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# China puts gas centre stage

China's state-owned oil companies plan to boost total upstream capital expenditure by 4.3% to as much as \$50 billion this year, with a focus on natural gas exploration and production, as renewables play a more significant role. Page 2

中国三大国家石油公司计划今年将上游勘探开发投资增加4.3%达到500亿美元。随着再生能源起着更重要的作用，今后天然气勘探和生产将成为重点。

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A gas appraisal well in Sichuan  
Photo: REUTERS/  
SCANPIX



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## INDUSTRY OUTLOOK

# China targets gas drive with 4.3% capex boost

Budgets to prioritise gas expenditure ahead of a greater emphasis on renewables

**XU YIHE**  
Singapore

CHINA'S state-owned oil companies plan to boost total upstream capital expenditure by 4.3% to as much as \$50 billion this year, with a focus on natural gas exploration and production, as renewables play a more significant role.

Overall, the top Chinese players — China National Petroleum Corporation (CNPC), Sinopec and CNOOC Ltd — have raised upstream capital spending by 4.3% this year to \$51.8 billion, although onshore giant CNPC has chopped its E&P budget by 6.1%.

Financial statements issued by the trio show that CNPC plans to spend 175.2 billion yuan (\$27 billion) this year on the upstream sector as against 186.62 billion yuan spent last year, while Sinopec has budgeted 66.8 billion yuan for exploration and production compared to 56.4 billion yuan last year.

Offshore operator CNOOC Ltd has earmarked between 90 billion yuan and 100 billion yuan for upstream operations compared with 79.5 billion yuan last year, representing 19.5% increase from 2020, the highest rise among the three national oil companies.

Even though the Chinese state companies are trying to reduce carbon footprints by developing renewable energy projects such as offshore wind farms, they are committed to hit their oil production targets signed in their seven-year action plans in order to prevent China's oil production from dropping further and reduce the reliance on imports.

The players have prioritised spending on gas that could account for a larger share of China's total energy consumption mix — about 25% — by 2030, with additional energy demand met by renewables from now until then.

"They will all focus on gas development," said one Sinopec executive, who told Upstream that China is treating gas as a major transition fuel before renewables start to play a bigger role in the country's energy system.

CNPC will focus on developing gas deposits in Songliao, Ordos, Tarim, Sichuan and Bohai Bay, and aims to produce 4354 billion cubic feet this year, up from 2020's figure of 3994 Bcf.



Drilling ahead: workers on a CNOOC platform in the South China Sea Photo: REUTERS/SCANPIX

Sinopec, a smaller upstream player in comparison to CNPC and CNOOC Ltd, plans to boost shale gas exploration and development with a focus on assets in Sichuan basin, where it is developing the Dongsheng, Weirong and Chuanxi fields.

It will also invest in the second-phase construction of two

terminals located in Tianjin city and Shandong province to boost liquefied natural gas imports.

About 17% of CNOOC Ltd's budget is for exploration, 61% is for development and 20% is for production.

The company aims to further boost the record net output of around 528 million barrels of oil

equivalent it achieved in 2020 to between 545 million and 555 million barrels of oil equivalent this year, with 68% derived from domestic production and 32% from its international portfolio.

A total of 19 new projects are expected on stream this year including 17 in China and two overseas projects.

中国多家石油公司今年上调上游资本支出，平均提升4.3%

中国国有石油公司计划今年将上游资本支出总额提高4.3%，高达500亿美元，重点放在天然气勘探和生产上。

总体而言，中国最大的石油公司中国石油天然气集团公司（CNPC）、中石化和中海油（CNOOC）今年已将上游资本支出平均提高了4.3%，至518亿美元，尽管陆地巨头中石油已将勘探与生产预算削减了6.1%。

三家公司发布的财务报表显示，中石油今年计划在上游领域投入1752亿元人民币（合270亿美元），而去年的投入为1866.2亿元人民币；中石化的勘探和生产预算为668亿元人民币，而去年为564亿元人民币。

海上油气运营商中海油已为上游业务安排了900亿元至1000亿元的专项资金，去年为795亿元，较2020年增长19.5%，增幅居全国三大石油公司之首。

尽管这家中国石油公司正试图通过开发海上风电场等可再生能源项目来减少碳足迹，但它们仍致力于实现其7年行动计划中确定的石油产量目标，以防止中国石油产量进一步下降，并减少对进口的依赖。

这些公司已将天然气支出列为优先事项，到2030年，天然气在中国能源消费总量中所占比例可能会更大（约为25%），从现在到那时，可再生能源将满足额外的能源需求。

"他们都将专注于天然气开发，"一位中石化高管向上游表示，在可再生能源开始在中国能源体系中发挥更大作用之前，中国正将天然气作为主要过渡燃料。

## ENERGY TRANSITION



Hydrogen goal: Sinopec chairman Zhang Yuzhuo

Photo: SINOPEC

# Hydrogen the linchpin in Sinopec's net-zero goal

World's top refiner rolls out plans to become country's leading hydrogen producer with net-zero emissions as its ultimate goal

XU YIHE  
Singapore

SINOPEC, China's second-largest energy company, aims to reach carbon neutrality by 2050 — a decade ahead of the nation's 2060 net-zero emissions target set last September by China's President Xi Jinping.

The company's new target of net-zero emissions by 2050 is significant as Sinopec is the world's top refiner, with nameplate crude-distillation capacity exceeding 6 million barrels per day.

Hydrogen will be a key part of the picture as Sinopec transitions to cleaner energy sources, the company said.

It will also implement other measures to reduce its carbon footprint, including low-carbon production of refinery products, with net-zero emissions as its "ultimate goal" in the refining process, said Sinopec chairman Zhang Yuzhuo.

"Hydrogen will be the linchpin in Sinopec's endeavour to develop new energy," he said.

The company plans to develop green hydrogen projects, which will use renewable energy and electrolysis to split water molecules into hydrogen and oxygen. Sinopec will build 1000 hydro-

gen gas refilling stations over the next five years — up from the current total of just 10 — as part of a bigger plan to become China's largest hydrogen company, Zhang told investors.

Hydrogen fuel cell vehicles are expected to be used during the 2022 Winter Olympic Games in Beijing. The Yanshan project is already providing 500 kilogrammes of hydrogen to Beijing through hydrogen fuel cells, according to Zhang.

Sinopec has also signed a letter of intent with Enze Haihe Fund and Cummins — China's leading power turbine solution provider — to work on projects involving green hydrogen production.

How much green hydrogen production the company is targeting and the time frame for development are unclear as it is still working out the details of its plan.

Sinopec's current hydrogen development projects in China rely on hydrogen units built at three major refining-chemical integrated plants — Yanshan Petrochemical, Guangzhou Petrochemical and Gaoqiao Petrochemical — as well as the hydrogen byproduct from its massive

refining units. Last year, the company produced 350 tonnes of grey hydrogen gas from refinery units, which accounted for 14% of the nation's total grey hydrogen produced. Grey hydrogen is hydrogen produced from fossil fuels without capturing and storing the resulting carbon emissions.

The company is building reforming and naphtha cracking units that will produce grey hydrogen at its Yanshan petrochemicals complex in Beijing with a production capacity of 2000 cubic metres per hour of uncompressed hydrogen gas.

Sinopec's net-zero target by 2050 follows that of state oil giant China National Petroleum Corporation, China's largest energy producer, which has also announced it is aiming for net-zero carbon dioxide emissions by 2050.

In addition to its hydrogen ambitions, Sinopec is promoting the recovery and utilisation of high-concentration CO<sub>2</sub> tail gas from refining and chemical operations.

The company aims to reduce its methane emissions from oil and gas production by 50% by 2025 and has started a pilot programme to build a carbon capture, utilisation

and storage (CCUS) base in eastern China's Jiangsu province.

Sinopec Nanjing Chemical in Nanjing city, Jiangsu, along with Sinopec Huadong Petroleum Bureau, which operates the Jiangsu oilfield, have already installed two carbon capture and storage (CCS) units, with annual capacity of 100,000 tonnes.

The two units capture carbon dioxide emitted from synthetic ammonia units and coal-to-gas units.

The CO<sub>2</sub> is reinjected into oil reservoirs to enhance oil recovery at the Jiangsu field.

Sinopec said it will raise the CCS capacity at the Jiangsu pilot project to 1 million tonnes by 2025.

Sinopec is also working on bio solutions to offset carbon emissions by creating forests.

At the Shengli oilfield in eastern China's Shandong province, Sinopec has planted more than 1 million trees in an area covering 15,333 square metres. They can offset 5000 tonnes per annum of carbon emissions.

Shengli, which currently produces 460,000 bpd of oil, emitted 8.04 million tonnes of CO<sub>2</sub> last year, down from 8.66 million tonnes in 2019.

## “氢将是关键”，中石化制定到2050年实现净零排放目标

中国第二大能源公司中石化计划在2050年实现碳中和，比中国去年九月习近平主席设定的2060年净零排放目标提前10年。

该公司2050年实现净零排放的新目标意义重大，因为中石化是全球最大的炼油商，公司额定原油蒸馏能力超过600万桶/天。该公司表示，随着中石化向清洁能源转型，氢气将成为关键因素。

中国石化董事长张玉卓表示，中国石化还将实施其他减少碳排放的措施，包括炼油产品的低碳生产，炼油过程的“最终目标”是净零排放。

“氢气将是中石化努力开发新能源的关键，”他说。

该公司计划开发绿色氢气项目，利用可再生能源和电解技术将水分子分解成氢气和氧气。

张玉卓告诉投资者，中石化将在未来5年内建设1000座氢气加气站，而目前的加气站总数只有10座，这是成为中国最大氢气公司的更大计划的一部分。

氢燃料电池汽车预计将在2022年北京冬奥会期间使用。燕山项目已经通过氢燃料电池向北京提供了500公斤的氢气。

中石化还与恩泽海河基金(Enze Haihe Fund)和康明斯(Cummins)——中国领先的发电机解决方案提供商——签署了一份合作意向书，涉及绿色制氢项目。

由于该公司仍在制定计划的细节，目前还不清楚该公司的绿色制氢目标和开发时间。

中石化目前在中国的氢气开发项目依赖于燕山石化、广州石化和高桥石化三大炼油化工一体化工厂的氢气装置及其大型炼油装置的氢气副产品。

## PRODUCTION



Ready for action: CNPC drilling rigs

Photo: CNPC

# China braces for peak petroleum demand

CNPC report forecasts rapid rise in demand for gas and non-fossil fuels over the next five years

XU YIHE  
Singapore

PETROLEUM demand in China is set to peak in the middle of this decade at up to 15 million barrels per day, with natural gas set to play a key role in the coming years.

China is the world's second-largest energy consumer and the country's administration has set its sights on being carbon neutral by 2060.

China's petroleum demand will peak in 2025 at between 730 million and 750 million tonnes per annum — equivalent to between 14.6 million and 15 million bpd — state-controlled oil and gas giant China National Petroleum Corporation (CNPC) said.

Last year's petroleum demand in China was 702 million tonnes — equivalent to about 14.1 million bpd.

CNPC, via its think tank CNPC Petroleum Economics & Technol-

ogy Research Institute, said in its latest report that natural gas will be a major clean fuel to power the country's economic engine before 2025, with demand to reach between 420 billion and 500 billion cubic metres per annum, up from 326.2 Bcm last year.

Domestic production is expected to reach 235 Bcm to 250 Bcm, which is about 53% of the total demand.

Company assistant to the president said that natural gas will see the fastest growth in production in the near future.

"Along with non-fossil fuels, natural gas will be the major fuel to see consumption increase," said Zhang Hualin, assistant to CNPC's president.

China has vowed to reach a carbon emissions peak in 2030 and carbon neutrality in 2060, which means the country will look for

renewable energy to supply 25% of its total energy consumption by 2030 and lower carbon dioxide emissions per unit of gross domestic product by over 65% from the 2005 level by 2030.

China is currently responsible for 10 billion tonnes per annum of CO<sub>2</sub> emissions, representing about 30% of the world's total.

The report said that the next five years will see China boost its capacity to receive liquefied natural gas import to 190 million tonnes a year.

For this year, crude production is expected to reach 198 million tonnes (1.45 billion barrels), up from last year's 195 million tonnes (1.43 billion barrels), and gas throughput will hit 200 Bcm, as compared with 188.9 Bcm last year.

Natural gas consumption will rise by 8.6% on year to 354.2 Bcm

this year, with 204 Bcm to come from domestic production, up 5.9% on year and 158.5 Bcm to come from imports, up by 12.5% from last year.

Also last year, China confirmed 1.32 billion tonnes (9.7 billion barrels) of oil in place and 1.29 trillion cubic metres of gas in place.

The report said that the post-Covid-19 period will see gradual recovery of global petroleum demand, while the oil price will remain at a low-to-medium level of \$60 to \$70 per barrel over the next five years.

Chinese oil companies operating energy projects overseas could face more geopolitical risk this year tied to China-US relations.

"The scale of risks in future global oil and gas investment relies on the development of China-US relations," said the report.

## 中国石油： 中国石油需求 将在2025年 达到峰值

中国的石油需求将在2025年达到峰值，达到每天1500万桶，天然气将在未来几年发挥关键作用。

中国是世界第二大能源消费国，中国政府已将目标定为到2060年实现碳中和。

中国国家控制的石油天然气巨头中国石油天然气集团公司（CNPC）表示，中国石油需求将在2025年达到峰值，达到每年7.3亿吨至7.5亿吨，相当于每天1460万至1500万桶。

去年中国的石油需求为7.02亿吨，相当于每日约1410万桶。

中国石油通过其智库中国石油经济技术研究院（CNPC Petroleum Economics & Technology Research Institute）在其最新报告中表示，到2025年，天然气将成为推动中国经济引擎的主要清洁能源，年需求量将达到4200亿至5000亿立方米，高于去年的3262亿立方米。

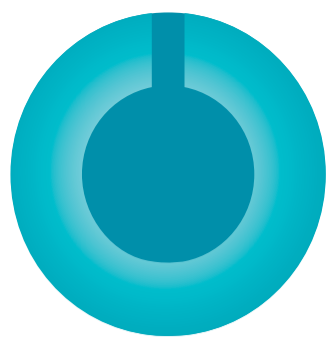
预计国内产量将达到2350亿立方米至2500亿立方米，约占总需求的53%。

中国石油天然气集团公司总裁助理张华林说：“在不久的将来，天然气的产量将增长最快。与非化石燃料一样，天然气将成为消费增长的主要燃料。”

中国承诺在2030年达到碳排放高峰，2060年达到碳中和，这意味着到2030年，中国将寻求可再生能源供应占能源消费总量的25%，到2030年，单位国内生产总值的二氧化碳排放量将比2005年的水平降低65%以上。中国目前每年排放100亿吨二氧化碳，约占世界总量的30%。

报告说，未来五年，中国将把接收液化天然气进口的能力提高到每年1.9亿吨。

今年，原油产量将达到1.98亿吨（14.5亿桶），高于去年的1.95亿吨，天然气将达到2040亿立方米，而去年为1889亿立方米。



## cippe innovation gold award goes to CNPC-sponsored cementing technology and equipment

On 8 June, the 21st China International Petroleum and Petrochemical Technology & Equipment Exhibition (cippe2021) opened at Beijing New China International Exhibition Center.

"AnyCem® Software Platform and Automatic Cementing Technology & Equipment" led by CNPC Engineering Technology R&D Company Limited was awarded the "cippe Exhibit Innovation Gold Award".

"AnyCem® Software Platform and Automatic Cementing Technology & Equipment" was jointly completed by CNPC Engineering Technology R&D Company, Great Wall Drilling Engineering Co., Ltd., Chuangqing Drilling Engineering Co., Ltd., and Bohai Drilling Engineering Co., Ltd., and was managed by PetroChina in February 2021. CNPC internally recognises it as a leading international innovation.

"AnyCem® Software Platform and Automatic Cementing Technology & Equipment" focuses on the technical and equipment shortcomings of cementing software and precise continuous construction operations to improve the scientific level of cementing engineering design, the automation capability of cementing equipment, and precise construction operations.

It also focuses on promoting the overall upgrading of cementing technology, to create a high-end CNPC cementing technology brand and achieve breakthroughs in three aspects:

- To innovate and establish the four major operation units of cementing engineering, such as safe casing running and balanced pressure construction, as well as model invented flushing displacement simulations, completeness analysis experimental devices and evaluation methods;
- To innovate and develop automatic monitoring cementing trucks, automatic stable ash supply systems and other automatic cementing core equipment, and establish automatic cementing operation control methods;
- Independent research and development of the AnyCem® cementing platform system, combined with key automated cementing equipment and the world's first automated cementing operation.

This technology has accumulatively authorised 36 patents, and registered eight software copyrights and one trademark.

It has also formulated four standard specifications and published 27 papers.

The core achievement of "Automated Cementing Technology and Equipment to Improve Cementing Quality & Operation Efficiency" was winning the "Top Ten Scientific & Technological Progress of PetroChina in 2020".

Over the past three years, the overall technology has been applied in 32 base units at nine oil and gas fields, including Changqing, Southwest, Liaohe, and Tarim, by Great Wall Drilling, Chuangqing Drilling, Bohai Drilling, and Western Drilling.

More than 8,000 well-times have been applied on a scale to support complex deep wells.

Natural gas wells, horizontal wells and other cementing quality rates increased by more than 10%, to help efficient exploration and development.

Also, five automated cementing demonstration teams were formed, reducing on-site labour intensity by 50%, and improving operational efficiency by more than 30%, leading to a high-level automation of the cementing business, including quality transformation and development, with prospects for a broad application.



### 基于AnyCem®系统的 自动化固井技术与装备荣获cippe2021展品创新金奖

6月8日，第二十一届中国国际石油石化技术装备展览会（cippe2021）在北京顺义新国展开幕，中国石油集团工程技术研究院有限公司牵头研发的“基于AnyCem®系统的自动化固井技术与装备”被评为“cippe展品创新金奖”。

“基于AnyCem®系统的自动化固井技术与装备”由工程技术研究院及长城钻探工程有限公司、川庆钻探工程有限公司、渤海钻探工程有限公司共同完成，2021年2月，经由中国石油科技管理部组织3位院士、6名专家评审鉴定为国际领先水平。

“基于AnyCem®系统的自动化固井技术与装备”攻关团队针对固井软件和精准连续施工作业的技术与装备短板，以提高固井工程设计科学化水平、固井装备自动化能力和精准施工作业水平，推动固井技术整体升级，创建CNPC固井高端技术品牌为目标，突破取得三方面创新成果：一是创新建立了套管安全下入、平衡压力施工等固井工程四大作业单元关键数理模型，发明

了冲洗顶替模拟、完整性分析实验装置及评价方法；二是创新研发了自动监控固井水泥车、自动化稳定供灰系统等自动化固井核心装备，建立了自动化固井作业控制方法；三是自主研发出AnyCem®固井平台系统，联合自动化固井关键装备，国际首次实现自动化固井作业。

此项技术累计授权专利36件，登记软件著作权8项，注册商标1项，制定标准规范4项，发表论文27篇。核心成果“自动化固井技术装备提升固井质量与作业效率”荣获“中国石油2020年十大科技进展”。

三年来，整体技术在长庆、西南、辽河、塔里木等9个油气田、长城钻探、川庆钻探、渤海钻探、西部钻探4个钻探公司下属32个基层单位规模应用8000多井次，支撑复杂深井、天然气井、水平井等固井优质率提升10%以上，助力高效勘探开发；建立5个自动化固井示范队，降低现场劳动强度50%、提高作业效率30%以上，引领固井业务自动化高质量转型发展，应用前景广阔。

## cippe2021 Concurrent Events Schedule

	时间 TIME	会议室 MEETING ROOM	主题 EVENT TOPICS	主讲公司及主讲人 SPEAKERS
9 June	09:00-16:20	W-105会议室 Conference Room W105	2021 国际天然气和城市燃气高峰论坛 2021 International Natural Gas and City Gas Summit	北京振威展览有限公司 Zhenwei Exhibitions
	09:00-16:20	E-206/207/208/ 209/210 会议室 Conference Room E-206/207/208/ 209/210	2021 国际石油石化技术会议 International Petroleum and Petrochemical Technology Conference 2021	西安石油大学 Xi'an Shiyou University 陕西省石油学会 Shaanxi Petroleum Society 北京振威展览有限公司 Beijing Zhenwei Exhibition Co., Ltd.
	09:30-16:30	Panda区 Panda Zone	cippe2021 石油院校技术成果交流会 cippe2021 Universities Exchange Conference on Oil & Gas Research Achievements	中国国际石油石化技术装备展览会 (cippe) 组委会 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe Organizing Committee)
	09:30-16:30	Activity区 Activity Zone	cippe2021 企业新产品新技术推介会 cippe2021 Enterprise New Product and New Technology Promotion Conference	
	10:30-16:30	Matching区 Matching Zone	cippe2021 采购对接会 cippe2021 Business Matchmaking Meeting	
	10:30-16:00	Lucky区 Lucky Zone	天降好“鲤” 就只宠你 To be A Fancy Carp of cippe2021	
	13:00-15:10	W-101会议室 Conference Room W101	油气勘探开发与绿色发展论坛暨全球石油公司能源转型方向及重要举措 Forum on Exploration, Development, and Green Development of Petroleum Industry & Energy Transition Strategies of Global Oil Companies	穆点市场咨询(北京)有限公司 Mudian Market Consulting (Beijing) Co., Ltd.
	10 June	09:00-12:20	E-206/207/208/ 209/210 会议室 Conference Room E-206/207/208/ 209/210	2021 国际石油石化技术会议 International Petroleum and Petrochemical Technology Conference 2021
09:30-12:00		Panda区 Panda Zone	能源企业法务与投资论坛 Energy Enterprises Legal Affairs and Investment Forum	中国民营科技实业家协会投融资服务工作委员会 China Non-Governmental Science & Technology Entrepreneurs Association

注: 以上活动日程或有调整, 以展会现场公布为准。 Note: The final agenda will be announced by the Organizing Committee on-site

## Petroleum universities release scientific research achievements

The cippe2021 Universities Exchange Conference on Oil & Gas Research Achievements launches today at Panda Zone, in Hall W2.

The conference has received intensive support from China University of Petroleum, China University of Geosciences (Beijing), Beijing University of Chemical Technology, Beijing Institute of Petrochemical Technology, Northeast Petroleum University, Xi'an Shiyou University, Southwest Petroleum University, Liaoning Shihua University and Yangtze University.

During the exchange conference, professors and experts from the nine major petroleum universities bring their latest scientific and technological achievements in the fields of oil and gas, and share their cutting-edge technologies and solutions in terms of oil, natural gas and offshore oil and gas exploration.

It aims to bridge communications between universities and enterprises, promote the exchange and integration of talents, technology, and information between industry, university and research parties, so as to boost technological innovation in the oil and gas industry, and facilitate the promotion and application of scientific research results.

## 九大石油院校齐聚 十三项科研成果现场发布

6月9日, cippe2021于展会同期举办“石油院校技术成果交流会”。  
欢迎莅临W2馆Panda区参会!

本次活动得到中国石油大学、中国地质大学(北京)、北京化工大学、北京石油化工学院、东北石油大学、西安石油大学、西南石油大学、辽宁石油化工大学、长江大学等石油院校的大力支持。交流会期间, 来自各石油院校的教授专家将围绕石油、天然气、海洋油气开采等领域的技术、解决方案等议题展开分享, 带来油气行业最新研究成果。本次活动旨在通过为行业院校与企业搭建沟通联系的桥梁, 促进产学研各方人才、技术、信息的交流和融合, 推动油气行业技术创新, 助力科研成果推广及应用。

## KTR — leading manufacturer of high quality drive components

KTR is a leading manufacturer, providing solutions with highest quality standards in the fields of drive technology, brakes and cooling systems as well as hydraulic components to global business partners.

KTR has set things in motion for more than 60 years and has become a world leader in the range of drive and fluid technology for industrial applications.

Every year, several millions of couplings covering weights from five grams to two tonnes or more come off the KTR assembly lines across the globe.

They provide reliable operations even under the harshest conditions.

KTR provides machinery and plant engineering with an extensive portfolio of high-quality drive and hydraulic components and cooling systems.

It is able to provide service during the design stage to develop tailor-made solutions.

With well-organised logistics, the 24 subsidiary companies and more than 90 distributors, as well as a well-knitted international network consisting of eight production sites, KTR is in a position to ensure speedy delivery of its products.

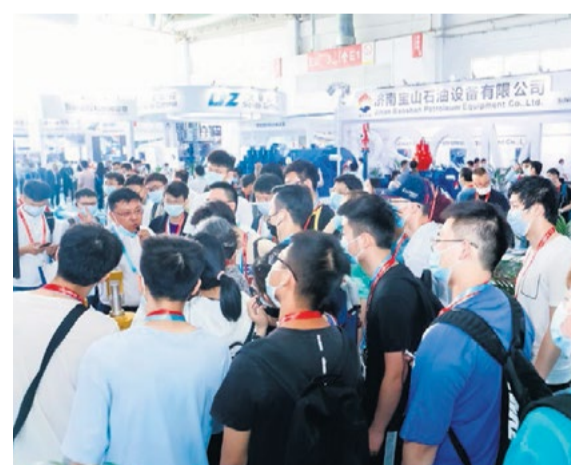
**Booth: W1301**

## KTR——

### 高品质传动部件和制动器领先制造商

作为一个生产高品质传动部件和制动器的行业领导者, KTR (展位号: W1301) 提供的联轴器、胀紧套、力矩限制器、力矩测试仪、永磁限矩器、散热器、液压附件、液压制动器和电动制动器遍布全球。凭借在传动领域六十多年的经验, KTR主导着联轴器技术的发展方向, 为所有工业领域的用户提供完善的传动方案, 并配套提供制动器。KTR产品符合很多特殊行业的要求, 所有产品都获得了各种要求严格的产品型式认证证书, 如德国劳氏船级社 (GL) 证书, 美国船级社 (ABS) 证书, 挪威船级社 (DNV) 证书和法国国际检验局 (BVC) 证书等。KTR的产品可应用于世界各地的造船行业。KTR联轴器也通过了严格的泵行业标准认证, 符合API 610, 671和685标准。

# Pictures from the show



# Pictures from the show





## 海油工程着眼于收入增长，但海外项目存在挑战

中国海上承包巨头海洋石油工程公司（COOEC）今年的海上工程工作量将创历史新高，强劲的国内活动预计将推动收入增长20%。

不过，该公司警告称，国际项目领域的挑战迫在眉睫，两个关键项目的延误是导致去年业绩低于预期的原因。

海油工程表示，预计今年的收入将比去年的178.6亿元（27.5亿美元）高出20%，高于2019年的147亿元。

去年净利润达到3.63亿元，高于2019年的2800万元。

COOEC去年的收入主要受到由于正在进行的两个国际项目的延迟影响，包括沙特阿拉伯附近的Marjan扩张项目以及香港液化天然气进口码头。

去年，沙特阿美决定推迟Marjan项目。COOEC与美国McDermott International公司为该项目合作开发了一个海上油气分离平台（GOSP）综合体——该合同价值可能超过30亿美元。

COOEC因为Marjan项目延期导致收入减少13.6亿元。

去年3月，COOEC从香港LNG接收站公司、香港中电（CLP）和青山电站获得了46.91亿港元（6.039亿美元）的交易，为香港LNG进口设施提供工程、采购和建造服务。

然而，该项目受到一些与新冠疫情相关延误的影响，导致COOEC在2020年的收入减少了18.3亿元。

虽然姊妹公司中海油有限公司的海上项目工作占2021年收入总额的大部分，但COOEC承认，它在实施国际项目方面面临着挑战，包括新冠疫情造成的地缘政治变动和供应链中断。

COOEC已与中海油签订合同，将于2021年为中海油有限公司在中国运营的17个海上项目提供设施。

## OFFSHORE FABRICATION



Key contracts: the Penguins FPSO being built at COOEC's Qingdao facility

Photo: ZENHUA LOGISTICS

# COOEC setting its sights on record workload

Offshore contractor expects major boost from domestic jobs despite challenges in international arena

XU YIHE

Singapore

CHINESE offshore contracting giant Offshore Oil Engineering Company (COOEC) is set for a record high offshore projects workload this year with strong domestic activity expected to drive a 20% growth in revenue.

The company warned, however, of impending challenges in the international project arena, where delays at two key projects were responsible for a weaker top line last year than was forecast.

COOEC said it expects revenues this year to be 20% above the 17.86 billion yuan (\$2.75 billion) earned last year, which was up from 14.7 billion in 2019. COOEC had, however, expected revenues to rise 40% year-on-year.

Net profit last year hit 363 million yuan, up from 28 million yuan in 2019.

Revenue last year was largely hit by the delay of two of its international projects COOEC has been working on: the Marjan incremental project off Saudi Arabia; and a liquefied natural gas import terminal in Hong Kong.

Last year, Saudi Aramco decided to delay the Marjan project, for which COOEC has teamed up with

US company McDermott International to work on an offshore gas-oil separation platform (GOSP) complex — a contract likely to be valued upwards of \$3 billion.

The Marjan delay saw revenue reduced by 1.36 billion yuan.

In March last year, COOEC clinched a HK\$4.691 billion (US\$603.9 million) deal from Hong Kong LNG Terminal Company, Hong Kong Light & Power (CLP) and Castle Peak Power Station to provide engineering, procurement and construction services for LNG import facilities in Hong Kong.

However, that project was hit by some Covid-19-related delays, which led to COOEC earning 1.83 billion less as a result in 2020.

While offshore project work from sister company CNOOC Ltd represents the bulk of the 2021 revenue backlog, COOEC admitted it faces challenges in delivering on international projects, including geopolitical movements and supply chain disruption caused by the Covid-19 pandemic.

COOEC has been contracted to deliver facilities for 17 offshore projects operated by CNOOC Ltd in

China in 2021, which will carry total steel weight of 320,000 tonnes, up by 20% from 2020.

“The workload in 2021 will reach a historic high,” COOEC said.

Most of the fabrication jobs will follow a modularised concept to be carried out at onshore facilities.

These will include wellhead platforms and installation at the Kenli 6-1 field in Bohai Bay, as well as the Lufeng, Enping, Liuhua 11-1 and Lingshui gas fields in the South China Sea.

COOEC is installing offshore facilities at CNOOC Ltd's deep-water Lingshui gas play in the Qiongdongnan basin of the South China Sea, with first gas targeted for 25 June.

In February this year, COOEC won a contract from PetroChina worth 1.6 billion yuan to build facilities for the second phase of an LNG terminal in Tangshan city in Hebei province.

The workscope covers four LNG storage tanks each with 200,000 cubic metres of holding capacity. When complete, the terminal will be able to handle LNG imports of 10 million tonnes per annum.

Last year, COOEC ran 51 engi-

neering, procurement and construction projects, including 32 offshore projects and six LNG module projects.

It also completed the construction of 11 jackets, 12 modules, installed 13 topsides and laid 324 kilometres of subsea pipelines.

COOEC also completed steel structures with total weight of 267,000 tonnes last year, up 71% from 2019.

Last year, new orders from domestic companies continued to support COOEC's growth, with new contracts valued at 21.98 billion yuan, which accounted for 99.8% of the value of all the contracts it signed in the year.

Three LNG terminal construction projects respectively located in Hong Kong, Tianjin and Longkou of Shandong province accounted for 54% of the total contractual value.

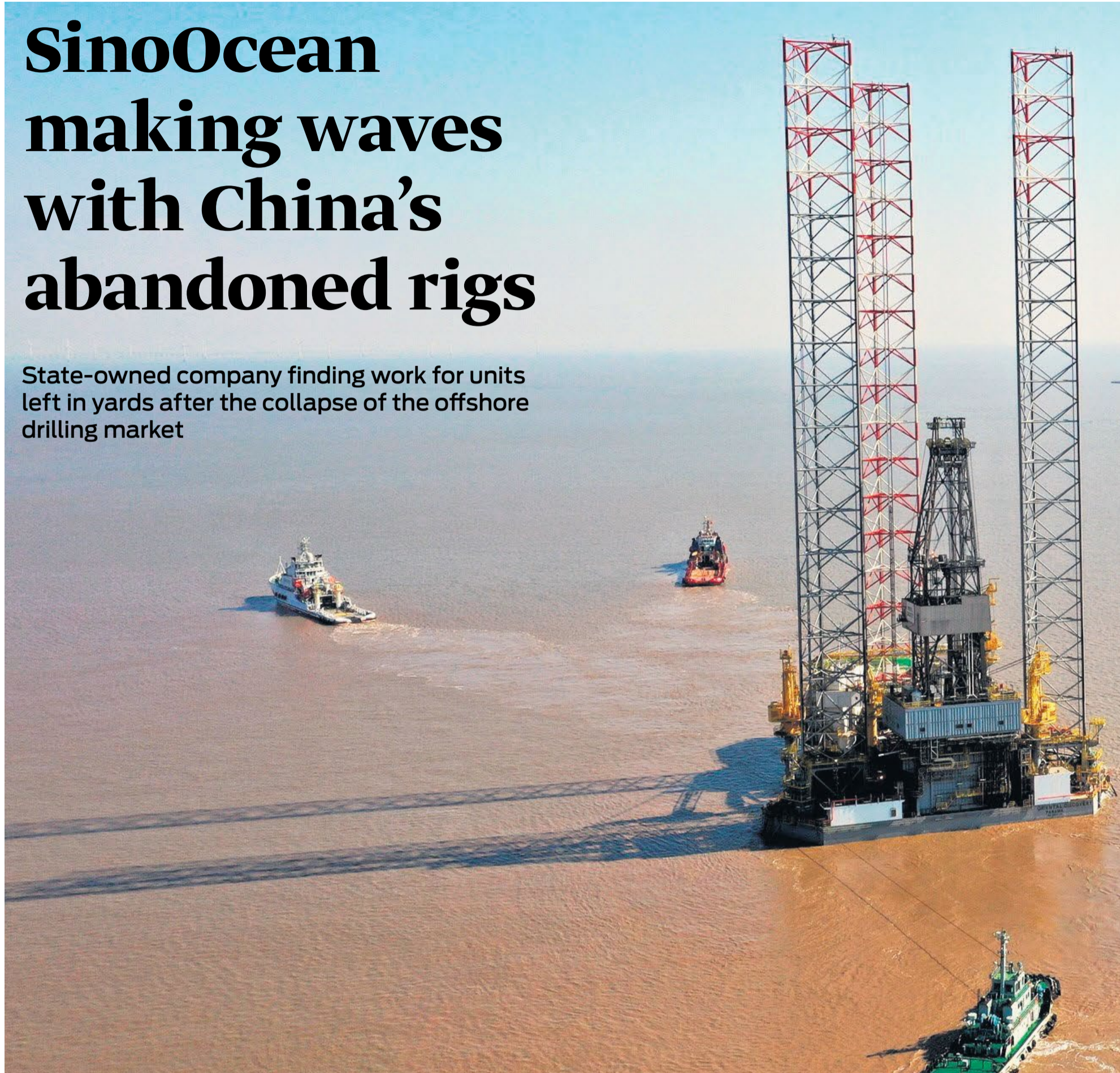
Of the total, 9.3 billion yuan-worth of contracts were offered by CNOOC Ltd and 12.7 billion yuan were from other companies.

By the end of last year, the company had an order backlog worth 27 billion yuan and total fixed assets of 33.282 billion yuan.

## RIG MARKET

# SinoOcean making waves with China's abandoned rigs

State-owned company finding work for units left in yards after the collapse of the offshore drilling market



XU YIHE

Singapore

THE past year was a tough one for the global oil and gas industry, but the company in charge of selling or chartering drilling rigs abandoned by foreign owners in China's fabrication yards chalked up some successes in 2020.

In the two years since it was established to consolidate China's offshore engineering industry and manage a fleet of rigs left stranded in various stages of construction, state-owned SinoOcean Offshore Engineering Assets Management has managed to find jobs for stacked rigs — including four last year, which reduced the number of stacked rigs to 43, from 91 in 2018. One on contract is a LeTourneau

Super 116E jack-up rig ordered by India's Deepwater Drilling through its Singapore-based associate, Dynamic Momentum, in 2014.

The bareboat contract between rig manager Selective Marine Services and SinoOcean will see the Cosco-built Dynamic Momentum rig working at offshore fields operated by Abu Dhabi National Oil Company in the Middle East.

Dynamic Momentum walked away from the project following the oil price collapse, leaving Cosco to finance the remaining cost of the \$180 million rig. In April last year, Chinese off-

shore drilling contractor China Oilfield Service Ltd (COSL) chartered the JU2000E jack-up rig Oriental Discovery, built by SWS for operation in the South China Sea. The charter was brokered by SinoOcean.

The rig, which was initially ordered by Norwegian drilling contractor Prospector Offshore Drilling in 2013, was completed in 2017. It had been warm stacked at SWS until the asset was transferred to Beijing SinoOcean last year.

Many of the jack-ups have found jobs with COSL for work offshore China, especially in shallow-water Bohai Bay, where offshore

operator CNOOC Ltd is conducting development and appraisal drilling to bring more fields on stream before 2025, in accordance with CNOOC Ltd's seven-year action plan to boost offshore oil and gas production.

In response to surging demand for offshore wind installation vessels, SinoOcean has opted to modify two abandoned jack-up rigs to make them suitable for wind farm work.

The Beijing-based company has signed a bareboat agreement to charter the rigs it currently manages to PowerChina Guizhou Engineering, an engineering, procurement and construction con-

tractor owned by utility China Huadian.

One of the jack-ups to be converted is a GustoMSC CJ46-X100-D drilling rig currently stacked at Wuchuan Shipbuilding Industry.

The rig was ordered in 2014 from British Virgin Islands-registered single-purpose vessel company Cyclotech Offshore, which is understood to be controlled by Blue Ocean.

The second jack-up to be modified is a JU2000E rig built by SWS. The rig was ordered by China State Shipbuilding Company Leasing in 2014 and completed in 2018 under the internal hull number 1348. The only rig delivered recently is



On call: the jack-up Oriental Discovery en route to the South China Sea for a two-well campaign  
Photo: SWS

## 国海公司大量处置中国闲置钻井平台

过去的一年对全球石油和天然气行业来说是艰难的一年，但这家负责销售或租赁被外国业主弃船在中国船厂的钻井平台的公司，在2020年取得了一些成功。

国海海工资产管理公司（Sinocean Offshore Engineering Assets Management）成立两年来，一直致力于整合中国海洋工程行业，管理一批处于不同建设阶段搁置的钻井平台。在这两年里，该公司成功地为闲置钻井平台找到了租约，其中包括去年的4个，使得闲置钻井平台的数量从2018年的91个减少到目前的43个。

其中一个合同是2014年印度深水钻探公司通过其新加坡合作伙伴Dynamic Momentum订购的LeTourneau Super 116E自升式钻井平台。

Selective Marine Services与国海海工之间的光船租赁合同将使中远海运重工建造的Dynamic Momentum钻井平台在阿布扎比国家石油公司（Abu Dhabi National Oil Company）位于中东运营的海上油田工作。

油价暴跌后，Dynamic Momentum平台被弃船，这让中远海运重工承担了1.8亿美元钻井平台造价的剩余成本。

去年4月，中国海上钻井承包商中海油田服务有限公司（COSL）租用了上海外高桥造船建造的JU2000E自升式钻井平台东方发现号（Oriental Discovery），用于南海作业。该平台的租船合同由国海海工代理。

该钻机最初由挪威钻井承包商Prospector Offshore Drilling于2013年订购，平台于2017年完工。在去年该资产被转移到国海海工之前，上海外高桥造船一直将该平台维持温停状态。许多自升式钻井平台已经通过中海油服找到了在中国近海作业机会。

**In response to surging demand for offshore wind installation vessels, SinoOcean has opted to modify two abandoned jack-up rigs to make them suitable for wind farm work.**

the semi-submersible drilling rig Shen Lan Tan Suo (Deepblue Explorer) built by CIMC.

The newest deep-water semisub is heading to the South China Sea to start a drilling campaign for COSL.

The rig, which is of CM-SD1000

design, is understood to replace an existing ageing semisub, possibly the Nanhai 5, which was bought by China Merchants Heavy Industry (CMHI) from COSL in 2018.

Last year also saw drilling contractors cancel contracts to charter three jack-up rigs, two built by

CMHI and one by ZPMC. Oslo-listed Shelf Drilling is understood to have cancelled the bareboat charter of two CJ46 newbuilds, Bestford 5 and Bestford 6. The two rigs are now stacked at CMHI yard.

In another development, SWS has set up a subsidiary to complete construction of the four drillships currently stacked at its compatriot yard Shanghai Shipyard.

The SWS Offshore Engineering Project Management Company will work with Shanghai Shipyard to manage the construction and maintenance of the four Tiger drillships ordered by Singapore's

Opus Offshore in 2011 but abandoned in the rig market downturn. The total value of the four drillship newbuild contracts was US\$1.6 billion.

The new company is led by president Jin Yu, who is also the vice president of Shanghai Shipyard.

Jin says the new company is staffed by engineers and managers from Shanghai Shipyard with expertise in offshore vessels such as seismic ships.

SWS will give more roles for the new company to play in the future, allowing it to take on more offshore projects in addition to the Tiger drillships, Jin says.

## ENERGY TRANSITION



Structural changes: CNPC chairman Dai Houliang

Photo: REUTERS/SCANPIX

# CNPC targets renewable energy drive in overhaul

China's top energy supplier will streamline its business segments by reducing from nine to four units

XU YIHE

Singapore

CHINA National Petroleum Corporation (CNPC) has launched a major corporate restructuring programme to prioritise renewable energy development and streamline other business segments as it chases a net zero emissions target.

In a master plan announced by chairman Dai Houliang, the state-controlled oil and gas giant will trim the number of its business departments from nine to four.

The country's top energy provider follows hot on the heels of international peers in looking to reduce its carbon footprint as it targets net zero emissions by 2050 — 10 years ahead of China's national target.

CNPC supplies 50% of China's crude oil and 70% of China's gas demand.

"It is a challenge for the company to leverage short-term needs over long-term interest," said a

company official who declined to be identified.

The plan calls for reorganising its nine business segments into four subsidiaries: oil, gas and new energy; refining, sales and new materials; support and service; and capital and finance.

The nine current business segments are: oil and gas exploration and development; refining and chemicals; sales and trading; pipeline and storage; engineering and technology services; engineering and construction services; equipment manufacturing; finance services; and overseas exploration and development.

The new oil, gas and new energy group will combine CNPC's existing units including exploration, production, gas sales, gas tanks, oil and gas production fields and those coming under its downstream gas company, Kaunlun Energy.

CNPC's service unit CNPC Ser-

vices will be incorporated into the new support and service group after it launches an initial public offering in about two to three years.

"The overhaul is the strategic choice for CNPC to better follow the global energy transition trend," said the company official.

"It is not easy, as CNPC as a national oil company is double tasked to ensure fossil energy supply and lead in energy transition," he said.

Dai said at an international forum on energy co-operation in November last year that the global energy landscape is undergoing a profound transformation. Low-carbon energy sources such as hydrogen, wind and solar are key to the energy transition.

Under CNPC's new structure, the headquarters in Beijing will act as a strategy centre to co-ordinate corporate operations, while the four subsidiary groups will be

operation and profit centres, and greenfield oil and gas fields and refineries will be bases for implementing the strategy.

It is the first time CNPC has put new energy development on a par with oil and gas in terms of priority.

Dai said earlier that his company will take a three-stage approach to achieving its own target for a carbon emission peak in 2025 and net zero emissions in 2050.

Initially, CNPC will maximise its gas operations by raising the gas portfolio in its energy supply mix to 55% by 2025.

Dai said CNPC will promote solar and wind-based energy projects in oil and gas acreages licensed by the government in China.

The company will also apply carbon capture and storage technology to cut emissions and replace fossil fuels with renewables.

## 中石油将 可再生能源 作为结构 调整目标

中国石油天然气集团公司 (CNPC) 启动了一项重大的企业重组计划，以优先发展可再生能源，并精简其他业务部门，实现净零排放目标。

在戴厚良董事长宣布的总体规划中，这家国有石油和天然气巨头将把业务部门从9个缩减到4个。

中国最大的能源供应商紧随国际同行的脚步，寻求减少碳足迹，因为它的目标是到2050年实现净零排放——比中国的国家目标提前10年。

中石油供应中国50%的原油和70%的天然气需求。

该计划要求将其九个业务部门重组为四个子公司：石油、天然气和新能源；炼油、销售和新材料；支持和服务；资本和金融。

目前的九个业务部门是：石油和天然气勘探与开发；精炼和化学品；销售和贸易；管道和储存；工程技术服务；工程和建筑服务；装备制造；金融服务；海外勘探开发。

新的石油、天然气和新能源集团将合并中国石油天然气集团公司现有的勘探、生产、天然气销售、储气罐、油气田和天然气生产领域以及其下游天然气公司昆仑能源旗下的部门。

中石油的服务部门中石油服务公司 (CNPC Services) 将在大约两到三年后首次公开募股 (IPO) 后并入新的支持和服务集团。

同时，公司还要推进数字化转型、智能化发展，加强内控合规和制度体系建设协同；突出业务协同、专业化发展和产业链国内外一体化统筹，优化调整业务板块划分。

公司官员表示：“此次重组是中石油更好地顺应全球能源转型趋势的战略选择。”