

cippe 北京石油展

upstream

OFFICIAL
SHOW DAILY
PRODUCED
BY UPSTREAM

WEDNESDAY 31 MAY 2023

upstreamonline.com

AT THE SHOW

cippe2023 sets stage for oil and gas industry P5

Events schedule P6&7

Exhibitor profiles P8 to 10



cippe 2023

cippe2023北京石油展

今日盛大开幕 P5

展会论坛日程 P6&7

展商风采 P8-10

China focus turns to energy security

Energy supply takes centre stage in China as global energy markets rumble, but country remains invested in a low-carbon future. Pages 2&3

复杂的地缘政治使全球能源安全受到威胁，中国将寻求能源供应多元化，加快国内开发，将能源的饭碗牢牢端在自己手里。 P2&3

Photo: AP/SCANPIX

China on track to meet its net zero promise

尽管面临挑战，中国仍有望兑现净零承诺

Page 4

China pushes shale oil developments

中国通过试点项目推动页岩油开发

Page 11

CCS in focus for China's drive to meet net zero goals

CCS将在中国实现双碳目标中发挥重要作用

Page 12

upstream

Get up to speed with the latest news from the world of oil and gas. Visit us at Booth W1590 or log on to www.upstreamonline.com

ENERGY SECURITY

China aims to fill ‘rice bowl of energy’

Energy security takes centre stage as global energy markets rumble, but country remains invested in low-carbon future

XU YIHE
Houston

ENERGY security is always on the agenda in China. But it has been the country’s top concern since the war in Ukraine disrupted global markets, with China’s President Xi Jinping calling for the country to take responsibility for its own “rice bowl of energy”.

Energy companies appear to have heeded the call to invest more in domestic exploration and production. According to China’s National Energy Administration, investment in major energy projects last year hit 2 trillion yuan (\$294 billion).

In 2022, for the first time in seven years, domestic crude production topped the 200 million tonne (1.47 billion barrel) mark to hit 205 million tonnes (1.5 billion barrels), while gas output reached 220 billion cubic metres, rising by 6% from 2021.

The increased domestic production could help the country cut energy imports and reverse the trend of relying on foreign sources to meet the bulk of its demand.

In 2022, coal imports fell 9% to 290 million tonnes, while crude imports dropped 0.9% to 3.7 billion barrels.

Total gas imports dropped 11.7% last year to 149.3 Bcm, including 63.6 Bcm of pipeline gas, up 7.6%, and 85.7 Bcm of liquefied natural gas, down 22.1%, reducing reliance on gas imports by 5.1 percentage points to 40.7%.

Saudi Arabia was China’s top crude oil supplier in 2022, with volumes hitting 643 million barrels, followed by Russia at 634 million barrels and the US at 580 million barrels.

Chinese traders shied away from the spot LNG market last year to avoid high purchase prices, which averaged \$821 per tonne, up 42.6% from 2021.

Slower economic growth, coupled with sluggish demand, was also responsible for the drop in energy imports last year.

Primary energy consumption last year increased by a marginal 1.5% from 2021 to 5.32 billion

tonnes of coal equivalent. Domestic coal production stood at 4.55 billion tonnes, meaning domestic resources met 85.5% of China’s energy demand, up by 2.4 percentage points compared with 2021.

Oil consumption last year dropped 1.2% year on year to 56 million barrels, with 70.9% coming from imports, while gas demand last year fell by 1.7% to 366.3 billion cubic metres.

Lower oil and gas consumption was due in part to high international energy prices, which forced China to opt for increasing coal use.

Last year, the country produced 9% more coal for a total 4.5 billion tonnes, the highest growth among its other energy commodities. China holds some of the world’s largest coal reserves and is the world’s top coal producer.

As a result, coal’s share in its energy consumption mix rose to 56.4%, reversing a years-long downward trend, while oil accounts for 17.8%, gas for 8.6% and renewables 17.2%.

Looking forwards, conservation efforts will cap the country’s total energy demand at 6 billion tonnes of coal equivalent by 2030, when coal will account for 42.8% of the total, oil 18.4% and gas 12%, with 26.8% of demand filled by renewable energy.

China’s total power generation capacity last year grew 7.8% to 2560 gigawatts, including 413 GW of hydropower, up 5.8%; 1332.4 GW of thermal power, including coal and natural gas, up 2.7%; 55.5GW for nuclear power, 365.44 GW of wind power and 392.61 GW of solar power.

The country also invested heavily in energy infrastructure last year, with gas pipelines lengthening to 123,000 kilometres, up 2.5% year on year.

LNG import handling capacity increased 8% to 111.5 million tonnes, but only 55% of that capacity was utilised last year.

The oil and gas industry’s dual

role now — delivering hydrocarbons to keep economies running while also contributing to the transition to a low-carbon world — is no less applicable in China, where companies have a mandate to slash the emissions associated with their hydrocarbon production.

Oil companies have scaled up

development of renewable energy projects, with PetroChina focusing on solar, Sinopec on green hydrogen and China National Offshore Oil Corporation on offshore wind.

In the meantime, the national oil companies have been applying carbon capture and storage technology to their mature fields for

enhanced oil recovery. Such activities contributed to a nationwide 0.9% CO₂ emissions drop last year to about 10 billion tonnes.

China is now the world’s largest hydrogen producer, with output last year reaching 3.3 million tonnes — the vast majority of it grey hydrogen — as well as the largest wind energy generator,





In the picture: a visitor takes a picture of the Chinese national flag at the Museum of the Communist Party of China in Beijing
Photo: AFP/SCANPIX

中国誓将能源饭碗牢牢端在自己手里

能源安全一直占据中国的议事日程。俄乌冲突加深了国家对能源安全问题的担忧，国家主席习近平呼吁要把能源饭碗牢牢端在自己手里。能源公司加大对国内勘探和生产的投资。国家能源局称，去年重大能源项目投资达到2万亿元人民币（2940亿美元）。

2022年，国内原油产量七年来首次突破2亿吨（14.7亿桶）大关，达到2.05亿吨（15亿桶），天然气产量达到2200亿立方米，同比增长6%。国内产量的增加可以帮助该国减少能源进口并扭转依赖，因为中国大部分石油需求依靠进口满足。2022年，中国煤炭进口下降9%至2.9亿吨，原油进口下降0.9%至37亿桶，天然气进口量去年下降11.7%至149.3Bcm，天然气进口依赖度降低5.1个百分点至40.7%。

经济增长放缓，加上需求低迷也是去年能源进口下降的原因。去年一次能源消费量比2021年小幅增长1.5%，达到53.2亿吨标准煤。石油消费量同比下降1.2%至5600万桶，其中70.9%来自进口，而去年天然气需求量下降1.7%至3663亿立方米。

石油和天然气消费量下降的部分原因是国际能源价格居高不下，迫使中国选择增加煤炭使用量。

去年中国煤炭产量增加了9%，达到45亿吨，是其他能源商品中增长最快的，煤炭在能源消费结构中的份额上升至56.4%，扭转了多年来的下降趋势，石油占17.8%，天然气占8.6%，可再生能源占17.2%。中国拥有世界上最大的煤炭储量，是世界上最大的煤炭生产国。

富煤是中国能源禀赋的特点之一，煤炭是中国保障能源供应的主要抓手。要进一步保障了中国煤炭供需稳定和能源安全，提升煤炭储备能力，在“碳达峰、碳中和”的总体要求下，煤炭行业将加速向绿色生产、绿色消费转型升级。

展望未来，到2030年，节能减排将把中国的能源总需求限制在60亿吨标准煤，届时煤炭将占总需求的42.8%，石油占18.4%，天然气占12%，其中26.8%的需求由可再生能源满足。

去年，中国总发电量增长7.8%，达到2560吉瓦，其中水电413吉瓦，增长5.8%；其中火电装机1332.4吉瓦，增长2.7%，其中煤炭、天然气。核电55.5吉瓦，风电365.44吉瓦，太阳能392.61吉瓦。2022年，中国还大力投资能源基础设施，天然气管道延长至12.3万公里，同比增长2.5%。液化天然气进口处理能力增加了8%，达到1.115亿吨，但去年仅使用了其中的55%。

石油公司扩大了可再生能源项目的开发，中石油专注于太阳能，中石化专注于绿色氢能，中国海洋石油总公司专注于海上风能。

与此同时，国家石油公司已将碳捕集与封存技术应用其成熟油田以提高石油采收率。

这些活动使去年全国范围内的二氧化碳排放量减少了0.9%，达到约100亿吨。

中国现在是世界上最大的氢气生产国，去年的产量达到330万吨——其中绝大部分是灰氢——同时也是最大的风能发电机，总装机容量为370吉瓦。

到2060年，氢气的份额将从今天的微不足道的水平上升到超过5.8亿吨煤当量。届时氢气将占能源消耗总量的16%，这主要是由于它被用作工业燃料和长途运输。

中国的目标是到2025年，单位国内生产总值二氧化碳排放量下降18%，届时非化石能源占能源消费总量的比重将提高到20%，非化石燃料发电装机容量将达到总发电量的39%。

这一目标对中国决策者来说将是一个巨大的挑战，因为燃煤发电仍占中国2370吉瓦总装机容量的一半，而且中国消耗的煤炭量相当于世界其他地区的总和。

到2025年，即当前五年经济发展期的最后一年，可再生能源的需求预计将达到54.5亿桶油当量。

with total installed capacity of 370 GW.

The share of hydrogen will rise from negligible levels today to more than 17 exajoules, or 580 million tonnes per annum of coal equivalent, by 2060. It will then represent 16% of total energy consumption, mainly due to its use as a fuel for industry and long-distance transport.

China aims to reduce CO₂ emissions per unit of GDP by 18% in the years to 2025, when it aims

to raise non-fossil energy to 20% of its total energy consumption mix and non-fossil fuel-based power generation capacity will rise to 39% of total power generation.

The target will be a huge challenge to Chinese policymakers, given that coal-fired power generation still accounts for half of China's total 2370 GW of capacity, and it consumes about as much coal as the rest of the world combined.

Demand for renewable energy

is expected to reach 5.45 billion barrels of oil equivalent by 2025, the final year of the current five-year economic development period.

The result would cut CO₂ emissions by 260 million tpa, sulphur dioxide emissions by 500,000 tpa, nitrogen oxide emissions by 600,000 tpa and emissions of coal soot particles by 100,000 tpa, according to China's National Development & Reform Commission.

ENERGY TRANSITION



Achievements: Yang Lei vice president of Peking University's China Energy Research Institute

Photo: CERI

China on track to meet its net zero promise

World's second-largest energy consumer is expected to hit solar and wind power capacity target four years ahead of schedule

XU YIHE
Houston

CHINA is stepping up its renewables investments to pursue its 2060 net zero target, with investors and businesses focusing increasingly on finance and technology as the expansion gathers pace, an audience at CERAWeek held by S&P Global heard earlier this year.

The Chinese government is aiming to ramp up solar and wind power capacity to 1200 gigawatts by 2030, but Yang Lei, vice president of Peking University's China Energy Research Institute, said this is going to be achieved in 2026.

Last year, China's total renewa-

ble power generation capacity reached 758.05 GW, including 365.44 GW of wind power and 392.61 GW of solar power.

Momentum is gearing up for wind and solar power generation capacity, Yang said, adding that currently the country is installing an average of 150 GW of wind and solar power capacity per annum.

Last year, China installed 6.8 gigawatts of offshore wind capacity in Chinese waters, which is more than two-thirds of new offshore wind hardware brought into operation around the world in 2022, he said.

Yang added that this was

achieved even though the government stopped subsidising offshore wind projects in 2022.

Lu Ruquan, president of the Economics & Technology Research Institute, a think tank under the wing of China National Petroleum Corporation (CNPC), said Chinese oil demand is expected to peak in 2030 as electrification proceeds.

By the end of last year, CNPC had captured and stored 5 million tonnes of carbon dioxide, and expects this number to jump due to fast-falling costs for carbon capture and storage, he added.

Currently, China consumes

about 700 million tonnes of petroleum a year, with 70% coming from imports.

China aims to reach peak emissions of CO₂ by 2030 and carbon neutrality by 2060.

We have challenges, but that doesn't mean we are not on track," Yang Lei said.

Wang Guanghui, general manager of China's State Grid Energy Research Institute, argued that China is correct to continue tapping coal resources in the interest of energy security.

Last year, China approved dozens of new coal mining projects with capacity totalling 66 GW.

尽管面临挑战，中国仍有望兑现净零承诺

中国正在加大可再生能源投资力度，以实现到 2060 年实现净零排放的目标，随着扩张步伐加快，投资者和企业越来越关注金融和技术。

中国政府的目标是到 2030 年将太阳能和风能装机容量提高到 1200 吉瓦，但北京大学中国能源研究院副院长杨雷表示，这将在 2026 年实现。

去年，中国可再生能源总装机容量达到 758.05 吉瓦，其中风电 365.44 吉瓦，太阳能 392.61 吉瓦。

杨说，风能和太阳能发电的势头正在加快，目前中国平均每年安装 150 吉瓦的风能和太阳能发电容量。

他说，去年，中国在中国海域安装了 6.8 吉瓦的海上风电装机容量，这是 2022 年全球投入运营的新海上风电设备的三分之二以上。

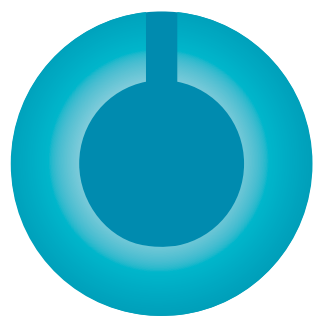
中国石油天然气集团公司旗下智库经济技术研究院院长陆如泉表示，随着电气化进程的推进，中国石油需求预计将在 2030 年达到峰值。

他补充说，截至去年年底，中石油已捕获并储存了 500 万吨二氧化碳，并且由于碳捕获和储存成本的快速下降，预计这一数字将大幅增加。目前，中国每年消耗约 7 亿吨石油，其中 70% 来自进口。

最近，由国家能源集团和中石油投资的宁夏 300 万吨/年碳捕捉项目在宁东基地全面开工建设。该项目在全球首次实现现代煤化工和大型油气田开采之间的绿色减碳合作，建成后将成为中国最大的碳捕集利用与封存全产业链示范基地。一期项目计划 2024 年建成；二期计划 2024 年开工，2025 年底投运；三期项目预计“十五五”期间开工。

中国的目标是到 2030 年达到二氧化碳排放峰值，到 2060 年实现碳中和。

我们面临挑战，但这并不意味着我们不能实现目标，”杨雷说。



cippe 北京石油展

WEDNESDAY 31 MAY 2023

The editorial content of this section, pages 5 to 10, is the sole responsibility of cippe's organisers

cippe2023 sets stage for oil and gas industry

The annual event for the world's oil and gas industry — the 23rd China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe2023), is launched today at the New China International Exhibition Center, in Beijing.

With an exhibition space of around 100,000 square metres, cippe2023 focuses on the whole industry chain of oil and gas, ranging from petroleum, petrochemical, natural gas, pipeline, offshore engineering, city gas, hydrogen energy, shale gas, trenchless, explosion-proof electric, safety protection, automation & instrumentation and relevant sectors.

About 1,800 exhibitors from 65 countries and regions are gathering at the show, which provides a high-quality and efficient platform for technical exchange and trade cooperation.

Showing up with frontier innovation and application are domestic and international enterprises including Rosneft, Ministry of Oil (Iraq), KOGAS, Caterpillar, SLB, Cummins, DuPont, KTR, Rolls-Royce Power Systems, Danfoss, Kongsberg, Allison, Ariel, Balluff, Atlas Copco, Huisman, CNPC, SINOPEC, CNOOC, CASIC, CRRC, XCMG, Honghua, Jereh, Kerui, RG Petro-Machinery Group, CITIC Heavy Industries, Hilong Group, Weichai, ZPEC, Anton, Dong Fang Xian Ke, Shanghai Shenkai, Bestebit, PetroKH, Haimo Technologies, Petro-king, West Petro, Baowu, Daye Special Steel and Guoxing Huijin.

cippe2023 also has a special exhibition area for hydrogen energy, with dozens of well-known enterprises bringing appealing products and technologies onsite, focusing on the construction of a clean, low-carbon, safe and efficient modern energy system.

More than 100 forums and seminars will be held concurrently during cippe2023, such as the First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Summit.

The industry forums also include hydrogen energy, offshore wind power, pipelines, natural gas and city gas, as well as a Business Matchmaking Meeting, a Brazil Session, Argentina-China Oil, Gas and an Energy Matchmaking Meeting.

Academics and experts, industry elites, and stakeholders will discuss the development trends and investment opportunities of oil, gas and the energy industry.

Welcome to cippe2023 to explore more opportunities from 31 May to 2 June.



cippe2023 is building on the success of previous events

Photo: cippe

cippe2023北京石油展今日盛大开幕

5月31日，一年一度的世界石油天然气大会——第二十三届中国国际石油石化技术装备展览会（cippe2023）在北京·中国国际展览中心（新馆）开幕。

本次展会聚焦油气全产业链，总展览面积达10万平方米，同期举办天然气、油气管道、燃气、氢能、非开挖、海工装备、海洋石油、页岩气、防爆电气、安全防护、自动化仪器仪表等行业相关展会。来自全球65个国家和地区的1800家企业齐聚盛会，现场展示领先全球的先进装备与技术。

展会现场，俄油、伊拉克石油部、KOGAS、卡特彼勒、斯伦贝谢、康明斯、杜邦、开天传动、罗罗动力系统、丹佛斯、康士伯、艾里逊、Ariel、

巴鲁夫、阿特拉斯·科普柯、豪氏威马、中石油、中石化、中海油、航天科工、中国中车、徐工集团、宏华、杰瑞、科瑞、南阳二机、中信重工、海隆石油、潍柴、中曼石油、安东石油、东方先科、上海神开、百施特、中油科昊、海默科技、百勤油服、西部石油、宝武钢铁、大冶特钢、国兴汇金等国内外知名企业重磅亮相，新产品新技术同台竞技。

值得一提的是，本届展会特别规划氢能展示专区，数十家知名氢能企业携明星产品及技术亮相展会，共同聚焦清洁低碳、安全高效的现代能源体系建设。

cippe2023 Satellite events

同期展会



第十三届北京国际天然气技术装备展览会



第二十三届北京国际石油天然气管道与储运技术装备展览会



第十三届北京国际海洋工程技术与装备展览会



第二十三届北京国际海洋石油天然气展览会



第十三届北京国际页岩气技术与装备展览会



2023北京国际燃气应用与技术装备展览会



北京国际氢能技术装备展览会



2023北京国际地下工程建设及非开挖技术装备展览会



第二十三届北京国际防爆电气技术设备展览会



北京国际石油和化工自动化技术装备及仪器仪表展览会



北京国际石油和化工安全防护技术及设备展览会

Scan to follow cippe on Wechat

扫码关注官方微信



Watch cippe live on Wechat Mini Programme

登陆微信小程序 观看直播

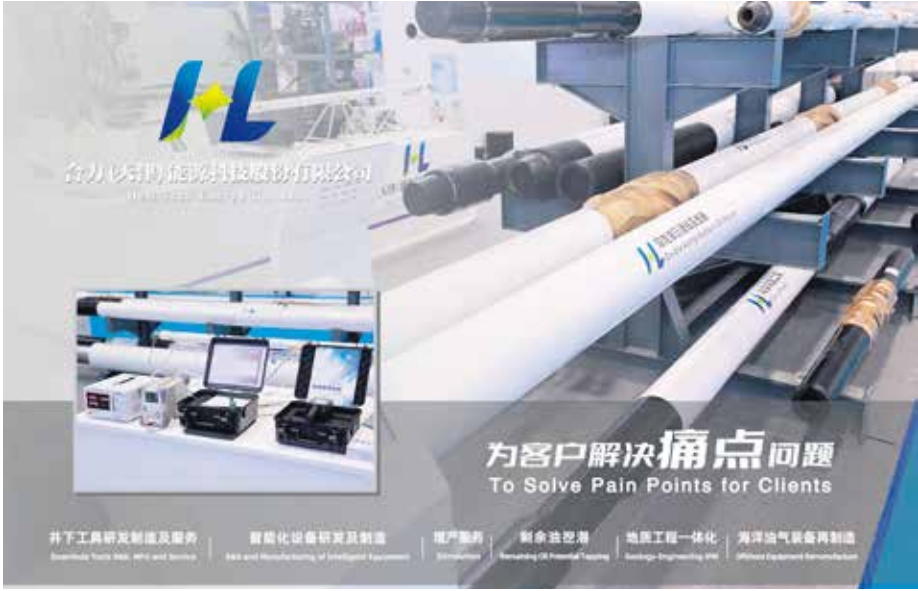


cippe2023 同期活动日程安排

cippe2023 Concurrent Events Schedule

	时间 TIME	地点 VENUE	主题 EVENT TOPICS	主讲企业 SPEAKER
31 May	09:20-11:30	W-201会议室 Conference Room W-201	首届石油技术与装备院校长论坛暨第十五届国际石油天然气产业大会开幕式 Opening Ceremony of The First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Conference	中国国际石油石化技术装备展览会 (cippe) 组委会 中国石油大学 (北京) China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee China University of Petroleum
	13:30-16:30	W-201会议室 Conference Room W-201	首届石油技术与装备院校长论坛暨第十五届国际石油天然气产业大会 The First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Conference	中国国际石油石化技术装备展览会 (cippe) 组委会 中国石油大学 (北京) China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee China University of Petroleum
	09:20-15:40	W1馆活动区-W1688 Activity Zone at W1688	cippe2023企业新产品新技术推介会 cippe2023 Enterprise New Product and New Technology Promotion Conference	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	展馆 Exhibition Hall	探馆直播 cippe Discoveries Livestream	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
	10:00-16:00	W4馆展区W4560 Hall W4-W4560	2023氢能产业发展论坛 2023 Hydrogen Energy Industry Development Forum	北京振威展览有限公司 Beijing Zhenwei Exhibition Co., Ltd.
	10:00-16:30	W3馆Matching区 W3810 W3 Matching Zone W3810	cippe2023采购对接会 cippe2023 Business Matchmaking Meeting	中国国际石油石化技术装备展览会 (cippe) 组委会 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	10:00-16:30	W1馆Lucky区W1280 W1 Lucky Zone W1280	幸运石油人 Lucky Oilman	中国国际石油石化技术装备展览会 (cippe) 组委会 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	10:00-11:00	W-105会议室 Conference Room W-105	双头单螺杆泵在石油石化行业的运用 The Application of Double Head Single Screw Pump in Petroleum and Petrochemical Industry	重庆明珠机电有限公司 Chongqing Mingzhu M&E Co., Ltd.
	11:10-12:00	W-104会议室 Conference Room W-104	杜邦™ Kalrez®全氟醚弹性体在极端油气密封中的应用 DuPont™ Kalrez® Perfluoroelastomer for Extreme Oil & Gas Sealing Application	杜邦集团上海代表处 DUPONT
	13:00-16:00	中心餐饮区二层 东花园会议室 East Garden Conference Room, Central Dinning Area, 2nd Floor	2023北京国际管道技术交流会 2023 Beijing International Pipeline Technology Exchange Conference	北京国际石油天然气管道与储运技术装备展览会组委会 北京振威展览有限公司 CIPE Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	13:00-14:00	W-102会议室 Conference Room W-102	题目以现场为准 TBD	七腾机器人有限公司 Sevnce Robot Co., Ltd.
	14:10-15:10	W-102会议室 Conference Room W-102	创新技术在高性能钻机上的应用 Application of Innovative Technology on High-Performance Drilling Rigs	北京捷杰西石油设备有限公司 Beijing JJC Petroleum Equipment Co., LTD
	13:00-14:00	W-104会议室 Conference Room W-104	防爆产品国际认证解析和转证 (暂定) Analysis and Translation of Global Explosion Protection Certification	德国莱茵TUV TÜV Rheinland
	14:00-15:00	W-104会议室 Conference Room W-104	物联网安全及智慧消防在石油石化行业的应用 IIoT,Cyber Security and Smart Fire Protection in Petrochemical Industry	美国安丰认证有限公司上海代表处 FM Approvals LLC Shanghai Representative Office
	13:00-16:30	W-105会议室 Conference Room W-105	API助力企业与个人持续发展 API Empowers Enterprises and Individuals to Develop Continuously	美国石油学会(API) Americian Petroleum Insititue (API) 高洁 API北京代表处首席代表 Gao Jie, Chief Representative of API Beijing Office
	13:00-16:30	E-203会议室 Conference Room E-203	ECF第八届页岩油气技术装备研讨会 (北京) Energy China Forum the 8th Shale Technology Showcase	上海联合非常规能源研究中心 Shanghai United Insititue for Unconventional Resources(SUI) 周晓莱, ECF国际页岩气论坛总裁, 上海联合非常规能源研究中心理事长 Xiaolai Zhou, President of Energy China Forum, President of SUI
	13:00-16:30	E-206/207/208/209 会议室 Conference Room E-206/207/208/209	2023国际石油石化技术会议 International Petroleum and Petrochemical Technology Conference 2023	西安石油大学 陕西省石油学会 北京振威展览有限公司 Xi'an Shiyou University Shaanxi Petroleum Society Beijing Zhenwei Exhibition Co., Ltd.
	13:30-16:30	中心餐饮区 二层西花园会议室 West Garden Conference Room, Central Dinning Area, 2nd Floor	国际石油天然气推介会 巴西专场: 市场与投资机遇 International Oil & Gas Promotion Conference Brazil Session: Investment opportunities	中国国际石油石化技术装备展览会 (cippe) 组委会 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.

cippe2023 同期活动日程安排 cippe2023 Concurrent Events Schedule				
	时间 TIME	地点 VENUE	主题 EVENT TOPICS	主讲企业 SPEAKER
1 June	09:10-12:00	W-103会议室 Conference Room W-103	首届石油技术与装备院校长论坛暨第十五届国际石油天然气产业大会-测控技术分论坛 The First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Conference - Measurement and Control Technology Session	中国国际石油石化技术装备展览会 (cippe) 组委会 中国石油大学 (北京) China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee China University of Petroleum
	09:10-12:00	W-104会议室 Conference Room W-104	首届石油技术与装备院校长论坛暨第十五届国际石油天然气产业大会-油气装备技术分论坛 The First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Conference - Oil & Gas Equipment and Technology Session	中国国际石油石化技术装备展览会 (cippe) 组委会 中国石油大学 (北京) China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee China University of Petroleum
	09:10-12:00	W-201会议室 Conference Room W-201	首届石油技术与装备院校长论坛暨第十五届国际石油天然气产业大会-新能源分论坛 The First Presidents Forum of Petroleum Technology and Equipment Institutes & The 15th International Petroleum & Natural Gas Conference New Energy Session	中国国际石油石化技术装备展览会 (cippe) 组委会 中国石油大学 (北京) China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee China University of Petroleum
	09:00-16:30	E-206/207/208/209 会议室 Conference Room E-206/207/208/209	2023国际石油石化技术会议 International Petroleum and Petrochemical Technology Conference 2023	西安石油大学 陕西省石油学会 北京振威展览有限公司 Xi'an Shiyou University Shaanxi Petroleum Society Beijing Zhenwei Exhibition Co., Ltd.
	09:20-15:40	展馆 Exhibition Hall	cippe2023企业新产品新技术推介会 cippe2023 Enterprise New Product and New Technology Promotion Conference	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	中心餐饮区 二层西花园会议室 West Garden Conference Room, Central Dinning Area, 2nd Floor	cippe2023石油院校技术成果交流会 cippe2023 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 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	09:30-16:30	展馆 Exhibition Hall	探馆直播 cippe Discoveries Livestream	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
	09:30-12:00	W3馆Matching区 W3810 W3 Matching Zone W3810	中国-阿根廷石油天然气及能源洽谈会 Argentina-China Oil, Gas and Energy Matchmaking Meeting	中国国际石油石化技术装备展览会 (cippe) 组委会 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	09:30-11:30	W-102会议室 Conference Room W-102	2023国际天然气和城市燃气高峰论坛 2023 International Natural Gas and City Gas Summit	北京振威展览有限公司 Beijing Zhenwei Exhibition Co., Ltd.
	10:00-16:30	W1馆Lucky区W1280 W1 Lucky Zone W1280	幸运石油人 Lucky Oilman	中国国际石油石化技术装备展览会 (cippe) 组委会 北京振威展览有限公司 China International Petroleum & Petrochemical Technology and Equipment Exhibition (cippe) Organizing Committee Beijing Zhenwei Exhibition Co., Ltd.
	10:00-11:00	E-203会议室 Conference Room E-203	达坦石油云 Tartan Petrol Intelligent Cloud	上海达坦能源科技股份有限公司 Shanghai Tartan Energy Technology Co., Ltd. 虞绍永教授, 达坦首席油藏科学家、软件研发总监 Yu Shaoyong, Chief Reservoir Scientist & Software R&D Director of Tartan Group
	11:00-12:00	E-203会议室 Conference Room E-203	达坦学院气处理技术 Tartan College Gas Processing Technology	上海达坦能源科技股份有限公司 Shanghai Tartan Energy Technology Co., Ltd. Bill Chu, 达坦加拿大公司气处理专家、执行副总裁 Bill Chu, Principal Engineer for Midstream Division & Executive Vice President, TEGI
	13:30-16:00	W3馆Matching区 W3810 W3 Matching Zone W3810	中国石化海工锻件技术发展供需对接会 China Forgings Supply and Demand Fair for Petroleum, Petrochemical and Ocean Engineering	中国锻造进出口联盟 China Forging Alliance for Import & Export
	13:30-15:00	W-103会议室 Conference Room W-103	北美防爆认证要求综述及其与ATEX和IECEX认证对比 A Comprehensive Overview of the Ex Product Certification Schemes in North America and How They Compare to ATEX and IECEX	CSA集团 CSA Group 王先生, 中国防爆团队技术总监 Tom Wang, Technical Team Lead, China Hazloc Unit
	13:00-16:30	W-201会议室 Conference Room W-201	2023海上风电船舶产业链发展论坛 Offshore Wind Power Ship Industry Chain Development Forum 2023	中国船舶工业行业协会 China Association of the National Shipbuilding Industry (CANSI)
2 June	09:00-12:00	E-206/207/208/209 会议室 Conference Room E-206/207/208/209	2023国际石油石化技术会议 International Petroleum and Petrochemical Technology Conference 2023	西安石油大学 陕西省石油学会 北京振威展览有限公司 Xi'an Shiyou University Shaanxi Petroleum Society Beijing Zhenwei Exhibition Co., Ltd.
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				



Heli Tech devoted to overcoming technical challenges of oil and gas industry

Heli Tech Energy Co., Ltd. is a technology-based oil and gas service company focusing on technology research, development and application in the oil and gas sector. It takes the solving of issues in the process of oil and gas development as its orientation, with independent research and development of downhole tools as its development driving force, and oil and gas well technical services and offshore oil and gas equipment management as the application scenario, enabling the company to realize the deep integration of advanced technology and oil and gas development. Heli is a national high-tech enterprise, and a state-level science and technology enterprise. Its business covers all major oil and gas fields in China and the Middle East, Far East, Southeast Asia and other regions. Heli has a provincial enterprise technology centre and research institute, with dozens of inventions patented. The self-developed downhole tools cover many core technologies, such as comprehensive drilling ROP enhancement, wellbore intervention, ultra-short radius horizontal drilling, remaining oil potential tapping, special well condition treatment, intelligent wellhead equipment, and downhole communication control technology under complex well conditions, downhole power supply technology, electromechanical hydraulic servo control technology.

Booth: E1378

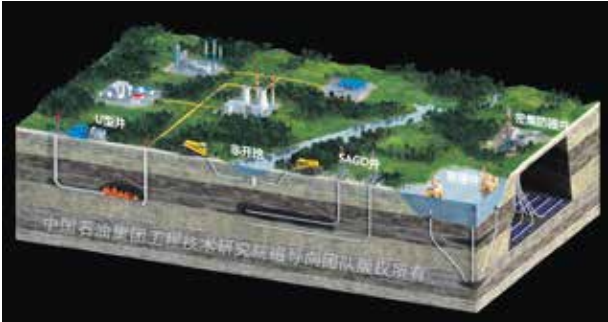
合力能源-致力于 为油气田客户解决特殊痛点问题

合力（天津）能源科技股份有限公司（展位号：E1378）是一家专注于油气开发领域技术研发及应用的科技型油服企业，以解决油气开发过程中痛点问题为经营导向、以井下工具自主研发为发展驱动力、以油气井技术服务及海洋油气装备管理为应用场景，实现先进技术与油气开发的深度融合。合力能源是国家高新技术企业、国家级科技型企业，业务覆盖国内各大油气田以及中东、远东、东南亚等地区。

合力能源具有省级企业技术中心以及研究院，拥有发明专利数十项，自主研发的井下工具覆盖钻井综合提速、井筒干预、超短半径水平钻井剩余油挖潜、特殊井况处理、智能化井口设备以及复杂井况下的井下通信控制技术、井下供电技术、机电液伺服控制技术等众多核心技术。

Exhibits highlight at CPET

Magnetic guidance drilling (MGD) technology is a high-precision wellbore trajectory positioning and measuring method of CPET. By detecting the distribution characteristics of artificial magnetic fields generated by permanent magnets, alternating currents and magnetic casings rotating thousands of metres downhole in real time, it is possible to meet the need of positioning adjacent wellbores. MGD technology has been widely used in coalbed methane, medium and low maturity shale oil, heavy oil, geothermal and trenchless engineering, gas storage. It has become one of the key technologies for well construction with complex structures. The AnyCem® Cementing Software Platform consists of several modules, such as cementing design and scientific analysis, real time monitoring and control, organization and technical management and full-cycle information management. Data storage, classification, retrieval queries, and statistical analysis of cementing information were realized. A comprehensive solution for improving cementing quality can be provided by this platform. Expandable tubular wellbore reconstruction technology makes full use of the plasticity and ductility of the material. It could expand the diameter by between 10% and 30% after going down the well, so as to realize the small size of the pipe column down and large size in service. Expandable tubular technology can be used to solve the complex problems encountered in the process of drilling, well repair, completion an reservoir modification. The strength reaches N80 steel grade after expansion, reaching the international advanced level. According to the different application scenarios, it can be divided into products such as expandable tubular open hole clad, casing patch, expandable liner hanger, etc. Integrated Drilling Engineering Software — SmartDrilling is a drilling and completion software system. With the goal of providing systematic solutions for digital transformation of drilling engineering, SmartDrilling is composed of “1 Platform + 3 Packages”, including an integrated software platform, drilling and completion design, real-time drilling optimization, geosteering, supports a variety of application scenarios such as drilling design, drilling optimization, and real-time geosteering.



Booth: E1325

中国石油工程技术研究院亮点展品 （展位号：E1325）

MGD磁导向钻井技术与工具是一种高精度的井眼轨迹定位测量手段，通过实时检测数千米井下旋转的永磁体、交变电流、磁性套管等产生的人工磁场分布特征，实现对相邻井眼空间位置的高精度定位与导航。该技术已广泛应用于煤层气、中低熟页岩油、稠油、地热、非开挖工程、储气库等多个领域，成为复杂结构井建井的关键技术之一。

AnyCem一体化固井软件平台涵盖科学化设计模拟仿真、自动化固井施工监控、精细化生产组织管理、固井全过程信息管理等模块，首次依托云服务，实现全生命周期固井资料信息的数据存储、分类、检索查询和统计分析，可为提高固井质量提供一揽子解决方案。

膨胀管技术可用于解决钻井、修井、完井、储层改造等过程中遇到的复杂问题。膨胀管膨胀后强度达到N80钢级，达到国际先进水平。

钻完井工程设计与优化决策一体化软件系统-SmartDrilling是一款钻完井软件系统，以实现软件规模化应用，为工程技术智能化转型提供系统解决方案为目标，研发了“一个平台+三大软件包”的软件产品体系，能够满足现场应用的需求，为启动产业化替代进程奠定坚实基础。

BOMCO looks forward to greeting you at Booth E1320

宝石机械诚邀您莅临E1320展位

宝石机械可提供适用于陆地、浅滩、沙漠、极地等各种环境的成套石油钻机及其部件产品，全数字交流变频电驱动钻机实现1000~12000米全天候、全地貌、全井深无缝覆盖，可为客户提供成套装备的一体化解决方案。

储层改造装备可满足非常规油气开发特点和高效规模化开采需求，功率等级覆盖700~7000hp。可为客户提供全井场一体化柴驱/电驱压裂装备和智能控制系统解决方案。

持续加大新能源和绿色低碳装备技术攻关，开发了碱性水电解制氢系统混合储能、橇装式一体化变电站等装备，助力客户在清洁能源领域深耕，实现可持续发展。



BOMCO supplies complete oil drilling rigs and components for various environments such as land, shallow water, desert and polar regions as well as all-digital AC frequency conversion electric-driven drilling rigs, seamlessly covering all-weather, all-terrain and all-hole depths from 1,000 metres to 12,000 metres. The reservoir transformation equipment satisfies the unconventional oil and gas development characteristics and high-efficiency scale exploitation needs, with power classes ranging from 700hp to 7,000hp. BOMCO provides customers with integrated diesel/electric-driven fracturing equipment and intelligent control system solutions for the well site. BOMCO continues to increase its efforts in developing new energy and green low-carbon equipment technology, and has developed equipment such as alkaline water electrolysis hydrogen production system and hybrid energy storage and skid-mounted integrated substation, which assists customers in deepening their efforts in the field of clean energy and achieving sustainable development.

Booth: E1320

Guoxing Huijin specializes in smart field solutions

Guoxing Huijin (Shenzhen) Technology Co., Ltd. is a national high-tech enterprise specializing in the R&D, production and service of distributed optical fibre real-time monitoring technology, and is committed to becoming a leading domestic and world-class manufacturer of distributed optical fiber logging technology equipment and a provider of intelligent oilfield solutions.

Guoxing Huijin has the world's leading distributed optical fibre logging technology, and has independently developed a high-performance long-distance distributed optical fibre temperature monitoring system (DFA). It has also distributed the optical fibre acoustic monitoring system (gDAS) and other optical fibre real-time monitoring systems and system solutions at an internationally leading level.

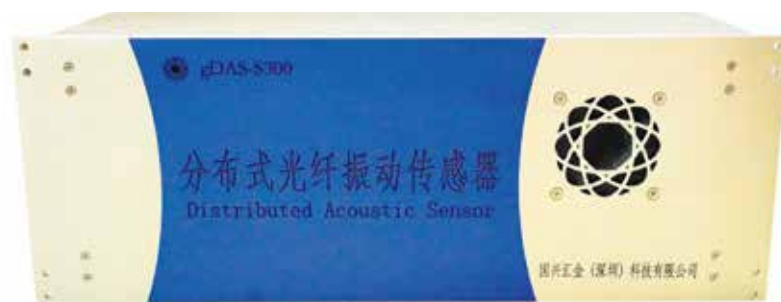
It can realize real-time monitoring of downhole temperature and vibration, finely depict multiple production profiles of oil, gas and water, realize qualitative and quantitative analysis, and is

widely used in the exploitation, production and storage of oil, natural gas and combustible ice.

Guoxing Huijin focuses on the technological transformation of the digital transformation of oil and gas fields, relying on distributed optical fibre real-time monitoring technology to build a smart oilfield system that can realize the dynamic monitoring of oil and gas fields in the production process of "real-time monitoring, intelligent diagnosis, automatic disposal and intelligent optimization", as well as optimizing the technical boundaries of reasonable well pattern development in oil and gas field, and reducing drilling works. It also prolongs the development life of oil and gas fields.

The company has successfully resumed production of old wells at the Shengli oilfield, and the effect of increasing production is very significant.

"Focusing on distributed optical fiber logging and building smart oilfields," Guoxing Huijin leads the future of the industry. **Booth: W1505**



智慧油田解决方案专家——国兴汇金

国兴汇金（深圳）科技有限公司（展位号：W1505）是一家专业从事分布式光纤实时监测技术研发、生产和服务的国家高新技术企业，致力于成为国内领先、国际一流的光纤测井技术设备制造商和智慧油田解决方案提供商。



KONGSBERG: A technological journey of more than 200 years

KONGSBERG specialises in developing advanced technologies, to provide extreme performance for extreme conditions.

Working together as a global team, it has created an integrated portfolio of solutions, for businesses, partners and nations operating from the depths of the sea; to outer space; to the digital frontier.

Kongsberg Digital is a provider of next generation software and digital solutions to customers within maritime, oil and gas and utilities.

Kongsberg Digital offers solutions within autonomy, smart data, augmented reality and other areas.

It is digitalizing the world's industries, generating exceptional impact and value for its customers.

It is creating a better tomorrow for people, business and society.

Booth: W1515

康士伯 —— 超越200年的科技征程

自1814年成立于挪威，康士伯集团（展位号：W1515）作为一个国际化企业，一直致力于为海事，能源，航空航天等行业客户提供高科技系统和先进可靠的解决方案。为客户在极端环境和复杂作业条件下提升安全性、技术保障和业绩。康士伯数字作为康士伯集团旗下子公司，不仅是全集团数字专业技术中心，同时也是行业领先的下一代软件和数字化解决方案的提供商。公司旨在为海事，石油和天然气，可再生能源及能源相关公用事业领域客户提供相关数字化服务。

KTR: A name that stands for good connections

KTR – 高品质传动部件和制动器

KTR(展位号: W1305) 的母公司是有着一百多年历史的德国TACKE。

作为一个生产高品质传动部件和制动器的行业领导者，KTR提供的联轴器、胀紧套、力矩限制器、力矩测试仪、永磁限矩联轴器、液压附件和制动器遍布全球。凭借在传动领域多年的经验，KTR主导着联轴器技术的发展方向，可为所有工业领域的用户提供完善的传动方案。

开天传动技术（上海）有限公司是德国KTR在中国大陆的唯一子公司，此次展会将重点推出永磁限矩联轴器。

KTR is a leading manufacturer of high-quality drive and brake components.

KTR supplies mechanical couplings, clamping sets, torque limiters, measuring systems, hydraulic components and high-power brakes all over the world.

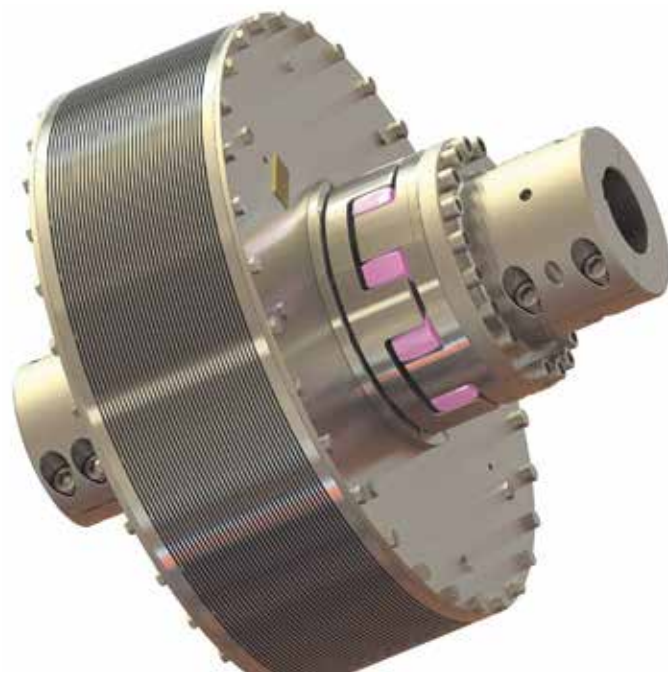
We are a partner for all those who want to set things in motion.

You cannot only recognize this by our huge product portfolio, but also our success as a problem solver.

Based on the know-how gained from thousands of applications in the field we will find the optimum solutions for customized applications in all industries.

Consequently, we continue to provide the Power Transmission technology with vital incentives.

Booth: W1305



Haimo Technologies shows up at cippe2023

Haimo Technologies Group Corporation is a multinational company engaged in oilfield equipment manufacturing, oilfield technical services and unconventional oil and gas exploration and development.

With 14 wholly-owned subsidiaries (shares) and eight holding subsidiaries, Haimo Technologies has about 1,000 employees and conducts business on a global scale.

It offers products and services to many countries in the Middle East, North Africa, Central, South and Southeast Asia, North and South America.

Since its establishment, Haimo Technologies has adhered to the principle of "independent research and development, manufacturing in China", and has a series of products with proprietary intellectual property rights such as a multiphase flow meter, intelligent enhanced oil recovery, cased hole logging and oilfield flowback water treatment and re-use technologies.

Exhibits on cippe2023 include: Subsea Multiphase Flow Meter (Subsea-MPFM), Data Pandora intelligent oil well production optimization system, Multiphase Flow Meter, SlimFrac Fracturing pump fluid end, and Intelligent enhanced oil recovery. **Booth: E2160**



海默科技亮相cippe2023

海默科技（集团）股份有限公司（展位号：E2160）是一家致力于为深水、深层和非常规油气勘探开发提供创新的技术、产品和服务的跨国企业。在国内外设有全资分(子)公司14家，控股子公司8家，有近千名员工在全球范围内开展业务。公司产品及服务销往中东、北非、中亚、南亚和东南亚、北美、南美等地区的多个国家。

自成立以来，公司坚持走“自主研发，中国制造”的道路，拥有在多相流计量、智能完井、测井、压裂泵液力端以及所涉及领域的一系列自主知识产权。

Weichai welcomes you at Booth W1510

Weichai Holding Group Co., Ltd. is a leading multinational industrial equipment group in China with significant global influence. Its main business covers powertrain systems, commercial vehicles, agricultural equipment, construction machinery, intelligent logistics, and marine mobility.

It has subsidiaries in Europe, North America, Asia and other regions, and its products are exported to more than 150 countries and regions around the world.

Weichai has developed a series of engines and generators for the oil and gas industry, including diesel and natural gas.

According to the special operating environment and working conditions at oil and gas fields, the engines and generators all have personalized adaptive development.

It can meet the needs of different scenarios such as oilfield drilling, cementing, well workover, fracturing and stimulation, well site auxiliary production, gas well head gas production, well head power generation, and so on.

The power range of single machine is 50 to 3000HP, while the power range of unit for diesel is 10 to 3000KW, and for gas is 40 to 1400KW, with changes for market demands,

Weichai will continue to develop adaptive products.

Booth: W1510



潍柴诚邀您 莅临W1510展位

潍柴集团是中国领先、在全球具有重要影响力的工业装备跨国集团。主营业务涵盖动力系统、商用车、农业装备、工程机械、智慧物流、海洋交通装备等六大业务板块，分子公司遍及欧洲、北美、亚洲等地区，产品远销150多个国家和地区。

随着市场需求的变化，潍柴将持续开发适应性产品。

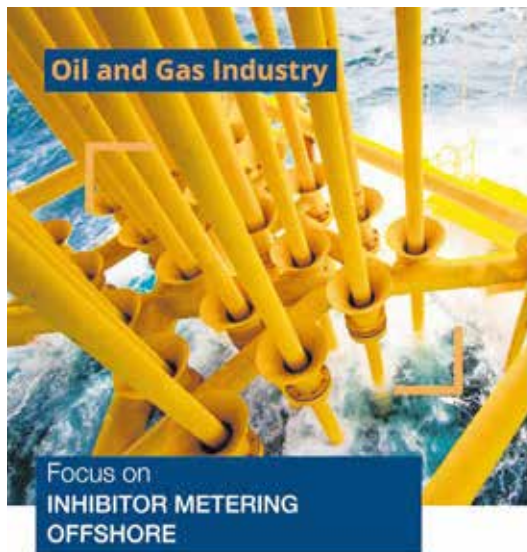
ProMinent looks forward to greeting you at Booth W2505

ProMinent is a world-renowned manufacturer of specialized components and systems for precision fluid metering technology and a reliable solution partner for the petrochemical and natural gas industries.

From high-end process metering pumps to complex plants, ProMinent offers a wide range of expertise and innovative solutions to meet the highest requirements for safety and reliability of metering systems in the petrochemical and natural gas extraction industries with the Orlita and Hydro metering pumps.

After more than 60 years of development, ProMinent is a reliable choice whether you are planning to purchase a single process metering pump or to implement a complex turnkey integrated solution.

Booth: W2505



普罗名特诚邀您莅临W2505展位

普罗名特集团是全球著名的精密流体计量技术专用组件和系统的制造商，也是可靠的石油化工、天然气行业解决方案合作伙伴。从高端的过程计量泵到工艺复杂的工厂，普罗名特通过广泛的专业知识和具有创新的解决方案，推出符合石油化工和天然气开采行业对计量系统安全性及可靠性极高要求的产品Orlita系列计量泵和Hydro系列计量泵。

集团经过六十余载发展，无论您是计划采购单个过程计量泵还是要实施复杂的交钥匙一体化解决方案，普罗名特都是您值得信赖的选择。

中控技术——流程工业智能制造 整体解决方案供应商

浙江中控技术股份有限公司（简称“中控技术”展位号：E1211-1）聚焦流程工业自动化、数字化、智能化需求，助力客户实现“安全生产、节能降耗、提高质量、降本增效、绿色环保”的发展目标。

公司产品及解决方案已广泛应用在油气、石化、化工、电力、制药、冶金、建材、造纸、新材料、新能源、食品等行业领域，包含全国多个千万吨级炼油、百万吨乙烯、百万吨芳烃、大型煤制烯烃等工业过程全流程生产项目，累计服务客户超过2.7万家，在全球成立子公司近40家，并获得了全球高端客户认可。

SUPCON: A trusted partner for intelligent manufacturing

Zhejiang SUPCON Technology Co., Ltd. (SUPCON) is an integrated solution provider of intelligent manufacturing in the process industry.

Focusing on process industrial automation, digitization and intelligent demand, SUPCON is devoted to helping customers achieve the development goal of “safe production, energy saving and consumption reduction, quality improvement, cost reduction and efficiency improvement, and green environment protection.”

Its products and solutions have been widely used in the oil and gas, petrochemical, chemical, electric power, pharmaceutical, metallurgy, building materials, paper, new materials, new energy, food and other industries, including a tens of millions of tons of oil refining, million tons of ethylene, million tons of aromatics, large coal to olefin and other industrial process production



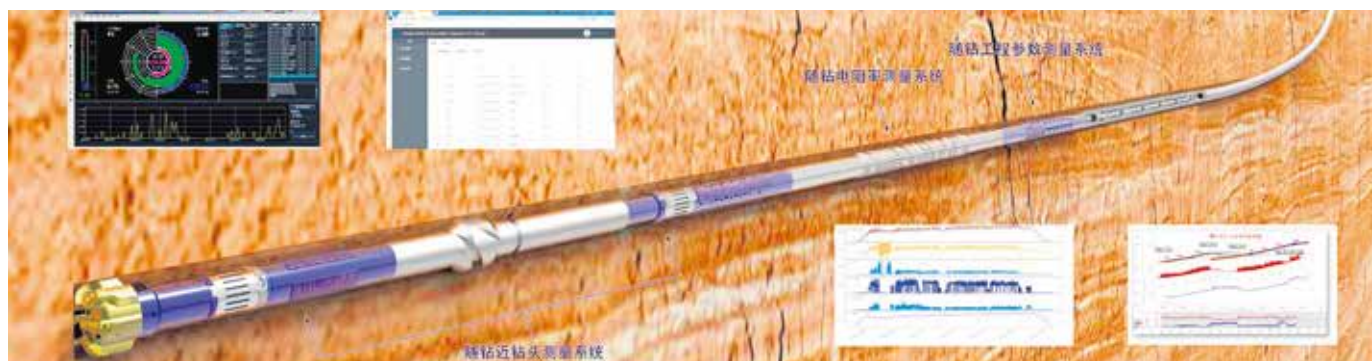
projects. In recent years, SUPCON has served more than 27,000 customers and established nearly 40 subsidiaries around the world, and has also been recognized by global high-level customers.

Booth: E1211-1

Liuhe Greatness focuses on advanced drilling technology

六合伟业—— 井下钻探测控仪器 供应商

北京六合伟业科技股份有限公司（展位号：E2011）主要提供用于井下钻探施工的各类随钻测控仪器，包括MWD、随钻电阻率测量系统、近钻头测量系统、自寻北陀螺测斜仪、工程参数测量系统等。产品与设备应用范围包括油田、矿山、地质勘探、非开挖施工、水利以及建筑等行业的相关作业领域。



Beijing Liuhe Greatness Technology Co., Ltd. focuses on providing reliable and professional measurement and control technologies for downhole drilling, including MWD Systems, LWD Systems, near-bit Gamma and inclination measurement systems, real-time and memory-drop north seeking fiber optics gyro systems (FOG), FOG-while-drilling systems and drilling dynamics monitoring systems.

Liuhe Greatness technologies are widely used by local and international drilling operators in both the oil & gas and mining industries. It is ideal for geological exploration, and other drilling activities.

Its products are currently used by CNPC, Sinopec, Yanchang oilfield and geological exploration teams, and service operators in the United States, Russia, Australia, the Far East, the Middle East, Africa and Europe.

Booth: E2011

ONSHORE



Asset: Sinopec's Shengli oilfield in Shandong province.

Photo: REUTERS/SCANPIX

China pushes shale oil pilot developments

Country's three pilot shale oil projects are poised to more than double annual output in the next three years

XU YIHE
Houston

CHINA is set to push ahead with shale oil developments that officials hope can offset production decline from mature fields and sustain an annual crude throughput target of 200 million tonnes (1.47 billion barrels) per annum.

The country has set up three pilot projects in the northeast, east and northwest, aiming to boost shale oil output to 47.8 million barrels per annum by 2025, up from 22 million barrels last year.

Shale oil exploration and development is led by PetroChina and Sinopec, with the former saying that shale oil represented 70% of its crude production increment last year.

Sinopec's recent 8 billion barrel shale oil discovery at the Subei basin in the east of the country is

a vote of confidence to translate the plan into reality.

Early production could start as soon as next year at the basin's Gaoyou trough.

In 2021, Sinopec made a discovery at the mature Shengli oilfield that has an estimated 29.4 billion barrels of shale oil in place.

The company aims to produce 7.35 million barrels of shale oil in 2025 from the Qiyang pilot project at Shengli, where it has already drilled 95 wells.

PetroChina operates two shale oil pilot projects — one at the Daqing oilfield in the northeast, where five well pads host 73 horizontal wells, and the Jimsar project in Xinjiang, where 204 horizontal wells have been completed for an annual production capacity of about 12.5 million barrels. The

Jimsar trough, located 200 kilometres east of Xinjiang's capital, Urumqi, covers 900 square kilometres.

Independent player Shaanxi Yanchang Petroleum has identified six shale oil proven areas with 1.8 billion barrels of reserves in an area covering 161 square kilometres in the Ordos basin.

Offshore player CNOOC Ltd is unlikely to pursue shale oil development despite its huge discovery of unconventional oil in the South China Sea's Beibu Gulf.

CNOOC Ltd's Weiye-1 wildcat flowed about 126 barrels per day of shale oil and 1589 cubic metres per day of shale gas with hydraulic fracturing, leading to estimates that the Beibu Gulf has 8.8 billion barrels of shale oil in place, including almost 6 billion

barrels in the Weiye South trough.

Chief executive Zhou Xinhui said the company has no immediate plans to increase spending on exploring shale oil resources offshore China.

"All we have done so far is pave the way for possible and efficient reserve replacement in the future," he said.

In a recent survey, China's Ministry of Natural Resources put the country's shale oil in-place volumes at 208 billion barrels, up from the 112.5 billion barrels estimated in 2013, with most located in the Ordos, Songliao and Jungar basins.

The figures are much higher than the 32 billion barrels of technically proven recoverable reserves estimated by the Paris-based International Energy Agency.

中国通过试点项目推动页岩油开发

中国将推进页岩油开发，官方希望页岩油开发能够抵消成熟油田产量下降的影响，并维持每年2亿吨（14.7亿桶）的原油产量目标。

国家已在东北、东部和西北建立了三个试点项目，旨在到2025年将页岩油产量从去年的2200万桶提高到4780万桶。

页岩油勘探开发由中石油和中石化主导，前者表示去年原油增产中页岩油占70%。

中石化最近在该国东部的苏北盆地发现了80亿桶页岩油产量。该盆地的高邮凹陷最早可能于今年开始早期生产。

2021年，中石化在胜利油田发现了估计储量为294亿桶的页岩油。该公司的目标是到2025年从位于胜利的祁阳试点项目生产735万桶页岩油。

中国石油有两个页岩油试点项目：一个在东北的大庆油田，有5个井台，73口水平井；新疆吉木萨尔项目已完工水平井204口，年产能约1250万桶。吉木萨尔凹陷位于新疆首府乌鲁木齐以东200公里处，面积900平方公里。

陕西延长石油在鄂尔多斯盆地161平方公里的范围内确定了6个页岩油探明区，储量18亿桶。

尽管中海油在南海北部湾发现了大量非常规石油，但公司不太可能继续开发页岩油。中海油的Weiye-1井通过水力压裂每天输送约126桶页岩油和1589立方米页岩气，据估计北部湾有88亿桶页岩油，其中近60亿桶在涠西南凹陷。

首席执行官周新怀表示，公司近期没有增加勘探中国近海页岩油资源支出的计划。

“到目前为止，我们所做的一切都是为未来可能和有效的储量替代铺平道路，”他说。

在最近的一项调查中，自然资源部将中国的页岩油储量从2013年估计的1125亿桶提高到2080亿桶，其中大部分位于鄂尔多斯、松辽和准噶尔盆地。

这些数字远高于总部位于巴黎的国际能源署估计的320亿桶技术探明可采储量。

CARBON CAPTURE



Taking action: PetroChina and Sinopec are working to reduce their carbon emissions

Photo: REUTERS/SCANPIX

CCS in focus for China's drive to meet net zero

Carbon capture and enhanced oil recovery technology increasingly used by country's players to help meet climate targets

XU YIHE

Houston

CHINA is increasingly relying on carbon capture and storage (CCS) technology to reduce carbon dioxide emissions and enhance oil recovery to achieve its net-zero target while maintaining current oil and gas production.

Yuan Shiyi of the Chinese Academy of Engineering told the recent 7th International Carbon Capture, Utilisation & Storage Forum in Beijing that CCS is the only solution to decarbonise fossil fuel production and China will need to cut up to 400 million tonnes of CO₂ by 2030 through CCS technology to achieve peak CO₂ emissions that year.

For the country's carbon neutrality target in 2060, China is required to reduce CO₂ emissions by another 1 billion to 1.8 billion tonnes by applying CCS technology.

He said China hosts 14 billion tonnes (103 billion barrels) of oil in place that could be monetised through CCS-EOR technology.

Based on that reserves size, CCS-EOR technology can help oil companies enhance oil recovery

by 15%, which equates to 2.1 billion tonnes of oil, by reinjecting 6 billion tonnes of CO₂ into the reservoirs, according to Yuan.

PetroChina alone owns 6.73 billion tonnes of oil reserves, the recovery of which can be enhanced by 1.11 billion tonnes by tapping CCS-EOR technology.

But to achieve that recovery goal, PetroChina will need to reinject 2.95 billion tonnes of CO₂, said Yuan, who is the former president of PetroChina's Science & Technology Development Department.

However, he said that by the end of 2030, China will develop CCS-EOR projects with total storage capacity of 30 million tonnes of CO₂, which in turn will enhance oil production by 10 million tonnes.

Other schemes will involve capturing CO₂ emitted from oil refining and petrochemical operations and store the captured CO₂ in depleted oilfields.

He said that up to 10 oil and gas fields owned by PetroChina have launched CCS-EOR projects with the potential to capture and store

20 million tonnes of CO₂ by 2030 and enhance oil production by 6 million tonnes.

The company has rolled out plans to build two CCS-EOR bases in the Ordos and Jungar basins, each with potential to capture and store 10 million tonnes of CO₂.

He said that CCS can help PetroChina eventually enhance oil recovery by 1.11 billion tonnes.

To date, PetroChina has cut 5.5 million tonnes of CO₂ emissions through CCS.

In 2022 alone, PetroChina reinjected 1.1 million tonnes of CO₂ into depleted reservoirs, which has increased oil production by 300,000 tonnes, accounting for 70% of the total CO₂ reduction through CCS technology in China.

He added that in China, oil production will increase by one tonne by injecting up to three tonnes of CO₂ into reservoirs through CCS-EOR technology.

At PetroChina's Jilin, Changqing, Daqing and Xinjiang fields, CCS-EOR technology has enhanced oil recovery by an average 25%.

The pilot CCS projects launched

by Sinopec at its Jiangsu, Shengli and Huadong fields have increased oil production by a cumulative 255,800 tonnes.

At the Shengli field in Shandong province, CCS-EOR technology has enhanced oil recovery by 17.2%.

The exploration and production company Shaanxi Yanchang Petroleum has unveiled a major plan to reduce its carbon emissions footprint through CCS technology.

The initiative involves capturing CO₂ at its three coal-to-methanol projects in Yanan city, in northern China's Shaanxi province, to build up capacity to capture, store and utilise 5 million tonnes per annum of CO₂ in a two-phase programme.

This programme involves three CO₂ capture units and 15 well pads for reinjection wells, company vice president and chief geologist Wang Xiangzeng said.

The company aims to build up CO₂ reinjection capacity of 1 million tonnes per annum by the end of 2025.

CCS将在中国实现双碳目标中发挥重要作用

中国越来越依赖碳捕集与封存 (CCS) 技术来减少二氧化碳排放并提高石油采收率, 以实现其净零排放目标, 同时维持当前的石油和天然气产量。

中国工程院院士袁世义在北京举行的第七届国际碳捕集、利用和封存论坛上表示, CCS是化石燃料生产脱碳的唯一解决方案, 到2030年中国需要减排4亿吨二氧化碳。CCS技术实现当年CO₂排放达峰。

为实现国家2060年的碳中和目标, 中国需要通过应用CCS技术再减少10亿至18亿吨二氧化碳排放。他说, 中国拥有140亿吨石油储量, 可以通过CCS-EOR技术将其货币化。

他表示, 根据该储量规模, CCS-EOR技术可以通过将60亿吨二氧化碳重新注入油藏, 帮助石油公司将石油采收率提高15%, 相当于21亿吨石油。

仅中石油就拥有67.3亿吨石油储量, 利用CCS-EOR技术可提高采收率11.1亿吨。但要实现这一恢复目标, 中国石油将需要重新注入29.5亿吨二氧化碳。

他表示, 到2030年底, 中国将开发总封存能力为3000万吨二氧化碳的CCS-EOR项目, 这将提高石油产量1000万吨。其他计划将涉及捕获炼油和石化作业排放的二氧化碳, 并将捕获的二氧化碳储存在枯竭的油田中。

中国石油的多达10个油气田已启动CCS-EOR项目, 到2030年有望捕集和封存2000万吨二氧化碳, 提高石油产量600万吨。该公司已推出在鄂尔多斯和准噶尔盆地建设两个CCS-EOR基地的计划, 每个基地都有可能捕获和封存1000万吨二氧化碳。他表示, CCS可以帮助中石油最终提高石油采收率11.1亿吨。