

**Driving a
Sustainable
Energy
Future**

TOTAL IN CHINA 2018



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Foreword of Total China Country Chair



William Zhao

Total China Country Chair

The world is facing major transformations in the coming decades. Marked by climate change, growing energy demand and emerging technologies with tremendous potential, the shifting energy landscape necessitates a response fueled by innovative thinking. At Total, our development strategies and sustainable initiatives respond well to these transformations – driven by our pioneering spirit.

Our most important move is integrating climate into our strategy. We seek to reduce our carbon intensity by 15% between 2015 and 2030 while providing effective and stable solutions in a fluctuating world. To achieve this, we have focused on five strategic drivers. These cover our efforts to improve energy efficiency, expand across the natural gas value chain, strengthen our growth in low-carbon electricity, further fossil fuel decarbonization through biofuels, and enhance carbon storage.

Our strategy perfectly aligns with China's pursuit of energy

transformation. Total has been a key partner in the development of China's natural gas supply while also advancing electricity production and storage applications. Exemplifying this is our increased production in South Sulige project in Inner Mongolia and extending the LNG supply agreement with China. On the electricity front, SunPower's solar energy generation and Saft's batteries have both seen increasing applications in local public services. These advances work to augment transformations in a country that already accounts for half of the world's renewable market.

Total is not only in China, we are also with China worldwide. In our global operations, we have built partnerships with Chinese NOCs for multiple projects. In Russia, Kazakhstan, Iraq, Saudi Arabia, Nigeria, Uganda and Brazil, we have close collaboration with Chinese NOCs in various projects. The latest example is that our joint efforts resulted in the first LNG shipment from Yamal LNG project in December 2017 – much of which is destined for China.

Close partnerships are also vital to our progress in research and innovation. As a testament to Chinese-European cooperation, we are a major participant in CHEERS, a key carbon capture, utilization and storage (CCUS) project. Avenues for our research and innovation in China are also widening with our funding role in the Cathay Smart Energy Fund with local stakeholders. With these developments, we stand as a partner with China's increasingly vibrant innovation and advanced technology scene.

We recognize the broader responsibilities we possess on safety, education and public health. Everything we do reflects the commitment to our core values – prioritizing safety, centralizing respect and unity, and embedding the pioneering spirit and performance-oriented into our strategy. In our actions and ambitions, these ideals guide Total to be the world's responsible energy major.

Total China Overview

Exploration & Production

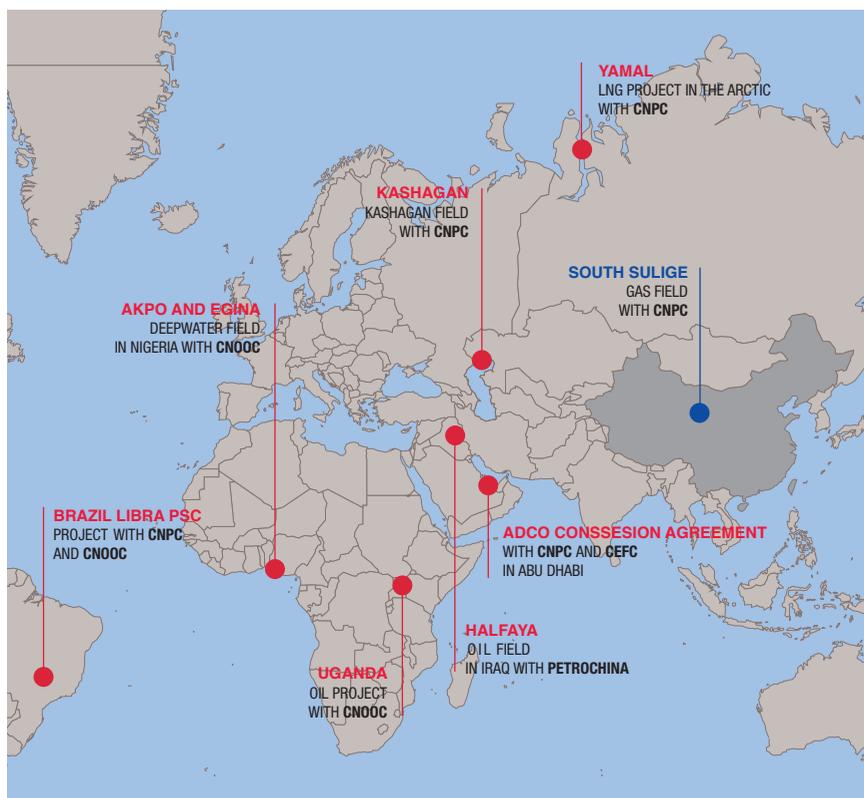
Exploration & Production conducts exploration, development and production for our oil and natural gas operations in more than 50 countries. As oil remains the most accessible energy to meet the needs to growing population around the world, E&P is crucial for our near-term strategy.

Total was the first international oil company to conduct offshore oil and gas exploration in China, starting in the early 1980s. In almost 40 years since then, we have explored for oil and gas in both onshore and offshore basins. These include a variety of areas in the Beibu Gulf, the Bohai Bay, the Yellow Sea, the South China Sea and the Tarim Basin.

China is increasingly moving towards an energy future with a low-carbon mix like the rest of the world nowadays. During this transition, natural gas will play a crucial role as being the cleanest form of all fossil energies. Total supports this transition by bringing our expertise in tight gas extraction to China.

In 2006, Total signed a Production Sharing Contract (PSC) with China National Petroleum Corporation (CNPC) for the evaluation, development and production of natural gas in South Sulige. We have proudly provided our experience in project management and technical support. More than 500 wells have been drilled since 2011 and a cumulative wellhead production of 9.98 cubic gigameters has been reached by the end of 2018. Beijing is the gas field's primary market with smaller quantities being sold to Xi'an and Yinchuan.

In 2017, Total signed a PSC with China National Offshore Oil Corporation (CNOOC) and CPC Corporation Taiwan for offshore exploration of the Taiyang block in the northern edge of the South China Sea. This marks our re-entry into deep-sea offshore



exploration in this region after 40 years in absence, in a domain that stands as a strategic focus for Total.

The end of 2017 marked the first shipment of LNG cargo from Yamal – a major milestone in the giant collaborative project between Total, CNPC and Russia's Novatek. The capacity of this project will progressively increase to 16.5 million tons, with a substantial share of the output going to China. In the following spring of 2018, Total began working with CNPC to expand Yamal LNG's capacity by 0.9 million tons per year.

Total is not simply in China – we are also in step with it on a global level. Positive engagement and cooperation has seen us working closely with China's National Oil Companies (NOCs) on multiple E&P projects around the world.

Total sources high-quality products from China for projects worldwide, and our dedication to the best possible quality is shown with our International Procurement Office (IPO) in Shanghai. The IPO selects the highest quality local suppliers through a rigorous process that ensures each qualified supplier complies with world-class health, safety and labor standards.

Gas, Renewables & Power

Total proudly produces power from both gas and renewable energies, with the ambition to expand across the electricity value chain through Gas, Renewables & Power. Natural gas is the least polluting fossil fuel while also being abundant and flexible in its usage, and renewable energies are an ideal power source when it comes to sustainability.

Globally, we have acquired businesses such as Engie (upstream LNG), Direct Énergie and EREN RE – covering the fields of natural gas, solar and wind energy to enrich our energy portfolio. Our global commitments to deliver LNG and expand across the integrated value chain work well to align with China's environmental objectives, as the country shifts its power generation from coal to gas and renewables.

Natural Gas

The gas share in China's energy mix is expected to grow from 7% in 2017 to 10% by 2020, ultimately reaching 15% in 2030 – more than double the current percentage. Since 2010, Total has cumulatively supplied Chinese companies with around 9.3 million tons of LNG. This adds to our global portfolio of 15.6 million tons in 2017, marking our position as the second-largest LNG player in the world. We have also been actively involved in completing several LNG spot transactions and executing beneficial deals with Chinese buyers.

In October 2018, Total and CNOOC signed an amendment of the existing Sale and Purchase Agreement (SPA) initially signed in 2008. This extended the contract to 20 years and increased the volume of LNG from 1 million tons per annum (Mtpa) to 1.5 Mtpa. This is a substantial increase of our presence in China, a market which grew over 50% in the first half of 2018 and will continue to drive the growth of LNG demand over the next decade.



In 2016, Total signed a significant deal with ENN, one of the largest private gas distributor in China, to supply a half million tons of LNG per year. This constitutes a major breakthrough for Total as being the first foreign company to sign this kind of long-term deal with a private Chinese buyer.

Solar

Total is always prepared for the future through our expertise in core renewable energies. Our subsidiary SunPower, a global solar leader in high-efficiency photovoltaic technologies, marks the foundation of our renewables strategy.



Since 2012, SunPower has established several joint ventures with Chinese partners on different segments of the photovoltaic value chain. In addition to contributions to solar plants in Inner Mongolia and Sichuan, we

have also established a joint venture with Dongfang Electric and Tianjin Zhonghuan Semiconductor. Based in Yixing, Jiangsu province, this facility manufactures SunPower's efficient and durable P-Series modules. SunPower and its Chinese partners plan to expand production capacity to five gigawatts by 2020.

Efficient Storage

Renewable energy sources may run into the issue of inconsistent power output. Efficient electrical storage systems work to counteract intermittence, greatly enhancing the stability of renewables and maximizing their benefits.

In 2016, Total acquired Saft and its advanced battery systems. These offer long-term solutions for reducing fossil fuel consumption by efficiently storing the energy generated by renewable sources. In China, Saft serves market sectors ranging from civil electronics to rail markets – evidenced by our rapid growth in these markets. The annual volume capacity has ramped up from 10 million cells per year in 2008 to 65 million in 2017.

Saft recently completed a contract to supply 168 of its MRX batteries to new trains in the Qingdao metro, providing essential reserve and traction power. Saft will also provide battery systems for new semi-automatic trains in Changzhou. We believe that working in line China's Belt and Road Initiative will bring Saft even stronger leads in the rail market.

Refining & Chemicals

Total processes oil, which may be virtually unusable in its crude state, into intermediate and finished products such as fuel, home heating oil and polymers that are part of our everyday lives. With expertise covering refining, petrochemicals, polymers and specialty chemicals, Refining and Chemicals is a major processing and unlocking value segment for Total. We are one of the first international oil companies to participate in the refinery business in China.

Hutchinson

With our specialty chemical subsidiary Hutchinson, Total stands as a global leader in vibration control, fluid management and sealing technologies. Our solutions help make mobility safer and more energy efficient, allowing us to outperform peers and establish a firm position in the local market. Since 1995, Hutchinson has gradually expanded its production facilities in China. The opening of manufacturing plants in Suzhou, Wuhan, Chongqing and Shenyang has led us to become a key industrial player in the market.

Hutchinson expanded manufacturing plants in Shenyang and Wuhan in

2016 to accommodate increasing orders from premium automotive brands. We have also achieved solid results with local Original Equipment Manufacturers (OEMs), working with them on new product solutions and solidifying Hutchinson's reputation as a reliable partner.

In 2017, we decided to build Hutchinson's 822 FAB HOUSE in Suzhou, joining our two other FAB HOUSE locations in France and the US. After its completion in first half of 2019, it will become a technical ground where the future products of Hutchinson Asia will be created and developed for automotive, aerospace,



rail and general industries. The 822 FAB HOUSE will help advance China as more than just a manufacturing ground; it will serve as the base of our research and innovation in providing new solutions for our growing customers.

Polymers

Total is a global leader in petrochemicals production technology. We are constantly seeking to cater to China's changing consumer market, while also providing high-value-added polymers that boost performance and give our customers competitive advantages.

Total operates the sales of its vast range of polymers, namely polyethylene and polypropylene, via its Specialties, Distribution & Technology team in China. Our polyethylene is mainly used for pipe applications here, whereas polypropylene is used in the automotive industry.



Our affiliate Cray Valley manufactures and supplies a large number of products to the server rubber market (metallic monomer products), the adhesives and sealants market (hydrocarbon resins) and specialty markets (metallic monomers, and diene-based polymer).

One of our other vital subsidiaries, Total Corbion, produces and markets polylactic acid (PLA) polymers. PLA is a biobased and biodegradable polymer made from annually renewable resources, offering a reduced carbon footprint compared with many traditional plastics.

Above all else, safety is crucial in the refining and chemicals industry. Total continues to prioritize our adherence to safety and responsibility in China, making sure to maintain the environmental sustainability and benefit of all employees and stakeholders.

Marketing & Services

Total's Marketing & Services develops and markets a large variety of high quality and innovative petroleum products including fuel, specialty goods and other associated services. Our service stations are at the forefront of our strategy to meet the demands of our customers worldwide.

Globally, Total is the world's fourth largest distributor of lubricants and the leading distributor of petroleum products. We operate 50 production sites worldwide where we manufacture products like lubricants, bitumen, additives, special fuels and fluids. Total serves more than eight million customers per day in its network of over 16,000 service stations in over 100 countries.

Stations and Fuel

In China, Total operates more than 300 service stations under two joint-venture companies with Sinochem, as well as a wholly-owned company in Wuhan. We have been working on expanding our service station network. Our strategy remains anchored on safely delivering efficient, high-quality fuel products and innovative services to our customers. To improve customer experiences, we have also introduced an e-membership program and mobile payment solutions to align with the local advances in digitalization.



We also introduced the TOTAL EXCELLIUM premium fuel to the Chinese market in 2017. As a Total Ecosolutions product, TOTAL EXCELLIUM improves engine efficiency and contributes to a reduction in polluting emissions (e.g. carbon monoxide, hydrocarbons).

Lubricants

Total is also a major producer and supplier of lubricant products in China. We provide a full range of diversified lubricant products for the automotive, industrial and OEM markets. Total also serves China's shipping industry with marine lubricants.



Since its entry into China in 2012, sales here have continued to grow, becoming one of Total's largest lubricants markets by volume. To ensure stringent product quality and optimal satisfaction, Total has invested in three lubricants plants, a grease plant and a nationwide logistics network.

In addition to fuels and lubricants, Total is also a producer and supplier of specialty products for a wide range of highly specialized applications.

Products include de-aromatized products, fuel additives and a range of eco-friendly products customized to meet industry needs. Total markets and supplies these products through Total Petroleum Shanghai to a wide base of customers across China. Market applications include drilling fluids, inks, tire production, paints and coatings to crop protection.

Sponsoring competitive sports remains a cornerstone of Total's M&S strategy. We seek to promote healthy lifestyle and strengthen brand awareness through supporting local sporting events. Total has been the official sponsor of three major events under the Badminton World Federation (BWF) since 2015, with the partnership having been renewed to 2021. Since 2017, Total has organized the Total-Li Ning-Li Yong Bo Cup 3V3 Badminton Tournaments, which attracted extensive attention and created a new world record for the largest number of badminton contestants in one tournament. Our strategy is also illustrated in our support for motorsports, as we have provided our lubricants to a number of top-level races in China and around the world.



Research & Development

Innovation is a core part of Total's DNA. Our researchers are motivated to create new products and services that anticipate social changes and transforming needs. They play a driving role in improving our energy usage and create environmental-friendly solutions. In 2017 alone, Total spent over USD 1 billion on Research & Development.

China is at the forefront of this century's technological developments, especially in new energies. Right now, it already accounts for 50% of the world's renewable market. For our long-term objectives, partnerships with renowned academic institutions and enterprises help us to enhance our excellence. So far, we have over 40 research projects with Chinese partners in just the past 10 years. It covers wide domains such as climate challenges, advanced numerical simulations, traditional energy production, biotechnology and more. These partnership programs incubate innovation for not only China, but also the whole world.

Total has been seeking a leading role in developing carbon capture, utilization and storage (CCUS) technology for many years. CCUS is an important effort to tackle climate change as a low-carbon emission solution. In China, we seek to go even further with the Chinese-Europe Emissions-Reducing Solutions (CHEERS) project. As a massive cooperative effort, the CHEERS project aims to build the world's largest Chemical Looping Combustion (CLC) demonstration model, a key step toward the large-scale and low-cost CCUS. In addition to financial support from the Chinese and European governments, partners also include prestigious universities from both China and Europe, as well as premier local equipment manufacturers. The fruits of our collaborative research have already yielded a working



Total's supercomputer Pangea offers the world's leading computing power.

cold model in Sichuan, which was successfully activated at the end of 2018.

Innovation can also spring from specialized startups, a reason why Total Energy Ventures (TEV) invests in energy startups around the world to address the energy challenges of the future. Through TEV, we acquire minority interests in innovative startups, support them financially and provide them with vital expertise and connections. In 2018, TEV invested USD 50 million into the Cathay Smart Energy Fund in China, alongside the government of Hubei province and Cathay Capital. As one of the largest energy investment funds in China, it focuses on areas related to renewable energies, energy internet, energy storage, distributed energy, smart energy and low-carbon business.

Since 2009, Total initiated the Total China Scientific Forum (TCSF), an international platform to promote the exchange and cooperation of evolving innovations and their applications for the energy industry. Over a thousand Chinese researchers, managers and

investors participated this annual event. The 9th TCSF in 2018 targeted artificial intelligence and big data innovation across the energy industry, providing a unique opportunity to discuss the latest evolutions in these fields.



Sustainable Development in China

Safety

At Total, safety is more than just a business principle – it is embedded as an integral part of our DNA. For us to be a responsible energy major, it would be inconceivable to not prioritize safety. As we often operate in risky environments due to the scope of our work, safety is a daily battle that must be waged with humility and vigilance.

Our industry-leading safety figures are the result of our relentless drive for safety, reflected in the continuous decline of our TRIR and LTIR figures over the past decade. In 2017, we published the latest edition of our 12 Golden Rules on occupational safety. These are based on lessons learned from our various businesses and they recognize the risks often faced in our industry.



Subsequently, on every World Day for Safety, all of Total China's offices, facilities and subsidiaries carry out a range of activities to apply these Golden Rules – boosting employee safety skills. In 2018, we promoted the "SAFETY+" digital platform.

A Culture of Safety in China Operations

In line with our commitments on proactivity and pioneer spirit, Total takes the initiative to ensure safety. By creating a culture that upholds awareness and readiness, preventative measures have carried over into our China operations.



In 2018, Total Lubricants' Zhenjiang plant successfully achieved a record of 4,000 days without loss-time accidents. Total Tianjin Manufacturing also demonstrated our safety culture by winning the Advanced Unit of Safe Production award by the Tianjin Free Trade Zone Administration of Work Safety in 2017. Moreover, Total-Sinochem Fuels held a joint drill with the Liaoning Branch of CNPC in Shenyang. The drill enhanced emergency response capabilities for both companies, while also working to reduce the severity of accidents.

We are tremendously proud of the fact that fatalities in China have remained at zero since September 2007.

Total Road Safety Training

Over the years, we have always strived to share our knowledge in safety with the communities we engage with. This is demonstrated through our Road Safety Training program, which imparts our best practices and teaches the value of safety to the most vulnerable members of the society: children. Children are far too often victims of traffic accidents, so building a robust road safety culture among schoolchildren can have a positive effect.

Since the launch of our road safety education program in 2010, we have trained over 10,300 students across 17 Chinese cities and distributed over 13,000 safety books. In 2018, special



training sessions were organized for families, including a presentation by traffic officers and interactive games with children that increase road safety awareness for both them and their parents. We have also sought to spread the importance of safety to tens of thousands of people through social media and other digital platforms, providing downloadable digital safety books and reinforcing our commitment to safety for the people we serve.

Education

To create a shared value with our host countries, the key lies in supporting local education and community development to help build the skills of future generations. This is demonstrated by sharing our unique expertise through Total Professeurs Associés, scholarships and long-term partnerships such as the CUPB Summer School.

Total Professeurs Associés

Total Professeurs Associés (TPA) is one of our most successful initiatives in bridging the gap between the energy industry and academic institutions. Consisting of a group of senior or retired professionals from Total to share their industry expertise, TPA has been active in China for more than ten years since 2004, providing intensive practical courses on topics covering many aspects of the energy industry. We have partnered with numerous top universities such as Tsinghua University, the South China University of Technology (SCUT) and the China University of Petroleum in Beijing (CUPB).



TPA has thus far successfully delivered 198 integrated weeks and 168 short conferences to over 15,700 students in 19 universities. In 2018, Tsinghua's TPA courses on energy transitions, climate change, new energies and new markets became regular credit courses for the first time. Also in 2018, SCUT held a celebration ceremony for its decade-long partnership with TPA, recognizing our regular annual safety courses at SCUT since their onset. Total and SCUT in 2013 had also jointly established a Chemical Process Safety Center for further exchanges on safety expertise.

CUPB Summer School

Total China and TPA have been working with China University of Petroleum Beijing (CUPB), one of the premier Chinese petroleum universities, to arrange the annual National Postgraduates Summer School since 2007. Students are taught on subjects ranging from intercultural management to crude oil production. As a flagship program in cooperation between the industry and universities, this summer school has progressively raised its visibility. Since 2007, nearly 1,800 graduate students from over 40 universities across China have successfully completed, helping to boost local higher education in petroleum.

In 2018, 95 postgraduate students participated the CUPB Summer School. Two TPA professors delivered courses in various fields, such as shale oil and gas, and the development of talent and leadership in the industry.



Scholarships and Total Energy Summer School

To better facilitate access to higher education, Total has funded over 10,000 university scholarships in 40 countries. 25 Chinese students have studied in France while receiving Total International Scholarships. For over a decade, Total Lubmarine has also provided annual scholarships to both Shanghai Maritime University and Dalian Maritime University.

From 2006, Total has organized Total Energy Summer School (TESS) in Paris. Almost a hundred students from around the world are selected every year to work alongside academic and industry experts to learn from and explore the energy industry. Over a hundred Chinese students, many of whom are now employed in the industry, have attended the program.



Public Health

Throughout the years, Total has developed numerous programs around the world seeking to help enhance local community health standards. Our vision of a more sustainable world includes working to help countries be healthier. China is no exception.

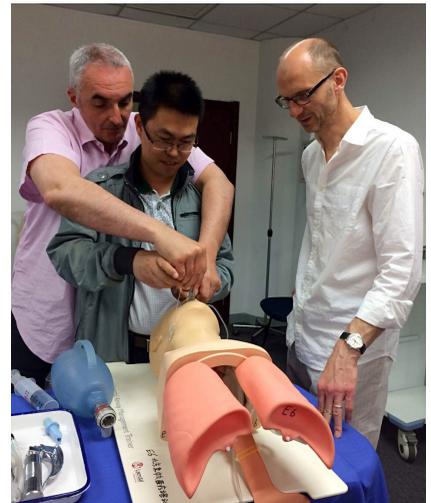
Our activities promote emergency and disaster management, first aid training, trauma treatment and personal health and well-being programs. Strengthening public health here reinforces our commitments to Chinese communities – commitments that go beyond just business operations.

The Sino-French Emergency and Disaster Medicine Center

We have a longstanding history of promoting Sino-French cooperation to improve the two countries' emergency and disaster systems, providing high-level continuous medical training for Chinese specialists in emergency medicine. With this goal in mind, we partnered with Beijing Municipal Health Commission and the French Embassy to establish the Sino-French Emergency and Disaster Medicine Center in 2008. A decade later, 176 French and Chinese experts have delivered more than 3,000 hours of courses to more than 11,400 Chinese medical professionals – making an immeasurable impact on local communities.

The center's activities have been expanded over the years, focusing on spreading positive knowledge. In May 2018, the center held numerous seminars on trauma treatment in Beijing. 56 emergency doctors from around the country participated in the event, where experts shared the latest knowledge and experiences in the fields of disaster medicine and traumatology.

The center also organized the 2018 Emergency Ultrasound Seminar in July, where experts were invited as lecturers to share their advanced expertise in the field. 48 Chinese emergency doctors from level-three hospitals in Beijing participated in the training. Ultrasound exams



in emergency departments are tremendously useful for the diagnosis and treatment of critical diseases.



Shaping Tomorrow's Energy

Energy is a central part of the challenge to keep average global temperatures from rising more than 2°C, in accordance with the International Energy Agency (IEA)'s Sustainable Development Scenario. To build a foundation for our efforts, we started by asking: what are the mechanisms that we can help put in place, and how can we foster certain conditions to favor success?

Total's strategy works to respond to these questions for both the industry and the international community, seeking to build a comprehensive and diversified long-term growth plan to shape the path to tomorrow's energy.

Reducing Carbon Emissions

Total recognizes that carbon emissions are a major contributor to climate change, while understanding that oil and gas companies are in a unique position to help mitigate and reduce emissions. At Total, we are committed to reducing carbon emissions, improving air quality and ensuring universal access to modern energy services.

This will require a rapid decrease in carbon emissions consistent with the Paris Agreement and it highlights the need for a multi-pronged approach. The 2°C Scenario would require emissions of no more than 35 Gt CO₂-eq in 2035, yet current trends are leading us to approximately 75 Gt CO₂-eq in 2035 – a significant gap from the ideal target.

Here are two key approaches to reducing emissions that we are pursuing at the global level:

Providing a Responsible Energy Mix

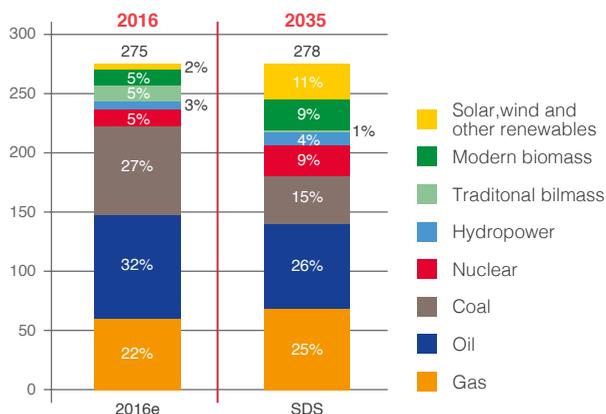
Twin challenges lie in exploring all the possible avenues for improving energy efficiency – while also decreasing the share of carbon in the energy mix. Neutralizing coal usage was a significant positive step towards this.

With the advancement of technology in sectors such as the digital economy, new forms of transportation, distributed power generation and more, products and services are increasingly relying on solely electricity.

As a consequence, the demand for electricity is rapidly rising, surpassing other forms of final energy. This in turn results in an environment where not all fossil fuels are equal – highlighting the priority of gas going forward. Natural Gas is the cleanest fossil energy and can be used to generate power.

At the same time, the share of oil will begin to decline gradually whereas the share of renewables, is projected to soar over the same period.

World Primary Energy Demand (Mboe/d)



Source: IEA, World Energy Outlook 2017

Supporting Sustainable Technologies

As certain technological advancements increase the demand for power, emerging energies can also provide new solutions to help sustainably meet those demands.

Total is a founding member of the Oil and Gas Climate Initiative (OGCI), investing in forms of technology that have the potential to significantly reduce emissions from energy production to consumption. In 2017, we allocated more than USD 1 billion to R&D projects related to low-carbon technologies in the field of renewable energy, energy efficiency, biofuels and CCUS.

Total also shares its commitment and technical expertise with international initiatives. We are part of UN and World Bank coalitions to introduce carbon pricing, as well as the Breakthrough Energy Coalition (BEC) to help develop new companies in the energy field.

Partnering with International Initiatives:

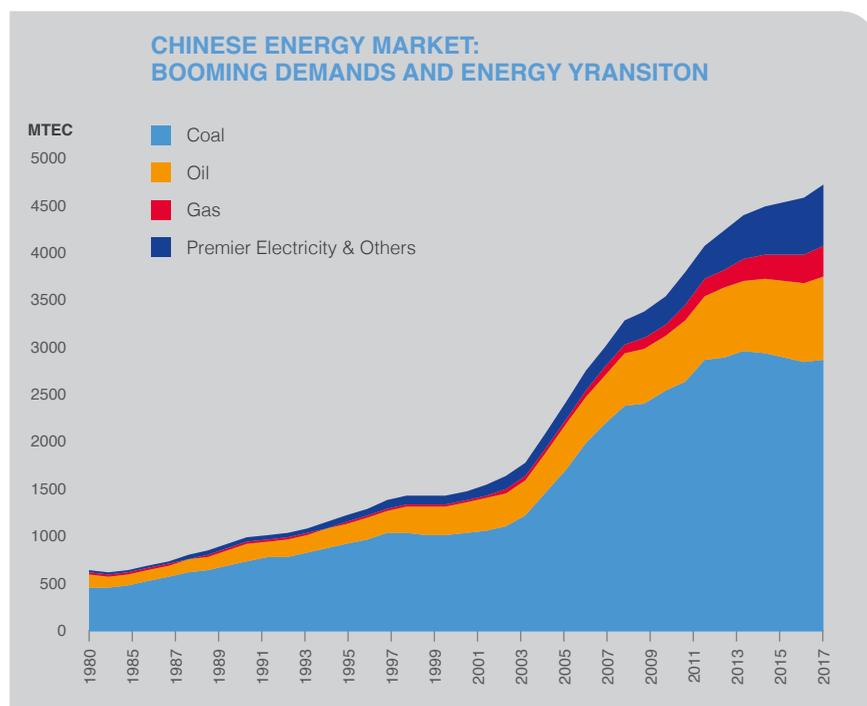
- The World Bank's Carbon Pricing Leadership Coalition
- The U.N. Global Compact's Caring for Climate Initiative
- The Paying for Carbon Coalition
- The World Bank's Zero Routine Flaring by 2030 Initiative
- The Breakthrough Energy Coalition

Transitioning to a Low-Carbon Energy Mix in China

The challenges posed by meeting the 2°C scenario are also challenges that China faces. As the world's largest energy consumer, the country has begun to diversify its energy supply into a low-carbon mix to address pressing environmental concerns. This is evidenced in the country's latest Five-Year Plan, which emphasizes cleaner energy, reducing the reliance on coal and vigorously promoting the role of natural gas and renewable energies.

At present, China has become the largest gas importer and its share of gas in the energy mix will increase to 15% by 2030. At the same time, investment in renewables such as solar and wind are surging. China has committed to make non-fossil fuel energy 20% of its energy supply by 2030, and exceed 50% by 2050. The country's installation capacity of hydroelectric, wind power and photovoltaic generation all surpass the scale of other projects worldwide.

China is undeniably playing an active role across the field of emerging energy technologies, with the expectation of cutting its carbon intensity by up to 65% from 2005 to 2030. Total's objective is to work in step with China to drive a sustainable energy future together.



Source: China 2016-2030 Energy Production and Consumption Reform Plan

Our Initiatives

To achieve the ambition of becoming the responsible energy major while supplying affordable, reliable and cleaner energy to as many people as possible, we will be focusing on five major drivers:

- Improving Energy Efficiency
- Expanding across the Natural Gas Chain
- Integrated Growth in Low-Carbon Electricity
- Decarbonization Through Biofuel
- Advancing Carbon Storage

Improving Energy Efficiency

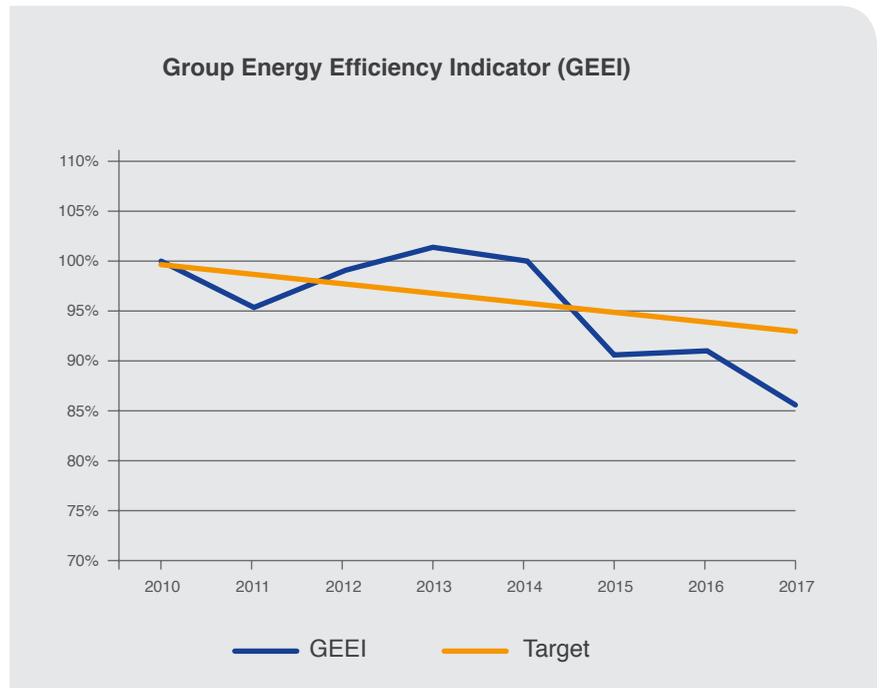
Raising energy efficiency is a key driver to reduce emissions, and an immediate step we can take is to optimize our own operations. Improving energy efficiency is crucial to us as we seek to encourage a business environment that fosters and advances sustainable development.

Total continues to reduce direct greenhouse gas emissions by focusing on two main aspects. Out of all emissions, 46% comes from our Exploration & Production segment and 53% comes from our Refining & Chemicals segment. For this reason, we have been reducing routine flaring operations in production activities, with the eventual goal of elimination by 2030. In addition, we have enhanced energy efficiency efforts throughout our facilities.

Indexing Our Efficiency

To monitor our goal of improving energy efficiency by 1% per year from 2010-2020, we developed a Group Energy Efficiency Index (GEEI). In 2010, the target was to reduce the GEEI to 90.4% by 2020. By 2017, we surpassed that by reaching 85.7%, largely due to the significant decrease in routine flaring.

Total is aggressively pursuing ways to increase our standards and knowledge on energy efficiency. In October 2017, we completed the acquisition of GreenFlex, a major actor in advancing efficiency through data intelligence and equipment management. This acquisition reflects Total's commitment to energy efficiency by offering multidisciplinary solutions to support customers seeking to optimize their energy usage and reduce greenhouse gas emissions.





Total Ecosolutions

The benefits of products and services with the Total Ecosolutions label include reduced carbon emissions, lowering volatile organic compound content and decreasing the use of natural resources. Launched in 2009, the program helps our customers be smarter by offering them solutions that outperform the market standard in environmental impact.

We have introduced our TOTAL EXCELLIUM line of fuels in China, which is a star product with a Total Ecosolutions label. Enriched with detergents to keep essential engine components clean, TOTAL EXCELLIUM prevents fouling by up to 93%. By eliminating deposits and fighting corrosion, it contributes to more efficient and better running engines – in turn reducing carbon emissions.

TOTAL EXCELLIUM fuels are a range of premium fuels that offer average energy savings of up to 2.7% depending on the vehicle.



Sharpening Our Expertise

In elastomers, Total subsidiary Hutchinson has become a world leader on vibration control, fluid management systems and insulation. State-of-the-art expertise has led to solutions that can reduce vehicle weight by up to 30% and optimize the regulation of engine heat and energy efficiency across the board. These benefits apply to car and truck manufacturers, as well as rail and aerospace industries.

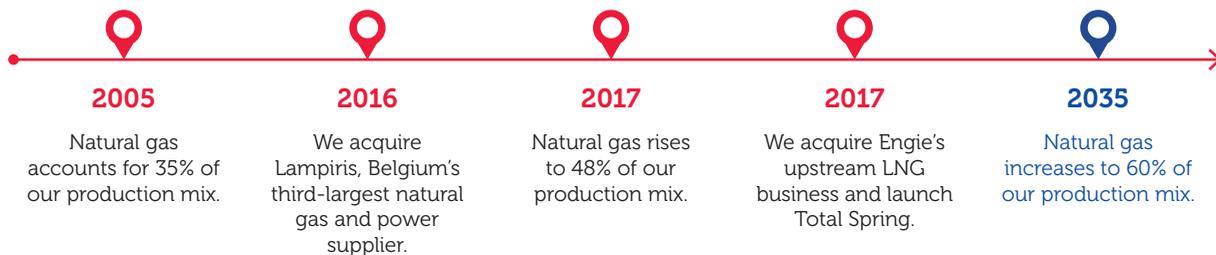
Expanding across the Natural Gas Chain

Faced with the challenge of combating climate change while ensuring continuous supply to meet growing energy demands, natural gas is one of the best available options. In addition to being the cleanest fossil energy, LNG is abundant, flexible, able to offset the intermittence of renewables and is competitively priced. By expanding across the entire value chain from production right to customers, Total is able to better utilize the growing role of gas in the global energy mix.

Used for heat, electricity, and transportation, natural gas serves as a lower-carbon alternative to coal. By 2040, gas consumption is expected to climb by at least 20%, accounting for nearly a quarter of energy demand worldwide. Most of that will come from developing nations in the process of shifting from heavy coal usage, including China. Total is proud to have exited all coal operations in 2015.

Total's capabilities in supplying natural gas have steadily expanded to nearly 50% of all production in 2017, compared to 35% in 2005. Within 20 years, we expect that figure to approach 60%. In 2020, Total will be managing 40 million tons of LNG, making us the world's second-largest operator.

Milestones



Providing Natural Gas to China Market

China's gas demand grew at 14.8% in 2017. Imports surged by 46%. In order to meet the country's accelerating growth, gas production has continued to grow in the TOTAL-PetroChina joint South Sulige project. By pushing slim-hole drilling new technology, Total has helped curb both operational costs and environmental impacts. This technology will soon be deployed to every new well in South Sulige in pursuit of a successful field test result.

In addition, expanding LNG supply in China is part of our integrated effort to match China's demand as well as its goals in energy transformation. In cooperation with Chinese SOEs, Total helps import LNG from the giant Yamal project to China.

Located in northern Russia, Yamal LNG is one of the largest gas liquefaction projects in the world, with estimated reserves equivalent to 4.6 billion barrels of oil. With partners such as CNPC, we reached the milestone of exporting the first gas shipments in December 2017. With China standing as a major recipient of Yamal's LNG, Total facilitates these imports to the Chinese market.



Utilizing Natural Gas on Transportation

Total believes in the future of natural gas as a transportation fuel and is investing in this area, thereby contributing to greener mobility.

For trucks and other long-haul vehicles, we are developing and marketing fuels for natural gas vehicles (NGV), allowing cleaner and quieter alternatives to diesel. For city vehicles, such as commercial vehicles, buses and garbage trucks, we are focusing on compressed natural gas (CNG). This will offer particular benefits for regional driving under a range of 550 km, where using CNG is cheaper than LNG. Both types of natural gas are ultimately new ways to fuel road transportation as a credible substitute to conventional fuel.

At sea, Total Marine Fuels Global Solutions offers a variety of options – including LNG – to comply with the upcoming sulfur content cap of 0.5%, compared to 3.5% today.



Integrated Growth in Low-Carbon Electricity

Advancing technologies are sparking an increasingly electric world. With new transportation forms, expanding digital economies and more, electricity will account for 40% of the rise of all energy consumption by 2040. This is the same share of oil growth over the past 25 years.

Technological advancements in new forms of electricity production have made costs cheaper and these technologies more readily available. Photovoltaic solar and efficient battery storage are at the core of our ambitions of supplying clean energy and reducing carbon intensity.

To match our expansion of low-carbon operations, Total is continuing to acquire new businesses to enhance our expertise in reducing carbon and enrich our current energy portfolio, like wind. Beyond that, our think tank initiatives continue to discover new ways to implement low-carbon practices, engaging with partners and municipalities around the world to be as solution-focused as possible.

Solar

Significant progress has been made with Total's existing affiliates in renewable energy. SunPower, which has expanded in the Chinese market, manufactures solar panels verified at 22.8% efficiency. That is 44% better than average over standard photovoltaic systems. This generates more energy out of each square meter deployed, lowering the cost of solar electricity in high-cost locations, or even in places where sunlight may not be in abundance.

SunPower has established numerous important partnerships in China, from our first solar power station joint venture in Inner Mongolia, to a solar project with Apple in Sichuan. Our presence has also further expanded in deals with Dongfang Electric and Tianjin Zhonghuan Semiconductors to produce panels, as well as supplying solar modules for the UNDP's Panda Solar Power Plant program.

10 GW

Total's power production capacity (gas-fired and renewable energy power plants) within five years.

20%

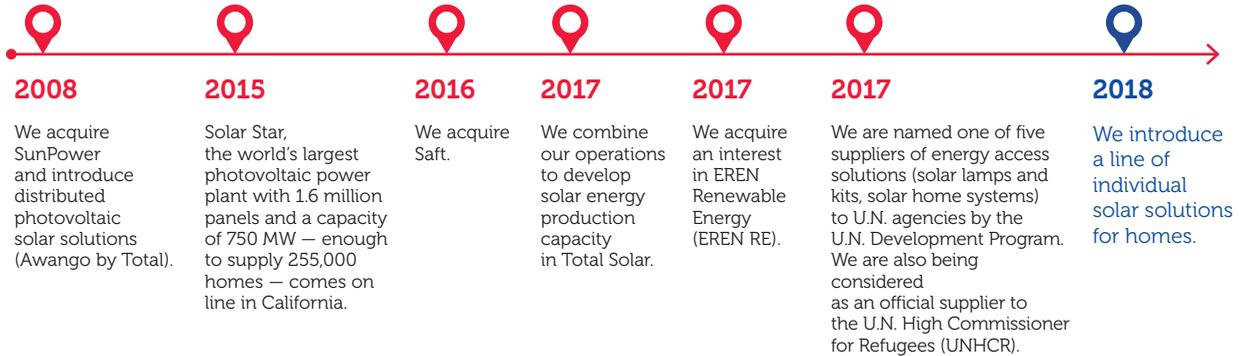
Share of Total's assets in low-carbon businesses in 20 years' time.



On a larger scale, Total can now operate across the entire photovoltaic solar value chain, from manufacturing to marketing with Total Spring and Direct Énergie. Their technical

expertise also aids our R&D on next-generation energy management and control systems – significantly slashing the cost of energy usage.

Milestones



Energy Storage

Energy storage technology is necessary to the future growth of renewable energies, especially in transportation industry. Better energy storage could help reduce transportation-related carbon emissions by 40% between now and 2030, a fact recognized by the global rail industry. In China, the increasing demand for better energy storage has led Saft to support metro lines in a number of cities with its high-performance lithium-ion MRX battery systems.

Saft's MRX batteries overcome technical challenges in hybrid and electric propulsion. In a process known as demand response, operators can easily manage production peaks and troughs, while also reducing power loss during transmission and distribution. MRX batteries additionally provide low maintenance, long service lives, light-weight designs and extreme reliability in variable weather.



Decarbonization Through Biofuels

As a renewable and low-carbon resource, biomass encompasses all organic material derived from plants and animals. Biomass can be turned into biofuel, which helps decrease emissions when used as a substitute or blend for oil and gas fuels. As such, biofuels have the potential to be a major ingredient in creating a sustainable energy future.

By reducing carbon dioxide emissions by at least 50% compared to regular fuels, biofuels will increasingly become a substitute for conventional energy. As a pioneer in biofuels for more than 20 years, Total is now the leader in Europe, presents across the entire value chain from R&D to industrial production.

We are involved in the two major biomass conversion pathways:

- Thermochemical conversion, which enables biomass to be transformed into a wide range of molecules, through the combined action of pressure, temperature and often a catalyst.
- Biotechnology, which uses microorganisms, such as yeast or bacteria, to convert biomass into targeted molecules.

Most biofuels are manufactured from vegetable oils or sugar. Our R&D teams have been preparing the future for more than a decade by developing technology to expand the range of resources that can be sustainably and competitively processed.

La Mède – A Better Biorefiner

Total's La Mède biorefinery produces half a million tons of hydrotreated vegetable oil (HVO) biodiesel per year, leading the way in high-quality biofuels. HVOs can be blended with fossil fuels in any proportion, while also usable in its pure form – significantly reducing emissions of microparticulates and nitrogen oxides. The biorefinery was designed to produce biofuels from various types of oils, including sustainable vegetable oils, used oils, residual oils and animal fats. Continuing the trend of increasing operational efficiency, La Mède is planned to reduce its energy consumption by 8% by 2020.





Advancing Tomorrow's Bioproducts

The number of air passengers is projected to double from three billion to six billion per year between now and 2030. In order to meet those demands while still contributing to the reduction of greenhouse gas emissions, Total provides biojet fuel solutions. Both Cathay Pacific and Air China have been powered by Total's biojet, now capable of being produced at La Mède.

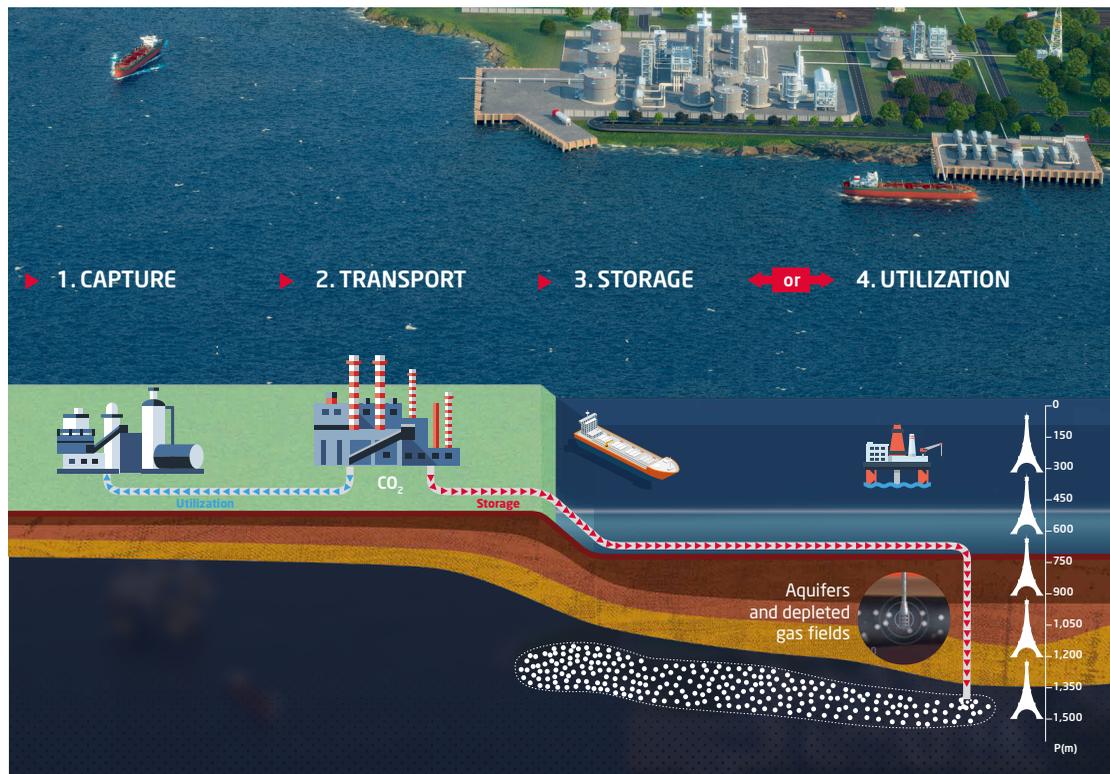
Compared to the immense potential they hold, biodiesel and biojet fuels are still in a nascent stage of development. Due to this, Total and five other partners have embarked on the BioTfuel project, transforming lignocellulosic biomass (straw, forest waste, dedicated energy crops)

into biofuel through thermochemical conversion. The resulting biofuels do not contain any sulfur or aromatics, and thus usable while pure or blended in all types of diesel and turbojet engines. The eventual goal of BioTfuel's developments is to transpose its process on an industrial scale, in what would be a massive step in the decarbonization effort.

Microalgae, as microorganisms that can transform CO₂ directly into molecules of interest, also offer promising prospects. To demonstrate the industrial potential of this resource, Total is conducting a variety of R&D projects in partnership with players in the research world, such as China's Qingdao Institute of Bioenergy and Bioprocess Technology (QIBEBT).

Advancing Carbon Storage

Carbon storage is a must for the planet to achieve carbon neutrality in the second half of the century. As a key storage form, carbon capture, utilization and storage (CCUS) is a vital tool in the fight against climate change. It provides the option of zero-emission gas-fired power generation as a low-cost alternative to renewable energies. In the energy industry, the projects with the best cost-benefit ratio per unit of energy are the driving force in feasibility.



The Northern Lights

With multiple partners, the large-scale Northern Lights project is looking at the transportation and storage of emissions generated by the cement industry, as a prelude to examining its use in other industries. The first phase of the project targets a carbon transportation and storage capacity of 1.5 million tons per year, holding the potential to significantly expand and act as

a template that spurs similar project in other European countries.

In September 2018, the project was approved in Norway to conduct offshore injection and CO₂ storage operations. It will capture CO₂ from three onshore industrial facilities in Eastern Norway and transport CO₂ by ship from the capture area to a receiving onshore plant.



Cheers to Chinese-European Cooperation

China's flourishing innovation base has paved the way for CCUS development, marked by the Chinese-European Emission-Reducing Solutions (CHEERS) project. As a testament to global cooperation, Total is working on a prototype plant that will be able to generate power and steam almost entirely with captured carbon. This utilizes an innovative technology known as Chemical Looping Combustion (CLC), taking advantage of the pure CO₂ produced by oil and gas combustion.

CHEERS partners with experts from Tsinghua University, Dongfang Boiler, Zhejiang University, and other leading European academic institutions. This allows us to benefit from China's expertise in industrial combustion technology and to adapt and repurpose existing facilities, while also augmenting development with our research and knowledge in CCUS.

In November 2018, a cold model was tested ahead of developing a hot 3MW scale boiler system. This successfully simulated the CLC process in a ten-meter high pexiglass model, while also providing training experience for future operations with hot boilers. In a long-term and multi-step process, Total aims to eventually bring online an industrial plant capable of up to 500 thermal megawatts – all through CCUS.



INVOLVED ALONG THE ENTIRE VALUE CHAIN IN CHINA

1st

International energy company to enter offshore and refining business in China

More than
4,000
employees in China

-  Onshore Exploration And Production
-  Offshore Exploration and Production
-  Solar Power Plant
-  Solar Manufactory
-  Energy Storage
-  Refining and Chemicals
-  Lubricant blending plant
-  Elastomer processing (Hutchinson)
-  Office
-  Total Brand Service Stations
-  Joint Venture with Sino-Chem

Key Figures of the Group (2017)



98,277
employees



Adjusted net income
\$ 10.6 billion

A global energy leader



No. 4
oil and gas company
worldwide
Produced **2.6** Mboe/d oil and gas
Managed **15.6** Mt Liquid Natural Gas



Refining Capability:
2Mb/d
2.4 Mt of biofuels blended into
gasoline and diesel



A major integrated
Solar operator



8 million
customers worldwide each
day served at **16,630** Total
service stations worldwide

Responsible growth



30%
decrease in direct
greenhouse emission



R&D spending of
over **\$ 1 billion**
in 2017

total.com.cn



Total is a major energy player committed to supplying affordable energy to a growing population, addressing climate change and meeting new customer expectations.

These commitments guide what we do. With operations in more than 130 countries, we are a global integrated energy producer and provider, a leading international oil and gas company, and a major player in low-carbon energy. We explore for, produce, transform, market and distribute energy in a variety of forms, to serve the end customer.

Our 98,000 employees are committed to better energy that is safer, cleaner, more efficient, more innovative and accessible to as many people as possible. We focus on ensuring that our operations consistently deliver economic, social and environmental benefits. Our ambition is to become the responsible energy major.



Total (China) Investment Co., Ltd.

28/F, China World Office 1,
No.1 Jianguomenwai Avenue,
Beijing 100004, P.R. China

Tel: (86 10) 8590 5666

Fax: (86 10) 8590 5888

Email: hd.comms-china@total.com