bureau of Wuxue City, Hubei Province, is to be built on a site of 450mu area in Huanggang of the province, mainly to relocate and revamp the process of a 300kt/a ammonia plant.

Jiutai PET New Material Project Shown On-Line for Environment

Publicity

On Apr 28th 2019, Inner Mongolia Jiutai New Material Co Ltd polyester new material process upgrading demo project was displayed on-line for the first time environment impact assessment publicity.

The project, of CNY59.749bn budgetary capital, is to be built in Toqueto Industrial Park, Hohhot City, with the target to produce balanced amount of refined PTA for 1Mt/a ethylene glycol, or more exactly, to build 2.40Mt/a refined PTA, aromatic complex, MTA complex and MeOH unit. In addition, through combined conversion of dry-gas and low valued

benzene by-produced from MTA complex, to build dry-gas separation, LNG, ethylene oxide, surfactant and styrene monomer/polystyrene units, bringing the whole project to scale economy.

Environment Audit Publicity for Inner Mongolia Ruizhi Electric Furnace Off-Gas to Methanol Project

In May 2019, Inner Mongolia Ruizhi Modern Coal Chemical Tech Co Ltd electric furnace off-gas to methanol combined conversion project environment impact assessment report was shown on-line for pre-audit publicity lasting 5 working days starting from May 27th to 31st.

The project of CNY598.3778mn budgetary capital, including 27.50mn or 4.59% of the total on environment expenses, is to locate in western section of Fengzhen City Fluorine Chemical Industry Park, Inner Mongolia. The project will consist of gas cleaning, separation and methanol synthesis units, in capacity of 175kt/a methanol.

Wison Engineering Completes 600 KTA MTO and 100 KTA Butadiene Project in High-quality

On May 8, Wison Engineering (02236.HK) successfully handed over its EPC project of 600 KTA MTO plant and 100 KTA butene-to-butadiene plant to the project owner - Nanjing Chengzhi Yongqing Energy Technology Co., Ltd. ("Chengzhi Yongqing"). The handover ceremony was held at project site in Nanjing Chemical Industry Park.

The 600 KTA MTO plant is deployed with combined technologies consisting of Honeywell UOP's advanced reaction technology and Wison Engineering's proprietary olefin separation technology. The core process of Wison's olefin separation technology uses "Pre-cutting + Oil Absorption" design, and represents the state-of-art technology in similar application, and this project is the 11th successful commercial application in MTO industry.

The 100 KTA butadiene plant is deployed with Wison's self-developed Oxidative Dehydrogenation of butene to butadiene (ODH) technology, and this is the first large-scale commercial application for this technology. In addition, it is Wison's first commercial project for integrating ODH technology with MTO technologies, and the second such application in the world.

Ningbo Fortune Held Conference to Launch PPB-MO2FD Copolymer Grade

On Apr 29th 2019, Ningbo Fortune Energy Co Ltd summoned a new product launch and customer consultation conference, to present the company's brand-new PPB-MO2FD

copolymer grade.

Fortune Energy PPB-MO2FD copolymer grade can be widely used for house-held appliances, packing materials, high impact parts, heavy load articles, auto parts, toys and battery cell cases etc, showing better transparency and impact properties than previous launched products.

Shanxi Coking Coal Group Held argumentation on 600kt/a MTO Project

May 11th thru 12th 2019, Shanxi Coking Coal Group summoned an argumentation conference for 600kt/a methanol to olefin along with the accessory methanol supply project in the company's headquarters building.

The conference listened the owner's presentation on the project outlines and front-end preparations, as well as the introduction to the project evaluation report made by NPCPI (China National Petroleum & Chemical Planning Institute). Attending experts accomplished detailed discussions on the project foreground, economic performance, technical feasibility, construction schedule and model etc.

SCCIG Energy New 300kt/a EG Project Received Environment Approval

In May 2019, Shaanxi Province Ecology & Environment Department issued preliminary approval reply to Shaanxi Coal & Chemical Industry Group Energy Co Ltd phase I 600kt/a methanol process revamp project.

SCCIG Energy plans to proceed with phase I 600kt/a methanol unit process upgrading revamp, to reduce the load rate of original unit and split the capacity to 300kt/a methanol and 300kt/a ethylene glycol.

The project will be situated in Wulipu Industrial Park, Changwu County of Xianyang City, on existing site of SCCIG Energy Co Ltd. Total investment of the project, CNY1.97bn, shall include CNY9.10mn, or 0.46% of the total, on environment expenses.

Shaanxi Planned CNY12.19bn for 2019 Continued & New Coal Chemical Constructions

News reported on May 9th 2019 that the totalized capital investment of over 10bn coal chemical projects, as listed in Shaanxi Province 2019 continued and new construction program, reached the aggregate of CNY190.77, among which 12.19bn shall be accomplished within the year.

In continued construction projects, Yanchang-China Coal Yulin coal-oil-gas resources combined conversion phase I capacity supplement project calls for

CNY14.41bn total budget, including 4.2bn for the year, striving for partial completion before the year-end. In parallel, **CHN Energy invested Shenhua Yulin cyclic economy coal combined conversion (phases I+II) project** is reported of CNY38.22bn budget with 4bn to be accomplished in the year. **Shaanxi Coal Group invested Yu-Shen coal species gradient conversion to chemical new material (phase I) demo project** is reported of CNY21.95bn budget to furnish 5.30Mt/a raw coal conversion capacity, 2bn to be accomplished in the year.

In new constructions, Shaanxi Future Yulin coal indirect liquefaction project is to be financed with CNY77.7bn to build 4Mt/a ICTL process line, 500mn investment for this year are allocated for site leveling, basic engineering and patented process licensing etc. **Yulin China Coal coal processing base is a project** calling for CNY19.7bn capital, the 1bn yearly allocation shall be consumed mainly for PDP purchase, EPC contracting and detailed engineering. **Yu-Heng 400kt/a CTA/CTO & coal mine integration initial phase project** is estimated of CNY18.79bn capital demand, including 490mn for this year to accomplish basic engineering and long-ahead equipment ordering of CTA part of the project.

Besides, **Shaanxi Coal Yu-Shen coal species gradient conversion to chemical new material (phase II) demo project, Weinan Pucheng Clean Energy Company CTO (phase II) project, Shenhua Yulin cyclic economy coal combined conversion phase III project, Yuneng Guojiatan coal clean conversion to EG & hi-end chemical project and more mega size coal chemical constructions** are currently at the front-end preparatory stage and striving for earliest start of field construction.

Gasifiers the Core Equipment Placed on Position in Weihua EG Project

On May 16th 2019, three gasifier furnaces, the core equipment pieces in Weihua Binzhou Branch 300kt/a coal to ethylene glycol project were all erected and placed on to the position.

The project will apply GE 6.5MPa WCS HP gasification process, with the gasifiers fabricated by Harbin Boiler. So far, in total 23 equipment sets, namely gasifiers, carbon cleaning column and reformer furnace etc have been installed in gasification unit of the gas workshop.

Progression of Shenmu Fuyou Full Hydrogenation Project

Starting from Mar 2019, Shenmu Fuyou Energy Technology Co Ltd was working hard to snatch the golden period for construction, striving for finish civil work in 60d and promoting phase II construction, 500kt/a coal tar full fraction hydrogenation to naphthenic oil project in fastest speed.

As of the date, project construction has entered the end of civil construction and

equipment installation stage. Before May Day, the project finished erection of major equipment pieces, such as PSA devices in hydrogen unit and boiler column, separator etc in boiler section. All the civil works are expected to finish before the end of Jun, with most equipment installation accomplish by the end of Nov, and start-up of the project scheduled to be in Mar next year.

Shenyang Blower Awarded with Contract for China Coal Ordos Methanol Polygen

News reported on May 7th 2019 that Shenyang Blower Group and China Coal Ordos Energy Chemical Co Ltd are working hand-in-hand, the parties had just signed a contract of over CNY100mn value for Shenyang Blower to supply 8 process gas centrifugal compressors for China Coal Ordos 1Mt/a methanol and LNG polygen project.

Environment Expert Consultation Held for Xinjiang Zhongtai Co-Refinery Project

On May 6th 2019, an environment impact evaluation expert consultation (programmatic audit) was held for Xinjiang Zhongtai oil-coal co-refinery project.

The project is a 4Mt/a heavy oil & coal deep processing integration to be built in Bayin Gol Prefecture, Xinjiang, and to realize clean and high efficiency of residue oil and coal resources. The project of CNY27bn total investment will treat 2Mt/a heavy oil from Tahe Oil Field and 2Mt/a local produced soft bituminous coal, and convert them to chemical products.

Yan'an Energy Chemical HDPE Unit Succeeded in New Grade Shifting

On May 22nd 2019, Yan'an Energy Chemical Company high density polyethylene plant achieved success in shifting production of 43049Natural trimodal piping material grade.

Starting from Sep 2018, Yan'an Energy Chemical has accomplished 5 times of HDPE/PP grade shifting, produced three PE grades and PP S1003 a homopolymer drawing grade and PP K8003 an impact injection grade. Up to the date, the company has sold 571.8kt of various product stripes including PP, PE, ammonium sulfate and liquefied propane etc, totalized up CNY4.04bn of sales revenue.

After successfully testing the world's first coal-based syngas-to-ethanol demonstration project, Yanchang Zhongke is implementing 500kt/a syngas-to-ethanol project

Yanchang Zhongke (Dalian) Energy Technology Co., Ltd. (abbreviation: Yanchang

Zhongke) is a joint-stock state-level high-tech enterprise jointly established by Dalian Institute of Chemical Physics of the Chinese Academy of Sciences and Shaanxi Yanchang Petroleum (Group) Co., Ltd., established in Jan. 2017. The registered capital is CNY178.9 million. The headquarters of the company is located in the High-tech Industrial Park of Dalian City, Liaoning Province.

Yanchang Zhongke Company is committed to the patented technology of joining absolute ethanol production. At present, its main business is positioned to build the world's first coal-based ethanol process technology and core patent product comprehensive service provider, and carry out patent licensing promotion of synthetic gas anhydrous ethanol process package, production and sales of its supporting catalyst products.

On January 11, 2017, the 100kt/a syngas-to-ethanol plant of Yanchang Petroleum successfully completed the whole process and produced qualified absolute ethanol. The purity of the product reached 99.71%. It marks the successful commissioning of the world's first coal demonstration project of dimethyl ether carbonylation of anhydrous ethanol.



The world's first set of coal via DME carbonylation to produce anhydrous ethanol industrial demonstration project

On February 21, 2019, the signing ceremony and the opening of the basic design of the 500kt/a coal-based ethanol project of Shaanxi Yanchang Petroleum Yushen Energy Chemical Co., Ltd. was held. The Yushen 500kt/a ethanol project was jointly awarded by the Beijing Engineering Company and the Hangtian Changzheng Engineering Company's basic design team. The project is located in the southern part of Qingshui Industrial Park, Yushen Industrial Zone, Yulin, Shaanxi. The project uses raw coal from Xiwan Coal Mine as raw material, and produces 500kt/a fuel ethanol products, through coal gasification unit, syngas purification unit, syngas separation unit, methanol unit and ethanol unit.

3rd Fuel Ethanol Technologies and Market Forum 2019 will be held in Jinan, Shandong Province on **June 26-27**. Experts from Yanchang Zhongke will make a keynote report to comprehensively introduce the demonstration and large-scale demonstration of coal/syngas to ethanol industry.

Yangquan Coal Pingding Chemical Phase II EG Project Kicked off PDP Design

On May 23rd 2019, Yangquan Coal Industry Group Pingding Chemical Co Ltd 2x200kt/a coal to ethylene glycol phase II project Jinhua Gasifier PDP design kick-off meeting was held in Donghua Engineering Technology Co Ltd.

Phase II of the project chooses Beijing Qingchuang Jinhua Technology Co Ltd owned WCS water cooling wall waste boiler linked gasifier (Jinhua Gasifier 3.0) process. Two gasifiers will be installed, working under 4.5MPaG pressure to generating 98000Nm³/h (CO+H₂) in total. Pingding EG phase I project was built on the basis of WCS water cooling wall quench process gasifier (Jinhua Gasifier 2.0), and started up in 2016.

Jinhua Gasifier process is developed by Tsinghua University Shanxi Research Institute of Clean Energy as the chief, in cooperation with Beijing Qingchuang Jinhua Technology Co Ltd, Yangquan Coal Fengxi Fertilizer (Group) Co Ltd, and Shanxi Yangquan Coal Chemical Machinery (Group) Co Ltd, a novel gasification process of full Chinese intellectual property right.

Yulin Chemical Signed ASU Contract for 1.80Mt/a EG Project

On May 13th 2019, Shaanxi Coal Group Yulin Chemical held signature ceremony for 3 x 100000Nm³/h ASUs engineering, supply and technical service contract, as art of the company's 1.80Mt/a ethylene glycol project.

The project eventually chose Linde Engineering as system integrating contractor to take charge of ASU engineering, supply and technical service. Scope division of the contract shall cover PDP and basic engineering of the unit, and detailed engineering of cold box system, as well as packaged equipment supply, installation and calibration etc. Preliminarily designated contract execution is a 17-month schedule.

May 27th~28th 2019, Shaanxi Coal Group Yulin Chemical Co Ltd held PDP review on the rectisol process licensed from Dalian Jiachun to be applied in Yulin Chemical's coal species gradient conversion to chemical new material process demo phase I 1.80Mt/a ethylene glycol project.

The project is to be built in Qingshui Industry Park, Yulin City, and the rectisol unit included in scope of phase I will apply a patented technology developed by Dalian Jiachun Gas

Cleaning Technology Development Co Ltd, consisting of two series to treat 811095Nm³/h raw gas for reformed gas stream and 346780Nm³/h for unreformed stream. The project is scheduled to reach completion of construction before the end of Jun 2021.

First Major Piece Arrived Yulin Energy Chemical LDPE/EVA Construction Site

On May 22nd 2019, the first batch of core equipment, 1/2 stage booster compressors, arrived at the construction site of 300kt/a LDPE/EVA unit in Yanchang China Coal Yulin Energy Chemical capacity supplement project and were handed over to the general contractor.

These are the key equipment of long ahead nature in the owner's purchase list, with as long as 16-month fabrication time period. As the core of LDPE/EVA unit and the "central nervous system" of the whole plant, these are made by Burckhardt Compression, Switzerland.

News reported on May 16th 2019 that Yunenghua (Yulin Energy Chemical) phase I capacity supplement initial stage project has reached front-area construction completion, including employees cultural & education center, archives, shift worker dormitory building (phase II), utility center, outdoor engineering and landscape engineering etc.

Zhong'an United CTO Project Start-up Scheme Passed Preliminary Audit

On May 25th 2019, Huainan City Emergency Response Management Bureau invited 7 experts to review and examine Zhong'an United Coal Chemical Co Ltd delivered 1.70Mt/a methanol and MTO project start-up scheme.

Commissioning work of Zhong'an United's coal chemical project entered critical stage in May this year, and achieved encouraging successes repeatedly.

On May 9th, Zhong'an project PP unit extruder/pelletizer package, installed by SINOPEC Refinery & Chemical Engineering Inc 5th Division, succeeded in initial test running and obtained on-spec product.

On May 10th the next day, again a happy news was reported from the site of PE unit, this time the success was to prove the China made 350kt/a super-size PE extruder/pelletizer package.

China Coal Ordos Project Kept Over 200d Gasifier Continuous Operation

Up to May 5th 2019, the three BGL gasifiers installed in China Coal Ordos Energy Chemical have been maintained under well state and realized gratifying achievement of

over 200d continuous and stable operation.

Since the first gasifier was ignited in Dec 2013 up to the date, by the hard work of the whole operator staff of the gasification unit, “BGL model” gasification process has made numerous domestic and international advancement records, such as the “first initial start-up success” and immediate transition of original commissioning to normal operation” in China; and “single unit load rate of 12800 Nm³/h” and “fastest coal state start-up” international advanced levels. As of the date, the gasification unit is working in safety and stabilized state and has refreshed two records in gasifier operation.

SINOPEC Zhijin 600kt/a CTO Project Began Work on Site Leveling

On May 28th, SINOPEC 600kt/a polyolefin project summoned mobilizing assembly for site leveling work.

Mar 19th-20th2019, Zhijin project field construction kick-off and general design coordination conference held in Guiyang was the sign that the project formally transited to field construction stage.

Zhijin 600kt/a polyolefin project is a SINOPEC and Guizhou Province jointly invested and developed super-size energy chemical project for coal resource clean and high efficiency conversion, to be built in Zhijin County, Bijie City of Guizhou Province. Planned scope of the project is 600kt/a polyolefin capacity, consisting of 1.80Mt/a coal to methanol unit, 1.80Mt/a MTO, 350kt/a PP and 300kt/a PE, along with accessory heat & power generation facilities.

Chongqing Yihua Held Kick-off Meeting for Gasification Process Upgrading

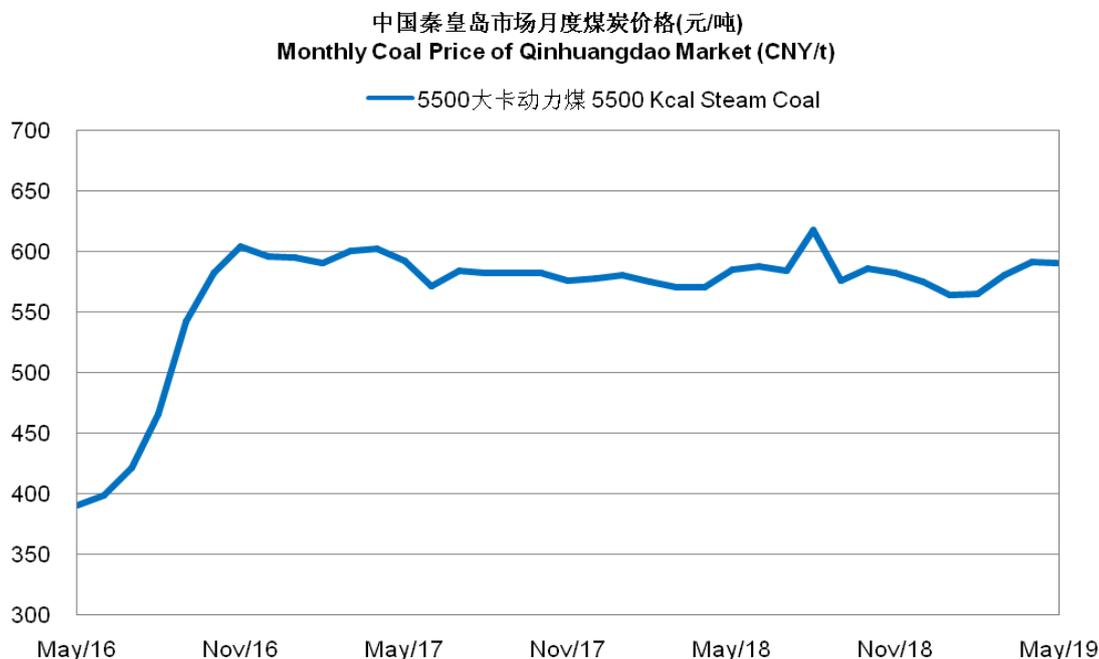
On May 10th 2019, Chingqing Yihua Chemical Industry Co Ltd held Jinhua Gasifier PDP kick-off meeting in Hualu Engineering Technology Co Ltd for the Yihua’s coal gasification energy conservation process revamp & upgrading project.

The said process upgrading project will apply WCS water cooling wall waste boiler linked gasifier (Jinhua Gasifier 3.0) process developed by Beijing Qingchuang Jinhua Technology Co Ltd. Two Jinhua Gasifiers will be installed in the project, working under 6.5MPaG pressure and generating 80000Nm³/h (CO+H₂) in total, to replace the existing atmospheric pressure fixed bed gasification process.

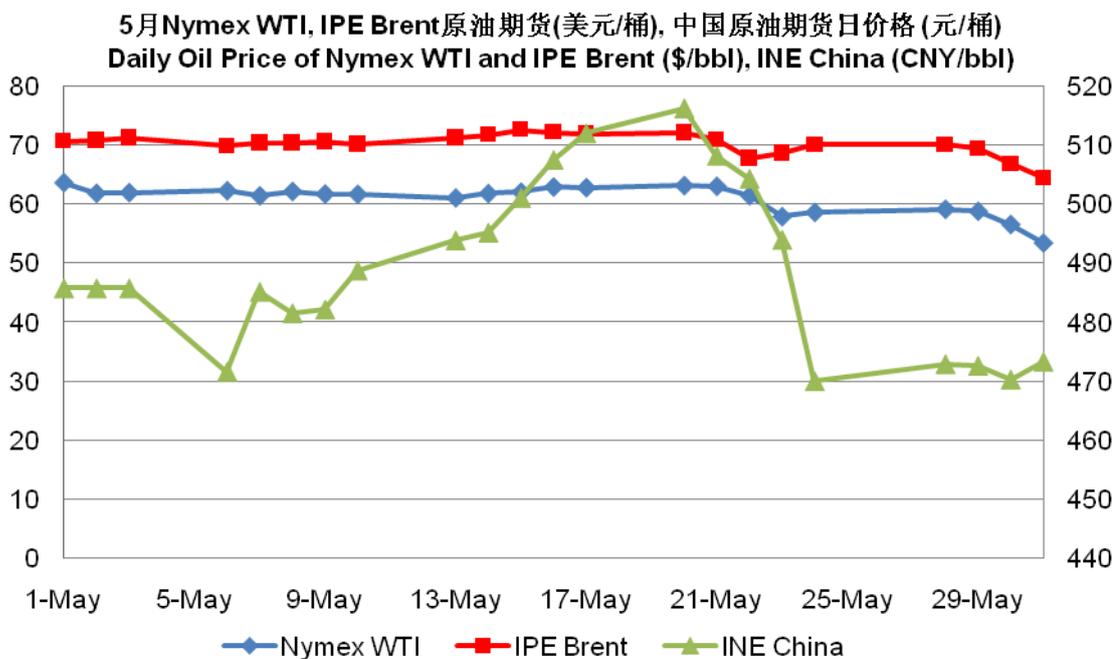
[Back to Content](#)

Products & Prices

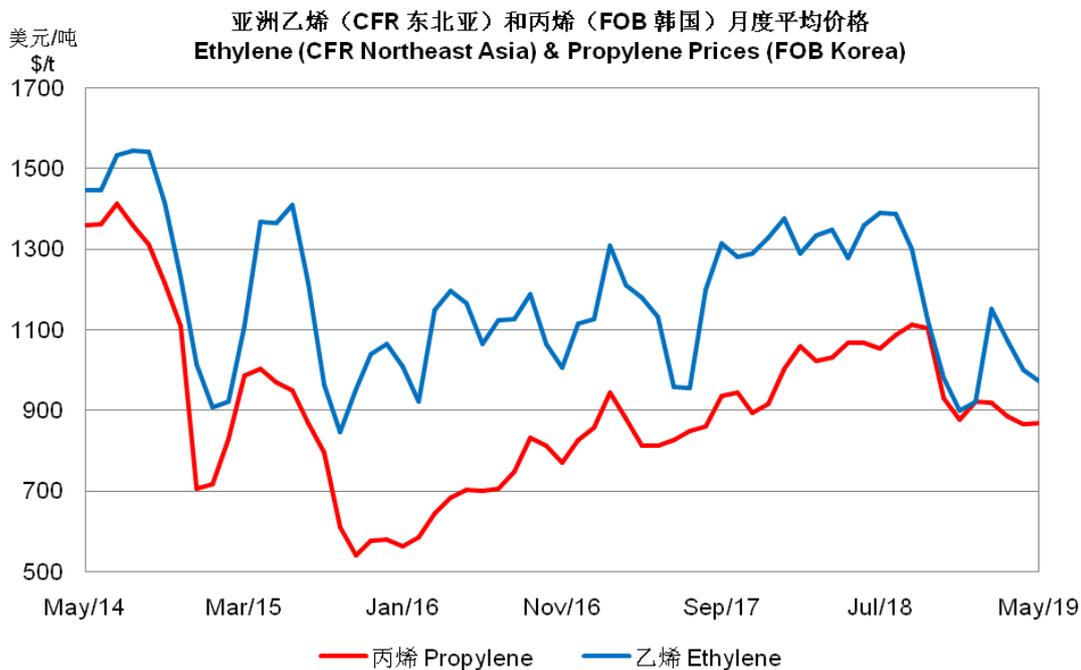
Monthly Coal Price of China Market up to May 2019



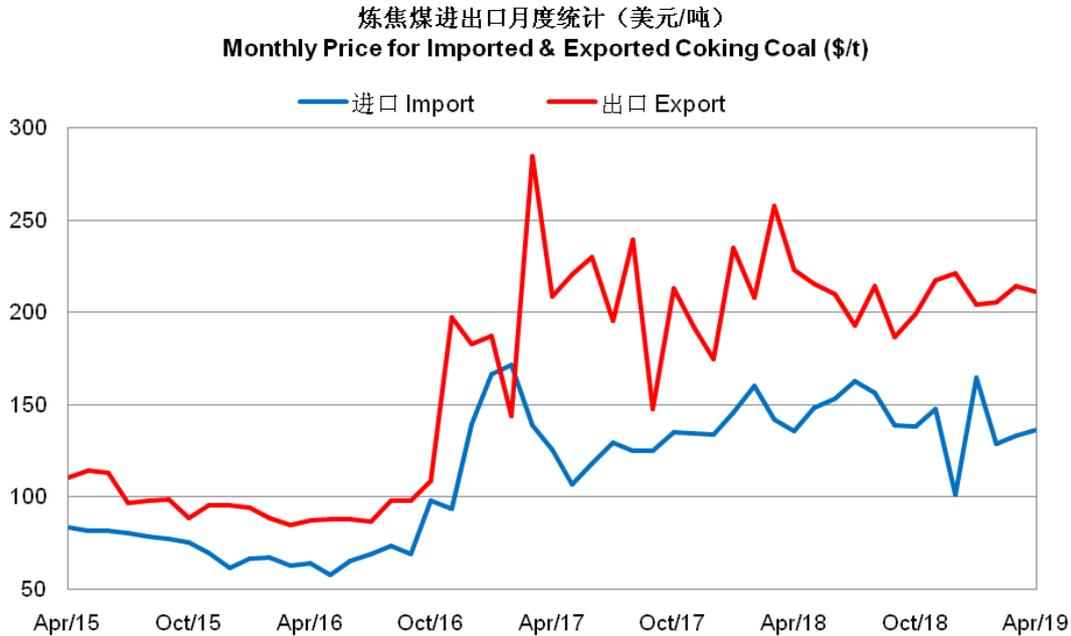
Monthly Crude Oil Prices up to May 2019



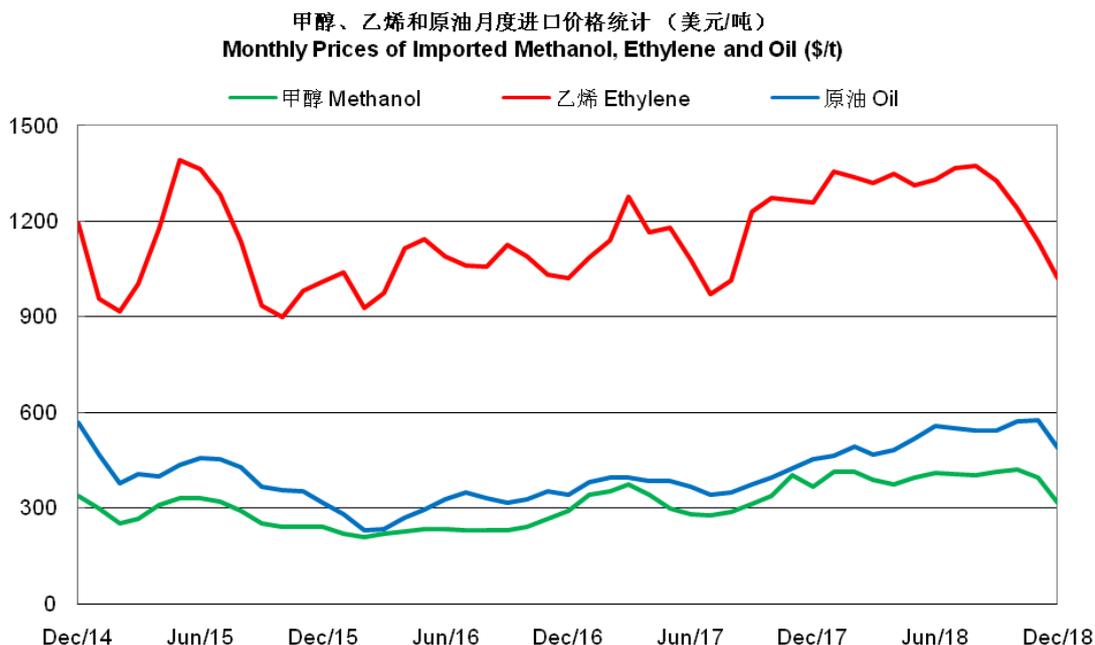
Monthly Asia Ethylene&Propylene Prices up to May 2019



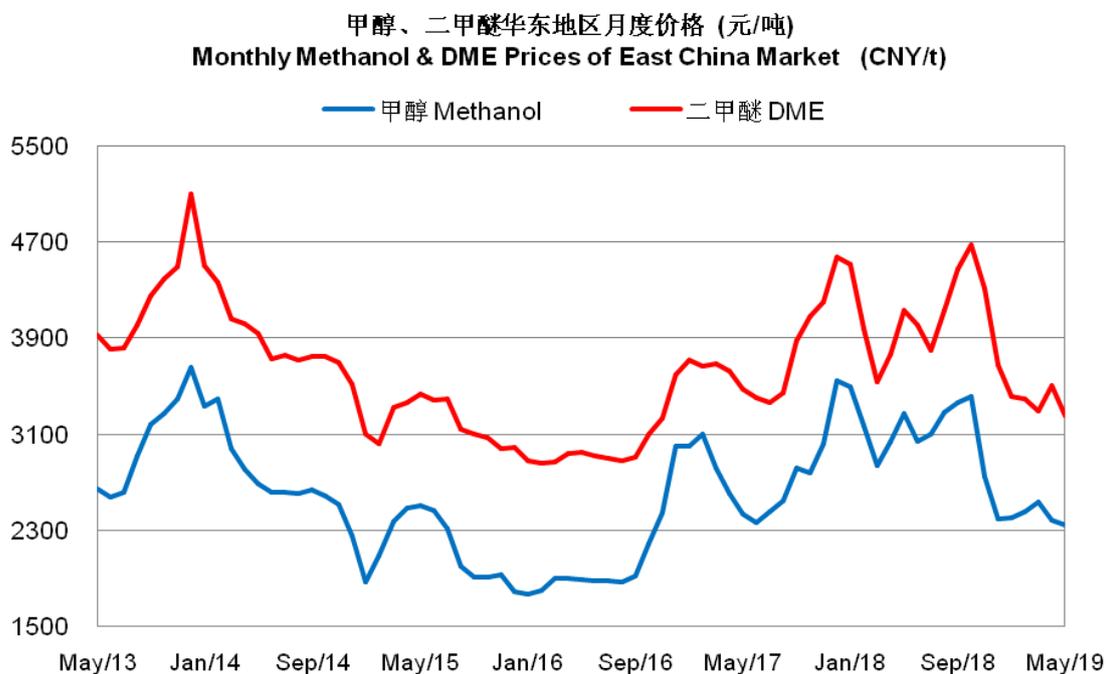
Monthly Price for Imported & Exported Coking Coal up to May 2019



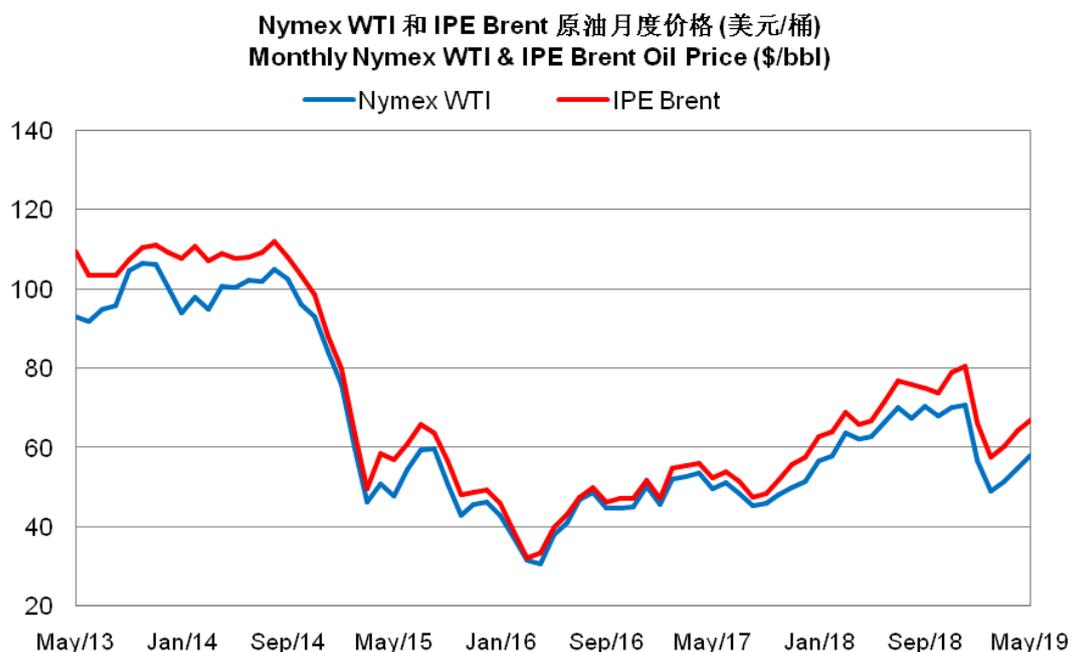
Monthly Prices of Imported Methanol, Ethylene&Naphtha up to May 2019



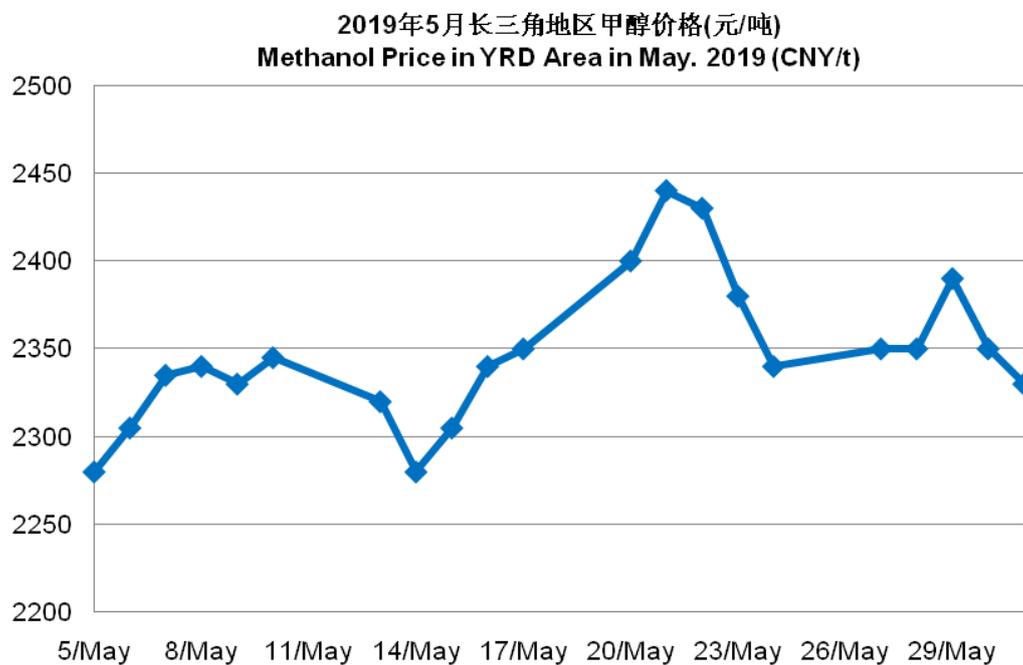
Monthly prices of East China Market Methanol&DME up to May 2019



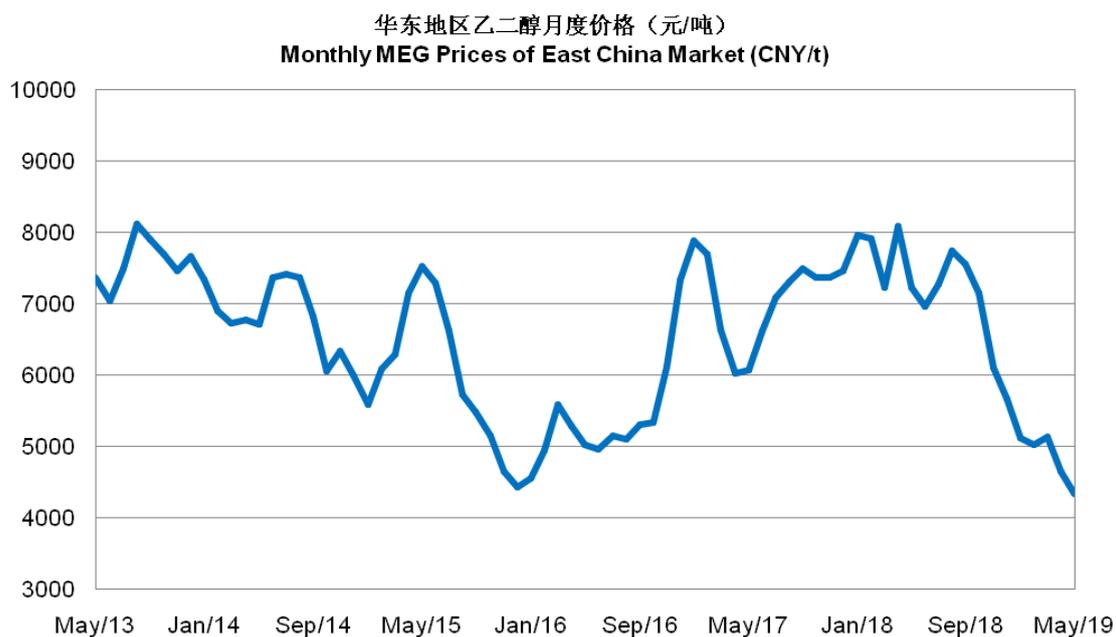
Crude Oil Prices in May 2019



Methanol Prices in YRD Area in May 2019



MEG Prices in YRD Area up to May 2019



[Back to Content](#)

New Projects Database

New Coal Chemical Projects in China up to May, 2019

Notice: The **Orange highlights** are newly updated in the current issue.

Location	Company	Products & Capacities	On Stream	Status	Investment
Ordos, Inner Mongolia	State Power Investment Corporation	1,800kt/a coal to methanol, 800kt/a MTO, 343kt/a PE, 534kt/a PP	2023	Developing	CNY 23.7 bn
Ordos, Inner Mongolia	CHN Energy Group (Shenhua)	3,200kt/a CTL No.2 & No.3 Lines	2022	Developing	CNY 24bn
Ordos, Inner Mongolia	Beijing Haohua Energy Resource Co., Ltd	600kt/a coal to MEG	2021	Developing	CNY 10.03bn
Ordos, Inner Mongolia	Beijing Haohua Energy Resource Co., Ltd	600kt/a CTO	2023	Planned	CNY 16bn
Ordos, Inner Mongolia	Ordos Jinchengtai Chemical Co., Ltd.	300kt/a methanol in 2nd phase	2020	Developing	N/A
Ordos, Inner Mongolia	Ordos Jinchengtai Chemical Co., Ltd.	300kt/a coal to MEG	2020	Construction	CNY 3.2bn
Ordos, Inner Mongolia	China National Coal Group	1,000kt/a syngas to methanol in 2nd phase	2020	Construction	N/A
Ordos, Inner Mongolia	Jiutai Energy	coal to 500kt/a MEG	2022	Developing	N/A
Ordos, Inner Mongolia	CNOOC/Hebei Construction & Investment Group	2x4 bn Nm ³ /a SNG	2023	Developing	N/A

Ordos, Inner Mongolia	Beijing Holding Group	4 bn Nm ³ /a SNG	2023	Construction	CNY 80bn
Ordos, Inner Mongolia	Xinmeng Energy Investment Co Ltd	4 bn Nm ³ /a SNG	2023	Developing	N/A
Ordos, Inner Mongolia	Inner Mongolia Manshi Energy Chemical Co Ltd	2,000kt/a ammonia, 3,500kt/a urea	2020	Construction	CNY 21.2bn
Ordos, Inner Mongolia	ENN Xinneng Energy	200kt/a MTG	2019	Commissioning	CNY 600mn
Ordos, Inner Mongolia	Inner Mongolia Shengdeyuan Chemical Co., Ltd.	methonal to 250kt/a DME	2020	Construction	CNY 260mn
Ordos, Inner Mongolia	Ordos Xinnai Energy Chemical Co., Ltd.	600kt/a acetic acid	2021	Developing	CNY 1.16bn
Ordos, Inner Mongolia	Inner Mongolia Huaxing Energy Co., Ltd.	4 bn Nm ³ /a SNG, 2 bn Nm ³ /a in 1st phase	2022	Developing	CNY 24.6bn
Ordos, Inner Mongolia	Inner Mongolia Huaxing Energy Co., Ltd.	600kt/a CTO	2023	Developing	N/A
Ordos, Inner Mongolia	Inner Mongolia Qingniao Mengxing Energy Chemical	1Mt/a lignite coal upgrading, 300kt/a coal tar in 1st phase	2019	Construction	N/A
Ordos, Inner Mongolia	Jiutai Energy Inner Mongolia Co., Ltd.	extend 1Mt/a methanol	2022	Developing	CNY 3.98bn
Ordos, Inner Mongolia	Jianyuan Coal Coking Co., Ltd.	360kt/a COG to LNG, 600kt/a ammonia, 400kt/a urea	2020	Construction	CNY 6bn
Ordos, Inner Mongolia	Etouke Banner Jianyuan Coal Chemical Technology Co., Ltd.	COG to 240kt/a MEG	2020	Construction	N/A
Ordos, Inner Mongolia	Hanbo Technology Co., Ltd	120kt/a COG to methonal	2019	Construction	CNY 230mn
Ordos, Inner Mongolia	Inner Mongolia Yilin Chemical Co., Ltd	200kt/a syngas to MEG	2019	Construction	N/A
Ordos, Inner Mongolia	Shuangxin Energy saving Technology Co., Ltd	100kt/a carbide furnace gas to MEG	2021	Developing	N/A
Ordos, Inner Mongolia	Inner Mongolia Rongxin Chemical Co., Ltd	400kt/a MEG, 300kt/a DMMn	2020	Construction	N/A
Ordos, Inner Mongolia	Ordos Xinhang Energy Co., Ltd	expand to 700kt/a MEG	2020	Developing	N/A
Ordos, Inner Mongolia	Inner Mongolia Zhendong Chemical Co., Ltd	240kt/a coal tar deep processing	2019	Developing	N/A
Ordos, Inner Mongolia	Shanghai East Hope Group	coal to 3,600 kt/a methonal to 1,400kt/a olefins	2023	Planned	CNY 60bn
Ordos, Inner Mongolia	Huineng Coal Chemical Co., Ltd	1.6bn Nm ³ /a SNG in 2nd phase	2021	Construction	N/A
Ordos, Inner Mongolia	Berun Chemical	100kt/a syngas to MEG	2022	Construction	N/A
Ordos, Inner Mongolia	Inner Mongolia Kailuan Chemical Co., Ltd	400kt/a CTMEG, 200kt/a CTMEG	2022	Developing	CNY 6.53bn
Baotou, Inner Mongolia	CHN Energy Group(Shenhua)	750kt/a CTO, 400kt/a PP, 350kt/a PE	2023	Developing	CNY 17.7bn
Baotou, Inner Mongolia	CHN Energy Group(Shenhua)	600kt/a syngas to MEG	2022	Planned	CNY 5bn

Baotou, Inner Mongolia	Inner Mongolia Huiten Energy Chemical Co., Ltd	600kt/a CTMEG	2019	Construction	CNY 8.98 bn
Baotou, Inner Mongolia	Inner Mongolia Huiten Energy Chemical Co., Ltd	600mn Nm ³ /a SNG in 1st phase	2022	Construction	N/A
Baotou, Inner Mongolia	Mingtuo Mingye Technology Co., Ltd	120kt/a arc furnace gas to MEG	2021	Construction	CNY1.26 bn
Hulunbeier, Inner Mongolia	China National Coal Group	2x10Mt/a lignite coal upgrading & combined utilization	2023	Planned	CNY18.2bn
Hulunbeier, Inner Mongolia	Shandong Energy Zaozhuang Mining Group Co., Ltd	2x10Mt/a lignite coal upgrading	2023	Planned	CNY 3bn
Chifeng, Inner Mongolia	Datang International Kttengtengqi Coal To Natural Gas Co., Ltd	2nd phase 800kt/a methanol, 400kt/a MEG, 0.6bn Nm ³ /a SNG	2020	Developing	CNY 3.38bn
Bayannaer, Inner Mongolia	Inner Mongolia Ural Mountain Chemical Fertilizer Co Ltd	2Mt/a coking, 200kt/a methanol	2021	Developing	CNY 2.31bn
Bayannaer, Inner Mongolia	Inner Mongolia Heimao Coal Chemical Co., Ltd	COG to 80kt/a ammonia, 300kt/a methanol	2021	Developing	N/A
Tongliao, Inner Mongolia	Tongliao GEM (Jinmei) Chemical	400kt/a coal based MEG for 2nd phase	2022	Planned	CNY 4.37bn
Tongliao, Inner Mongolia	Inner Mongolia Cornell Chemical Industry Co., Ltd.	300kt/a MEG	2019	Stopped	N/A
Xilinguole, Inner Mongolia	Beijing Energy Investment (Group) Co., Ltd	2x5Mt/a lignite coal upgrading	2019	Construction	CNY 8.95bn
Xilinguole, Inner Mongolia	Hebei Qianan Chemical Group	1,000kt/a ammonia, 1,600kt/a urea, 500kt/a ammonia, 800kt/a urea in 1st phase	2023	Developing	CNY 8.5 bn
Xilinguole, Inner Mongolia	Chaoyang Yuanqing Technology Co., Ltd	200kt/a lignite upgrade	2021	Planned	CNY 0.1bn
Wuhai, Inner Mongolia	National Business Group	coal gangue to 400kt/a methonal	2021	Planned	N/A
Xing'an, Inner Mongolia	Inner Mongolia Mining Group	4 bn Nm ³ /a coal to SNG, 2bn in 1st phase	2022	Developing	CNY 13bn
Xing'an, Inner Mongolia	Wulan Group	1.35Mt/a ammonia and 2.4Mt/a urea, 700kt/a ammonia and 1.2Mt/a urea for I phase	2019	Commissioning	CNY 10.5bn
Xing'an, Inner Mongolia	Xing'an Chengtai Energy Chemical Co., Ltd	84,000Nm ³ /h H ₂ , 71,000Nm ³ /h syngas etc	2021	Construction	CNY 2.4bn
Hohhot, Inner Mongolia	Beijing Holding Group	4 bn Nm ³ /a coal to SNG	2022	Developing	CNY 30bn
Hohhot, Inner Mongolia	Inner Mongolia Mining Group/Henan Shengrun Holding Group	4 bn Nm ³ /a coal to SNG	2022	Developing	CNY 12bn
Hohhot, Inner Mongolia	Qinghua Group Inner Mongolia Zhongke Coal-based Clean Energy Co., Ltd	35Mt/a lignite coal upgrading, 6 bn Nm ³ /a coal to SNG, 5Mt/a methanol, 4Mt/a MTG, 3Mt/a coal tar hydrogenation	2025	Planned	CNY 82.5bn
Hohhot, Inner Mongolia	Jiutai Energy	1,000kt/a coal to MEG, 640kt/a methonal (Intermediate product)	2021	Construction	CNY 40bn
Hohhot, Inner Mongolia	Inner Mongolia Jiutai New Material Co., Ltd	2,400kt/a coal to PTA	2022	Developing	CNY 59.7bn
Hohhot, Inner Mongolia	Inner Mongolia Jiutai New Material Co., Ltd	60kt/a POM	2021	Developing	CNY 1.57bn
Alashan, Inner Mongolia	Inner Mongolia Juyuan Technology Development Co Ltd	100kt/a coal tar deep processing	2021	Planned	CNY 1.58bn
Alashan, Inner Mongolia	Inner Mongolia Jushi Energy Co Ltd	200kt/a F-T synthetic wax	2020	Construction	CNY 3.25bn

Alashan, Inner Mongolia	kingho Group	300kt/a COG to LNG	2023	Planned	N/A
Manzhouli, Inner Mongolia	Inner Mongolia Mengdong Modern Energy Co., Ltd	1,800kt/a coal to MEG	2023	Developing	CNY 23.9bn
Ulanqab, Inner Mongolia	Ulanqab Xufeng Company	COG to 150kt/a methanol in 1st phase	2021	Developing	N/A
Ulanqab, Inner Mongolia	Inner Mongolia Ruizhi Modern Coal Chemical Technology Co., Ltd	electric furnace gas to 175kt/a methonal	2019	Construction	N/A
Yulin, Shaanxi	CHN Energy Group(Shenhua)	1,800kt/a methanol in 1st phase	2020	Construction	N/A
Yulin, Shaanxi	CHN Energy Group(Shenhua)	syngas to 400kt/a MEG	2020	Construction	N/A
Yulin, Shaanxi	Shaanxi Coal and Chemical Industry Group	30,000kt/a Coal Dry distillation, 5,000kt/a coal tar hydrogenation and 1.7bn Nm ³ /a Dry distillation to SNG	2022	Developing	CNY 3.603bn
Yulin, Shaanxi	Shaanxi Yanchang Petroleum Yuheng Coal Chemical Co., Ltd	800kt/a coal based methonal to 400kt/a aromatic hydrocarbon	2022	Developing	CNY 7.378bn
Yulin, Shaanxi	Shaanxi Yanchang Petroleum Yuheng Coal Chemical Co., Ltd	1,800kt/a coal to methonal, 600kt/a MTO, 200kt/a Light hydrocarbon utilization, 400kt/a PE, 350kt/a PP in 1st phase	2025	Developing	N/A
Yulin, Shaanxi	Shaanxi Yanchang Petroleum Yuheng Coal Chemical Co., Ltd	1,800kt/a coal to methonal, 600kt/a MTA, 1,100kt/a PTA, 450kt/a CTMEG, 1,300kt/a PET in 2nd phase	2025	Developing	N/A
Yulin, Shaanxi	Shaanxi Yanchang Petroleum Yushen Energy&Chemical Co., Ltd	500kt/a coal to ethanol (include 400kt/a methonal)	2021	Construction	N/A
Yulin, Shaanxi	Shaanxi Yulin Energy Group/Shaanxi Gas Group	4 bn Nm ³ /a coal to SNG in 1st phase	2022	Planned	CNY 26.5bn
Yulin, Shaanxi	Shaanxi Coal and Chemical Industry Group, Sinopec	8 bn Nm ³ /a SNG	2022	Planned	N/A
Yulin, Shaanxi	Shaanxi Yulin Energy Group	400kt/a MEG etc	2021	Construction	N/A
Yulin, Shaanxi	Shaanxi Yulin Energy Group, Synfuels China Technology Co., Ltd.	4000kt/a CTL	2025	Planned	N/A
Yulin, Shaanxi	Shaanxi Yanchang Zhongmei Yulin Energy Chemical Co., Ltd	1,800kt/a methanol, 700kt/a MTO, 300kt/a LDPE/EVA, 400kt/a PP	2020	Construction	CNY 14bn
Yulin, Shaanxi	Shaanxi Future Energy Chemical Co Ltd,	4,000kt/a CTL in 2nd phase	2023	Developing	N/A
Yulin, Shaanxi	Henan Longcheng Group	15,000kt/a pulverized coal utilization	2022	Developing	N/A
Yulin, Shaanxi	Shaanxi Hengyuan Coal Electricity Group	1,200kt/a M/LT coal pyrolysis, 500kt/a coal tar hydrogenation etc	2021	Construction	CNY4.6bn
Yulin, Shaanxi	Yankuang Yulin methanol plant	500kt/a DMMn, 900kt/a methonal	2020	Construction	N/A
Yulin, Shaanxi	Shanbei Mining Co Ltd,	1,200kt/a powdered coal quick-pyrolysis, 300kt/a coal tar hydrogenation	2019	Construction	CNY3bn
Yulin, Shaanxi	Shenmu Tianyuan Chemical Co Ltd,	600kt/a comprehensive utilization of powder coal	2019	Construction	CNY6.28bn

Yulin, Shaanxi	Shenmu Fuyou Energy Technology Co., Ltd.	500kt/a coal tar hydrogenation to naphthenic oil	2020	Construction	CNY3.05bn
Yulin, Shaanxi	China Coal Group	1,800kt/a coal to methanol, 600kt/a MTO, 300kt/a PE 450kt/a PP	2021	Developing	N/A
Yulin, Shaanxi	Shaanxi Coal and Chemical Industry Group Yulin Chemical Co., Ltd.	1,800kt/a CTMEG in 1st phase	2021	Construction	CNY21.9bn
Yulin, Shaanxi	Shaanxi Coal and Chemical Industry Group Yulin Chemical Co., Ltd.	1,200kt/a powdered coal pyrolysis, 500kt/a coal tar hydrogenation	2022	Developing	CNY3.2bn
Yulin, Shaanxi	Shaanxi Yanchang Petroleum Group Yulin Coal Chemical Co., Ltd	300kt/a acetic acid expansion to 400kt/a	2020	Developing	N/A
Bin County, Xianyang, Shaanxi	SCCIG Binchang Mining Group	600kt/a Methanol	2021	Developing	CNY 5.35bn
Bin County, Xianyang, Shaanxi	Shaanxi Weihe Coal Chemical Corporation Group	300kt/a MEG	2019	Construction	CNY 5bn
Xianyang, Shaanxi	Shaanxi Huabin Zhengkai New Energy Co., Ltd.	300kt/a methanol change to 300kt/a MEG	2021	Developing	CNY 3bn
Xianyang, Shaanxi	Shaanxi Xinghua Group	500kt/a methanol to ethanol	2022	Planned	N/A
Yanan, Shaanxi	Yanchang Petroleum Group	50.8kt/a BDO, 48.5kt/a PTMEG, 105.9 kt/a MEG	2019	Construction	CNY 5.72bn
Yanan, Shaanxi	Yanan Energy Chemical (Group) Zichang Chemical Co., Ltd.	400kt/a coal to methonal	2022	Developing	N/A
Yanan, Shaanxi	Shaanxi Coal Chemical Group Huangling Mining Co., Ltd.	600kt/a coal tar deep processing	2020	Planned	CNY 1.6bn
Weinan, Shaanxi	Shaanxi Coal and Chemical Industry Group Shaanxi Shanhua Coal Chemical Group Co., Ltd.	200kt/a coal to MEG	2020	Developing	CNY 2.62bn
Weinan, Shaanxi	Shaanxi Shanhua Coal Chemical Group Co., Ltd.	600kt/a methanol	2021	Developing	N/A
Hancheng, Weinan, Shaanxi	Shaanxi Heimao Coking Co Ltd	1800kt/a methanol, 210kt/a LNG, 160kt/a ammonium bicarbonate	2021	Planned	CNY 5.012bn
Weinan, Shaanxi	Pucheng Clean Energy Chemical Company Ltd	700kt/a MTO in 2nd phase	2022	Developing	N/A
Baoji, Shaanxi	Xuzhou Coal Mining Group Changqing Energy Chemical Company	900kt/a methanol for 2nd phase	2020	Construction	CNY 6bn
Baoji, Shaanxi	Shaanxi Province Industrial Development Group	50kt/aDMMn in 1st phase	2021	Developing	N/A
Jincheng, Shanxi	Jingmei Group	500kt/a MTG unit in 1st phase	2019	Commissioning	CNY 3bn
Jincheng, Shanxi	Shanxi Tianze Chemical Group	ammonia tail gas to 50kt/a MEG	2021	Developing	CNY 560mn
Jincheng, Shanxi	Lanhua Group, Tianze Group	gasification project (800kt of synthetic ammonia equivalent purification gas)	2022	Developing	CNY 10bn
Linfen, Shanxi	Shanxi Coking Coal Group Feihong Chemical Co Ltd	600kt/a MTO	2023	Developing	CNY 8.58bn
Linfen, Shanxi	Shanxi Coking Coal Group Feihong Chemical Co Ltd	1,000kt/a COG to methanol renovation project	2021	Developing	CNY 6.9bn

Linfen, Shanxi	Shanxi Coking Coal Group Feihong Chemical Co Ltd	1,000kt/a coal to methanol	2023	Developing	N/A
Linfen, Shanxi	Shanxi Guxian Lida Coking Co Ltd	COG to 100mn Nm ³ /a LNG	2021	Developing	N/A
Linfen, Shanxi	Shanxi Woneng Chemical Technology Co Ltd	300kt/a MEG, 0.156bn Nm ³ /a SNG	2020	Construction	N/A
Linfen, Shanxi	Shanxi Yongxin Group Linxin Coal Coking Co Ltd	3,400kt/a coke, 400kt/a CTMEG	2020	Developing	N/A
Fenyang, Shanxi	Shanxi Jintashan New Energy Co Ltd	COG to 100mn Nm ³ /a LNG	2019	Developing	CNY 350mn
Datong, Shanxi	Datong Coal Mine Group Company	600kt/a MTO, 250kt/a PE, 440kt/a PP	2022	Construction	CNY 10.1bn
Datong, Shanxi	Datong Coal Mine Group Company	1,200kt/a methanol	2022	Developing	N/A
Datong, Shanxi	CNOOC, Datong Coal Mine Group Company	2*100,00kt/a coal mine, 4bn Nm ³ /a SNG	2024	Developing	CNY 30bn
Shuozhou, Shanxi	China Coal Pingsuo Group	1800kt/a coal to methanol, 750kt/a MTO	2021	Planned	N/A
Shuozhou, Shanxi	Yangquan Coal Group	1.46 bn Nm ³ /a coal to syngas, 1 bn Nm ³ /a LNG	2023	Developing	CNY 3.98 bn
Shuozhou, Shanxi	Shanyin Country Jinghua Clean Energy Co., Ltd	1,000kt/a lignite coal upgrading	2019	Construction	CNY 258mn
Shuozhou, Shanxi	Shanxi Songlan Chemical Technology Co Ltd	300kt/a CTMEG for 1st phase	2021	Developing	CNY 4.85bn
Changzhi, Shanxi	Shanxi Xiangkuang Hongtong Coal Chemical Co., Ltd	200kt/a coal to MEG	2019	Construction	CNY 3bn
Changzhi, Shanxi	Lu'an Group	800kt/a CTL for 1st phase	2020	Construction	N/A
Changzhi, Shanxi	Nanyao Group	70,000Nm ³ /h coal-based hydrogen unit	2020	Developing	N/A
Changzhi, Shanxi	Shanxi Jiantao Lubao Chemical Co Ltd	600kt/a MTO	2022	Developing	N/A
Changzhi, Shanxi	Lu'an CTL Co., Ltd, Jupeng Biology (Hongkong) Co Ltd	20kt/a syngas bioferment to ethanol	2019	Construction	CNY 196mn
Lucheng, Shanxi	Lubao Group	300kt/a MTG	2020	Planned	CNY 1.2bn
Lucheng, Shanxi	Shanxi Jiantao Lubao Chemical Co., Ltd.	200kt/a coke oven gas to methanol	2019	Construction	N/A
Lucheng, Shanxi	Shanxi Lu'an Coking Company	coke oven gas to 60 kt/a synthetic fuel in 2nd phase	2020	Developing	N/A
Taiyuan, Shanxi	Shanxi Huayang Gas Co Ltd	400mn Nm ³ /a COG to NG	2019	Construction	N/A
Taiyuan, Shanxi	Shanxi Meijin Huasheng Chemical New Material Co., Ltd	4,000kt/a coke, 300kt/a COG to MEG, 155kt/a LNG	2022	Developing	N/A
Xiaoyi, Shanxi	Jinyan Power Coal Chemical Co Ltd	300kt/a methanol from coke oven gas	2021	Developing	CNY 1.08bn
Xiaoyi, Shanxi	Shanxi Jinyan Industry Group	COG to 400kt/a MEG and 0.4bn Nm ³ /a LNG in 1st phase	2022	Developing	CNY 3.7bn in 1st phase
Xiaoyi, Shanxi	Xiaoyi Fuxiao Chemical Co Ltd	900kt/a coal tar hydrogenation	2020	Developing	CNY 5.5bn
Xiaoyi, Shanxi	Pengfei Group	400kt/a F-T synthetic wax	2021	Developing	N/A
Xiaoyi, Shanxi	Pengfei Group	300kt/a MTG	2021	Developing	CNY 879mn

Yuncheng, Shanxi	Shanxi Quanshen Industry Co Ltd	400kt/a MEG in 1st phase	2023	Developing	N/A
Yuncheng, Shanxi	Yangquan Coal Group	1,600kt/a methanol, 600kt/a CTO	2021	Planned	N/A
Yuncheng, Shanxi	Yangmei Fengxi Fertilizer Industry (Group) Co Ltd	360kt/a ammonia, 560kt/a urea	2021	Planned	N/A
Yuncheng, Shanxi	Yangmei Fengxi Fertilizer Industry (Group) Co Ltd	1,000kt/a methanol, 400kt/a ethanol	2022	Planned	N/A
Yuncheng, Shanxi	Xinyi County Zhongxin Xintai Energy Co., Ltd.	100kt/a COG to methonal	2021	Developing	N/A
Yuncheng, Shanxi	Zhixin Baoneng Technology Co Ltd	200kt/a COG to methonal	2022	Developing	CNY 800mn
Yangquan, Shanxi	Yangmei Group Pingdin Chemical Co Ltd	200kt/a CTMEG in 2nd phase	2022	Developing	N/A
Xinzhou, Shanxi	Shanxi Daosheng Xinyu Clean Energy Co Ltd	27,500Nm ³ /h COG to LNG	2020	Developing	N/A
Xinzhou, Shanxi	Lu'an Group	4,000kt/a CTL and SNG	2025	Planned	N/A
Lvliang, Shanxi	Shanxi Huaxin Fertilizer Co., Ltd	COG to 180kt/a ammonia, 600kt/a fertilizer	2020	Construction	N/A
Shouyang, Shanxi	Shanxi Fuyang Biological New Material Co., Ltd.	400kt/a methonal, 500kt/a acetic acid, 200kt/a ethonal, 100kt/a propionic acid	2022	Developing	N/A
Fukang, Xinjiang	Sichuan Jinxiang Group	300kt/a urea, 100kt/a melamine, 400kt/a nitric acid, 450kt/a ammonium nitrate	2020	Construction	CNY 3.4bn
Fukang, Xinjiang	Xinjiang Energy Group	400kt/a MEG, 1,000kt/a PET, 400kt/a synthetic wax	2021	Planned	N/A
Urumqi, Xinjiang	Yitai Group	5,400kt/a CTL, 2,000kt/a CTL in 1st phase	2020	Developing	CNY 80.3bn
Huo Cheng Country, Yili, Xinjiang	SPIC	6 bn Nm ³ /a SNG, 2 bn Nm ³ /a in 1st phase	2022	Developing	CNY 50bn
Yili, Xinjiang	Yitai Group	5,400kt/a CTL, 1,000 kt/a CTL in 1st phase	2023	Construction	CNY 15bn for 1st phase
Changji, Xinjiang	China Huaneng Group	4 bn Nm ³ /a SNG, 2 bn for 1st phase	2022	Developing	CNY 26bn
Changji, Xinjiang	Henan Coal Chemical Group	4 bn Nm ³ /a SNG, 2 bn for 1st phase	2023	Developing	CNY 17.6bn for 1st phase
Changji, Xinjiang	Beijing Holding Group New Energy Development Co., Ltd	2.2 bn Nm ³ /a SNG	2023	Developing	N/A
Changji, Xinjiang	The Xinjiang Production and Construction Corp.	4 bn Nm ³ /a SNG	2023	Developing	CNY 26.4bn
Changji, Xinjiang	Sinopec	8 bn Nm ³ /a SNG	2022	Developing	CNY 70bn
Changji, Xinjiang	Zhejiang Provincial Energy Group	2 bn Nm ³ /a SNG for 1st phase	2022	Developing	CNY 14.64bn
Changji, Xinjiang	Xinjiang Jinyuan Energy Co Ltd	coke oven gas to 6779m ³ /h CNG	2019	Construction	CNY 0.405bn
Changji, Xinjiang	Xinjiang Palafei Fine Chemical Co Ltd	COG to 60kt/a F-T Fine Chemicals	2020	Developing	CNY 960 mn
Changji, Xinjiang	Xinjiang Xinlianxin Energy Chemical Co Ltd	coal to 600kt/a urea, 60kt/a melamine	2021	Developing	CNY 1.92bn

Akesu, Xinjiang	Xinjiang Zhongke Jitai Energy Co Ltd	200kt/a GTL	2020	Developing	N/A
Akesu, Xinjiang	Xinjiang Zhiben Fine Chemistry Co Ltd	400kt/a GTMEG	2021	Construction	N/A
Aletai, Xinjiang	Xinjiang Guanghui Group	4 bn Nm ³ /a Coal to SNG	2023	Developing	CNY 25.089bn
Tacheng, Xinjiang	Suxin Energy Hefeng Company	4 bn Nm ³ /a Coal to SNG, 1.35bn in 1st phase	2025	Stopped	CNY 22bn
Tacheng, Xinjiang	Suxin Energy Hefeng Company	400kt/a CTMEG	2022	Planned	N/A
Tacheng, Xinjiang	Xinjiang Changan Energy Chemical Co Ltd	15Mt/a coal classification utilization	2020	Planned	CNY 35.33bn
Hami, Xinjiang	Xinjiang Xinhuixia Clean Energy Co., Ltd	600kt/a coarse aromatics hydrogenation in 1st phase	2019	Construction	CNY 1.194bn
Hami, Xinjiang	SCCIG Shenmu Tianyuan Chemical Co., Ltd	10,000kt/a coal carbonization, 1,600kt/a coal tar hydrogenation plants	2020	Developing	CNY 11bn
Hami, Xinjiang	Xinjiang Yuanhao New Energy Co., Ltd.	1,800kt/a lignite pyrolysis & polygeneration, 420kt/a coal tar deep processing	2022	Developing	CNY 1.6bn
Hami, Xinjiang	Zhongxi Environmental Protection Technology Co., Ltd.	5,000kt/a coal carbonization in 1st phase	2022	Developing	N/A
Hami, Xinjiang	Xinjiang Xuanli Environmental Protection Energy Co., Ltd.	500kt/a coal tar hydrogenation	2019	Construction	CNY 1.248bn
Hami, Xinjiang	Hami Tianhe Investment Co., Ltd.	400kt/a coal tar hydrogenation, 3,000kt/a clean semi-coke	2021	Developing	N/A
Hami, Xinjiang	Hami Guanghui Environmental Protection Technology Co., Ltd.	COG to 400kt/a MEG, 200kt/a MEG in 2nd phase	2021	Construction	CNY 3.56bn
Hami, Xinjiang	Hami Hengyou Energy Chemical Technology Co., Ltd.	700kt/a MTP, 200kt/a PP	2022	Construction	CNY 1.5bn
Shihezi, Xinjiang	Xinjiang Tianye Group	100kt/a syngas to MEG expansion	2019	Commissioning	N/A
Shihezi, Xinjiang	Xinjiang Tianye Group	600kt/a syngas to ethonal	2021	Developing	N/A
Shihezi, Xinjiang	Xinjiang Tianye Huihe New Material Co., Ltd	600kt/a syngas to MEG in 1st phase	2019	Construction	N/A
Korla, Xinjiang	Lvyuan State Capital Company, Xinjiang Jinchuan Energy Group	400kt/a CTMEG, 130kt/a PC, 50kt/a PE	2022	Developing	CNY 6 bn
Korla, Xinjiang	Xinjiang Zhongtai (group) Co., Ltd	4,000kt/a coal heavy oil co-refining project	2022	Developing	CNY 19.9 bn
Tulufan, Xinjiang	Xinjiang Energy Group	350kt/a coal tar deep processing	2021	Developing	N/A
Tulufan, Xinjiang	Xinjiang Zhongtai Chemical Co., Ltd	1,800kt/a coal to methanol, 600kt/a MTO	2020	Developing	CNY 21.98 bn
Tulufan, Xinjiang	Xinjiang Meihuite Petrochemical Co., Ltd.	400kt/a coal tar hydrogenation	2021	Developing	N/A
NingDong, Ningxia	CHN Energy Ningxia Coal Industry Group	4,000kt/a CTL in 2nd phase	2023	Developing	N/A
NingDong Energy Chemical Base, Ningxia	Ningxia Donglai Energy Chemical Co Ltd	250kt/a MEG	2023	Developing	CNY 2.1bn

NingDong Energy Chemical Base, Ningxia	Ningxia Kumpeng Clean Energy Co., Ltd.	400kt/a CTMEG, 200kt/a CTMEG in 2nd phase	2021	Construction	CNY 4.3bn
NingDong Energy Chemical Base, Ningxia	CHN Energy Ningxia Coal Industry Group, SABIC	700kt/a CTO, 210kt/a LDPE, 100kt/a EVA, 35kt/a UHMWPE, 430kt/a PP	2023	Developing	CNY 27bn
NingDong Energy Chemical Base, Ningxia	Ningxia Baoting New Energy Co Ltd	400kt/a coal tar deep processing, 600kt/a coal tar transformation, 2000 Nm ³ /h methanol to H ₂	2020	Construction	CNY 1.211bn
NingDong Energy Chemical Base, Ningxia	Ningxia Baofeng Energy Group	600kt/a MTO in 2nd phase	2019	Construction	N/A
NingDong Energy Chemical Base, Ningxia	Ningxia Baofeng Energy Group	2,200kt/a coal to methanol in 2nd phase	2020	Construction	N/A
Wuzhong, Ningxia	Qinghua Group	300kt/a methanol to 100kt/a aromatic in 2nd phase	2021	Construction	N/A
Huainan, Anhui	SINOPEC/Wanbei (North Anhui) Coal & Power Group	1,800kt/a methanol, 700kt/a olefins, 350kt/a PE, 350kt/a PP	2019	Commissioning	CNY 26bn
Huainan, Anhui	SINOPEC/Wanbei (North Anhui) Coal & Power Group	1000kt/a CTMEG	2022	Planned	N/A
Fengtai County, Huainan, Anhui	Anhui Province Energy Group, State Developing & Investment Corporation (SDIC) , Shanghai Huayi Group	2.2 bn Nm ³ /a coal to SNG in 1st phase	2023	Developing	CNY 10.45bn for 1st phase
Anqing, Anhui	Anhui Jingwan Nature Gas Co., Ltd.	4 bn Nm ³ /a coal to SNG	2022	Developing	CNY 30bn
Hefei, Anhui	Tongkun Group, Shanghai Baosteel Gases Co., Ltd.	1,200kt/a CTMEG	2022	Developing	CNY 11bn
Huaibei, Anhui	Huaibei Mining Group, Jining Carbon Group	300kt/a Coal Tar Deep-Processing	2021	Developing	CNY 1.18bn
Huaibei, Anhui	Huaibei Mining Group	500kt/a COG to methonal	2022	Developing	CNY 1.68bn
Suzhou, Anhui	Guoneng Xinxing Energy Group	0.6 bn Nm ³ /a coal to SNG in 1st phase etc	2023	Planned	CNY 4.5bn for 1st phase
Fuyang, Anhui	Anhui Haoyuan Chemical Group	300kt/a MTO	2022	Planned	CNY 3.783bn
Fuyang, Anhui	Anhui Haoyuan Chemical Group	300kt/a syngas to MEG	2020	Developing	N/A
Fuyang, Anhui	Anhui Jinmei Zhongneng Chemical Co., Ltd	600kt/a ammonia	2019	Construction	N/A
Shuangyashan, Heilongjiang	Shuangyashan Longmei Tiantai Coal Chemical Co., Ltd	300kt/a methanol, 100kt/a aromatic hydrocarbon	2019	Stopped	CNY 2.129bn
Shuangyashan, Heilongjiang	Heilongjiang Longmay Mining Group	600kt/a CTO	2025	Developing	CNY 18bn
Hegang, Heilongjiang	Hexiang Hanxing New Energy Co.,Ltd	175kt/a coke oven gas to LNG	2019	Construction	CNY 950mn
Hegang, Heilongjiang	Dalian Hongdian Investment Holding Group	400kt/a coal to MEG in 1st phase	2021	Developing	N/A
Hegang, Heilongjiang	Huahe Coal Chemical Corporation	100kt/a syngas to MEG	2020	Planned	N/A
Qitaihe, Heilongjiang	Qitaihe Hongtaixing Clean Energy Co.,Ltd	200kt/a F-T syngas, 180kt/a ammonia, 300kt/a urea	2019	Construction	CNY 3.5bn
Qitaihe, Heilongjiang	Qitaihe Bosheng Clean Energy Co.,Ltd	180kt/a ammonia, 300kt/a urea	2019	Construction	CNY 1.2bn

Fuxin, Liaoning	Datang Energy Chemicals Corp.	1st phase 1.33bn Nm ³ /a SNG	2019	Construction	N/A
Fuxin, Liaoning	Datang Energy Chemicals Corp.	1st phase 770kt/a methanol, 400kt/a MEG, 0.566bn Nm ³ /a SNG	2020	Construction	N/A
Fuxin, Liaoning	Guoneng Chemical Science & Technology Co Ltd	510kt/a Coal Tar Deep-Processing, 60kt/a phenol, 400kt/a methanol, 100mn m ³ /a CNG	2019	Construction	CNY 2bn
Dalian, Liaoning	Hengli Group	321k Nm ³ /h Coal to Hydrogen, 500kt/a methanol, 350kt/a acetic acid, 30k Nm ³ /h fuel gas	2019	Commissioning	N/A
Dalian, Liaoning	Chengzhi Co., Ltd.	coal to syngas	2023	Planned	CNY 3.9bn
Jinzhou, Liaoning	Jinguotou (Dalian) Development Co., Ltd.	900kt/a MTO	2025	Planned	N/A
Nanjing, Jiangsu	Nanjing Chengzhi Yongqing Energy Technology Co., Ltd.	600kt/a MTO	2019	Commissioning	CNY 4.157bn
Nanjing, Jiangsu	Sinopec Yangzi Petrochemical	coal to syngas in 2nd phase	2019	Commissioning	N/A
Nanjing, Jiangsu	Sinopec Nanjing Chemical Industries Co., Ltd.	90kt/a coal to H ₂	2021	Developing	N/A
Lianyungang, Jiangsu	Zhongyan Debang (Jiangsu) Chemical Co., Ltd.	350kt/a ammonia, 600kt/a integrated soda, 300kt/a urea, 500kt/a high-efficacy fertilizer	2020	Construction	CNY 3.6bn
Xuzhou, Jiangsu	Xuzhou Coal Mining Group	800kt/a methanol to 300kt/a olefins, 180kt/a propylene, 300kt/a styrene, 30kt/a ethylene	2022	Developing	N/A
Xuzhou, Jiangsu	Jiangsu Wentian Technology Co Ltd	COG to 103.8mn Nm ³ /a LNG	2020	Developing	CNY 347 mn
Xuzhou, Jiangsu	Jiangsu Jinmei Hengsheng Chemical Co., Ltd.	400kt/a ammonia, 600kt/a urea in 1st phase, 200kt/a CTMEG, 150kt/a methanol in 2nd phase	2022	Developing	CNY 4.98bn
Yancheng, Jiangsu	Jiangsu Shuangduo Chemical Co Ltd	300kt/a MEG, 300kt/a ammonia, 520kt/a urea, 50kt/a methanol	2020	Developing	CNY 6.8bn
Zhenjiang, Jiangsu	Sopo Group	coal to 0.32 bn Nm ³ /a CO, 0.32 bn Nm ³ /a H ₂	2019	Developing	N/A
Zhijin County, Bijie, Guizhou	Sinopec	1,800 kt/a methanol, 600kt/a MTO, 300kt/a PE, 300kt/a PP	2023	Construction	CNY 20.3bn
Zhijin County, Bijie, Guizhou	Sinopec	4 bn Nm ³ /a SNG	2025	Developing	N/A
Dafang Country, Qianxinan, Guizhou	Guizhou Yufu Energy Developing Co., Ltd.	2,000kt/a CTL	2022	Developing	CNY 34bn
Guiyang, Guizhou	Guizhou Xinxin Group	tail gas to 70kt/a oxalate, 10kt/a MEG	2020	Construction	CNY 600mn
Xingren County, Guizhou	Jinyu Energy Investment Group/ FJIRSM-CAS	600kt/a MEG	2022	Planned	CNY 7bn
Shijiazhuang, Hebei	Yangquan Coal Zhengyuan Baipo Zhengyuan Fertilizer Co Ltd	300kt/a ammonia	2021	Construction	N/A
Cangzhou, Hebei	Hebei Dongguang Chemical Co., Ltd	400kt/a ammonia, 600kt/a urea	2019	Construction	CNY 2.5bn
Cangzhou, Hebei	Cangzhou Zhenyuan Fertilizer Co Ltd	300kt/a ammonia, 520kt/a urea	2021	Developing	N/A
Qian'an, Hebei	Jiujiang Coal Storage & Transportation Co Ltd	800mn m ³ /a coker gas to 330mn m ³ /a LNG	2019	Construction	CNY 1.2 bn
Qian'an, Hebei	Qian'an Chiji Nature Gas Co Ltd	800mn m ³ /a coker gas to LNG	2019	Construction	CNY 1.2 bn

Shenzhou, Hebei	Shenzhou Fertilizer Co., Ltd.	750kt/a ammonia, 50kt/a methonal	2021	Developing	N/A
Yanjin Country, Xinxiang, Henan	Jinkai Group Yanhua Chemical Co., Ltd	600kt/a ammonia, 800kt/a urea	2021	Construction	CNY 3.36 bn
Xinxiang, Henan	Henan XinlianXin Fertilizer Co., Ltd.	300kt/a methanol	2019	Construction	N/A
Xinxiang, Henan	Henan XinlianXin Fertilizer Co., Ltd.	200kt/a CTMEG, 200kt/a DME	2021	Construction	CNY 3bn
Hebi, Henan	Sinopec / Henan Energy Chemical Industry Group	1,800kt/a methanol to 600kt/a olefins	2025	Developing	CNY 18bn
Yongcheng, Shangqiu, Henan	Henan Energy and Chemical Industry Group	syngas to 200kt/a MEG	2019	Construction	N/A
Zhumadian, Henan	Henan Shunda Chemical Technology Co., Ltd	200kt/a acetate hydrogenation route ethanol	2020	Developing	N/A
Luoyang, Henan	Sinopec Luoyang Branch	105kt/a coal to H2	2020	Developing	CNY 2.48bn
Puyang, Henan	Puyang Baolong Clean Energy Co., Ltd	gasification project	2022	Developing	CNY 2.97bn
Anyang, Henan	Anyang Chemical Industry Group	200kt/a CTMEG	2022	Developing	N/A
Yima, Henan	Yima Coal Zongneng New Energy Co., Ltd	200kt/a ethanol in 1st phase	2023	Planned	N/A
Changyi, Shandong	Shandong BoSiTeng Alcohol Industry Co., Ltd	220kt/a oxo-alcohol	2022	Developing	USD 99.6mn
Jining, Shandong	Jinxiang Hengde Chemical Co Ltd	300kt/a ammonia, 300kt/a urea	2024	Developing	CNY 1bn
Jinan, Shandong	Shandong Jinmei Mingshui Chemical Group	500kt/a ammonia, 800kt/a urea	2022	Developing	N/A
Dongying, Shandong	Shandong Yiyang Chemical	1600kt/a coal tar deep processing	2020	Developing	N/A
Dongying, Shandong	Shengxin Group	110km ³ /h coal to syngas	2022	Developing	N/A
Dongying, Shandong	Shengxin Group	130km ³ /h coal to syngas	2021	Developing	N/A
Liaocheng, Shandong	Luxi Chemical Group	300kt/a MTO	2019	Construction	N/A
Taian, Shandong	Shandong Jinmei Mingshengda Chemical Co. Ltd	400kt/a ammonia, 600kt/a urea	2021	Construction	N/A
Taian, Shandong	Shandong Runyin Biotechnology Co. Ltd	800kt/a ammonia, 1400kt/a urea	2022	Construction	CNY 2bn
Xintai, Shandong	Xintai Zhengda Coking Co. Ltd	250kt/a COG to methonal	2019	Construction	N/A
Tengzhou, Shandong	Lianhong New Material Co.,Ltd,	100kt/a C4C5 utilization	2019	Developing	CNY 340mn
Yantai, Shandong	Wanhua Chemical Group	400kt/a methonal, 480kt/a formaldehyde, 300kt/a ammonia	2019	Construction	N/A
Zibo, Shandong	Shandong Jincheng Chemical Technology Co Ltd	60,000Nm ³ /h coal-based hydrogen unit	2020	Construction	N/A
Huating, Gansu	China Huaneng Huating Zhongxu Coal Chemical Corp	600kt/a methanol to 160kt/a PP	2020	Construction	CNY 2.54bn
Qingyang, Gansu	Shanxi Jincheng Anthracite Mining Group	400kt/a ammonia, 600kt/a urea	2022	Planned	CNY 2.2bn
Zhangye, Gansu	Zhangye Jinchangyuan Coal Industry Co Ltd	200kt/a medium temperature coal tar hydrogenation	2020	Developing	N/A

Baiyin, Gansu	Gansu Huasheng Fine Chemical Co Ltd	3,000kt/a coal upgrading, 450kt/a coal tar hydrogenation	2021	Developing	N/A
Jinchang, Gansu	Gansu Jinchang Chemical Industry Group	coal to syngas	2019	Construction	CNY 360mn
Jinchang, Gansu	Jinchuan Energy Group	400kt/a MEG	2022	Planned	CNY6bn
Yumen, Gansu	Gansu Jinlongyang Energy Chemical Co., Ltd	2*900kt/a CTO	2025	Planned	N/A
Xining, Qinghai	Qinghai Damei Coal Industry Stock Co., Ltd	600kt/a MTO, 400kt/a PP, 300kt/a PE	2019	Construction	CNY 40bn
Haixi, Qinghai	Qinghai Mining Stock Co Ltd	1,800kt/a methanol, 600kt/a MTO, 400kt/a PP, 270kt/a ethylene	2021	Developing	CNY 23.5bn
Haixi, Qinghai	Haixi Xijin Coal Chemical Co., Ltd.	600kt/a CTMEG, 200kt/a in 1st phase	2022	Developing	N/A
Geermu, Qinghai	Qinghai Zhonghao Natural Gas Chemical Co., Ltd.	150kt/a MTG	2019	Construction	CNY 387mn
Yizhang County, Chenzhou, Hunan	Hunan Coal Industry Group/Sinofert / Yizhang Tianyuan Chemical/Yizhang County Government	500kt/a coal to ammonia	2023	Planned	CNY4bn
Zhanjiang, Guangdong	SINOPEC, KuwaitPetroleumCorporation	180km ³ /h coal to H ₂	2020	Construction	N/A
Qinzhou, Guangxi	Guangxi Huayi Energy Chemical Co., Ltd	2,000kt/a methanol, 200kt/a MEG, 1,200kt/a acetic acid	2021	Construction	N/A
Qinzhou, Guangxi	Guangxi Huayi Energy Chemical Co., Ltd	750kt/a PDH, 200kt/a butanol etc	2024	Planned	CNY9.044bn
Longyan,Fujian	Fujian Longyan Energy	100kt/a MTG etc	2024	Planned	CNY3bn
Fuzhou, Fujian	Fuhua Tianchen Gas Co., Ltd.	445kt/a ammonia, 0.32bnm ³ /a H ₂ , 0.16bnm ³ /a CO	2021	Construction	CNY2.85bn
Fuzhou, Fujian	Fujian Shen yuan New Material Co.,Ltd,	75000nm ³ /h H ₂ , 300kt/a ammonia	2021	Developing	CNY3bn
Kunming, Yunnan	Yunmei Energy Co., Ltd.	COG to 111960 km ³ /a LNG	2025	Planned	CNY 0.412bn
Tianjin	Tianjin Bohua Yongli Chemical Industry Co., Ltd.	coal gasification optimize (100km ³ /h syngas)	2020	Construction	CNY 407 mn
Tianjin	Tianjin Bohua Chemical Industry Co., Ltd.	2*1,800kt/a MTO, 200kt/a PO, 450kt/a styrene, 800kt/a PVC, 300kt/a PE, 2*300kt/a PP etc	2020	Construction	CNY 29.41bn
Jiujiang, Jiangxi	Henan XinlianXin Fertilizer Co., Ltd.	600kt/a ammonia, 520kt/a urea, 600kt/a methonal, 400kt/a DME	2021	Construction	N/A
Jiling, Jiling	Jiling Cornell Chemical Industry Co., Ltd.	600kt/a MTO, 300kt/a MTO, 120kt/a ethylene, 180kt/a propylene in 1st phase	2019	Stopped	N/A
Jiling, Jiling	Jiling Cornell Chemical Industry Co., Ltd.	200kt/a methanol	2019	Developing	N/A
Changchun, Jiling	Changchun Dacheng Biological science and technology development Co., Ltd.	165kt/a methanol	2021	Developing	N/A

Jingmen, Hubei	Yingde Gases	50,000Nm ³ /h Coal to H ₂ , 200kt/a ammonia, 400kt/a methanol in 1st phase	2019	Construction	CNY 4bn
Jingzhou, Hubei	China Three Gorges, Shaanxi coal chemical group, Hubei Energy	4 bn Nm ³ /a SNG, 1,800kt/a methanol	2023	Developing	N/A
Jingzhou, Hubei	Kingboard Holding Limited	1,600kt/a methanol, 1,600kt/a acetic acid, 500kt/a ethyl acetate, 300kt/a ethanol, 200kt/a hydrogen peroxide	2025	Planned	CNY 15bn
Zhijiang, Hubei	Hubei Sanning Chemical Co., Ltd.	400kt/a coal to MEG, 520kt/a ammonia in 1st phase	2020	Construction	N/A
Zhijiang, Hubei	Hubei Sanning Chemical Co., Ltd.	200kt/a coal to MEG in 2nd phase	2023	Developing	N/A
Zhijiang, Hubei	Hubei Fertilizer Company, SINOPEC	500kt/a syngas to ethonal	2025	Planned	N/A
Yichang, Hubei	Yichang Xingxing Lantian Technology Co., Ltd.	290kt/a ammonia renovation project	2019	Developing	CNY 1.6bn
Huanggang, Hubei	Hubei Xiangyun (Group) Chemical Co., Ltd	300kt/a ammonia renovation project	2020	Construction	CNY 1.8bn
Zhoushan, Zhejiang	Zhejiang Petrochemical Co., Ltd	680kNm ³ /h syngas, 110kNm ³ /h H ₂ , 400kt/a methanol	2019	Construction	N/A
Chongqing	Chongqing Yihua Chemical Co., Ltd	200kt/a ammonia coal gasification transformation	2021	Developing	N/A

[Back to Content](#)

Company Report

The profile and SWOT analysis of ChinaCoal

ChinaCoal

 中国中煤能源集团有限公司 <small>ChinaCoal</small>
Company Profile
<ol style="list-style-type: none"> 1. China National Coal Group Corp. (ChinaCoal) is a major state-owned coal company, it is the former China Coal Import & Export Corp. (CCIEC) founded in 1982. In 2003, ChinaCoal was founded by the merge of CCIEC and China Coal Construction Corp. 2. China Coal Group has an existing coal production capacity of 300 million tons/year, more than 70 mines under construction and construction, and coal resource reserves of nearly 60 billion tons. Coal chemical products have an equity production capacity of nearly 10 million tons. The products mainly include olefins, methanol, urea and nitrate. Ammonium, coke, etc. 3. By the end of 2018, China Coal Group achieved operating income of 150.2 billion yuan, total assets of 400 billion yuan, and 130,000 employees.
Contact Information

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Technology Updates	
ChinaCoal is a traditional coal trader and producer, and has strong advantages of coal mine machine manufacturing, but the company has no technologies reserves in coal chemical industry.	
Projects & Activities	
<ol style="list-style-type: none"> 1. The proposed complex in Ordos, Inner Mongolia, which named as Zhongtian Hechuang, is a jointly invested by Sinopec, ChinaCoal, Shanghai Shenergy, and Inner Mongolia Manshi Group. ChinaCoal has 37.5% shares within it. This proposed project will integrated with 25 Mt/a Coal Mine, 3.6 Mt/a methanol (captive use) and 1.3 Mt/a Olefins and other facilities. The project was put into operation in Jul 2017. 2. ChinaCoal Shaanxi Methanol/Acetic Acid Complex – located in Yulin, Shaanxi Province, the project I capacities including 1.8 Mt/a methanol, 600 kt/a MTO, 300 kt/a PE, 300 kt/a PP and C4 utilization units, was lined up through whole process flow in Jul 2014; the project II proposed capacities including 1.8 Mt/a methanol, 700 kt/a MTO, and C4 utilization units, got preliminary approval from NDRC 3. Ordos Energy Chemical Tuke Fertilizer Project – located in Ordos, Inner Mongolia, the capacities of phase I including ammonia 1 Mt/a, Urea 1.75 Mt/a and natural gas 410 million Nm³, was lined up through whole process flow in Feb 2014. The phase II of the project plans to change the production of ammonia & urea to 1 Mt/a methanol, which will be provided as raw material for the Mengda New Energy MTO project. The 1 Mt/a coal to methanol project has started construction. 4. ChinaCoal and Shaanxi Yanchang Petroleum Group set up a jv – Shaanxi Yanchang ChinaCoal Yulin Energy & Chemical Company, which will conduct the Oil, Gas, Coal, Salt complex in Yulin, Shaanxi. Construction of Jingbian project covers 7 major process plants, namely 1.8Mt/a methanol, 600kt/a methanol deep processing, 400kt/a light oil processing, 450kt/a polyethylene, 250kt/a polypropylene, 200kt/a oxo-alcohols and an ethylene-propylene rubber plant. The project was lined up through whole process flow in Jul 2014. Follow-up project based on proven expertise accumulated by Yulin Energy & Chemical phase I construction, with full use of existing utility facilities, is designed to build 1.80Mt/a methanol, 600kt/a methanol to olefins (MTO), 300kt/a low density polyethylene (LDPE) & ethylene-vinyl acetate (EVA) integration and 300kt/a polypropylene (PP) units. The project broke earth at construction site on Sep 8th 2017, is scheduled to reach completion by the end of 2019, and hand over to the owner for start-up one by one in the year of 2020. 5. Mengda New Energy MTO Complex – a jv between ChinaCoal (major shares) and Inner Mongolia Boyuan United Chemical Company, the total project including 1.8 Mt/a methanol to 600 kt/a polyolefins. The project was officially put into operation in August 2017. 6. ChinaCoal Pingsuo coal-based ammonium nitrate project – CNY4.2bn capital, to build 300kt/a coal-based ammonia to 400kt/a porous ammonium nitrate as well as 110mnNm³/a of CH₄ as side product. The project has entered the trial production period. 	
SWOT Analysis	
Strengths	Weaknesses

<ol style="list-style-type: none"> 1. State-owned major company with advantages in project approval and coal resources. 2. Associate with Sinopec, ChinaCoal can use the advantages of chemical production and distribution. 	<ol style="list-style-type: none"> 1. The water resources supply in Ordos, Inner Mongolia will be the constraints of the projects.
<p>Opportunities</p> <ol style="list-style-type: none"> 1. The policies and fund support from central government 2. The increasing demand of chemicals & oil products in China 	<p>Threats</p> <ol style="list-style-type: none"> 1. The low oil price. 2. The profit and the cash flow of the company may be further impacted by the recession of coal market.

[Back to Content](#)

Technology & Innovation

Industrial WCS Gasification Process Passed Mid-Term Exam

On Apr 24th 2019, MOST Hi-Tech Center Coal Clean Conversion & Novel Energy Conservation Technology Major R&D Project Office organized an expert panel to carry out mid-term examination on industrial scale water-coal-slurry gasification process development & demonstration project at Baotou, Inner Mongolia.

As reported, assigned target for the project is to reach 4kt/d coal throughput for OMB gasifier and 2kt/d for Jinhua gasifier (waste boiler equipped). The project is to build the world biggest quench flow gasifier (OMB, 4kt/d class) and the world biggest energy conserving semi-waste boiler flow gasifier (Jinhua 4.0, 2kt/d class).

Lu'an, SXICC and Johnson Matthey Held OCM Process Consultation

Apr 30th thru May 1st 2019, the three parties of Lu'an Group, CAS Shanxi Institute of Coal Chemistry and Johnson Matthey jointly held methane to ethylene process R&D and industry forum at Taiyuan City, the capital of Shanxi Province.

Senior officers of the three parties made respective addresses on the event. Research team from CAS SXICC provided detailed presentation of oxidative coupling of methane (OCM) to ethylene reactor and process development, and the parties carried out field discussion on OCM process application etc.

China Salt HSF EG Process R&D/Commercial Project Passed Inspection

On May 14th 2019, Hefei City Science & technology Bureau organized inspection conference for "Coal to Ethylene Glycol & Separation/Purifying Process Development and Commercialization", a project contracted to China Salt HSF and listed in the provincial

major R&D program.

The project applies cyclic economy concept in whole process flow optimization, making full use of byproduct to realize polygen of DMC and methanol, to cut down process cost, to carry out gradient utilization of system energy and press down product utility consumption below national standard. During the project execution, the laboratory technology of “low level thermal energy driving low temp ($<0^{\circ}\text{C}$) was commercialized to build the first unit in the industry. EG product quality is meeting to PET grade with $\geq 90\%$ premium grade rate; both DMC and methanol co-products also reach the quality specification of premium grade, and are proven by the user factory inspection as conforming. During the project execution, HSF filed 29 Chinese patent applications, 7 having right granted. As HSF has accomplished main research contents and specifications as termed in the contract, the expert panel reached unanimous agreement to pass the inspection.

Shandong Longlive company will introduce cellulosic fuel ethanol technology and industrial development

Shandong Longlive Bio-technology Co., Ltd. is currently **the first cellulose fuel ethanol fixed-point production enterprise in China**, and the only fuel ethanol fixed-point production enterprise in Shandong Province. **Shandong Longlive Ethanol Technology Co., Ltd. is affiliated to Shandong Longlive Bio-technology Co., Ltd. and has an annual production capacity of 51,500 tons of cellulose fuel ethanol, and supplies petroleum systems in accordance with the "fixed production, directional circulation, closed operation" mode.**

Since 2005, Longlive has innovated and researched the production technology of cellulosic fuel ethanol. The corncob waste residue after extracting functional sugar is used as raw material, and the second generation fuel ethanol is prepared by advanced enzymatic hydrolysis technology. The products are all based on crop waste or industrial waste residue. “Do not compete with humans and animals for food, and do not compete with grain and forest.” They all have green and low-carbon environmental advantages, which are in line with the development trend of the industry and have received strong support from national policies. .

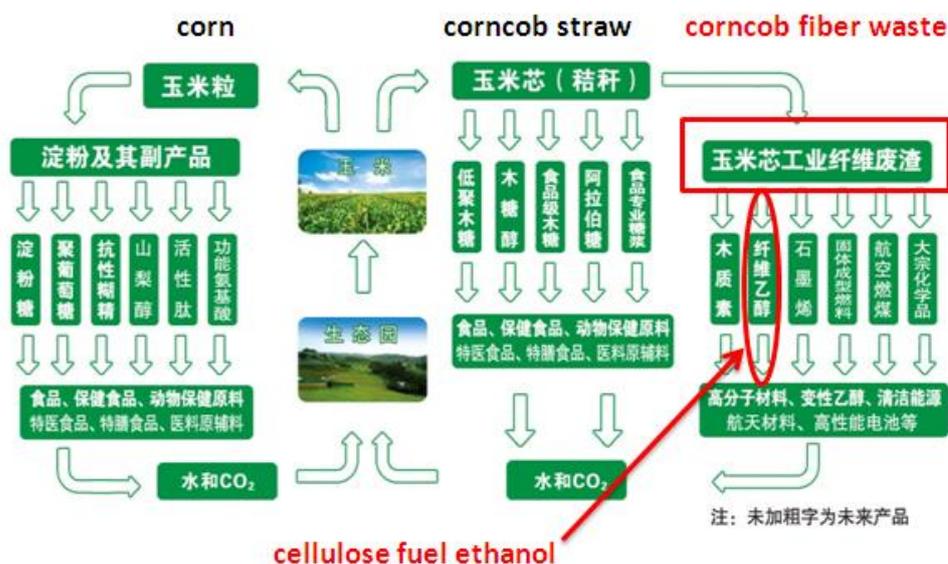


Figure 1 Longlive Bio-ecological Industry Chain

In 2018, Longlive's "Comprehensive Utilization of Whole Plant Biomass and Annual Production of 100,000 Tons of Cellulose Fuel Ethanol and Series Derivatives Project" was included in the Shandong New and Old Kinetic Energy Conversion Project.

In August 2018, the State Council determined the overall layout of the bio-fuel ethanol industry. Accelerate the construction of cassava fuel ethanol project, and carry out industrial demonstration of fuel ethanol production such as straw and steel tail gas as raw material. In addition to the existing 11 pilot provinces, ethanol gasoline will be further promoted in 15 provinces including Beijing, Tianjin and Hebei province.

According to the analysis of ASIACHEM Consulting, 2019 is a key year for national promotion of ethanol gasoline and Shanghai, Shanxi, Shaanxi, Beijing, Zhejiang and other places are expected to carry out pilot promotion. A government-approved bio-fuel ethanol production enterprise will be selected through market-based methods to establish a stable supply channel for ethanol. The ethanol gasoline distribution center relies on the existing oil depots of Sinopec, PetroChina, CNOOC, Sinochem and local energy companies to provide services to the society. The promotion of ethanol gasoline is generally divided into several stages: First, the construction of the vehicle ethanol gasoline distribution center and the first batch of gas station reconstruction and acceptance work are completed, and the normal gasoline inventory is digested in advance. Second, pilot the promotion of ethanol gasoline, while continuing to promote the transformation of gas stations. During the transition period, regular gasoline and ethanol gasoline will be supplied simultaneously. Third, full implementation of ethanol gasoline.

National policies boost the development of the fuel ethanol industry. **The national policy**

plan will promote the use of ethanol gasoline for vehicles nationwide by 2020. By 2025, China will strive to achieve large-scale production of cellulosic ethanol. In this context, Longlive will exert its strength in the ethanol gasoline market and has become the best choice to comply with industrial policies and market trends.



Figure 2 Cellulose Fuel Ethanol Plant- Shandong Longlive

3rd Fuel Ethanol Technologies and Market Forum 2019 will be held in Jinan, Shandong Province **on June 26**. An expert from Shandong Longlive Bio-technology will make a keynote report on the technology and industrial development of cellulose fuel ethanol. **On June 27, the visit to fuel ethanol plant is also under negotiation.**

Jincheng Coal and SEDIN Jointly Promote Anthracite Lump Coal HP Gasification Process Upgrading

On May 25th 2019, working teams from Jincheng Coal Group and SEDIN Engineering Company held discussion and profound communication on cooperation between the parties for anthracite lump coal HP gasification process upgrading.

Jincheng Coal pays high expectation on the cooperation and wishes to borrow the rich expertise in pulverized coal HP gasification process from SEDIN, research and develop a specific process best fit to Jincheng anthracite species, full play the advantage of anthracite lump use in Lurgi Gasifier, provide technical support to anthracite market keep-up and development, and to promote steady step strategic cooperation between the parties.

Baofeng Coker Gas to Syngas Unit Passed 72h Performance Test

News reported on May 24th 2019 that Ningxia Baofeng Energy Group Stock Co Ltd coker gas non-catalytic partial oxidation to syngas unit, the first such kind of Chinese intellectual property right, recently passed 72h continuous operation performance test.

As reported, the coker gas non-catalytic partial oxidation to syngas process, as applied on the unit, was developed by East China University of Science & Technology on the basis of natural gas non-catalytic partial oxidation. Thereafter ECUST developed long life cycle burner, non-catalytic reformer furnace, high efficiency spent heat recovery boiler and system, syngas washing system etc, forming a series of patent and proprietary technologies.

By applying the process package, Baofeng Energy built the 75000Nm³/h coker gas non-catalytic partial oxidation to syngas unit, the biggest single series capacity, at Lingwu City, Ningxia. Construction was initiated in Aug 2011, and the plant was started up in May 2014, having so far maintained under safe, stable, long cycle, full load rate and super performance operation.

Shanxi Huanqiu Engineering and Jiangsu Dalton Jointly Promote DMMn Process

On May 6th 2019, Mr. Shi Junpeng the president of Shanxi the State Controlled Huanqiu Engineering Co Ltd and Mr. Ye Zimao the president of Jiangsu Dalton PC Tech Co Ltd jointly signed DMMn (poly-methoxy-dimethyl-ether) exclusive process promotion cooperation agreement.

DMMn (poly-methoxy-dimethyl-ether), as a methanol downstream product, was developed to meet the demand on environment friendly solvent on domestic market.

Progression of Yanchang Petroleum Yulin High Carbon Alcohol Test Project

On May 23rd 2019, Yanchang Petroleum Yulin Coal Chemical syngas to oil process demo unit finished erection of catalyst slurry storage drum, a critical equipment piece in high carbon fatty alcohol process test research, symbolizing a breakthrough progression in critical part of the test unit.

LT Co-base F-T synthesis to high carbon fatty alcohol process catalyst research is to, through general contracting, revamp and improve the catalyst formulating and reduction unit in existing 150kt/a syngas to oil process demo project, optimize Co2C to oil catalyst process and realize 100% load operation of the syngas to oil demo unit.

[Back to Content](#)

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