

THROUGH
OUR WORK
WE DEFINE energy is opportunity
OPPORTUNITY

—
Saudi Aramco
annual review 2015

THROUGH
OUR WORK
WE DEFINE
OPPORTUNITY

energy is opportunity

Saudi Aramco
annual review 2015

inside the review

Disclaimer: Each company affiliated with the Saudi Arabian Oil Company ("Saudi Aramco"), and in particular, each subsidiary company including their associated research centers, is a separate entity that manages and controls its own affairs. The use of terms such as "company," "Saudi Aramco," "organization," "it(s)," "our(s)," "their(s)," "we," and "us," and of abbreviated titles, is only for convenience in reference and is not intended as an accurate description of the individual status of any legal entity or corporate relationship, or to indicate that Saudi Aramco is conducting commercial activities outside the Kingdom of Saudi Arabia.

page 9	board of directors	page 62	enabling opportunities: our commitment to the Kingdom
page 10	chairman's message	page 76	human resources: driving performance
page 11	president's foreword	page 86	citizenship: inspiring tomorrow
page 12	energy is opportunity	page 94	2015 in numbers
page 14	upstream: sustaining excellence	page 100	awards
page 26	downstream: maximizing value		
page 38	technology: pioneering advances		
page 50	health, safety, and environment: protecting resources		



The Custodian of the Two Holy Mosques

King Salman ibn 'Abd Al-'Aziz Al Sa'ud



His Royal Highness Prince Mohammed ibn Naif
ibn 'Abd Al-'Aziz Al Sa'ud

The Crown Prince, Deputy Premier, and Minister of the Interior



His Royal Highness Prince Mohammed
ibn Salman ibn 'Abd Al-'Aziz Al Sa'ud

Deputy Crown Prince, Second Deputy Premier, Minister of Defense, and
President of the Supreme Council of the Saudi Arabian Oil Company (Saudi Aramco)

global and domestic operations



 export shipping routes

 R&D center/technology office

 global office

 joint and equity ventures

Houston
Motiva Enterprises LLC

Alexandria
The Arab Petroleum Pipeline Co. (SUMED)

Fujian
Fujian Refining and Petrochemical Company Ltd.
Sinopec SenMei Petroleum Company Ltd.

Seoul
S-OIL

Tokyo
Showa Shell



Key figures

—
crude oil and
condensate reserves
261.1b barrels

—
gas reserves
297.6t scf

—
crude oil
production
10.2m bpd

—
crude oil exports
7.1m bpd

—
total raw gas
processed
11.6b scfd

—
NGL
production
1.3m bpd

—
worldwide refining capacity
5.4m bpd

—
Saudi Aramco share of
refining capacity
3.1m bpd

—
total equity chemicals production
7,016kt per annum

t = trillion
b = billion
m = million
kt = kilotons
bpd = barrels per day
scf = standard cubic feet
scfd = standard cubic feet per day
NGL = natural gas liquids

Board of Directors



Saudi Aramco's Board of Directors is chaired by HE Khalid A. Al-Falih, Minister of Energy, Industry and Mineral Resources and formerly President and CEO of the company. The Board of Directors, as the steward of the company, steers Saudi Aramco's business affairs, provides management with guidance in determining the company's long-term strategy, and assesses company opportunities and risks. The Board currently includes senior Saudi Government officials, the head of a leading Saudi academic institution, senior figures in the international oil, gas, and finance industries, as well as Saudi Aramco's President and CEO.

front row (from left)

HE Dr. Mohammed I. Al-Suwaiyel is the Minister of Communications and Information Technology of the Kingdom of Saudi Arabia

HE Dr. Ibrahim A. Al-Assaf is the Minister of Finance of the Kingdom of Saudi Arabia

HE Khalid A. Al-Falih is the Minister of Energy, Industry and Mineral Resources of the Kingdom of Saudi Arabia, and Chairman of the Board of Directors of the Saudi Arabian Oil Company (Saudi Aramco)

Amin Nasser is the President and Chief Executive Officer of Saudi Aramco

HE Dr. Khaled S. Al-Sultan is the Rector of King Fahd University of Petroleum and Minerals

back row (from left)

Andrew F.J. Gould is the former Chairman of BG Group plc, and the former Chairman and CEO of Schlumberger Ltd.

HE Dr. Majid Al-Moneef is an Advisor to the Royal Court, the former Secretary General of the Supreme Economic Council of the Kingdom of Saudi Arabia, and the former Governor to OPEC for Saudi Arabia

Sir Mark Moody-Stuart is a former Chairman of Royal Dutch Shell and Anglo American plc

Peter Woicke is a former Managing Director of the World Bank and the former Chief Executive Officer and Executive Vice President of the International Finance Corporation



Chairman's Message

By any standard, 2015 was a challenging year for the global energy industry. With an oversupplied market and a sluggish world economy, the price of oil fell by more than 60% from the previous year's high. In addition, sustainability — and in particular climate change — rose to the top of the global agenda.

The year also saw momentous developments in the Kingdom of Saudi Arabia with the accession of the Custodian of the Two Holy Mosques King Salman ibn 'Abd Al-'Aziz Al Sa'ud, a major reorganization of the government, and a new governance structure for Saudi Aramco. In September, the newly formed Supreme Council of the Saudi Arabian Oil Company (Saudi Aramco), under the chairmanship of the Deputy Crown Prince HRH Mohammed ibn Salman ibn 'Abd Al-'Aziz Al Sa'ud, convened for the first time, reviewed the company's strategies, and endorsed its five-year business plan.

Seen from a long-range perspective, challenging times are also times of opportunity. Continued economic development and rising standards of living will propel worldwide growth in energy demand, but declining investments by energy producers raise concerns about another cycle of supply constraints and therefore more market volatility. Saudi Arabia, under the leadership of

King Salman, is committed to sustaining its investments in hydrocarbon-based energy to meet future demand and power sustainable economic growth at home and around the world.

Against this backdrop, Saudi Aramco, with the support of the Supreme Council and the guidance of its Board of Directors, emphasized fiscal discipline, operational efficiency, and ingenuity to surmount current challenges, positioning itself to capitalize on future opportunities. The Board appreciates the achievements made by Saudi Aramco in a challenging environment, recognizes the steps it has taken in 2015 toward becoming a globally integrated energy and chemicals company, and is confident the company will continue to build on its legacy of success.

Saudi Aramco
safely and
sustainably delivers
the energy that
makes new
opportunities
possible.

Expanding oil and gas supplies to meet the needs of domestic and international markets is at the core of Saudi Aramco's business, and in 2015 the company delivered on its commitments, reaching record levels of oil production and gas processing, and discovering three new oil fields and two new nonassociated gas fields. The growing resource portfolio reflects national energy imperatives, with Saudi Aramco's drive to develop the Kingdom's unconventional gas resources offering the potential for a cleaner, more efficient fuel for domestic power generation and more plentiful supplies of feedstock — vital elements in the country's continued prosperity.

Saudi Aramco remained steadfast to its vision of becoming a top-tier, globally integrated energy and chemicals company. The company's expansion further downstream, designed to add value to the resource base, continued to reap benefits by introducing new product slates, creating a more diversified industrial foundation, and generating high-quality jobs in the Kingdom.

Sustained investments in technology and innovation are essential to ensuring future energy accessibility, reliability, and sustainability. Saudi Aramco's expanding network of global R&D centers and technology offices is dedicated to meeting the world's shared energy challenges. The push to become a technology leader is complemented by the company's promotion of science, technology, engineering, and mathematics skills among the nation's youth, spurring the growth of a knowledge-based society.

The Kingdom's commitment to sustainable development was underscored this year by Saudi Aramco's exhibition of greenhouse gas management technologies at the United Nation's Climate Change Conference in Paris. The company, along with other energy companies in the Oil and Gas Climate Initiative, issued an unprecedented declaration pledging practical action to reduce greenhouse gas emissions.

These, and the many other achievements of 2015, were made possible by the support bestowed on the company by King Salman, Crown Prince HRH Mohammed ibn Naif ibn 'Abd Al-'Aziz Al Sa'ud, and Deputy Crown Prince HRH Mohammed ibn Salman. The Board of Directors is grateful for their leadership, which empowers the men and women of Saudi Aramco to safely and sustainably deliver the energy that makes new opportunities possible.

*Khalid A. Al-Falih
Minister of Energy, Industry and Mineral Resources
Chairman of the Board of Directors*



President's Foreword

Holding true to our long-term strategy, in 2015 we delivered on our core mission of reliably supplying energy to the Kingdom and the world, and marked continued progress toward becoming the world's leading integrated energy and chemicals enterprise, a top refiner, and a creator of energy technologies.

If there is one constant in the oil and gas industry, it is change. The key to navigating downturns is *resilience*, the quality that enables us to not only remain on course, but to find opportunity in the midst of challenge. We remained resilient and maintained excellence because, as experience teaches us, capital efficiency combined with sustained investment in projects, technology, and people is a proven formula for powering through a down cycle.

From achieving our highest level of crude oil production on record, commencing operations at our Sadara joint venture with The Dow Chemical Company, and the startup of our Wasit Gas Plant, to the launch of two new branches of our global research network in Beijing and Detroit, our successes reflected Saudi Aramco's dual commitment to help ensure global energy security and bolster the Kingdom's economic growth.

In a historic move, we pledged, with other Oil and Gas Climate Initiative members, to take steps necessary to reduce greenhouse gas intensity in the global energy mix — further demonstrating our company's commitments to energy efficiency and reducing environmental impacts through technology solutions.

This year we lowered the energy intensity of our operations and leveraged the market downturn to renegotiate contracts, helping us to achieve significant cost savings. We launched our In-Kingdom Total Value Add program, designed to double the percentage of locally produced energy-related goods and services contracted by Saudi Aramco to 70% by 2021, driving investment, economic diversification, and job creation in the Kingdom. We also

We marked continued progress toward becoming the world's leading integrated energy and chemicals enterprise.

advanced our strategic goal of supporting the Kingdom's shift to a knowledge-based economy through a suite of initiatives that promoted skilled vocations and higher education, the growth of new businesses, innovation, and entrepreneurship.

Amid our achievements, however, we suffered a devastating loss. On August 30, as a result of a fire at a leased residential complex in al-Khobar, one employee and nine dependents lost their lives and 83 individuals were admitted to hospitals with injuries.

The company devoted its resources to addressing the needs of affected employees and their families. The close-knit Saudi Aramco community grieved as a family, and absorbing the lessons learned from this incident, we renewed our determination to prevent future tragedies.

Our achievements in 2015 are the direct result of the hard work and commitment of our people, an effort deeply appreciated by the entire management team. The men and women of Saudi Aramco are firmly dedicated to the resolution that energy is opportunity — a promise we are proud to honor to our customers, partners, and stakeholders every day.

Amin H. Nasser
President and Chief Executive Officer

Key figures

total hydrocarbon* production

12.8m bpd

energy is opportunity

People around the world depend on the products we produce — crude oil, natural gas, refined products, and chemicals — to help them achieve their aspirations. That's what drives us: The knowledge that our products are the foundational materials upon which people and societies across the globe depend for economic growth and prosperity.

We possess a deeply held belief that *energy is opportunity* and we are committed to ensuring our products reach the millions of people who rely on them. Delivering on that commitment requires people who are determined to persevere through good times and bad.

Though 2015 was a particularly challenging year for our industry, at Saudi Aramco our history is one of not merely withstanding adversity, but becoming stronger as a result. More fundamentally, what we do to overcome adversity builds strength. Successful businesses look for opportunities to thrive while continuing to pursue their goals.

Shifting market conditions are nothing new to our industry. Over the course of time, markets favor agile and diversified companies that operate efficiently and stay true to their core values. For the past several years, we have executed

a corporate transformation founded on the principles of capital efficiency, technology and innovation, operational excellence, and integration. Our Enterprise Risk Management framework and the recently approved Corporate Crisis and Business Continuity framework along with other systems have created an organization capable of responding quickly to changing conditions and have prepared us to weather extended periods of market turbulence.

We anticipate market volatility to continue for some time. Yet, we are confident that markets will inevitably rebound. According to the International Energy Agency's (IEA) *World Energy Outlook 2015*, the global economy is forecasted to grow at an average annual rate of 3.5% from 2013 to 2040, expanding to more than 2.5 times its current size over the period. Moreover, the IEA expects global liquids consumption to rise by about 17% compared to the current level, reaching roughly 108 million barrels per day (bpd) in 2040. Similarly, the global demand for natural gas in 2040 is also expected to increase by about 47% compared to 2013 levels. These favorable indicators, combined with our track record of operational excellence, safety, reliability, efficiency gains, and a relentless focus

*crude oil, sales gas, ethane, NGL, and condensate

on results, position us to take an optimistic view of the future.

The highest performing companies do not cut corners, but are frugal. They invest their capital wisely and focus on generating value efficiently and effectively. Just as farsighted financial investors find opportunities in down markets, we believe current market conditions present opportunities for fiscally disciplined companies. We have taken measures to capitalize on current market trends, including purchasing materials at reduced prices and renegotiating contracts to reflect today's supply and demand realities.

In 2015, we steadily continued our journey toward becoming the world's leading integrated energy and chemicals company. We responded to the unsettled business climate on numerous fronts, optimizing capital expenditures, deferring low-priority projects, and lowering our direct controllable costs — without diminishing our determination to deliver on our strategic vision.

Our determination was manifest in a robust capital program that resulted in the highest levels of crude oil production and raw gas processing we have ever achieved. These accomplishments, in concert with progress in our unconventional gas program, are tangible results of our commitment to ensuring that we meet the Kingdom's energy

demand while also meeting the global call on our crude oil production.

Downstream, our plan to integrate our refining network with chemicals production and associated value parks reached a major milestone with the startup of the Sadara Chemical Company, our joint venture with The Dow Chemical Company. Our SATORP and YASREF joint venture refineries were fully onstream and progress on the Jazan Refinery and Terminal was well underway. The expansion of Petro Rabigh, our integrated refining and petrochemical venture with Sumitomo Chemical of Japan, advanced toward its startup in 2016.

We invested in new technologies that promise to deliver greater levels of operational efficiency, enhanced performance, and environmental benefits. Through our global network of research centers and technology offices, we investigated technologies to reduce greenhouse gas emissions created by the production and use of petroleum while also meeting the growing demand for energy. We funded startup companies whose innovative technologies complement our innovation strategy and offer the potential to form the basis of new businesses and create new jobs in the Kingdom. We not only focused on building operational capabilities, but also raised the professional

capabilities of our people by driving a performance-based work culture and continuing to invest nearly \$1 billion per year in the world's largest corporate training program.

In 2015, we lived our belief that energy is opportunity by continuing to amplify the positive effects of our business activities for the benefit of the greatest number of people possible. We continued our legacy of contributing to the development of the Kingdom, leading by example and promoting greater energy efficiency, enabling economic growth and diversification, and supporting the growth of a knowledge-based society. We neared completion of our landmark King Abdulaziz Center for World Culture, while our citizenship programs helped strengthen the communities in which we operate, at home and around the world.

It has been an extraordinarily challenging year, but one filled with equally extraordinary accomplishments made possible by the resolve and ingenuity of our people. The success we achieved attests to the leadership and resiliency we have always demonstrated in times of adversity. Our leadership position is not something we aspire to for its own sake — it is the result of our determination to advance the enduring success of our industry, our company, and the Kingdom of Saudi Arabia.

Our Values

excellence

we drive for best results and are agile in addressing new challenges.

safety

we operate safely and are committed to the well-being of our workforce.

integrity

we follow ethical standards in conducting our business.

citizenship

we are a positive influence on the Kingdom, its environment, and in the communities where we live and work.

accountability

we take responsibility for our actions and for meeting corporate objectives.



Key figures

crude oil and condensate reserves

261.1b barrels

gas reserves

297.6t scf

crude oil production

10.2m bpd

raw gas processed

11.6b scfd

sales gas production

8.0b scfd



upstream: sustaining excellence

We often refer to our company's founding generation as pioneers: They were the first to discover and bring into production the world's largest hydrocarbon reservoirs.

Over 80 years later, the same pioneering spirit and unceasing drive for excellence still inspire the men and women of Saudi Aramco.

For us, sustaining a commitment to excellence means continuously improving upon our achievements, especially when it comes to developing the Kingdom's resources for the future. Every day, products made from our resources enable people across the globe to live more fulfilling and productive lives. From fuels and lubricants to performance textiles and advanced plastics, it all starts with our resource base. Managing these resources requires excellence in every aspect of our upstream operations.

Our maximum sustainable crude oil production capacity of 12 million bpd is supported by our practice of optimizing the mix of crude oil grades from a balanced portfolio of mature and young reservoirs. We continue to explore for and discover additional crude oil and gas reservoirs — striving to replace 100% of produced oil with new reserves and growing reserves annually.

In 2015, to meet our production targets, we produced an average of 10.2 million bpd of crude oil, a new all-time record. Our total raw gas processing averaged 11.6 billion standard cubic feet per day (scfd), also an all-time record. Supplies of sales gas averaged 8.0 billion scfd and ethane averaged 794 million scfd.



A young operator checks equipment in our Shaybah facility, representative of the dedication that enabled us to produce more than 10 million bpd of crude oil, a company record.

new oil and gas fields discovered

5

Total natural gas liquids (NGL) production averaged 1.3 million bpd. Our success in growing gas production allows us to deliver on our commitment to provide additional volumes of gas as fuel and feedstock for domestic industries and displace liquids as a source of power generation.

One of our priorities in 2015 was to focus on organizational and technological shifts that increase capital efficiency. Our upstream contributions encompassed innovative solutions from exploration, drilling, and production to the initiation of a new supply chain operating model for our work in unconventional resources. Other efficiency gains supported by operational excellence principles included combining work, reducing or eliminating redundant tasks and equipment, employing new or alternative technologies, management training, improving collaboration with vendors, reengineering, and bringing work in-house.

Though we have prioritized fiscal discipline and introduced cost efficiencies, our attention remains squarely fixed on sustaining excellence in safety. The safety of our people is paramount to us. Beyond our standard safety protocols and training programs for employees, we instituted additional safety improvement measures, including onstream inspections, replacement of aging equipment and trunk lines, and proactive plant integrity and health assessments to ensure safe and reliable operations.

Stimulating new opportunities for people here in the Kingdom and across the world through the safe, sustainable, and reliable provision of energy is our strategic purpose. Our success in this endeavor starts with our upstream business. By combining the energy of our people and our unique expertise with a single-minded pursuit of excellence, our hydrocarbon reserves will help power prosperity for generations to come.

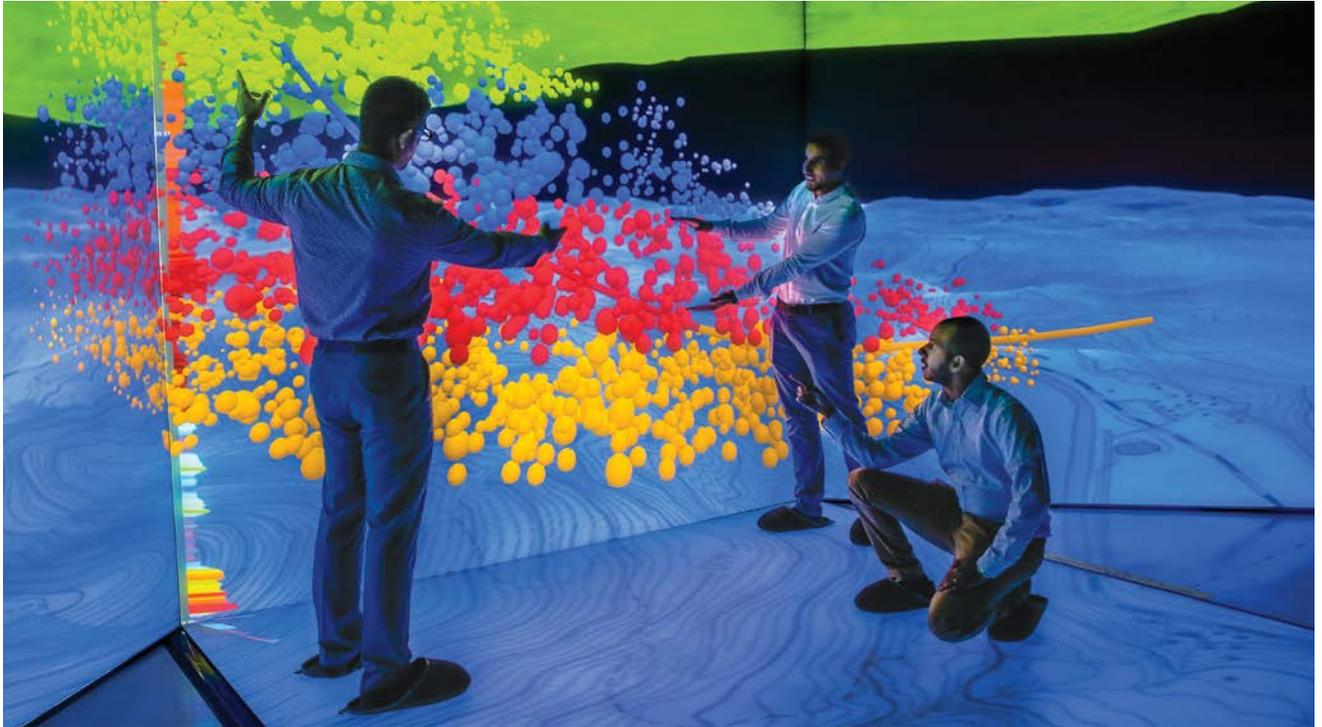
From exploration to production

Building on more than eight decades of exploration experience in Saudi Arabia, our geoscientists continue to enhance our understanding of the Kingdom's hydrocarbon resources. Through a long-term outlook, effective planning, and the use of cutting-edge technologies, we continue to find new fields, add reserves, and develop more efficient methods to produce and process oil and gas. We marked progress toward increasing the recovery rate of oil in place from our major oil reservoirs with a plan to reach a recovery rate of 70%, helping to ensure sustainable and reliable supplies of energy for the Kingdom and consumers around the world.

Our energy reserves will help power prosperity for generations.

Our exploration program — encompassing the Kingdom from the Rub' al-Khali to the Red Sea and the northwestern region — continually pushes the boundaries of technology. During 2015, we discovered five new oil and gas fields, raising the total number of discovered oil and gas fields in the Kingdom to 134.

We discovered three new oil fields: Faskar, offshore in the Arabian Gulf near the Berri field; Janab, east of the Ghawar field; and Maqam, in the eastern Rub' al-Khali. We also discovered two new nonassociated gas fields: Edmee, located west of Haradh, and Murooj in the Rub' al-Khali. We continued our program to explore the shallow waters of the Red Sea, completing our largest single survey of the seabed encompassing Saudi Arabian territorial waters. Onshore, we commenced drilling in the Jazan and Um-Luj areas.



Computer simulations based on data gathered from monitoring microseismic events enable us to manage the Kingdom's resource base for the benefit of generations to come.

We also added reserves through delineation drilling, discovering three new gas reservoirs and seven new oil reservoirs in existing fields. By applying best-in-class reservoir studies, including sophisticated algorithms developed in-house to process and analyze high-definition 3-D seismic data, we were able to successfully delineate and extend the booked limits of existing reservoirs. Our exploration program balanced opening new frontiers and play concepts while maintaining an uninterrupted focus on delineation and appraisal programs in existing fields to realize their full potential and assess them for future development.

These increases were underpinned by our investments in the latest technology. We increased the computing capability of our Exploration and Petroleum Engineering Center (EXPEC) Computer Center by 177% for reservoir simulations and by 76% in seismic capacity. These improvements enable significantly larger reservoir simulations and

reduce data processing times by a factor of 10, improving our ability to model and characterize the performance of reservoirs over time to optimize field development and increase recovery. Our investments in seismic have yielded more efficient planning, best-in-class reservoir management practices, and improved success rates in discovering new fields and reservoirs and extending reserves in existing reservoirs.

Our new discoveries and reserves maintained Saudi Aramco's crude oil reserves at 261.1 billion barrels. Total gas reserves rose to 297.6 trillion scf. Our relentless efforts to expand the Kingdom's oil and gas reserves sustain our capability to meet future energy needs, at home and around the world.

Unconventional gas program

Our pursuit of unconventional gas continued to gather momentum in 2015

as we invested considerable resources to find and produce gas from shale and tight gas formations. The target areas for our unconventional gas program are in northern Saudi Arabia and the greater Ghawar area, including the Jafurah Basin. We acquired 138 billion seismic traces in these three areas and completed an ambitious slate of exploration, appraisal, and production wells.

We deployed a range of new technologies and applied lessons learned from within the industry to accelerate our progress. New technologies include seismic imaging to identify "sweet" spots in reservoirs, extended reach horizontal wells to improve reservoir contact, multistage fracture stimulation, and underbalanced coiled tubing drilling to tap into productive layers.

Multistage fracturing in horizontal wells, for example, enables higher sustained gas rates, transforming low producing wells to commercially viable assets. Rigorous simulation modeling empowers our engineers to improve

Crude oil production

2011–2015

(million barrels per day)

2015: 10.2



2014: 9.5



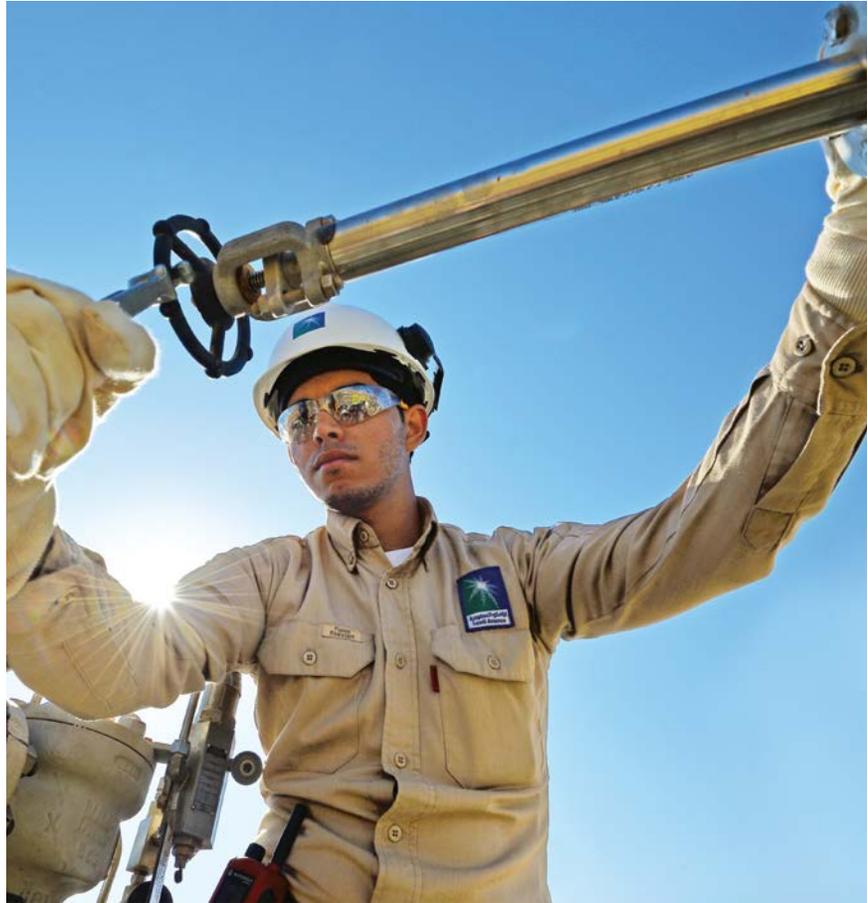
2013: 9.4



2012: 9.5



2011: 9.1



We supply more crude oil to the global economy than any other company, producing nearly 1 in every 8 barrels of world oil production.

completion and simulation practices, and optimize well placement and spacing to attain higher well productivity. The entire process chain employs integrated teams of petroleum engineers and geoscientists who collaborate to ensure every link in the chain, from exploration through to delineation, development planning, facility construction, installation, commissioning, startup, and production, is completed safely, efficiently, and cost-effectively.

Gas from our discoveries in northern Saudi Arabia will be delivered to the Ma'aden facilities at Wa'ad Al Shamaal by the end of 2017 when the facilities will be ready to receive gas. Additional gas for small and medium industrial businesses will be supplied by 2018, fueling the growth of new employment

opportunities for Saudi nationals in the region.

In addition to our continued success in expanding the Kingdom's conventional gas reserves, our growing ability to find and produce unconventional gas broadens the use of gas as a cleaner fuel for power generation and seawater desalination, and as feedstock for diversified industries, spurring economic growth and freeing up more crude oil for value-added refining or export.

Oil production

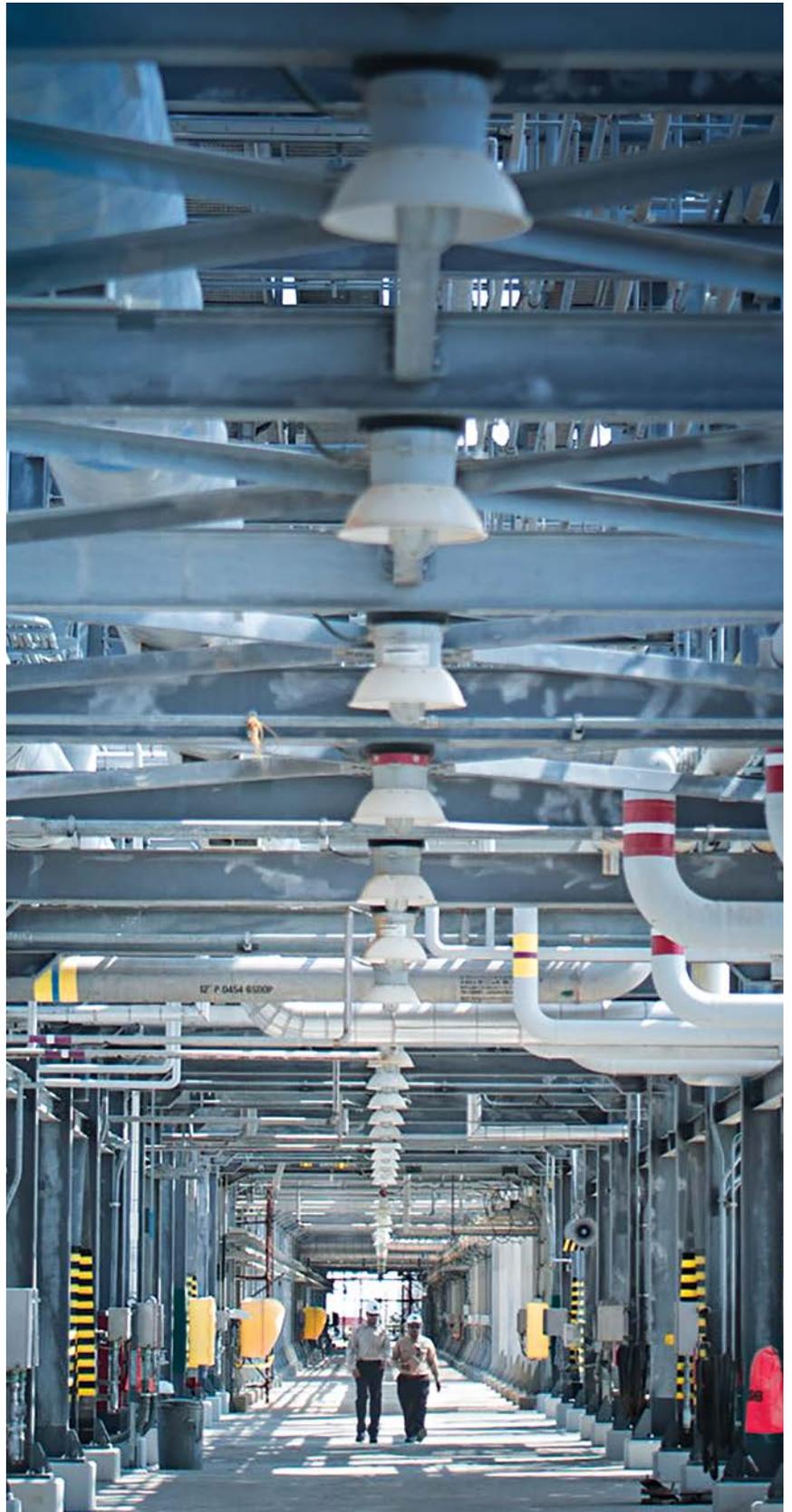
Since Dammam Well No. 7 began producing commercial quantities of crude oil in 1938, we have built an unparalleled reputation for being a reliable supplier of crude oil to energy markets

around the world. Today, the production of this essential energy resource remains at the core of our business, and we supply more crude oil to the global economy than any other oil producer, producing nearly 1 in every 8 barrels of world oil production.

We manage the development of the Kingdom's crude oil resources to maximize lasting value. To maintain our record level of production safely and reliably, in 2015 we completed a challenging roster of well workovers, well integrity and monitoring service jobs, and major tests and inspections. The effectiveness of our long-term vision to manage assets was demonstrated when two of our long-established wells reached impressive lifetime production levels in 2015. Abqaiq Well 49, drilled in 1949, and Abqaiq Well 84, drilled in 1961, reached cumulative outputs of 144 and 233 million barrels, respectively.

To achieve the greatest benefits from our investments in production technology, we established a Production Operations Surveillance Hub in Ju'aymah that empowers production engineers to make effective decisions in real time. The Hub is designed to integrate intelligent field technologies such as electrical submersible pump sensors, smart well completions, downhole monitoring systems, and multiphase flow meters in a single solution. By centralizing all surveillance in a single hub, we are able to anticipate and respond to problems more quickly and manage equipment and assets more efficiently.

Our offshore **Manifa** field, with a production capacity of 900,000 bpd, has been recognized for its design and engineering features that help protect and preserve the environment of Manifa Bay. The Manifa facility, which is self-sufficient in electrical power generation, also produces associated gas as a feedstock for industrial cities.



We remain committed to our upstream capital program, ensuring that we meet the Kingdom's energy needs while answering the global call on our crude oil production.



Wasit Gas Plant

Decades ago, natural gas was viewed as a less valuable byproduct of crude oil production, but beginning with the creation of the Master Gas System in the early 1970s, we have harnessed the power of natural gas to spur the diversification of the Kingdom's economy.

Our latest gas plant, Wasit, is designed to process 2.5 billion scfd of nonassociated gas and supply 1.7 billion scfd of sales gas to the Master Gas System, fueling electrical power and seawater desalination plants and supplying feedstock for the petrochemical industry. Our continued success in increasing supplies of cleaner burning natural gas makes it possible for us to reduce emissions, enable new industries, and release more crude oil for value-added refining or export.

Wasit's design reflects our plan to become self-sufficient in power generation. By converting waste heat to steam, Wasit has the capacity to generate 798 megawatts of power. This process, known as cogeneration, allows us to produce electricity as a byproduct of our operations. Less fuel is required to produce energy and less fuel is consumed, thereby lowering emissions.

Behind the power of cogeneration is the power of people. Our employees oversaw the design and construction of the cogeneration plant. All the members of the cogeneration operations team are Saudis, many of whom are young graduates of our

Apprentice Program. This youthful team shouldered a big responsibility — the cogeneration plant had to deliver power and steam to support the commissioning activities preparing Wasit to come onstream.

Wasit, combined with the other gas plants in the Master Gas System, enables us to process more than 11 billion scf of gas every day, delivering on our commitment to safely and sustainably power progress and prosperity.



Our Wasit Gas Plant will be fed by nonassociated gas from our offshore fields.

We made significant progress toward completing the expansion of our **Shaybah** field to increase production of Arabian Extra Light crude oil by 250,000 bpd, raising overall production capacity to 1 million bpd. The project is on track to come onstream in the first half of 2016.

In addition to our large-scale oil production projects designed to meet anticipated future demand, we sustained our Maintain Potential program. For example, in 2015 our largest offshore tie-in platform, weighing in excess of 6,000 metric tons and too large for standard marine cranes, was installed in Safaniyah using an innovative “float over” method. The platform serves as the main crude oil gathering and power supply hub for North Safaniyah and was energized through the laying of a 46 km, 230 kilovolt submarine cable — the longest of its kind in the world installed as a single piece without a field splice.

Gas production and processing

Our ability to increase supplies of natural gas to reduce the Kingdom’s reliance on liquid fuel for electricity generation and to power seawater desalination plants is vital for the country’s continued

prosperity. To meet this challenge, we plan to nearly double our supply of gas over the coming decade to more than 20 billion scfd, taking clean gas to more than 70% of our utilities fuel mix — among the highest rates in the world.

In 2015, we achieved a record for raw gas processing, averaging 11.6 billion scfd. Greater volumes of gas mean more feedstock for industries to expand and new ones to emerge, helping to drive the creation of new jobs. The increased use of cleaner burning natural gas in the Kingdom’s fuel mix also brings with it environmental benefits in the form of lower emissions.

Raw gas processed

2011–2015

(billion scfd)

2015: 11.6

2014: 11.3

2013: 11.0

2012: 10.7

2011: 9.9





Increasing supplies of natural gas is essential for the Kingdom's economic growth, and in 2015 we processed a record 11.6 billion scfd.

We plan to nearly double gas supplies over the coming decade.

Wasit Gas Plant, one of the largest nonassociated gas plants we have ever built, came onstream in October. The plant will be fed with nonassociated gas from offshore fields, ultimately reaching 2.5 billion scfd. Wasit will have the capacity to produce a maximum of 1.7 billion scfd of sales gas and fractionate 240,000 bpd of NGL. Once it reaches full operating capacity in mid-2016, the addition of Wasit to our portfolio will represent a significant increase in our gas processing capacity. The cogeneration plant at Wasit makes the facility self-sufficient in power,

with excess energy delivered to other company plants.

The **NGL recovery plant at Shaybah** was commissioned and started NGL production in December. Designed to process as much as 2.4 billion scfd of associated gas and recover 275,000 bpd of ethane plus NGL, the Shaybah facility will feed these new volumes of NGL via pipeline to Ju'aymah for further processing before being delivered as petrochemical feedstock to industrial cities.

Construction of gas processing facilities at our **Midyan Gas Plant** in the Tabuk region of northwestern Saudi Arabia was roughly 50% complete by the end of 2015. We anticipate bringing the plant onstream by the end of 2016, with the capacity to produce and process 75 million scfd of nonassociated gas and 4,500 bpd of condensate. The plant will deliver sales gas and condensate to power the Saudi

Electricity Company's new Duba Power Plant, a high-efficiency plant that will combine solar power with energy generated from the fuel supplied by Midyan. Together, our gas plant and the power station will spur economic development in the area, generating opportunities for training, job growth, and new businesses.

Efficiency gains

By maintaining an unwavering focus on securing more value from the Kingdom's hydrocarbon resources while exercising fiscal discipline, we attained substantial gains in capital and operating efficiencies across our upstream activities. We used the market downturn to renegotiate contracts to achieve significant cost savings for construction and equipment, and for services related to drilling, well stimulation, testing, and logging, even while



Our operations span the Kingdom from the Arabian Gulf to the Red Sea, enabling us to safely and reliably deliver our products to customers.



Our continued success is based on the application of capital efficiency, technology and innovation, and operational excellence.

rig count numbers declined globally across the industry. Through more efficient well designs, we were able to increase the average daily drilling depth of new gas wells by 21%, enabling faster well completion times and driving costs down.

Revitalizing existing vertical wells through drilling horizontal extensions — or sidetracks — improved the crude oil production rates of older wells. This technique extends the operational life of oil wells, deriving additional value from existing assets by lowering drilling costs, utilizing existing flow lines, and shortening tie-in time.

Not all efficiency gains are technology driven: We optimized 52 tests and inspections of major facilities to align with the needs of customers to maximize the delivery of products while

also minimizing the burning of liquids for power generation.

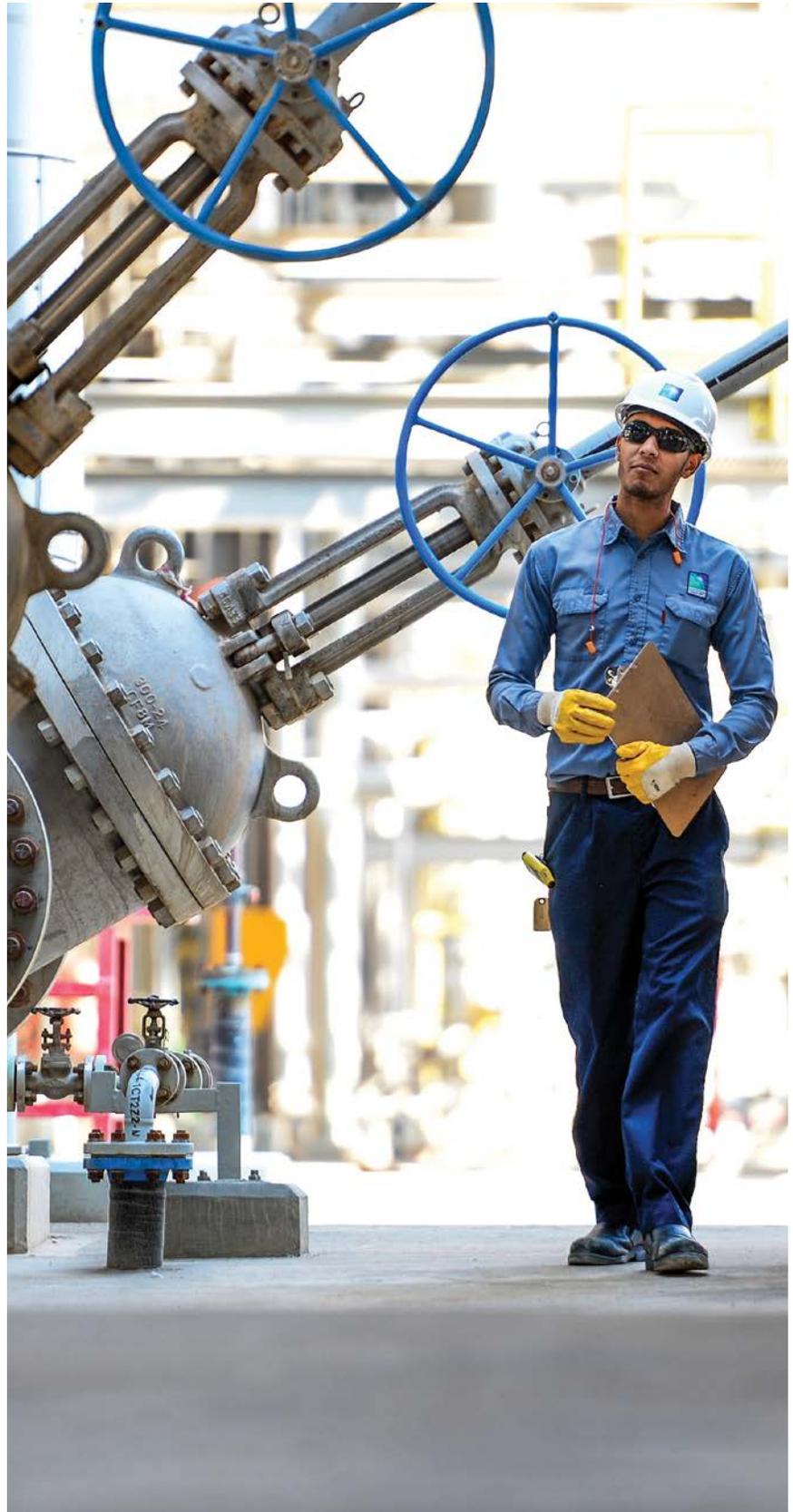
We eliminated the use of drilling rigs to replace downhole gauges by deploying gauges retrievable by wirelines in our offshore Marjan, Safaniyah, and Zuluf fields. This rigless approach is safer and also delivers significant cost savings by freeing up drilling rigs for other work. We are evaluating this method for possible deployment in other fields.

A team of young employees at our Hawiyah Gas Plant, in collaboration with our Process and Control Systems organization, pioneered the development of a breakthrough hydraulic turbine electric generator, or turbocharger, which converts hydraulic energy that is traditionally wasted at the plant into electrical

power. The technology achieves significant cost savings and lightens the greenhouse gas footprint of the plant. The turbocharger — the first of its kind in the world — was deployed in a pilot demonstration in early 2015 and performed to expectations with an average output of 300 kilowatts. The turbocharger is being monitored and if deemed a success, may be rolled out across other company facilities.

Hydrocarbons are the bedrock of the Kingdom's economy. Our significant upstream investments in capital projects, manpower, and technology are reflected by our world leading oil production capacity and growing supplies of natural gas.

As the country transitions to a more diversified economy — one based on new industries, innovation, and knowledge — it is our responsibility to manage the resource base for the greater benefit of the country and for energy consumers around the world. Meeting this challenge year after year rests on the expertise of our upstream people to exercise capital and operational efficiency, deliver world-scale projects, and pursue the breakthroughs that will make oil and gas more accessible, sustainable, and beneficial.



Coming onstream in October, Wasiit Gas Plant exemplifies our steadfast focus on maintaining our position of upstream leadership.

Refining capacity

wholly owned domestic

1.0m bpd

domestic joint ventures

1.9m bpd

international joint ventures

2.5m bpd

worldwide

5.4m bpd

Saudi Aramco share of
refining capacity

3.1m bpd

downstream: maximizing value

The building blocks of many of today's most important consumer and industrial products are contained in crude oil and gas — and Saudi Arabia is fortunate to possess both in abundance.

At Saudi Aramco, we apply business acumen, creativity, and cutting-edge science to transform our crude oil and gas resources into a multitude of useful products that benefit people around the world. This generates financial value for our company and the nation — but we do not stop there. We leverage each step in the hydrocarbon process from wellhead to market to create opportunities that produce shared value for our partners, our customers, and consumers in the Kingdom and around the globe.

The journey from raw materials to refined products and chemicals requires major investments in strategic partnerships, infrastructure, technology, and people. In 2015, we continued to make the necessary investments in these areas to advance the realization of our downstream strategy and extract the utmost value from every hydrocarbon molecule we produce.

Integrating across the value chain from upstream through refining, chemicals, base oils, marketing, and power generation is the key to capturing maximum value from our resources, while also diversifying risk. Integration between our domestic and global downstream facilities maximizes economies of scale while securing market share in specific high-value, high-growth markets and segments. Integration across our global downstream system also helps us take advantage of real-time synergies and facilitates the transfer of best practices and operational excellence models. Locating our refining and chemicals sites adjacent to each other and next to value parks allows us to meet domestic and international demand for our products, spurs diversification of the domestic economy, and generates skilled employment opportunities.

A top-down photograph showing four hands of different skin tones reaching out from the top and sides towards the center. The hands are positioned over a vast expanse of white, bubbly foam that fills the entire background. The lighting is bright, highlighting the texture of the foam and the skin. The hands appear to be gently touching or hovering just above the foam.

Sadara

Sadara Chemical Co., our joint venture with The Dow Chemical Company, is the largest integrated chemicals plant ever built in a single phase.

It has been hailed a “game changer” in the regional chemical industry — and for good reason.

At the heart of the Sadara complex is a “cracker” that breaks, or cracks, a mixed feed of ethane and naphtha molecules to form new ones, including ethylene and propylene, making it the first such chemicals facility in the GCC.

By using naphtha — sourced from our refining network — as a feedstock, Sadara will deliver new streams of high-value chemicals, enabling the growth of new industries that will convert these streams into products used in packaging, construction, electronics, furniture, and in the automobile industry.

Strategically located in Jubail Industrial City, Sadara and its integrated PlasChem value park will become a hub for chemical conversion plants, manufacturers, and associated service industries, potentially generating thousands of direct and indirect jobs for Saudis. The Sadara complex on its own will employ more than 4,000 people when the plant is fully operational.

The venture marks a number of milestones for the Kingdom and the industry: The first polyurethane plant and 14 new technologies in Saudi Arabia, the largest foreign direct investment in the Saudi petrochemical sector, and the largest Islamic bond (*sukuk*) issuance in the Saudi capital market.

Sadara and PlasChem Park are vital components of our overall plan to integrate refining assets with chemicals production. This approach, replicated across our domestic and international downstream portfolio, will generate significant benefits for the Kingdom by adding value to the resource base, driving skilled job creation, and facilitating the transfer of knowledge and technology — core stepping stones for the country’s transition to a knowledge-based economy.

Our integration strategy is paying dividends. Due largely to the commissioning of SATORP and the startup of full operations at YASREF, crude oil and condensate throughput to our domestic wholly owned and joint venture refineries rose 9% above 2014 levels. Internationally, we pursued organic growth to build capacity and further integrate chemicals manufacturing with existing and planned refineries, and inorganic growth by forming joint ventures and pursuing potential acquisitions to increase market presence and enhance chemicals competencies.

In 2015, we marked historic milestones on our journey to become a world leading integrated energy and chemicals company. Sadara, our joint venture with The Dow Chemical Company, commenced first production. Through our Aramco office in Europe, we signed a binding agreement to create ARLANXEO, a new joint venture with LANXESS, a German specialty chemicals company.

Here in the Kingdom, we achieved greater levels of self-sufficiency in power generation and we actively promoted energy efficiency initiatives while supporting the national agenda of optimizing the fuel mix through the increased use of natural gas, renewables, and opportunity fuels that otherwise would be wasted, such as petroleum coke.

Growing our downstream business creates additional opportunities — not only for our company, but also for new businesses in Saudi Arabia while delivering reliable, sustainable energy and new chemical products to consumers around the world.

Domestic refining and chemicals

In 2015, we marked significant achievements toward our goal of expanding our refining and chemicals capabilities within the Kingdom, helping to diversify the Kingdom's economy, providing high-quality job opportunities for

Saudis, and reinforcing our commitment to generate maximum value from the Kingdom's hydrocarbon resources. Through a calculated mix of wholly owned facilities and joint ventures, we produce a slate of refined products and high-value petrochemicals for domestic and international consumers and industries, helping to enable future growth and prosperity.

The **Sadara Chemical Company**, the world's largest chemical complex built in a single phase, ushers in a new era of economic diversification and growth for the Kingdom, bringing with it new products, new jobs, and new knowledge.

We marked historic milestones on our journey to be an integrated energy and chemicals company.

Located in Jubail Industrial City on the Arabian Gulf coast, Sadara will be the first chemicals complex in the Gulf Cooperation Council (GCC) countries to crack naphtha, which will support the manufacturing of diverse products not previously produced in the Kingdom. The complex includes a mixed feed cracking unit capable of processing 85 million scfd of ethane and 53,000 bpd of naphtha as feedstock to produce 3 million tons of performance plastics and high-value chemicals per year.

Sadara will generate job opportunities for thousands of Saudis and create thousands more indirect jobs. On track for full production by early 2017, Sadara is a key element of our intent to become a leading global chemicals producer.

Ethane production

2011–2015

(million scfd)

2015: 794



2014: 809



2013: 796



2012: 851



2011: 792



NGL production

2011–2015

(million barrels)

2015: 474.4



2014: 471.3



2013: 455.9



2012: 482.0



2011: 461.4



The Saudization level of our YASREF joint venture refinery is nearly 74%, emblematic of our efforts to drive job creation.

Adjacent to Sadara is the PlasChem value park where manufacturers will transform the chemical streams from Sadara into advanced products for consumers in emerging markets, create new value chains that lift the Kingdom's chemicals industry beyond basic commodity chemicals, and foster the growth of new downstream businesses. These new businesses have the potential to create thousands of direct and indirect jobs for Saudis. The Ministry of Petroleum and Mineral Resources has approved 24 differentiated projects for implementation in the PlasChem Park.

The Saudi Aramco Total Refining and Petrochemicals Company (SATORP) in Jubail, our joint venture with France's Total, achieved one full year of operations with no lost-time injuries. Roughly 80% of the refinery's construction activities were executed

by domestic subcontractors and the company has an overall Saudization rate of nearly 65%. During 2015, we began exploring the development of a world-class chemicals complex and associated value park to be integrated with SATORP and other existing sites in Jubail, further amplifying the economic benefits made possible by our downstream investments.

Our joint venture with China's Sinopec, the Yanbu Aramco Sinopec Refining Company (YASREF), based in Yanbu' on the Red Sea coast, started commercial operations in April and has generated nearly 1,200 direct jobs and 5,000 indirect jobs, with Saudization at the refinery reaching almost 74%. YASREF also commenced exports of petroleum coke, or petcoke. Petcoke contains more energy with less ash and is a manifestation of our commitment



Our refinery under construction in Jazan will form the industrial heart of the greater Jazan Economic City, helping drive sustainable economic growth in the region.

to extract more value from crude oil while also meeting customers' needs for reliable sources of fuel at competitive prices.

Sadara, SATORP, and YASREF are cornerstones of our commitment to become a world leading refiner and chemicals producer, add value to the country's resource base, and help drive the Kingdom's economic growth and diversification.

Construction of our wholly owned **Jazan Refinery and Terminal** in the Kingdom's southwest continued steadily in 2015. The 400,000 bpd refinery and terminal facilities are the industrial heart of the government's greater Jazan Economic City project, and part of a broad plan to drive sustainable economic development in the region and create employment opportunities

for Saudis. Over a 15-year period, more than 70,000 new jobs could be created as the industrial city attracts a range of medium and light industries and associated service companies.

The Jazan project includes the construction of the world's largest integrated gasification combined cycle (IGCC) power plant, capable of utilizing the refinery's vacuum residue stream to efficiently generate nearly 4,000 megawatts of electricity — enough to power the refinery and also supply electricity to the Jazan Economic City tenants. By the end of the year, engineering for the refinery was 91% complete, procurement was 52% complete, and construction was 14% complete. Commissioning of the Jazan Refinery and completion of the IGCC power plant are scheduled for 2018. The terminal project is expected to be completed in April 2018.

Also located on the Red Sea coast is the **Rabigh Refining and Petrochemical Company** (Petro Rabigh), our integrated refining and petrochemical venture with Sumitomo Chemical of Japan. We are expanding the plant in a second phase that will increase the production capacity of the ethane cracker, add a new world-scale aromatics complex, and create 22 process plants. The Phase II facilities will produce a variety of high value-added petrochemical products, supplying feedstock for a diverse array of industries. The project is on track for initial commissioning in mid-2016. We also launched the Technical Learning Academy at Petro Rabigh to train young operators and equip the Saudi workforce with advanced skills.



Integrated with Petro Rabigh, the manufacturers in PlusTech Park amplify the value of our hydrocarbon resource base and create jobs.

equity chemicals
production capacity

7,016kt per year

We continued our collaboration with Sumitomo Chemical on marketing and construction activities for the **Rabigh PlusTech Park**, an industrial zone integrated with Petro Rabigh where manufacturers can establish factories to create products from the petrochemical feedstock produced by Petro Rabigh. Thus far, 29 local and international companies from the plastics conversion industry have signed agreements to operate in the park. By the end of 2015, 11 conversion companies had started production with the remaining 18 firms in the design or construction phase. Out of the 29 companies, 21 are joint ventures between local owners and international partners, affirming Petro Rabigh and PlusTech Park as accelerators of the Kingdom's economy and engines for domestic job creation.

A project to build a new clean transportation fuel plant at our **Riyadh Refinery** is on track to be completed in 2016. The new plant will increase gasoline production by 2,000 bpd and produce premium low-sulfur fuel, helping improve air quality in the Kingdom. We are also exploring the potential of adding a full-conversion refinery and petrochemical plant to our existing **Yanbu' Refinery**, increasing its competitiveness and helping to satisfy domestic demand for refined fuels.

Global refining and chemicals

We continuously explore and evaluate opportunities, whether grass roots or participatory, to grow our refining and chemicals portfolio, particularly in China and the ASEAN region, an area we are targeting for sustained growth.

Our partnerships in refining and marketing ventures in China, Japan, South Korea, and the United States enable us to traverse the length of the value chain from wellhead to consumer, adding value to our resources at every step. We envision developing an integrated refining, marketing, and petrochemical

Downstream: Maximizing Value

network and our efforts in 2015 supported this goal.

Saudi Arabia, through Saudi Aramco, is the number one crude oil supplier to six major Asian countries — China, Japan, South Korea, Taiwan, the Philippines, and India — but our relationship with the region goes far beyond the reliable supply of petroleum energy to include research alliances, materials supply, education, engineering and technical services, training, and other mutually beneficial endeavors. In the downstream sector, we participate in integrated refining, chemicals, marketing, and distribution companies in China, Japan, and South Korea.

In China, our crude oil exports account for nearly 10% of the country's demand. Our portfolio of downstream assets in China is designed to benefit energy and feedstock consumers and maximize returns on the Kingdom's hydrocarbon resources. In the Fujian Province, we have an equity ownership in a joint venture called the **Fujian Refining and Petrochemical Company Limited (FREP)**. New ethylene oxide and ethylene glycol units, part of a debottlenecking project mechanically completed at year-end 2014, came onstream in the first half of 2015, increasing the plant's productivity.

Combined with our YASREF refinery joint venture in Saudi Arabia, FREP and the Sinopec SenMei (Fujian) Petroleum Company (SSPC), a fuels marketing and distribution joint venture company, herald the opening of what we anticipate being a modern "silk road" business alliance with companies in China. This alliance will enable opportunities for investments in the energy and chemicals sectors in China and Saudi Arabia, and support research to improve energy efficiency, lower greenhouse gas emissions, and ensure sustainable, affordable energy.

Our investment in South Korea's **S-OIL**, one of the country's leading refiners, complements our downstream ventures in China and Japan and creates new opportunities along the value



“ We are developing an integrated refining, marketing, and petrochemical network.”

Veteran personnel oversee our Kingdomwide production, processing, and distribution network from our Operations Coordination Center, and mentor the next generation.



The Motiva refinery in Port Arthur, Texas, is a key element of our strategy to build an integrated, global downstream system.

chain in the major energy markets in Asia. In 2015, the S-OIL Board approved the funding for a project to upgrade facilities to improve the competitiveness of its fuels business and to promote further petrochemicals integration by expanding its olefins production.

In November, we signed a Heads of Agreement with **PT Pertamina**, the national oil company of Indonesia, to formalize key business principles for the joint ownership, operation, and upgrade of the Cilacap Refinery located in Central Java, Indonesia. The proposed upgrade will allow the refinery to process more sour crude oils, meet high-quality product specifications, and produce basic petrochemicals and lubricant base oils. The basic engineering design study for the refinery upgrade is expected to be completed in 2016.

Ventures such as these form an essential part of our approach to cultivate downstream opportunities in Asia, an area we believe will provide long-lasting prospects for investment, collaboration, and technology development to meet the growing energy needs in the region.

We plan to strengthen our network of offices in Asia by creating an office in the suburbs of New Delhi in Gurgaon, India. Aramco Asia, headquartered in Beijing, China, oversees our regional strategy, providing a range of services and business support to us and our partners. The incorporation of the Aramco Asia India Private Limited office, which will be absorbing the services of Aramco Overseas Company B.V.'s branch office in India, will enhance our Aramco Asia network to facilitate our growing interests in India.

In the United States, where we are the number two supplier of crude oil, we continued to upgrade equipment and improve operating efficiencies at the **Motiva Refinery** in Port Arthur, Texas, the largest refinery in the U.S. The refinery is operated by Motiva Enterprises, a refining and marketing joint venture between our Houston based subsidiary, Saudi Refining Inc., and an affiliate of Shell Oil. Motiva's high-quality fuels are marketed under the Shell brand through roughly 8,300 retail stations to millions of consumers in the eastern, southern, and Gulf coast regions of the U.S. In 2015, work commenced to integrate the company's two Louisiana refineries in Convent and Norco, optimizing the product slate and reducing operating costs.

We marked a significant milestone in our journey to become a globally integrated energy and chemicals company when our European subsidiary, Aramco Overseas Company B.V., and LANXESS, a German specialty chemicals company, signed a binding agreement in September to create **ARLANXEO**, a new 50-50 joint venture company. The proposed joint venture will develop, produce, market, sell, and distribute performance polymers used by global tire and auto parts manufacturers, and in the construction and life science industries.

Saudi Aramco brings resources to continue investing in new technology while LANXESS will contribute to the joint venture its existing global synthetic rubber and elastomers business units, 20 production sites, and four research centers in nine countries across Europe, Asia, and the Americas. The transaction is subject to approval by authorities, with closing of the transaction expected in the first half of 2016.

Ship calls at Saudi Aramco terminals

2011–2015

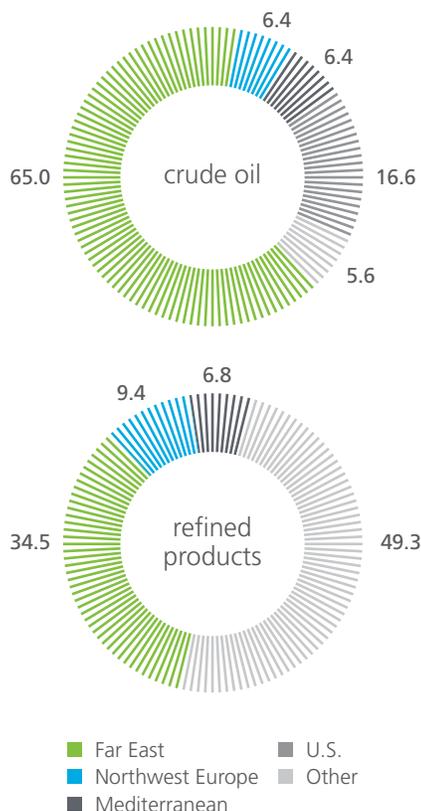
(crude oil)



*Due to further data reconciliation, this figure has been revised.

2015 exports by region

(percent)



Our joint venture with LANXESS, a specialty chemicals company, diversifies our portfolio and will lead to greater economic opportunity in the Kingdom.

Once established, the joint venture will study global growth prospects, including potential opportunities in the Kingdom, further promoting economic diversification and creating high-skill, high-value manufacturing jobs. The research programs undertaken by the joint venture, such as the development of energy saving tires, complements our own research into fuel efficient engines.

The partnership with LANXESS diversifies our portfolio, increases our competitive position, and scales up our global presence while creating more commercial opportunities for sustainable growth in Saudi Arabia by unlocking the full economic potential of the Kingdom’s hydrocarbon resources.

Sales and marketing

Saudi Aramco Products Trading Company (ATC), our wholly owned subsidiary for trading petroleum products, traded an average of more than 1.1 million bpd of refined petroleum products and 3.7 thousand tons per day of chemical products. In 2015, ATC expanded its market presence by reaching out directly to third parties for product sales and purchases, optimizing operations of the storage and blending facility, introducing chemical products sales and marketing, and increasing chartering activities in response to growing trade volumes.



Our participation in integrated refining, chemicals, and marketing companies in the Far East allows us to traverse the entire value chain, adding value at every step.

Distribution

We operate a Kingdomwide distribution network of pipelines, bulk plants, air refueling sites, and terminals that safely and reliably deliver crude oil, NGL, gas, and refined products to power the Kingdom's economy. Our network of pipelines is nearly 22,000 km in total length. To ensure we meet future needs for crude oil from our domestic and international customers, we are planning to increase the capacity of our 1,200 km **East-West Crude Oil Pipeline** from 5 to 7 million bpd.

We also continued construction work to increase supplies of natural gas to the Central and Western regions of Saudi Arabia through our **Master Gas System**. The Phase 1 expansion, which will increase East-West capacity from 2.0 billion scfd to 2.6 billion scfd, was 27% complete at year-end and is scheduled to be completed in 2017. The overall project, slated to be completed in 2018, will add nearly 950 km of new pipelines to the network. The additional volumes of gas will reduce the need to burn liquids for industry and power generation, thereby helping lower greenhouse gas emissions.

By developing wholly owned world-class facilities and participating in refining and chemicals joint ventures, both within the Kingdom and globally, we continued to amplify the economic impact of our downstream investments, facilitate sustainable industrial development, and drive job creation.

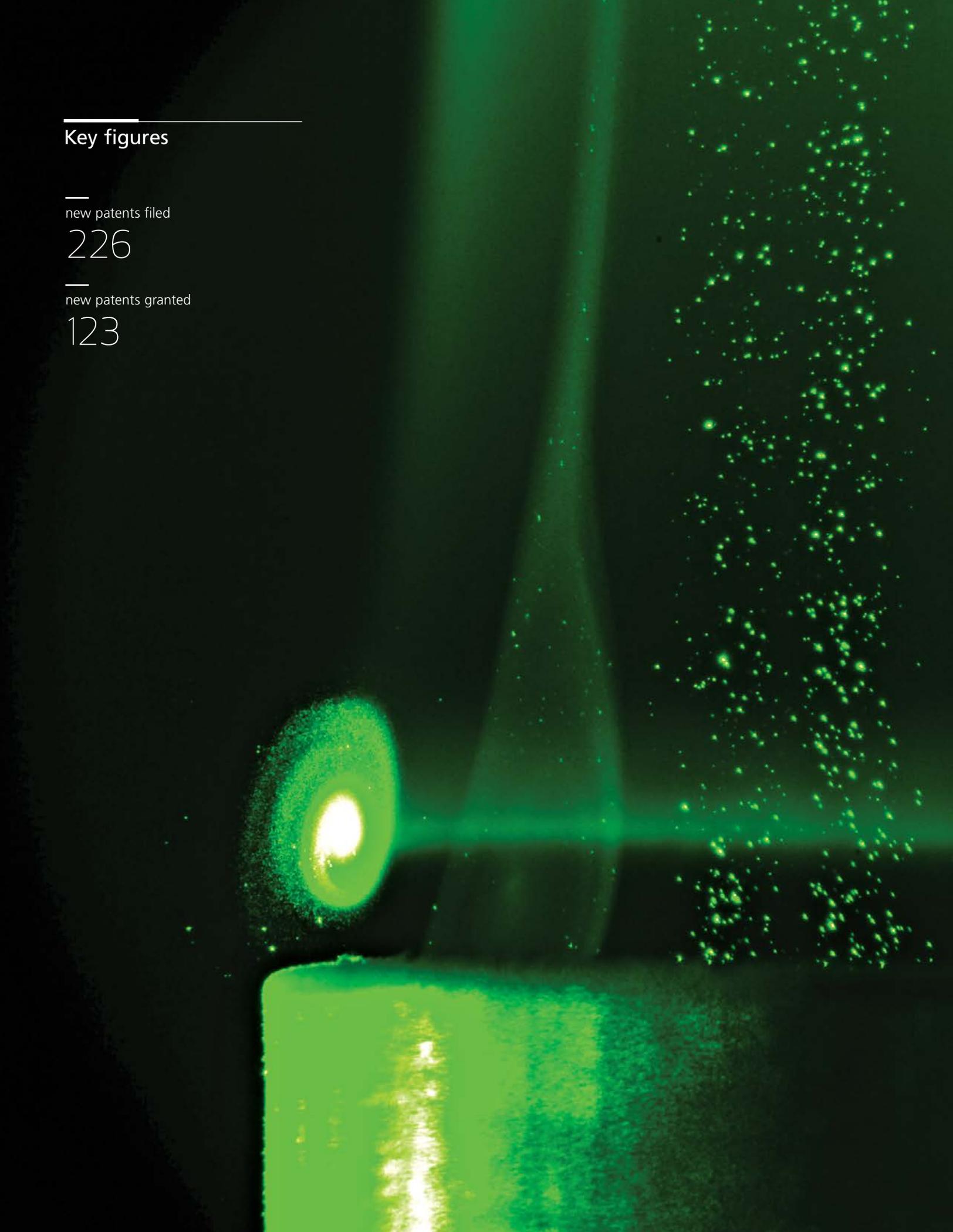
Key figures

new patents filed

226

new patents granted

123



technology: pioneering advances

Sustained investment in technology — particularly in today's challenging business climate — is a key enabler of our company's long-term resilience and essential for us to realize our strategic intent of becoming the world's leading integrated energy and chemicals company.

To achieve this goal, we foster a culture of innovation and knowledge sharing. By investing in new technologies, we seek to improve operating efficiencies, decrease greenhouse gas emissions, and create greater economic opportunities for the people of the Kingdom.

We seek to create sustainable competitive advantage through the introduction of a balanced portfolio of technically feasible and commercially viable technology options — all in support of our goal to realize the greatest value from the Kingdom's hydrocarbon resources. As part of our broader efforts to address climate change on a global scale, we are pursuing technological solutions to cut greenhouse gas emissions while also growing sustainable supplies of energy.

The alignment we have forged between our research and technology delivery organizations and our upstream and downstream businesses ensures a

focus on the development of globally competitive technologies and the establishment of a technology portfolio that creates value across the business and supports the creation of a vibrant knowledge economy in the Kingdom.

Collaborating with local and global centers of technical excellence complements and enhances our own in-house research capabilities. Within the Kingdom, we have joined efforts with research universities to advance our work on new technologies for upstream and downstream disciplines, and we nurture alliances between academia and industry by engaging with leading energy service companies in research and innovation parks.

Internationally, we have productive research and education associations with world-renowned technical universities. We also invest globally in startup and high-growth companies developing



FUELCOM

The benefits of crude oil as the basis for transportation fuels — in terms of the energy inherent in every molecule, its reliability, accessibility, and affordability — are unsurpassed.

At Saudi Aramco, we seek to increase the efficiency and environmental performance of fuels derived from oil to ensure future generations can enjoy the economic benefits of sustainable supplies of petroleum while also protecting the natural environment.

What will fuel the engines of tomorrow? The answer is under investigation by our global network of research centers through an initiative known as FUELCOM: Fuel and Combustion for Advanced Engines. The FUELCOM program addresses fundamental aspects of hydrocarbon fuel combustion in reciprocating, or piston, engines. The goal is to formulate fuels derived

from oil suitable for the next generation of high-efficiency and low-emission combustion engines. One of the technologies under investigation is a new engine-fuel system that could enable diesel-like levels of efficiency in a gasoline engine, but with far lower emissions and higher mileage.

Launched in February 2013, FUELCOM is a 10-year collaborative research program between the Fuel Technology team at our R&D Center in Dhahran, the Clean Combustion Research Center at the King Abdullah University of Science and Technology in Thuwal, Saudi Arabia, and teams from our Paris and Detroit research centers.

Novel technologies developed through the FUELCOM program could dramatically alter the way automobile engines are configured and the composition of fuels that power them. The results of this research have the potential to set a new course for the global transportation industry and create greener, more efficient cars.



Growing our global research network requires sustained investments in people, facilities, and equipment.

technologies aligned with our vision. These relationships allow us to enhance the intellectual rigor of our research by providing access to top qualified talent and creating opportunities for training and development.

Strategically located in technology hubs in key energy markets, our global research network attracts leading researchers interested in doing the best work of their careers. The network provides an environment for innovation to flourish and underscores our drive to achieve global leadership in energy-related technologies. Our approach is steadily building results. For example, during 2015, we were granted a record number of patents — 123 — by the United States Patent and Trademark Office, marking significant progress

toward our vision of becoming a pioneer in technology development.

Investments in building our research capacity are designed to achieve a lasting competitive advantage and make us more adaptable and resilient as a company. Our unwavering dedication to pursue breakthrough technologies and generate innovative ideas is a cornerstone of our commitment to help build a secure energy future here in the Kingdom, and for people around the world.

Technology highlights

Pursuing game-changing innovations generates potentially wider benefits, such as creating businesses to manufacture and service new technologies,



The Makman-2 supercomputer ranks 28th on a global list of top computers, and improves our ability to manage hydrocarbon reservoirs for the long term.

inspiring a new generation of Saudi researchers and scientists, and enabling a globally competitive Saudi energy sector.

Upstream

We focus on key domains within exploration, drilling, and production with the goal of increasing the Kingdom's hydrocarbon reserves and improving recovery rates of oil from major reservoirs at a lower cost and with greater reliability. Some upstream technology developments from 2015 included:

- Our GigaPOWERS simulator successfully tested a 1.2 billion cell model, one of the largest real field simulation models in the industry. The model will help evaluate production strategies for Khuff reservoirs in the Ghawar field. We also made significant progress in developing the next generation of GigaPOWERS with the deployment of the Makman-2 Reservoir Simulation Supercomputer, which ranked 28th on a global list of top supercomputers. With a computing capacity of 2.25 trillion operations

per second, the Makman-2 supercomputer represents a 260% growth in our total simulation computing capacity compared to 2014. Along with other supercomputers in our EXPEC Computer Center, the Makman-2 will enable us to create multi-billion cell simulation models, further improving our ability to manage reservoirs for the benefit of generations to come.

Our investments in research are designed to achieve a competitive advantage.

- Heavy oil mobilizer technology could enhance the recovery of heavier grades of crude oil, leading to increases in reserves of recoverable oil. We are also evaluating the potential for chemical and thermal enhanced oil recovery technologies as part of this effort.
- SmartWater Flooding holds the potential to improve our oil recovery rate by an additional 4% to 8% from carbonate reservoirs. We conducted demonstration projects in North 'Uthmaniyah and Khurais, drilled pilot wells, and deployed monitoring and surveillance equipment to acquire log data. We also completed detailed design and engineering work for the main surface facilities.
- A pioneering seawater-based fracturing fluid, developed in-house, was successfully tested in an acid fracturing job in the field. This approach, which leverages our extensive seawater infrastructure used to support reservoir water flooding, could help preserve groundwater resources.
- Our first demonstration project for carbon dioxide (CO₂) sequestration and enhanced oil recovery, located in the North 'Uthmaniyah area of the Ghawar field, started injecting CO₂ in July 2015. The expected gain in oil recovery from the CO₂ injection is projected to be between 7% and 9%. A state-of-the-art monitoring and surveillance plan to track the CO₂ plume in the subsurface, monitor the performance of the CO₂ injection process, and assess the effectiveness of the field pilot was designed and deployed.

- We completed a field prototype of our new cable deployed electric submersible pump, which can be deployed and retrieved in one day — independently of a workover rig — significantly lowering costs for this process. We also focused on developing a reliable high-speed electric submersible pump for slim hole completions, with the potential to further boost operating efficiencies.
- Date trees, the symbol of Saudi Arabia, may offer an ingenious, low-cost solution to a drilling challenge: Preventing the loss of expensive drilling mud. We examined the waste components of date trees to determine whether this material can be effective in sealing rock formations while drilling oil and gas wells. Drilling fluid engineers engaged with organizations in al-Hasa, an oasis in the Eastern Province, and performance evaluation tests produced positive results. Final testing is scheduled for completion in early 2016. We have filed three patent applications in the United States for this environmentally friendly solution that also may enable new business and job creation in local communities. We are also evaluating the potential use of local sand as an alternative proppant in fracturing operations.
- We filed a patent application for our high-density cement technology, which provides better wellbore isolation in high-pressure gas wells. This technology reduces gas migration in deep gas wells and helps eliminate expensive remedial operations. We conducted 10 field tests and plan to cement 25 wells in the Khursaniyah field with the new formulation.

Downstream and cross-business

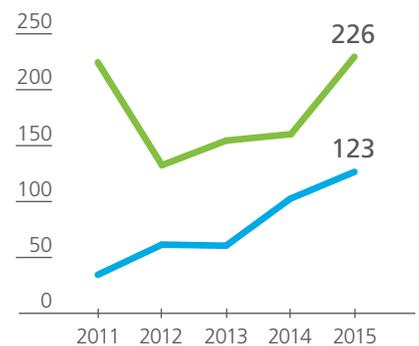
Downstream, we focus on anticipating customer needs for refined products and chemicals and develop technologies to ensure we meet the growing expectations of our stakeholders. During 2015, we continued to push the boundaries of downstream technology in our pursuit of breakthroughs. Key areas of focus have included oil



Our research into SmartWater Flooding shows the potential to raise our oil recovery rate.

Patents

2011–2015



■ Filed
■ Awarded



We foster a culture of innovation to make petroleum energy more sustainable and to build a secure energy future.

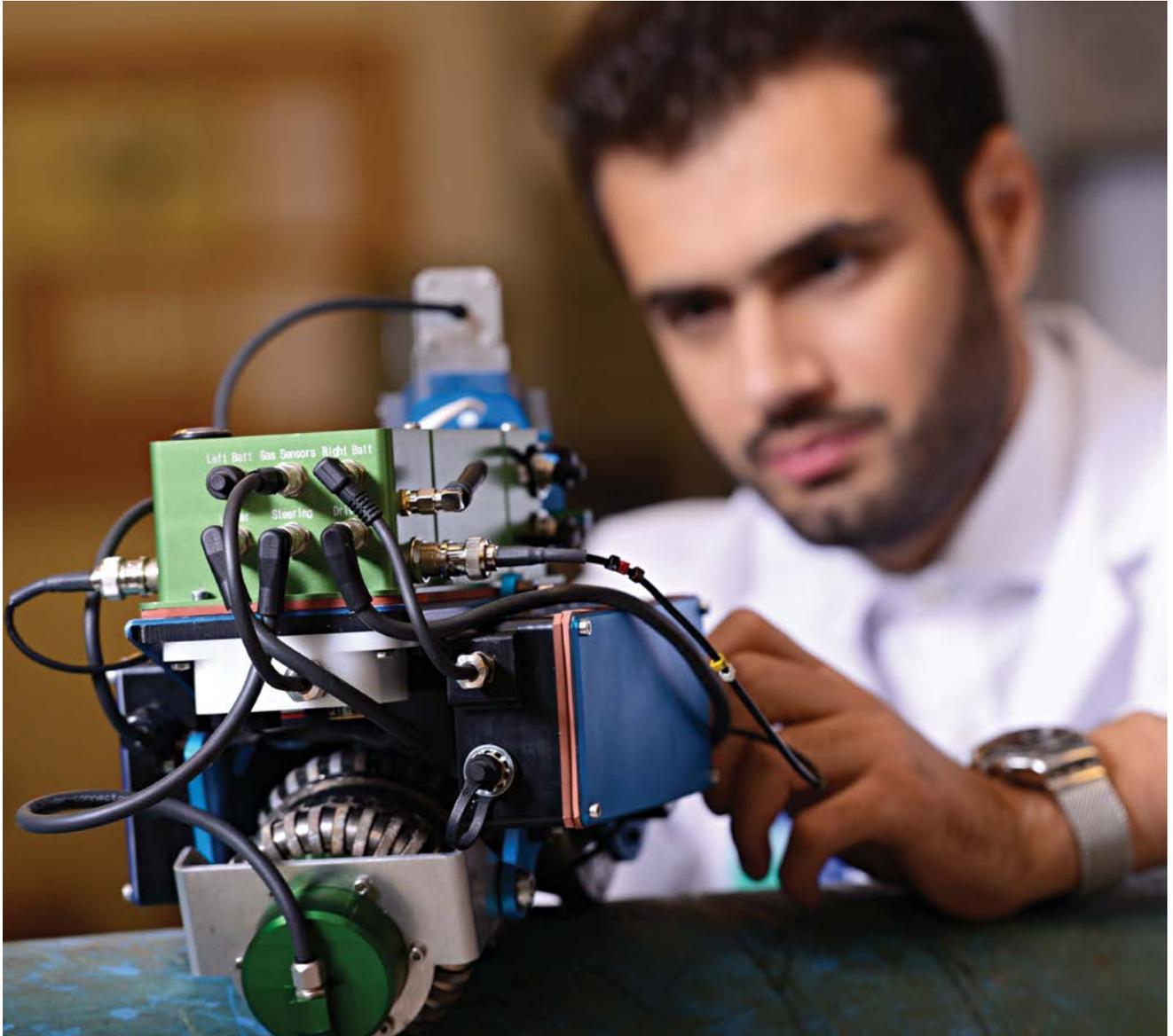
upgrading, crude oil to chemicals technology, oil and gas treatment, the development of catalysts to raise the efficiency of our refining operations, the progression of technologies to allow for the direct conversion of crude oil to high-value derivatives, enhanced network integrity, and advanced materials for high-growth sectors.

- We evaluated a new catalyst (CAN-15) developed at our Riyadh Refinery, which enhances performance in the processing of heavy, de-metallized oil (oil that has had heavy metals such as vanadium removed). The catalyst has boosted the production of distillates, and as a result is creating additional value. A commercial trial is scheduled for completion in early 2016.
- Our unconventional technology for oil upgrading with a supercritical water process seeks to increase the API gravity of oil, and thereby raise its value for commercial production. Our pilot plant validated the technology and work is underway to build a 10 bpd demonstration unit in collaboration with S-OIL of South Korea, with full operations planned for 2016.
- We continued development of a technology for converting crude oil to chemicals, resulting in significant improvements in the yields of ethylene and propylene. Our project team collaborated with a technology company and a university in the United States to design, build, and operate an integrated ethylene pilot plant to demonstrate the feasibility of the technology. The potential for this pioneering technology to add value to our crude oil resource base is significant.
- The one-step process offered by our proprietary SuperButol™ technology enhances the value of mixed butane streams and produces a clean burning fuel additive that boosts gasoline octane. During 2015, we worked with a technology partner to develop a licensing and deployment system and also reached agreement with another technology partner to develop a feasibility study to incorporate this technology into our processes for developing feedstocks. Our SuperButol™ technology may play an important role in producing cleaner fuels and lowering emissions.
- We leveraged our collaboration with the King Abdullah University of Science and Technology (KAUST) to examine the use of ceramic membranes for the pre-treatment of produced water before desalination, and to provide guidelines for selecting membranes. Laboratory tests proved the feasibility of using ceramic membranes to treat water produced from oil and gas fields. Ceramic membranes offer a reliable, cost-effective, and environmentally friendly method for treating produced water. Our R&D Center also developed a preliminary design for using membrane distillation to desalinate produced water at our gas-oil separation plants. Research is ongoing to develop these techniques with the objective of treating produced water on-site at company production facilities, helping conserve the Kingdom's freshwater resources.
- We pioneered an acoustic based dewatering system that permits the timely control of water discharge from the dewatering tank system. An initial pilot system was installed in a crude oil tank at the Riyadh Refinery in 2009 and the system was patented in 2015. The technology costs 70% less than a conventional dewatering system. The first phase of the deployment covered 31 storage tanks and resulted in significant cost avoidance. We plan to install this system in terminals, bulk plants, and refineries in the second phase of deployment. In addition, we are evaluating the commercialization of this technology.

Technology: Pioneering Advances

Strategic

Greenhouse gas management, cleaner burning fuels, and more efficient engines were our key strategic research focuses during 2015. The goals remain to radically improve fuel efficiency, lower emissions, and provide more affordable energy — benefits with global impact.



Our collaboration with the King Abdullah University of Science and Technology includes research in the areas of robotics, materials science, and information technology.

- We continued our investigation of solutions that reduce CO₂ emissions from transportation through a cost-effective onboard vehicle CO₂ capture system. Our carbon management technology includes an onboard system capable of capturing 25% of the CO₂ emitted through vehicular exhaust systems, with a goal to capture as much as 60%.
- At a 15 megawatt thermal boiler facility in the United States, we successfully tested the oxy-combustion of heavy residue with pure oxygen and with enriched air. Test results indicated an increased combustibility of the fuel with 50% lower nitrous oxide emissions, demonstrating the potential of using difficult to burn heavy residues for efficient and clean power generation with the potential for 90% CO₂ capture.
- We continued our research efforts focusing on the technologies needed to develop advanced engine-fuel systems for gasoline and diesel engines. Our goal is to promote the development and adoption of efficient and cost-effective oil-based engine-fuel systems while addressing global CO₂ and energy demand challenges. We have demonstrated fuel efficiency benefits from low octane gasolines in heavy- and light-duty engines at

our R&D Center in Dhahran and at our global research centers in Paris and Detroit, and have shared our findings with the automotive industry. As a result, in 2016 we envision establishing our first-ever collaboration with one of Europe's leading automakers.

- Fuel detergents to increase fuel efficiency are one of the methods under investigation to help reduce domestic consumption of motor fuels. Results from fleet trials showed potential annual Kingdomwide fuel savings of more than 5.6 million barrels per year of diesel and more than 3 million barrels per year of gasoline. The detergents are being piloted at two company bulk plants. If the estimated financial savings obtained in the fleet tests can be confirmed in the bulk plant trials, we plan to implement the

program at all of our bulk plants to help support the country's drive to reduce fuel consumption.

In support of our strategy to maximize value creation, we are expediting the migration of projects from research to development and deployment. This effort includes prototyping, licensing, and commercialization. In addition to developing new chemicals and tools, we are aggressively evaluating local materials and chemicals to replace imported products to reduce costs and create opportunities for local businesses. In 2015, two licensed technologies were signed with third parties during the year to **commercialize our intellectual property**.

A licensing agreement was signed with a Norwegian technology company to commercialize our patented technology for monitoring packer integrity.

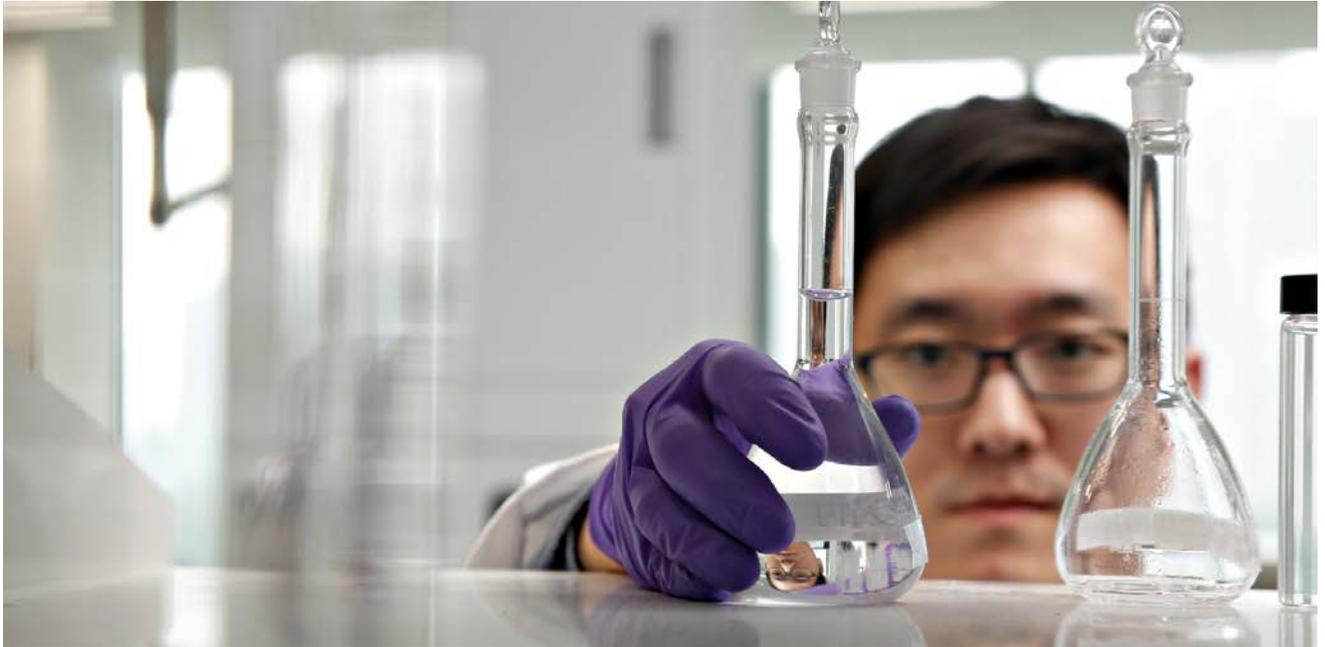
This technology determines the effectiveness of one or more seals that provide a watertight barrier to isolate hydrocarbon inflow control devices in open hole wells. The commercialization and deployment of this technology will deliver significant cost avoidance savings through the early detection of water leakage in well completions, thereby decreasing the instances of well closures.

Our inflatable contingency ease scraper technology, which helps prevent production loss in offshore facilities, will be commercialized through a licensing agreement signed with a new company created by IK International in Norway and our **Saudi Aramco Energy Ventures (SAEV)** corporate capital venture subsidiary.

Global research network

 research center  technology office





The opening of our research center in Beijing, China, strengthens our capability to develop upstream technology, including improvements to reservoir management to maximize recovery.

Investments in technology aid affordable, sustainable energy supplies.

Global research network

Establishing and growing a global research and technology presence is an integral component of our drive to develop breakthrough solutions for the challenges faced by our industry. The network we have established reflects our belief that investments in technology development are critical for maintaining an affordable, accessible, and sustainable energy supply to the world while also reducing greenhouse gas emissions.

Our research network includes our in-Kingdom research center at KAUST, five international research centers (Beijing, Boston, Detroit, Houston, and

Paris), and three technology offices (Aberdeen, Daejeon, and Delft), all of which are aligned with our R&D Center and EXPEC Advanced Research Center (EXPEC ARC) in Dhahran.

Our global research network marked two significant milestones in 2015:

- Our **Beijing Research Center** became operational and 42 employees were on staff by the end of the year. The Center conducts research on chemical enhanced oil recovery and advanced seismic imaging technologies, including automated fault detection and improvements in data quality through super resolution. The results of our research are already producing cost savings and improvements in exploration and reservoir management. The Center is also evaluating the expansion of research activities into the downstream sector in areas such as transportation efficiency, greenhouse gas management, advanced control and power systems, robotics, materials science, nanotechnology, and advanced computing.

- In November, we inaugurated our **Detroit Research Center**. The 4,645 square meter Center is configured with four fuel and engine dynamometer research labs and features a vehicle lab equipped with an environmental chamber. The Center can accommodate light-duty and heavy-duty fuels research programs and also offers full on-site integration and the demonstration of new vehicle technologies. Our Strategic Transportation Analysis Team, based in the Detroit Center, provides dynamic industry analysis relevant to our fuels research and development activities.

Academia and industrial collaboration

Collaboration with global universities and industry leaders, both domestically and internationally, provides opportunities for developing and acquiring new technologies, evolving new skills in our workforce, recruiting top talent, and helping to strengthen the research capacity of in-Kingdom universities in areas aligned with our business objectives. For example, in 2015 we signed a

Memorandum of Understanding with **Dammam University** to strengthen the university's education, research, and economic development.

Elsewhere in the Kingdom, our joint efforts with **KAUST** focused on advancing research in downstream domains such as fuel technology and cleaner burning engines, as well as other leading-edge developments in information technology, materials science, nanotechnology, robotics, and solar energy materials. A new Saudi Aramco R&D Center is under development on the KAUST campus. When fully operational, the 15,300 square meter center will host 139 full-time researchers and support staff exploring carbon management, computational modeling, oil and gas network integration, and environmental protection. In addition to our 23 full-time scientists and engineers currently conducting research at KAUST, we also sponsor employees pursuing advanced degrees at KAUST and hire graduates, creating a conduit of talent to drive innovation in our company and in our industry.

Research performed as part of our multifaceted interactions with the **King Fahd University of Petroleum and Minerals (KFUPM)**, located adjacent to our headquarters, spans upstream and downstream focus areas, including enhanced oil recovery, reservoir quality prediction, near surface seismology, drilling optimization, sub-quality gas treatment, CO₂ capture and utilization, and the upgrading of heavier crude oils to lighter, more valuable grades.

In 2015, we continued work with KFUPM to create a new **College of Petroleum Engineering and Geosciences**, a project that includes the construction of a new laboratory building and the establishment of a private subsidiary company under the **Dhahran Techno Valley Company (DTVCo)** to support associated nonacademic activities. The new college will provide a collaborative and cross-disciplinary environment that will bring faculty, students, and industry together to

address business and technical challenges of vital importance to the petroleum industry.

We also continued to support work by leading energy companies associated with DTVCo, which manages a research and innovation park adjacent to and integrated with KFUPM. In 2015, we established a dedicated Technology Coordination Group, and met regularly with DTVCo companies to facilitate new research and development.

Researchers in DTVCo have begun efforts to tackle challenges in geophysics and petroleum engineering, refining and petrochemical processes, water management, energy efficiency, renewable energy, and advanced computing. The work underway at DTVCo supports the wider transition to a knowledge-based economy and breakthroughs in these research domains will have far-reaching benefits for the Kingdom's economy.

In 2015, Huawei joined the roster of international energy technology firms established at DTVCo. A Joint Innovation Center dedicated to pursue information and communication technologies for the oil and gas industry will focus on areas of interest such as unified communications, high-performance computing labs, mobility, and the digital oil field.

Our research and education association with the **Massachusetts Institute of Technology (MIT)** in the United States, fostered by our research center in Boston, continued to advance upstream and downstream research efforts, with a focus on low carbon energy, modeling, visualization, simulation, advanced materials, and power generation.

Investing in energy

Our commitment to invest in innovation reaches beyond our own global research network and collaboration with universities. Our SAEV corporate capital venture subsidiary invests in startup and high-growth technology companies that offer the potential to maximize the value of our resource base, create new industries, and spur job creation. In 2015, SAEV completed four investments in



companies specializing in drilling services, well technology, spectrometers, and construction technology.

Our investment in **Novomer**, a U.S.-based technology company that uses CO₂ as feedstock to produce high-performance, cost-effective, and environmentally friendly polymers and chemicals, is a landmark step in our journey to diversify further downstream.

Domestic alliances

We support collaboration through an expanding "open innovation network" that taps into cross-functional sources of scientific expertise and researchers around the world. The alliances we have



created for cooperative engagement will secure our commitment to the sustainability of our resources, promote growth in the domestic economy, and help drive job creation opportunities for Saudi businesses and citizens.

To further boost the spirit of innovation in the Kingdom, we participate in the **Saudi Arabia Advanced Research Alliance Agreement (SAARA)**, an alliance formed to promote intellectual property commercialization and technology development. Our participation in this initiative includes providing project funding and technology projects for potential development to SAARA's commercial entity known as

the **Research Products Development Company (RPDC)**, a partnership with government, academia, and research. We believe that organizations such as RPDC will bring people together and help turn their ideas into real products, generating sustained economic development and helping spur growth in the domestic R&D sector. During 2015, four research projects were identified for commercialization. A market assessment was conducted and phased project development proposals were developed in coordination with RPDC.

As part of our greater efforts to localize service and material supply services, we collaborated with the King Abdulaziz

City for Science and Technology (KACST) and the Saudi Technology Development and Investment Company (TAQNIA), to create the **Saudi Company for Research Elements (SARE)**, which will provide a comprehensive and robust supply chain management service for all in-Kingdom research centers and universities.

Our investments in, and support for, a wide spectrum of research initiatives and alliances, at home and abroad, affirm our commitment to become a global leader in the development of energy-related technologies while also supporting the creation of a knowledge-based economy in the Kingdom.

Key figures

lost-time injuries per 200,000
man-hours

0.06

minor to major injury ratio

22:1

health, safety, and environment: protecting resources

An enterprise-wide, organizationally driven focus on health, safety, and the environment is a central tenet of our operations.

Managing our performance in these areas in daily operations is critical, above all, for managing risk. Mitigating health risks promotes well-being and ensures employees, our most valuable resource, can do the best work of their careers. A top-down approach to mitigating safety risks creates a work culture that places a premium on ensuring employees have the training, equipment, and protocols they need to complete tasks safely. Managing risks to the environment minimizes the impact of operations on local and global communities and helps to protect and sustain the natural environment for future generations.

We have earned a reputation for diligently supporting and enhancing the health of our employees, retirees, and dependents. Johns Hopkins Aramco Healthcare (JHAH), our health care joint venture with Johns Hopkins

Medicine, delivers the best possible care for our people and contributes to the health and well-being of the people of Saudi Arabia through collaboration, research, and education.

Safety is one of our five core values and we strive to embed a safety first mindset, both on- and off-the-job, in our employees and their families, and in contractor companies working with us. During 2015, we bolstered many of our safety initiatives as part of our efforts to develop a safety culture. We continued our efforts to improve road and traffic safety in the Kingdom — a challenge that confronts not only our employees but everyone who lives in the country.

On rare occasions, unfortunate incidents may occur. One such incident occurred on August 30 when a fire broke out at a leased residential compound in the city of al-Khobar.

Regrettably, our Aramco family lost one employee and nine dependents. Additionally, 83 individuals were admitted to JHAH and local hospitals with injuries. We responded immediately to find replacement housing for those who were displaced from their homes and treated the injured. We cooperated with the government in its investigation and used the lessons learned to strengthen our safety procedures to prevent similar incidents.

We continued making progress toward reducing the environmental impact of our operations through a number of means, in particular, the search for technological solutions to lower greenhouse gas emissions through carbon capture and sequestration, and research into advanced engines and fuel formulations. In a major milestone, we launched a pilot program to capture CO₂ and inject it underground to enhance oil recovery. We also worked to improve wastewater management and preserve groundwater resources, conserve and enhance biodiversity, and minimize waste disposal.

Our efforts to protect the environment are not limited to Saudi Arabia. We also endeavor to effect positive change on a global scale. With other leaders in the energy industry, we support the efforts of the Oil and Gas Climate Initiative, a collaborative effort that seeks to spur practical action in areas such as the role of natural gas, greenhouse gas reduction, and lasting energy solutions. At the United Nation's Climate Change Conference, the 21st Conference of the Parties (COP21), held in Paris in December, we exhibited elements from our portfolio of greenhouse gas management technologies and initiatives, including carbon capture and storage, and research into cleaner, more efficient engines. We also participated in the 6th Ministerial Conference of the Carbon Sequestration Leadership Forum in Riyadh and the Global Methane Initiative for the Oil and Gas Sector Workshop and Exhibition in al-Khobar.

We believe the health and safety of our people and the preservation of the

natural environment provide a foundation for future progress and development. Our desire for a prosperous tomorrow drives our commitment to continuously improve our health, safety, and environmental performance through innovative thinking, the creative application of technology, and setting new standards of excellence.

Health

Realizing the goals for our company and the Kingdom is only possible through the sustained health and well-being of our employees and their families. In 2015, JHAH offered a wide range of wellness and preventative health programs to improve the quality of the health care experience for employees, retirees, and their families. JHAH also introduced new technologies and programs designed to enhance patient care and treatment, including a new robotic urology surgical system, an outpatient cardiac rehabilitation program, and a fellowship program to develop patient safety and quality teams.

We endeavor to effect positive change on a global scale.

As part of the push to improve and expand health care services for our employees, work progressed in 2015 to upgrade the **al-Hasa Health Center**, now part of the JHAH network, to establish an 80-bed community hospital. The upgrades include additional capabilities and improved inpatient and outpatient care. When completed in 2016, the facility will be capable of providing services to 50,000 people and will be an exemplar of quality medical care in the region.

In a prime example of our commitment to pioneer new services, we completed construction of the **Shamah Autism Center** in Dammam — the first



Participants in the Johns Hopkins Aramco Healthcare Nursing Program, designed to advance nursing practices, take part in a ceremony marking their commitment to pursue a doctoral degree in clinical nursing.

multidisciplinary autism center for Saudi children in the Eastern Province. In conjunction with a local special education and rehabilitation center and a U.K.-based autism school, the Center, which opened in late 2015, will fill critical gaps in the way autism is treated in the Province.

The Center will provide comprehensive behavioral treatment programs and diagnostics, in line with international standards, with a strong focus on early intervention therapy for approximately

100 children aged three to eight. A cadre of Saudi professionals working at the Center will benefit from the experience and best practices of the international partner, further raising health care capabilities in the Kingdom.

JHAH launched the first **Doctorate of Nursing Program** in Saudi Arabia to develop advanced nursing practices, which help to extend physician care and build more attractive career paths for nurses. The first cohort of 13 students, including Saudis and expatriates,

is enrolled in a two-year program with Johns Hopkins University School of Nursing. JHAH also hosts a residency program for Saudi nursing students and collaborates with local universities on educational and career development projects.

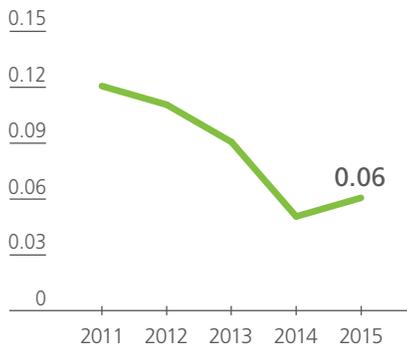
Safety

During 2015, we maintained our unrelenting focus on protecting our people and assets by living safety every day

Lost-time injury rate

2011–2015

per 200,000 work hours



and by conducting initiatives to improve our safety performance and that of contractors working for us. Integrated with our companywide rollout of an operational excellence framework is a safety management system that empowers organizations to identify and mitigate risks to improve safety performance.

Saudi Arabia has one of the highest traffic fatality rates in the world. To combat this issue, particularly among younger drivers who represent the future of the Kingdom, we deploy multiple measures to **promote safe driving** and general road safety, including the following:

- We drew more than 80,000 visitors to our traffic safety village in al-Khobar and opened a new traffic safety village in the city of Dammam. Our Traffic Safety Signature Program was the primary sponsor of the 3rd Traffic Safety Forum in November, reaching more than 1,000 people. The Program also distributed copies of its curriculum materials to more than 4,900 schools, reaching 850,000 students in the Eastern Province and Riyadh. These materials, and the traffic safety villages, are designed to instill respect for driving laws and ingrain safe driving habits in the nation's youth.
- We renewed our support for the Saudi Aramco Chair for Traffic Safety at the University of Dammam. Over the first three years of the program, research and analysis were conducted in areas such as crash investigations, highway studies, and traffic data analysis, and a Bachelor of Science program in Transportation was created, among other accomplishments.
- We installed 2,100 driver monitoring devices in the private vehicles of our trainee employees to monitor the movement of the vehicles and driver behavior. Data from the devices enabled us to assess driver behavior



Our commitment to improve driving safety in the Kingdom begins with the youngest generation.

and educate trainees on safe driving practices.

- Our vehicle management program installed more than 7,400 automatic vehicle location systems in company owned and leased vehicles, representing 61% of our vehicle fleet. These systems allow us to remotely track vehicles and monitor tire health, seat belt use, speed and other safety factors.
- Operating facilities in remote areas pay special attention to instilling a safe driving mindset in their employees, particularly young people. For example, at Tanajib we introduced a

mass transportation program and employees volunteered to install speed monitoring chips in their vehicles. Defensive driving training is offered at our remote facilities, and new roads designed to improve safety are under construction in the Haradh area.

We also took steps to improve the safety practices of our contractors. For example, we conducted more than 3,600 audits and we inspected more than 670 contractor construction and residential communities. We held 45 safety training sessions for company and contractor employees in contractor communities during the year.

We understand that our success is underpinned by our commitment to protecting our people and those who perform work for us. Ensuring safety practices on- and off-the-job helps uphold our standards of excellence while also raising the safety performance of our contractor companies in the Kingdom.

Environment

We believe technology solutions offer the key to protecting and preserving the environment while sustaining the benefits to be derived from hydrocarbon resources. Our global research network

is dedicated to achieving breakthrough innovations in engine efficiency, more environmentally friendly fuels, onboard carbon capture from mobile sources, and other technology domains that hold the promise of balancing energy sustainability with protection of the environment.

In April, we participated in the **Global Methane Initiative** for the Oil and Gas Sector Workshop and Exhibition in al-Khobar. International experts gathered to discuss the challenges of balancing the ever-growing worldwide need for energy while meeting that demand in an environmentally sustainable way.

Along with nine other global oil and gas companies, we support the **Oil and Gas Climate Initiative**, a CEO led, technology driven, voluntary oil and gas industry initiative that strives to catalyze practical action on climate change by collaborating on technology development and sharing best practices. On October 16, the group, which together supplies nearly 10% of the world's energy, issued a collaborative declaration agreeing to strengthen actions and investments to contribute to reducing greenhouse gas emissions. In the wake of COP21, the group expressed its support for the historic result achieved in Paris, which creates significant opportunities for innovation and investments in support of lower greenhouse gas emission solutions.

The key areas where the participating companies will focus their collaboration include:

- Raising the efficiency performance of their own operations and of road vehicles

We seek to balance energy sustainability with environmental protection.

In November, we supported the 6th Ministerial Conference of the **Carbon Sequestration Leadership Forum** in Riyadh, co-chaired by HE Ali I. Al-Naimi, the Saudi Arabian Minister of Petroleum and Mineral Resources, and Dr. Ernest Moniz, the U.S. Secretary of Energy, during which delegates from the 25 member countries gathered to share knowledge and highlight technology innovations focused on addressing climate change challenges. The forum provides governments with an international platform for reaching a shared commitment on research, development, and the deployment of innovative systems and methods for capturing, storing, and using CO₂ in ways that reduce the impact on the environment.

At the Forum, representatives from our Petroleum Engineering organization and R&D Center presented the company's greenhouse gas management solutions, highlighting two groundbreaking achievements: The CO₂ capture and enhanced oil recovery project and the onboard carbon capture system for vehicles. The **CO₂ capture** project, the largest project of its kind in the Middle East, injects compressed CO₂ into flooded oil reservoirs as a mechanism for CO₂ storage, simultaneously enhancing oil recovery.

We also showcased our **mobile carbon capture** device for vehicles — the only such device in the world capable of

capturing CO₂ onboard vehicles. Currently, the technology can capture up to 25% of the CO₂ emitted through the vehicle's exhaust system. Through continuing research, we plan to make the concept more cost-effective and compact, with a goal of capturing as much as 60% of the CO₂ emitted.

In addition, we highlighted our research to advance the technology of **oxy-combustion**, which improves the combustion of difficult to burn liquid fuels while capturing CO₂ at a high rate and purity, and our investment in technology startups such as **Novomer**, which develops catalysts capable of converting CO₂ into products such as polyurethane.

Our in-house and collaborative research, investments in technology, and support for global environmental initiatives are part of a holistic approach that complements the Kingdom's broader energy framework. Our long-term approach and scale amplify the impact of our ability to drive economic growth and enable wider access to energy while increasing energy efficiency and lowering emissions.

Conserving resources

Born of necessity as an energy company in a desert nation, we have long been pioneers in **water conservation**. Our water conservation roadmap governs our water usage through actions such as the use of flow meters, wider applications for wastewater, assessment of conservation opportunities, implementation of best practices, and the promotion of water conservation awareness among employees, their families, and local communities.

As part of our water conservation plan, we conducted a study on injecting secondary treated sewage effluent to support enhanced oil recovery operations. In addition to saving groundwater, treated sewage effluent also reduces scale and limits incompatibility effects in reservoir formations.

- Increasing the share of gas in the global energy mix, eliminating routine flaring, and reducing methane emissions
- Investing in R&D and innovation to reduce greenhouse gas emissions, progressing carbon capture and storage, and increasing the share of renewables



Company scientist Dr. Tidjani Niass explains our mobile carbon capture device to Laurent Fabius, president of COP21, at the Paris conference.

CO₂ Capture

Every day, we have the capability to capture and process 45 million standard cubic feet of CO₂ at a plant in Hawiyah.

The CO₂ is then piped 85 km to the 'Uthmaniyah oil field and injected into the oil reservoir, sequestering the gas while also helping to maintain pressure in the reservoir and recover more oil.

This pilot project, the first of its kind in the Middle East in both scale and operation, marks a major milestone in our long-standing commitment to protect the environment while sustainably and reliably delivering energy to the world.

Key objectives of the project are to boost oil recovery by 7% to 9% and permanently sequester roughly 40% of the injected CO₂. A number of unique technologies

are being used for the first time in the industry, including vertical compression technology for the CO₂ compressor, 4-D seismic data and electromagnetic surveys for reservoir observation, and novel chemical tracers to monitor CO₂ saturation.

Over the next few years, we will evaluate the demonstration project for potential future application at other facilities and oil fields in the Kingdom, and shared with others in the Middle East and worldwide — a testament to our aspirations to help solve global energy challenges, facilitate knowledge transfer, and spur innovation.

This pioneering work in carbon capture and sequestration is just one element of our Corporate Carbon Management Technology Roadmap, guided by the Advanced Research Center of our Exploration and Petroleum Engineering Center (EXPEC ARC). Our efforts to capture CO₂ emissions are linked to the work being carried out by our global research network to reduce emissions — all part of our holistic approach to energy sustainability.





We also use treated wastewater for irrigation, with roughly 46% of our irrigation needs for landscaping in our communities met by **recycled sanitary wastewater**. At our North Park office complex in Dhahran, we initiated a pilot program for reusing “gray water” — recycled water from wash basins — for landscape irrigation, industrial processes, toilet flushing, and replenishing groundwater basins. Water conservation efforts such as these, scaled up across our communities and facilities, and combined with our efforts to educate the public, serve as a model for other industries and businesses, and have the potential to contribute significantly to preserving the Kingdom’s water resources.

The **planting of trees** to serve as windbreaks and to prevent sand from encroaching on roads and into communities and facilities has long been one of our standard practices in facilities planning. We are now able to combine this approach with a new water conservation technology developed by a company in Riyadh. The technology features a polymer capable of absorbing 600 times its own weight in water, allowing newly planted trees to retain water, which reduces irrigation requirements. In 2015, we supported the planting of roughly 3,500 trees suited to desert conditions on 5.5 km of land in Khurais. If the technology proves successful, we will use it on tree planting projects elsewhere in the Kingdom, improving road safety and providing habitat for birds and wildlife, while also saving water.

Improving air quality by lowering emissions is addressed through a number of initiatives, such as the installation

of flare gas recovery systems and our **Flaring Minimization Roadmap** that establishes guidelines to further reduce flaring. We have set ambitious targets and track key performance indicators for flaring minimization. As a result of these initiatives, our flaring levels are less than 1% of our annual gas production and the future trend is for even lower levels of emissions.

We are incorporating tail gas treatment technology in our existing sulfur plants to further **reduce sulfur dioxide emissions**, and our Fadhili Gas Plant, Jazan Refinery, and Jazan integrated gasification combined cycle power plant will include tail gas treatment units. The tail gas treatment process at the Fadhili Gas Plant, for example, is designed to recover 99.9% of the produced sulfur. Lower emissions contribute to improved air quality in the Kingdom and are part of our broader efforts to protect the natural environment.

In addition to reducing emissions, we adhere to a rigorous **zero discharge policy** for our drilling and workover operations to minimize the release of hydrocarbons to the environment. In 2015, we recovered 1.2 billion scf of gas and more than 260,000 barrels of crude oil through this approach.

Effective **waste management** is another area in which we seek to reduce our impact and spread the benefits of our approach throughout the Kingdom. We conduct recycling awareness programs in our residential communities and offices, as well as in local schools, universities, and municipalities. Since 2009, we have collected more than 400 U.S. tons (over 360,000 kg) of plastic, glass, and aluminum for

flared gas of annual gas production

<1%

Paper and carton recycled

2011–2015

(kilograms)

2015: 884,505



2014: 907,185



2013: 816,466



2012: 846,403



2011: 1,172,083



recycling and more than 7,400 U.S. tons (over 6.7 million kg) of paper and carton from our offices and residential communities.

Protecting biodiversity

Our Corporate Biodiversity Plan sets requirements for protecting the terrestrial and marine environments adjacent to, and within, our operations by conserving and enhancing biodiversity, preventing or mitigating impacts, minimizing waste disposal on land, and assessing and rehabilitating sensitive natural habitats.

We continued to make progress on the construction of the **Shaybah Wildlife Sanctuary**, a 637 square km fenced sanctuary for wildlife in the Rub' al-Khali. Construction began on access roads and a perimeter fence to protect vegetation from overgrazing and damage from vehicles. Once vegetation is well established, we plan to reintroduce large native animals such as the Arabian oryx and sand gazelle.

Balancing preservation of the natural environment with operational requirements is a hallmark of our company's character. During construction of a new gas compression station, part of our project to expand the Master Gas System, we moved and replanted more than 190 mature Acacia trees. The trees are part of an ecosystem that includes a variety of native plants, insects, birds, and wildlife, and are also a source of ingredients used in traditional medicine. Replanting the trees preserves this important habitat and also helps to prevent soil erosion.

We finalized the design of our **mangrove eco-park** in Rahima Bay on the Arabian Gulf coast and planted 10,000 mangrove seedlings. When completed, the park will protect 63 square km of mangrove forest, salt marsh, and sea-grass habitats — important nurseries for fish and shrimp and vital foraging and roosting sites for migratory birds. The eco-park will help foster knowledge and appreciation of this fragile ecosystem.



Overall, in 2015 we planted 400,000 mangrove seedlings. To date, we have planted a total of 900,000 seedlings along the shores of the Eastern Province, well on our way toward our target of 2 million by 2017. In addition to restoring critical habitat for marine life and birds, mangrove forests serve as the most significant natural CO₂ sink in the Kingdom.

We continued to monitor the health of coral reefs in the Arabian Gulf through our partnership with KFUPM. To provide more habitat for a greater diversity of marine life and boost fish resources for local fishermen, we



Our efforts to protect biodiversity in the Kingdom include restoring coral reefs in the Arabian Gulf.

deployed 728 artificial reef modules and more than 1,200 limestone rock baskets in 25 designated locations in the Arabian Gulf as part of a comprehensive **reef restoration program**. We also cleaned 35 km of shoreline around Abu Ali Island, built 12 artificial nests for flamingos and ospreys, and cleaned culverts leading into the bay to improve water circulation and quality.

We also made progress on our project to enhance Arabian Gulf fisheries resources. We are building a fish hatchery with the capacity to release 10 million juvenile native fish each year to replenish fish stocks, helping to sustain the region's traditional fishing industry.

Adjacent to the fish hatchery, we developed a mangrove tidal lagoon to serve as a nursery area for released fish and we have also deployed a large artificial reef array to provide additional habitat. In collaboration with KFUPM and an international consultant, we conducted four studies of fish habitats and fisheries management in the Arabian Gulf.

In partnership with the Ministry of Education, we established the **Saudi Aramco Environmental Education Program** to conduct environmental awareness workshops for elementary school teachers. We provide educational tools for teachers and students to develop classroom projects that help

build awareness and appreciation for environmental stewardship. More than 1,600 schools participate in the program across the Kingdom, and more than 1,000 Friends of the Environment groups have been established in schools.

As the Kingdom's national petroleum company and the world's leading provider of energy, our challenge is clear: Deliver sustainable supplies of energy while protecting the natural environment. Our ability to meet this challenge rests in large part on our continued success in the health, safety, and environmental areas.



Key figures

value of material procurement
spending awarded to local
manufacturers

\$2.1b

percentage of material procurement
spending awarded to local
manufacturers

37%

value of contract procurement
awarded to local market

\$26b

percentage of contract procurement
awarded to local market

80%

A large industrial facility, likely a manufacturing or assembly plant, featuring prominent blue robotic arms and orange machinery. The floor is a light-colored, polished concrete. Large windows are visible in the background, allowing natural light into the space.

enabling opportunities: our commitment to the Kingdom

Our commitment to create more value in everything we do underlies our drive to go beyond simply generating revenue.

It forms the lens through which we evaluate our commercial endeavors for opportunities to generate value beyond our immediate business objectives. It impels us to capitalize on the potential multiplier effects of our investments and projects to promote sustainable economic development that fosters an energy efficient society, high-value job creation, and diversification.

Energy efficiency is an imperative for prosperity in today's world. As steward of the nation's energy resources, we have an obligation to promote the wise and responsible use of energy. We support the nation's commitment to a sustainable energy economy by championing best practices in conservation and efficiency.

We believe energy is opportunity. We therefore have a responsibility to combine our core competencies with the energy of our resources, our people,

and our ideas to create the conditions for mutual benefit. By using our business activities as launch pads for the further development of the Kingdom and its citizens, we can help enable a healthy and dynamic economic ecosystem where all can thrive.

One way we magnify the effect of our commercial operations is by accelerating the growth of a globally competitive Saudi energy services sector. This will be accomplished by using a two-pronged approach. We are planning anchor projects such as the Ras al-Khair Maritime Yard to kick-start the creation of entire industries through single, major development projects with key partners. Second, through the use of incentives and other measures of broad-based support, we work to increase the overall competitiveness of targeted energy-related sectors.



Leading by Example

Sometimes seemingly small changes can pay huge dividends in the quest to find solutions for limiting impacts on the environment.

One such example is our campaign to replace less efficient incandescent lights in our facilities, offices, and communities in favor of environmentally friendly LED lighting.

Over the last two years, we upgraded lighting in 18,000 homes and 200 office buildings, installing more than 550,000 LED light bulbs. We are well over halfway to attaining our goal of replacing 14,500 street lights with LED fixtures, and by the end of 2016 we plan to replace a total of 60,000 fluorescent lights with LED lamps.

The LED lights installed thus far are estimated to produce annual energy savings in excess of

42 gigawatt hours, equal to saving more than 80,000 barrels of oil equivalent per year, resulting in a reduction in CO₂ emissions of more than 31,000 metric tons.

Installing LED lighting is just one facet of our Lead by Example initiative for improving energy efficiency, which strives for a 35% reduction of total energy use in our buildings, transportation, and communities by 2020.

Our other impact priorities for energy efficiency and sustainability include the use of high-efficiency cooling and heating systems with smart meters in our residential homes and industrial buildings, and the implementation of new fuel efficiency standards in our vehicle fleet, which alone is

estimated to provide a total annual savings of 40,000 barrels of oil equivalent.

By improving our own energy efficiency, we create a model for others to follow. The shift to an energy efficiency culture within our company and in the Kingdom is at the core of our commitment to build a sustainable energy economy.



Annual energy savings from LED lights installed thus far are estimated to exceed 42 gigawatt hours.

Our progress during 2015 contributed to our goal of increasing the level of locally produced materials and services we procure to 70% by 2021. The drive to support the domestic energy sector has the potential to create thousands of new direct and indirect jobs and establish the Kingdom as a hub for the provision of engineering and oil field services, as well as the manufacturing of critical and everyday supplies.

Further downstream, we see our expanding chemicals business as a driver of economic diversification. Not only will our chemicals complexes provide prospects for skilled employment, but the associated conversion parks will attract new manufacturing and support service industries that will stimulate even more employment and business opportunities. In anticipation of the demand for skilled employees, we are partnering with local businesses and government agencies to build training institutes to empower the Saudi workforce to take advantage of, and thrive, in the jobs of the future.

We do not consider our business to be an either-or proposition. We have always conducted our operations to meet our business objectives *and* have endeavored to maximize their impact to benefit the people of the Kingdom.

Living energy efficiency

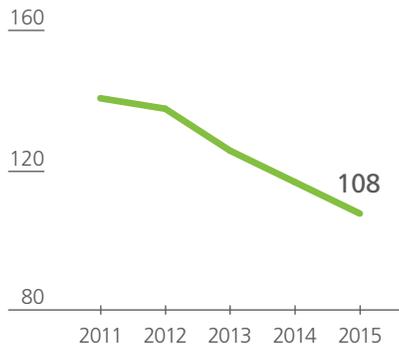
In 2015, we continued making progress toward becoming self-sufficient in meeting our own needs for electricity while also increasing energy efficiency. On a national level, we supported the efforts of the Saudi Energy Efficiency Program (SEEP), a subcommittee of the Saudi Energy Efficiency Center (SEEC), to improve domestic energy efficiency.

Our energy efficiency efforts are guided by our **Energy Management Program**, which is rooted in four core principles: Reduce energy consumption at our facilities by 2% per year, design new facilities to be energy efficient, increase overall energy efficiency, and influence and promote energy efficiency at the national level.



Energy intensity required to produce one barrel of oil equivalent

2011–2015
 (thousands of Btu)



One measure of success is energy intensity — the energy required to produce one barrel of oil equivalent expressed in terms of thousands of Btu. In 2015, our energy intensity was 108,000 Btu per barrel of oil equivalent at year-end — an improvement in efficiency of nearly 8% compared to 2014 and 23% compared to 2011.

Leading by example

At Saudi Aramco, we are targeting a 35% reduction in energy consumption in our buildings, transportation, and communities by 2020, and by doing so we are creating a model for other companies to emulate.

Lighting and air conditioning are two of the largest consumers of power in office buildings and communities. Realizing energy savings in these two areas alone can significantly lower consumption levels. In 2015, we completed a program to replace more than 550,000 incandescent lights with efficient LED bulbs. We commenced work on the second phase of the lighting program to replace approximately 60,000 light bulbs in office buildings and facilities with energy efficient LED luminaries by the end of 2016. We also installed a total of 8,000 LED street lights in company communities, more than halfway toward our goal of 14,500. Annual energy savings from the LED lights installed thus far are estimated to exceed 42 gigawatt hours, equal to saving more than 80,000 barrels of oil equivalent per year, which corresponds to a reduction in CO₂ emissions of more than 31,000 metric tons.

Air conditioning and heating systems account for 70% of the total energy consumption in homes and buildings. By installing smart energy meters and more efficient air conditioners, and upgrading external insulation in our communities, we are reducing power consumption and setting an example for the construction industry to follow. In 2015, we continued to make progress toward our targets of installing smart energy meters in 1,000 homes and 350 commercial buildings by 2016.

The energy efficiencies gained in our homes and commercial buildings will save more than 1 million barrels of oil equivalent per year, equal to avoiding more than 330,000 metric tons of CO₂ emissions each year, roughly the amount emitted by more than 60,000 cars in one year.

In transportation, we are replacing more than 7,600 V-8 cars and trucks in our vehicle fleet with six-cylinder models. This past year alone, we replaced nearly 1,500 passenger cars and 1,500 trucks. Improving the overall fuel economy in our vehicle fleet will generate an annual savings of more than 40,000 barrels of oil equivalent. We also switched more than 1,100 hydrocarbon tankers operated by a contractor from steel to lighter weight aluminum, increasing safety and generating additional fuel savings. To help increase fuel efficiency nationwide, we worked closely with SEEP on a government awareness campaign to promote simple fuel economy tips for drivers in the Kingdom.

Cogeneration

Achieving self-sufficiency in electrical power for our operating plants through cogeneration is a key element of our energy management efforts. Cogeneration systems capture the heat from a plant's exhaust stream and convert it into useful thermal energy, lowering fuel requirements and reducing emissions. In 2015, we added a total of 2,163 megawatts of power generating capacity.

We completed the expansion of cogeneration units at our Ju'aymah, Shedgum, and 'Uthmaniyah gas plants and are building new cogeneration power facilities at our Abqaiq, Hawiyah, and Ras Tanura facilities. The power plants will be owned and operated by a joint venture between domestic companies and Saudi Aramco.



The cogeneration unit at our Wasit Gas Plant converts waste heat into useful thermal energy and reduces emissions.



The 1 megawatt concentrated photovoltaic system at our Tabuk Bulk Plant is the first such utility-scale plant in the Middle East.

Savings achieved by peak seasonal production strategic plan

2011–2015

(millions of barrels of oil equivalent)

2015: 2.8



2014: 2.6



2013: 15.1



2012: 6.5



2011: 1.5



Our grass roots Fadhili Gas Plant will include a cogeneration plant with the capacity to produce roughly 1.3 gigawatts of power and 3.2 million pounds per hour of steam. We continued work on the front-end engineering in 2015 as part of our Joint Development Agreement with the Saudi Electricity Company and a third party.

Renewable energy

Research into the practical and scalable use of renewable energy, particularly solar and wind, combined with engaging key stakeholders, lie at the heart of our efforts to catalyze the Kingdom's renewable energy policy and help optimize the energy mix.

We continued to build momentum in our analysis and application of **solar power** during the year. Working with the Saudi Electricity Company, we installed 10 monitoring stations at various project sites to calculate potential energy yields and determine the best locations for siting future solar power facilities.

New solar installations in 2015 included our first rooftop photovoltaic setup on our Power Systems office building in Dhahran. The system includes 144 photovoltaic modules, and over its lifespan, will generate approximately 1.2 million kilowatt hours of clean energy, mostly during peak demand times. At our Tabuk Bulk Plant, we commissioned a 1 megawatt pilot project using concentrated photovoltaic technology — the first such utility scale plant in the Middle East. A solar thermal water heating system, designed to raise energy efficiency by 60%, was installed in the main building of JHAH in Dhahran.

Our research into solar energy is also calculated to result in knowledge and technology transfer to the Kingdom and to create new opportunities for business growth and job creation. We are beginning to see early signs of success as evidenced by the completion of a feasibility study with a local company and Solar Frontier, a subsidiary of Showa Shell, our affiliate in Japan, for creating



Optimizing gas production to meet power requirements in peak demand periods has saved more than 28 million barrels of oil equivalent since 2010.

Energy conservation savings in company operations

2011–2015

(thousands of barrels per day of oil equivalent)



*Due to further data reconciliation, these figures have been revised.

a fully integrated solar manufacturing entity in Saudi Arabia.

Following completion of a **wind resources** assessment in 2014 at seven locations across the Kingdom, we upgraded wind masts and installed nine additional monitoring stations. Data gathered from the 16 masts will help confirm likely production yields from potential wind power sites.

Meeting demand

Wise stewardship of domestic energy consumption is imperative to ensure the future prosperity of the Kingdom. Electricity demand has grown more than 7% per year during the last decade. One approach to managing energy demand growth is to raise the efficiency of the country's utility sector, a focus of our **Energy to the Kingdom (E2K)** initiative. In 2013, utility sector efficiency stood at 32%. At year-end 2015, efficiency was boosted to 35%, a full percentage point above the target of 34%. The long-term goal is to

raise efficiency to 45% and minimize the use of diesel for power generation.

Our Peak Seasonal Production Strategic Plan optimizes spare plant capacity and gas production priorities in coordination with reservoir management best practices to supply additional gas volumes to meet power requirements during peak demand periods to reduce the use of liquids. In 2015, the Plan enabled us to save 2.8 million barrels of oil equivalent. Since starting the program in 2010, we have saved more than 28 million barrels of oil equivalent, reducing emissions and freeing up greater volumes of crude oil for refining into higher value products and for export.

A more efficient energy sector requires upgraded skills and knowledge. To help prepare the workforce, we signed a Memorandum of Understanding in December with the Technical and Vocational Training Corporation (TVTC), the Saline Water Conversion Corporation, KFUPM, the Saudi Electricity Company, General Electric (GE), and Siemens, to establish **National Power Academies**



in the Dammam and al-Hasa areas. The Academies will develop world-class training institutes, providing new and emerging programs, including renewables, energy efficiency, smart grids, realistic labs and workshops, and applied research and development centers.

Building a domestic energy sector

Nurturing the development of a globally competitive domestic energy sector is a keystone of our approach to leverage our core activities and capabilities to spur economic growth and create new jobs. In December, we launched our **In-Kingdom Total Value Add** program, designed to position local content at the heart of our procurement process. The program's goal is to double the production of locally manufactured energy-related goods and services contracted by Saudi Aramco to 70% and increase the export of Saudi-made energy goods and services to 30% by 2021. Development of the Saudi workforce is also one of the primary goals of the program, and we envision the domestic energy goods and services sector delivering thousands of direct and indirect jobs for Saudis over the long term.

The program will benefit from collaborative connections with R&D centers and entrepreneurship and incubation hubs such as Dhahran Techno Valley. Our efforts to improve science, technology, engineering, and math (STEM) education in the Kingdom will help strengthen the enabling environment for the program, as will our partnership with the Ministry of Labor to establish 25 national training centers — eight of which are already active,

Our In-Kingdom Total Value Add program positions local content at the heart of our procurement process and will spur the growth of new jobs.



Nurturing the development of a domestic energy sector is envisioned to double the production of locally manufactured energy-related goods and services, and help diversify the economy.

with 12 in development and five in the planning stage.

The scale of our business and associated capital expenditure programs creates significant opportunities for suppliers to invest in Saudi Arabia and partner with us on a long-term sustainable basis. We expect to spend more than \$300 billion over the next decade, of which 70% will eventually be local content, driving economic diversification, increased global competitiveness, and domestic job creation.

In 2015, we awarded 37% of our material procurement spending, worth \$2.1 billion, to local manufacturers while the value of our contracts awarded to local companies reached \$26 billion, representing 80% of our overall contract procurement.

We continued the development of the **Ras al-Khair Maritime Yard** near Jubail on the Arabian Gulf coast. This world-class ship repair and fabrication yard will include state-of-the-art facilities for building, repairing, and maintaining ships, offshore drilling rigs, and offshore platforms. During 2015, we signed a Memorandum of Understanding with a South Korean firm to develop the yard and also drive advancement of maritime diesel engine manufacturing in the Kingdom. We estimate this project has the potential to generate more than 80,000 direct and indirect jobs, and will position the Kingdom to be a technology hub for regional maritime engineering and construction expertise.

The future for the offshore fabrication industry in Saudi Arabia is promising, given the prospects for growth in

the region and our own forecasted requirements. For example, a local fabrication yard in the Dammam Port has supplied us with more than 90,000 metric tons of offshore equipment in recent years, including platforms deployed in our Hasbah and Arabiyah fields. By sourcing materials and services locally, we help create jobs for Saudis and drive the development of capabilities needed for producing export quality goods — an essential basis for sustaining wealth creation in the Kingdom.

We took steps toward launching a new **onshore rig manufacturing initiative** that will leverage our significant capital outlays for drilling services. We completed pre-feasibility studies with four companies and analysis and discussions are ongoing. Since this industry is



The two National Industrial Training Institute campuses train Saudi high school and technical college graduates for higher skilled fields.

equipment and materials intensive, it offers an opportunity for us to localize production and secure supply chain elements that serve both our needs and those of regional markets.

We are exploring the possibility of creating a company that can competitively manufacture and supply us — and other companies in the region — with **drilling proppants**, used in the hydraulic fracturing of oil and gas wells. Phase I of the pre-feasibility study for ceramic-based proppant manufacturing was completed in 2015.

We expect to spend more than \$300 billion over the next decade — targeting 70% local content.

Our investments to promote the development of world-class energy goods and services industries in the Kingdom will encourage further investment in the country, spur economic diversification, and drive job creation.

Shaping a competitive workforce

The future success of our business depends not only on the prudent management of the Kingdom's hydrocarbon resources — it also hinges on providing opportunities for people to develop the skills they need to imagine, design, and produce high-value products and services. Whether through skills training, financial support, or partnerships based on complementary expertise, we are building the foundations for sustainable economic growth in the Kingdom.

The nonprofit **National Industrial Training Institute (NITI)**, a joint venture with TVTC, continued to grow in 2015 with the inauguration of the al-Hasa branch in June. Designed to



Maharat, a training consortium formed in collaboration with contracting companies on our Jazan project, develops young Saudis for specialized construction trades.

train and develop Saudis from high schools and technical colleges for higher skilled fields, the NITI campuses in al-Hasa and Abqaiq feature state-of-the-art classrooms, labs, and workshops for a combined total of nearly 3,500 trainees. By the end of the year, 70 NITI graduates joined our operations and those of our domestic ventures, while another 1,300 trainees signed employment contracts.

Formed in collaboration with our local and international engineering, procurement, and construction contractors on the Jazan Refinery and Terminal project, the **Jazan Contractors Consortium for Training and Employment (Maharat)** develops young Saudis from the Jazan region for specialized construction trades. In 2015, a total of 715 Saudis graduated and received jobs

and more than 1,100 were enrolled at year-end. Over the next four years of the refinery project's construction phase, Maharat is expected to train and place roughly 5,000 Saudis for construction-related jobs.

One of the service industries primed for growth in the domestic energy sector is inspection and quality assurance. To help meet our own anticipated manpower requirements and those of other companies, we supported the establishment of the **Inspection Technology and Quality Assurance National Institute** to prepare young Saudis for these new careers. The institute commenced operations late in 2015 at TVTC's newly constructed facility in Ju'aymah with a capacity for up to 2,000 trainees per year.

In November, we signed a Memorandum of Understanding with Princess Nora Bint Abdulrahman University and a local contractor to support the creation of a **Women's Business Park**. We also completed a feasibility study for the Park and began developing a master plan. The vision is to provide employment for 20,000 women over the next decade, with a mix of new graduates and experienced professionals delivering outsourcing services in information technology, business processes, and engineering services.

One of the anchor tenants for the Women's Business Park is the GE-Tata Business Process Outsourcing Service Center, a collaborative venture between Saudi Aramco, GE, and Tata, and the first all-female business service center in the Kingdom. The Center, which



We are developing a master plan for a Women's Business Park in Riyadh, designed to provide employment opportunities for 20,000 women in the fields of information technology, business processes, and engineering services.

provides business support in finance, accounting, supply chain management, and human resources to us and to GE, currently employs 759 female employees, with an 81% Saudization rate. We contributed 232 full-time equivalent jobs for women at the Center by the end of the year.

Empowering entrepreneurs

One of the primary engines driving job creation in any economy is the growth of small- and medium-size enterprises. We nurture entrepreneurship in the Kingdom by providing financial support and advisory assistance in such areas as business plan development, mentoring, consultation, and the execution of business agreements. In 2015, we celebrated a milestone with the approval of the 50th Saudi venture

to receive support from our **Aramco Entrepreneurship Center**.

Examples of the types of businesses receiving our support include nondestructive testing and quality assurance services, point of sale hardware and payment transaction technology, medical lab services, and the formation of a joint venture with an international partner to develop, manufacture, and service technology for our offshore facilities. By the end of the year, the Center had reviewed 449 applications, conducted 272 interviews, provided coaching for 50 entrepreneurs on developing business plans, and approved 18 projects. In addition, the Center approved four investment proposals.

We also assist university students with establishing small businesses through our Co-op-to-Entrepreneur Program at KFUPM and in October we launched a

business incubator for female entrepreneurs at the University of Dammam.

Our vision for fostering a culture of innovation to solve domestic energy and resource challenges is gathering steady momentum, as evidenced by the early results from the first International Technological Innovation Competition, launched by the Aramco Entrepreneurship Center in mid-2014. The Competition, designed to solicit innovative solutions in using **renewable energy for seawater desalination**, was conducted in collaboration with GE, the Saline Water Conversion Corporation, and key stakeholders such as KACST and KAUST.

We nurture
entrepreneurs by
providing financial
support and advice.

Winners of the award — representing Saudi Arabia, Italy, Singapore, the Netherlands, and the United States — were announced at the Saudi Water and Power Forum in Riyadh in early 2015. Some of the technologies are being piloted while others are in active development, including plans to build the world's first large-scale desalination plant powered by solar energy in Saudi Arabia.

This kind of success places the Aramco Entrepreneurship Center at the forefront of driving collaborative efforts to boost entrepreneurship, generate new ideas and technology, and discover innovative solutions. The increase in small- and medium-size businesses, combined with our efforts to raise energy efficiency, diversify the Kingdom's energy mix, and support the growth of a domestic energy sector, will serve as a catalyst for future job growth in the Kingdom.



We support entrepreneurs like Ahmed Al-Ghamdi, seeking to create a factory for gauges, and Sarah Aljishi, who plans a lab to make products for the health sector.

Key figures

total number of employees at
year-end

65,266

Saudi

54,666

expatriate

10,600



human resources: driving performance

Passion, purpose, performance. We believe each follows the other.

At Saudi Aramco, we inspire passion in our people by offering them the opportunity to do the work they dreamed of doing, and by supporting them in achieving more than they thought possible. Our employees derive a sense of purpose from knowing their work has the potential to make a positive difference on a global scale. By creating the conditions for our people to follow their passion with a clear purpose, we cultivate a high-performance workforce ready to take on any challenge.

Every day, our team of more than 65,000 people combines passion, purpose, and performance to achieve a common objective: Unlocking the full potential of the Kingdom's resources to create more opportunities for people here at home and around the globe.

Our ambitious goal to become the world's leading integrated energy and chemicals company requires the skills of a diverse range of technical and professional specialists to help us carry out our core functions, as well as a host of other enabling activities such as establishing partnerships, nurturing investment, contributing to the development of the Kingdom, launching new businesses, entering new markets, and delivering innovative technologies.

To support our people in such a dynamic and fast-paced workplace, we run the world's largest corporate training program and foster a continuous learning environment. From our youngest recruits to our experienced professionals and senior leadership, we offer capacity building programs tailored to help them meet the growing responsibilities linked to our evolving business. And because we have our eye on the future,

Workforce

2011–2015



We foster a continuous learning environment to achieve our strategic intent of becoming the world's leading integrated energy and chemicals company.

we actively identify and develop high achieving Saudi high school and college students by helping to equip them with the specialized and soft skills required for success. Whether they ultimately work for us or for another company, or follow their own entrepreneurial aspirations, we help prepare them to make meaningful contributions to the local economy.

The ability to attract, develop, and retain top talent is a critical differentiator in competing effectively on a global level. Today's top performers are looking for opportunities to do the best work of their careers. They want to work for companies whose values, purpose, and ambitions match their own. In 2015, our workforce grew to another all-time high of 65,266 of the best minds in our industry. These

individuals are attracted to our company because of the values we uphold, our belief in merit-based performance, and our culture of innovation. They stay because of the opportunities we provide for them to achieve unprecedented success in their field of expertise — either individually or as a valued member of a multidisciplinary team.

We are an energy company powered by the creative and intellectual energy of our people. Through the fusion of energy, people, and ideas, we were able to transform our aspirations into reality in 2015. We know that with the right support and an empowering work environment, there is no telling where an idea we have today will lead us tomorrow.

Enhancing systems

To enable our people to do their best work and improve efficiency, we continually upgrade our corporate management systems. We continued to implement our **Enterprise Risk Management** framework to enable us to respond more rapidly to complex and challenging resource requirements and operating environments. By providing a better understanding of risks and risk-reward tradeoffs, Enterprise Risk Management empowers informed decision making and in 2015 it allowed us to better weather market dynamics and continue delivering on our business objectives. The framework is being integrated into our corporate planning and accountability process so we can control and mitigate unexpected events that might impact security, employee safety, the environment, and operational reliability — factors that may hinder us from achieving our strategic intent.

We continued to pursue our **Capital Efficiency Initiative** by rolling out our Capital Management System to ensure capital projects are aligned with corporate targets. Within this system, we analyze projects to establish optimized portfolios that account for different conditions, providing flexibility to adapt to changes in global economic cycles by reprioritizing projects and efficiently deploying resources.

Our efforts to improve capital performance are combined with our drive for **operational excellence** to identify gaps, define areas for improvement, and realize new efficiencies. The structured approach and relentless focus on results afforded by the operational excellence system empowers our people to sustain optimal performance across our company in reliability, safety, and cost efficiency. By the end of the year, more than 920 employees had been certified as operational excellence assessors.

We are building a high-performance mindset across the enterprise by challenging and rewarding our people. **Four critical behaviors** — people conversations, empowerment, collaboration,

and decision making — form the basis of a results-based work culture. To help instill these behaviors, in 2015 we held 45 interactive forums, trained 170 champions, and delivered targeted communications to all employees and leaders. We also delivered targeted workshops to 22 organizations, reaching 20,000 employees across the company, and a two-day performance management education program for 943 leaders to drive accountability and engage employees.

Investing in people

Delivering on our intent to become the world's leading integrated energy and chemicals company requires more than investments in technology and capital projects — most importantly, it requires investments in people. Underinvestment in talent only amplifies the cyclical nature of our industry. To ensure we meet our aspirations, we emphasize continuous development and skill building to drive performance through a wealth of courses, training centers, internships, and mentorship programs to pass on knowledge to the next generation.

We are an energy company powered by the power of our people.

In 2015, we sustained our momentum to recruit candidates best matched to meet our requirements and achieve our aspirations, adding 2,185 new employees. In addition, 3,774 apprentices and 383 graduates of our College Degree Program for Non-Employees joined the company, bringing the overall total of people joining our workforce to 6,342.

We continually evaluate our human resource development programs and



Our training programs build capacity to help our people meet the growing responsibilities linked to our evolving business.



Nearly 8,000 young Saudis are enrolled in our Apprentices Program, and more than 3,700 apprentices joined our workforce in 2015.

Saudi workforce

2011–2015

2015: 54,666



2014: 51,653



2013: 48,385



2012: 46,259



2011: 48,649



seek new opportunities to involve local service providers. In 2015, we began to phase out a legacy vocational training program with our new **Industrial Sponsorship Program**, created in partnership with the Colleges of Excellence, the Kingdom's leading authority for applied training. The new program will sponsor high-achieving male and female students during their second or third year at intermediate colleges and institutions who are studying majors aligned with our critical skills requirements, with the intent of hiring them once they graduate.

We launched an initiative to replace traditional text-based instruction in our **Apprentice Program for Non-Employees** with integrated smart learning environments centered on interactive engagement. By year-end, we rolled out five smart learning courses for roughly 3,000 of the more than

7,800 apprentices enrolled in the program. Since the program's inception, more than 28,000 participants have graduated, creating a wealth of talent developed from within the company.

The growing complexity of our business requires a workforce with higher skills. To attain this level of talent, we support **academic development** through a suite of programs designed for Saudi non-employees who, upon successful completion of their degrees, may be offered positions in the company. The College Preparatory Program readies young people to excel in their studies while the Associate Degree Program and the College Degree Program provide support while at school. More than 5,000 college students have graduated under these programs to date and joined the company's professional ranks.



We offer a suite of academic programs, including sponsoring students to study abroad, that are designed to develop tomorrow's leaders.

In 2015, we overhauled the degree programs, mandating enrollment in the top 200 universities worldwide and establishing the Al-Ruwwad (Arabic for "The Pioneers") program designed to achieve early acceptance for students in selected schools. Overall, in 2015 more than 2,000 Saudi students sponsored by Saudi Aramco were studying in leading universities in the United States, Europe, and Asia. The skills and experiences they gain help empower the next generation of our company's leadership.

Sustained investments in developing our people are essential to our future success as we enter new business sectors and industries, and as we create and deploy new technologies. Enhancing our development programs and establishing new initiatives for shaping the next generation of Saudi talent ensures our workforce will continue to advance the standards of excellence in our industry for the benefit of the Kingdom.

Raising professionals

During 2015, we pursued a wide spectrum of initiatives designed to raise the professionalism and technical proficiency of our employees. We strengthened relationships with domestic and international businesses and universities to build skills and enrich the learning experience of our increasingly youthful workforce. In-house, we continued to strengthen and expand our interactive training environments, online course offerings, and professional development courses.

Our **Young Leaders Advisory Board**, known as YLAB, provides our young professionals with a platform for active engagement with management on a wide range of issues. Composed of 16 men and women serving 18-month terms, YLAB explores creative solutions for improving work processes, raising performance levels, and motivating other young employees to pursue excellence in their careers. The program has been benchmarked as a best practice by other firms and government agencies in the Kingdom.

In 2015, our **Upstream Professional Development Center**, dedicated to bridging the knowledge and skills gap between veteran upstream personnel and newer staff, conducted more than 430 training sessions for more than 7,200 participants and facilitated 280 petroleum engineers receiving certification from the Society of Petroleum Engineers. The Center also commenced a systematic onboarding program, guiding more than 170 new employees in three cohorts through three 11-week sessions. More than 1,000 employees have participated in this program to date.

In addition to sponsoring employees to study at overseas universities, we also offer a suite of academic programs from leading universities and training institutions tailored to meet our specific needs through our **Hosted University Program**. By hosting international degree programs in Saudi Arabia, we gain economies of scale and cost efficiency, improve our skills base, and facilitate knowledge transfer to the Kingdom. In 2015, we established two new master degree programs.

The background of the entire page is a photograph showing the silhouettes of several workers in an oil field. They are standing on a rocky terrain, looking towards the horizon where the sun is setting, creating a bright, golden glow. One worker in the foreground is leaning forward, while others are scattered in the background, some pointing towards the horizon.

Upstream Professional Development Center

The energy industry is undergoing a period of unprecedented change. New technologies and methodologies are changing the ways we discover and produce oil and gas resources and derive additional benefits from this energy.

It is a time of great opportunity for those with the drive to make the breakthrough discoveries that will spur new ideas and new possibilities.

At Saudi Aramco, we believe the talents we need for tackling future challenges are found in our people. That is why we created the Upstream Professional Development Center: To provide an integrated training program that combines technical depth and breadth with mentoring programs to prepare our workforce for the unique challenges that lie ahead.

Essentially a corporate university with instructional materials developed to match the specific needs of upstream professionals, the

Center provides participants rewarding opportunities to bridge experience and knowledge gaps across multiple upstream disciplines. The Center offers innovative training and bonding networks that promote learning and collaboration to help young professionals tap into the vast well of knowledge acquired by senior professionals over years of service.

With more than 7,000 participants receiving training in 2015 alone, the Upstream Professional Development Center creates individual development plans for employees across nine disciplines: Drilling, facilities engineering, geology, geophysics, petrophysics, production engineering,

reservoir engineering, unconventional resources, and upstream computing.

The Center's facilities include cutting-edge 3-D imaging environments that virtually immerse students inside oil and gas reservoirs deep underground, realistic drilling simulators, and computerized core sample analysis tools. Combining interactive classroom instruction with practical problem solving, the Center's instructors prepare young employees for future challenges and keep senior employees current with the latest advances in their field, underscoring our commitment to managing the Kingdom's hydrocarbon resources for the benefit of generations to come.



Participants in our Young Leaders Advisory Board actively engage with management on a wide range of issues.

We began offering a program in pipeline engineering under a collaborative arrangement with the University of Northumbria and Penspen Integrity, a world leader in pipeline training. With IFP Energies Nouvelle, an internationally renowned research and training organization based in France, we launched a program in refining and petrochemicals to help equip the future leaders of our downstream business with the tools for managing increasingly complex technologies and markets.

Our **Women in Business** program focuses on the professional development of our female employees and helps young women become more empowered and able to capitalize on their strengths. In March, we marked the fifth anniversary and 50th session of this proven program, which has served nearly 850 female employees since its inception.

Our journey to become a global integrated energy and chemicals enterprise also requires building international business and industrial acumen, skills not so easily learned in traditional classes or training programs. Many of our leaders are assigned multi-year positions with our Aramco offices in Asia, Europe, and the United States. Professional staff gain similar experience through **internships** in North American companies in the manufacturing, energy, financial, information technology, telecommunications, and medical sectors. Our Houston office

has arrangements with roughly 200 host companies, and over a span of two decades, more than 1,000 professionals have participated in the internship program. In 2015, nearly 150 company professionals were on assignments of up to 18 months.

Preparing leaders

We develop leaders who motivate their teams to pursue excellence and realize the potential opportunities created by achieving our strategic intent.

Our **Leadership Series for Managers**, initiated in 2014, provides leaders with enhanced core capabilities. In 2015, 40 managers and 431 front-line division heads and supervisors attended a series of workshops while our **Advanced Manager** program honed the leadership skills of 51 participants — a process that helps create a pipeline of talent to guide the company's future performance.

Technical skills alone will not enable us to achieve our strategic intent: Our leaders need to be able to communicate effectively, forge collaborative teams, make critical decisions, and empower and inspire their teams. To instill these talents in our supervisors and foremen, we operate the **Leadership Program for Industrial Unit Heads**, a three-month training program that thus far has graduated more than 260 participants.



Young professionals gain experience through internships in North American companies in the manufacturing, energy, financial, information technology, telecommunications, and medical sectors.

Collaboration is at the core of our global research network. Our pioneering **Research Leadership Development Program** cultivates critical leadership qualities in our R&D Center leaders, developing essential skills for fostering a culture of innovation. The first program, conducted in three phases over four months, is underway in Dhahran with a cohort of 23 selected participants from across our global research network. This leadership program is envisioned as a key driver in our transformation to become a global leader in advancing technology breakthroughs in our industry.

Creating sustainable communities

Since 1951, our **Home Ownership Program** has financed more than 64,700 new homes for Saudi employees. In 2015, we introduced several enhancements to the program, including increasing the minimum and maximum financing amounts for homes and extending benefits to apartment ownership. We conducted 60 awareness sessions on the updated program for roughly 3,000 eligible employees.

The first phase of our **South Dhahran Home Ownership Program**, comprising more than 2,700 housing units, is on track for completion in 2019. A planned sustainable community, South Dhahran will meet high energy-efficiency standards and feature mosques, open green space, and bicycle and walking paths to offer a template for housing development in the Kingdom.

Healthy, safe, and vibrant communities are a prerequisite for the well-being of employees and their families. Beyond providing essential services for our



Our Home Ownership Program, active since 1951, has financed nearly 65,000 new homes for Saudi employees, helping create healthy, safe, and vibrant communities.

employees, our communities also serve as models of environmentally sustainable living through the use of energy efficiency technologies, water conservation practices, and recycling programs. In 2015, we marked considerable progress in the expansion of our residential communities to accommodate our expanding workforce.

We continued work on the expansion of our Dhahran residential community, with more than 1,500 housing units planned to be ready for employees and their families by 2018. New company housing in Shaybah and Tanajib was finished in 2015, with additional housing units in Ras Tanura and 'Udhailiyah in the planning and design stage.

Our communities
serve as models of
sustainable living.

Key figures

female university students
attending seminars

4,600+

contestants in iRead

6,700+

students participating in iSpark

10,000+

students and teachers reached
by iThra Youth

200,000+

printed and digital titles planned for
King Abdulaziz Center library

1+m



citizenship: inspiring tomorrow

As a global business, we are interconnected with the people in the societies where we operate.

We have worked hard to garner the trust and support we enjoy in communities in the Kingdom and around the world. In turn, our operations generate commercial opportunities for local businesses and employment prospects for citizens. Beyond the practicalities of simply doing business, we conduct volunteer and outreach activities that foster healthy societies and enhance the lives of people.

By acting from a foundation of shared value with citizens — whether in the realms of economic opportunities, knowledge and skills building, cultural enrichment, or community engagement — we seek opportunities where our commercial interests coincide with our citizenship goals, ensuring that our business activities benefit our company and the communities where we operate.

We base our citizenship role on the economy, knowledge, and the environment — broad areas where we believe we can make a positive impact on Saudi society.

Education is a vital component of the Kingdom's transition to a knowledge-based economy. We concentrate our efforts on helping develop the next generation of innovators by focusing on the development of STEM skills in the nation's youth. In addition, we seek to widen intellectual curiosity and cross-cultural awareness, which are also important foundation stones for building an economy based on knowledge and innovation.

Our landmark King Abdulaziz Center for World Culture will lead our commitment to promote these values for

The Center

Soaring high above the low desert hills near the site of the first commercial oil discovery in the Kingdom is a new source of energy: The King Abdulaziz Center for World Culture.

With an iconic design inspired by the geology that formed the wellspring of the Kingdom's economy, the Center is poised to become a beacon of knowledge and innovation.

By fostering a culture of intellectual curiosity and a love of learning, the Center will help shape the next generation of Saudi talent and spur economic and social development through knowledge, creativity, and culture. Home to Saudi Arabia's first-ever children's museum, galleries for natural science and Islamic culture, and a library, the Center stands at the heart of a cultural park that also features a new Energy Science Center, extensive gardens, and a mosque.

The Center's efforts to support the Kingdom's transition to a knowledge-based society focus on promoting science, technology, engineering, art, and mathematics skills in the nation's youth. The Keystone component, for example, is an idea incubator and entrepreneurship hub. A suite of programs within the iThra (Arabic for "enrichment") Youth initiative engages students and educators across the Kingdom in hands-on learning experiences.

Once open, the Center aspires to positively engage growing numbers of visitors at the greater cultural park and through a diverse array of outreach programs, energizing a desire for knowledge and helping to build the foundation for a prosperous future.

generations to come. Scheduled to open in 2016, the Center will host a variety of multidisciplinary educational programs designed to instill a creative ethos and a thirst for learning and knowledge.

A suite of outreach programs under the umbrella of iThra Youth has reached more than 200,000 students and teachers across Saudi Arabia, providing interactive sessions to enrich STEM skills and encourage reading. We also support university-level forums and training courses in information technology and English.

Our heritage is built on a bedrock of citizenship.

Our community outreach programs seek to motivate people to become more active and engaged members of their communities. We strive to raise awareness of impactful issues, inspiring citizens to make positive contributions to advance the Kingdom's progress, whether by leading a healthy lifestyle, conserving energy and water, or helping the less fortunate.

Our heritage is built on a bedrock of citizenship. Since our earliest days, we have engaged local communities to generate economic benefits, create jobs, enhance skills and knowledge, and care for the natural environment. We continue to enlarge the reach and impact of our citizenship efforts — inspiring, nurturing, and leading by example — to help ensure the future growth and prosperity of our nation.

Knowledge

We provide enhanced educational activities to make lasting contributions to the Kingdom's vision for a knowledge-based society. These efforts include interactive learning opportunities for the Kingdom's student population,

encouraging a broader interest in STEM skills, promoting energy efficiency and safety, and supporting research into energy solutions.

The Center

The **King Abdulaziz Center for World Culture** — our flagship initiative for engaging the nation's youth — will join the collection of institutions in the Kingdom dedicated to knowledge and creativity. In 2015, we met key construction milestones for the building, and by the end of the year construction was 95% complete. During the year, we continued to prepare the Center for its opening while conducting outreach programs across the Kingdom.

Our suite of **iThra Youth** programs reached thousands of young people around the Kingdom, helping the next generation master the skills required to innovate and contribute to the country's scientific and economic development.

The **iSpark** program, which offers hands-on workshops in advanced technology, science, and multimedia for ninth and 10th graders, reached over 10,000 students across four regions in 2015. Overall, iSpark has reached 53,000 students and delivered more than 1 million hours of learning content.

We launched the third edition of **iRead** at the Riyadh Book Fair, where the Reader of the Year and photography competitions attracted more than 6,700 contestants and received more than 1 million views on the iRead website. The program is playing a significant role in cultivating a love of reading, knowledge sharing, and critical thinking — essential skills for developing a workforce that is globally competitive.

Three **iThra Lab** and **iThra Youth Forums** were held at Jazan, Madinah, and at the Saudi Science and Creativity Festival in Riyadh, attracting a total of 180,000 participants. The iThra Lab offered interactive activities and workshops in fabrication and STEM skills facilitated by trained instructors while the iThra Youth Forum was a one-day event developed to spark imagination and creativity in young people.



By focusing on the development of math and science skills, we help nurture the next generation of innovators.



Our iRead program, with its Reader of the Year competition, helps cultivate a passion for learning and knowledge.

FABLAB-Dhahran, the Center's digital fabrication laboratory located on the campus of KFUPM, attracted more than 4,200 visitors and engaged nearly 1,400 participants at 252 workshops on topics such as 3-D printing, laser cutting, electronics, and robotics, nurturing the "maker" potential of the next generation of innovative Saudi business people.

The iDiscover Knowledge Incubator represents the evolution of our successful iDiscover Program, which toured nine cities in 2013–2014 and provided new math and science teaching techniques to 2,000 teachers. Operating after school hours in the Eastern Province, al-Baha, and Tabuk, and envisioned as permanent training labs for male and female students and teachers, the knowledge incubators delivered interactive math and science content developed by the Lawrence Hall of Science at the University of California, Berkeley, and the Math Zoom Academy. In all, iDiscover has reached 15,500 students in 12 cities across the Kingdom and delivered more than half a million learning hours.

To broaden its reach and magnify its impact beyond live programs, the Center is developing online educational content in Arabic, including interactive computer games designed to bolster STEM skills. We also continued our support of talented Saudi designers and artists to showcase their work at leading regional cultural events.

Through 2015, we focused on readying the Center for opening its doors to the public in 2016, including working toward receiving gold LEED certification. We finalized partnerships with distinguished international institutions such as the Peabody Museum at Harvard University, the National Center for Performing Arts in Beijing, the American Alliance of Museums, the Association of Science Technology Centers, and Cirque du Soleil. These relationships will enable us to bring inspirational exhibitions and programs to the Eastern Province while strengthening our ability to align the Center's offerings to support the growth of innovative thinking.

To nurture a passion for learning, we stocked the Center's library with 109,000 Arabic and English books, the heart of what is designed to become a world-class learning resource featuring multimedia and audiovisual capabilities, a children's library, and more than 1 million printed and electronic titles in its holdings.

Laying foundations

In addition to initiatives conducted by the King Abdulaziz Center, we also engaged in a number of other programs that support the Kingdom's vision to expand the scientific and technical competencies of the country's population, laying the foundations for a more innovative and prosperous society.

We continued to support **enhancements to company built public schools** by equipping them with modern technology, upgrading safety features, and improving energy efficiency. By the end of the year, we had transformed more than 800 traditional classrooms in 77 elementary schools to "smart" classrooms featuring the latest technology, installed 258 high-efficiency air-conditioning units at 57 schools, installed modern fire alarm systems at 25 schools, and improved school parking and traffic flows to increase safety at 33 schools.

In collaboration with the Ministry of Education, we launched **STEMania**, a pilot program held in six public schools over four weeks, to boost the STEM skills of female students. A hands-on, after school program for seventh through ninth grade public school female students and teachers, STEMania is founded on a "Learning by Doing" model that creates enthusiasm for learning and discovery. The program reached 300 students and trained 33 public school science teachers.

For the second consecutive year, our **Women Development Program** convened more than 350 female university students and faculty members from across the Kingdom for a full-day seminar focused on transitioning from university to the professional workforce. We also hosted a **two-day university collaboration forum** — the first of its

iDiscover impact

cities

12

teachers

2,000

students

15,500

learning hours

500,000+



Operating after school hours, our iDiscover Knowledge Incubator labs deliver interactive math and science content to teachers and students, laying the foundations for a knowledge-based society.

kind — for more than 220 women from 30 universities across the Kingdom to discuss opportunities in our workforce. Our Female Universities Outreach Program conducted a series of seminars to help bridge the gap between university life and work, reaching more than 4,600 students including more than 3,200 at Taibah University. By forging relationships with domestic universities, we leverage their academic resources to help solve challenges faced by the energy industry, and at the same time help build their capacity in areas such as recruitment, training, and research and development.

We completed construction of the **King Abdullah Petroleum Studies and Research Center (KAPSARC)**, an international research and policy center investigating issues related to energy economics, the environment, and policy studies. Staffing levels reached 107 employees, including 61 researchers. The residential community received LEED certification — the first of its kind outside of North America and one of a kind in terms of size — reflecting our

intent to lead by example in improving the energy efficiency performance of the housing industry. KAPSARC is positioned to become a foundation for the Kingdom’s research and innovation ecosystem and accelerate its drive to become a leader in developing energy solutions.

We completed our project to enhance the infrastructure of Thuwal, the town adjacent to KAUST. Overall, we built two flood control channels, seven new schools equipped with the latest in smart classrooms, a medical clinic, mosques, a cultural park, roads, a sewage treatment plant and an electrical substation. The project improved the quality of life for residents and enables sustainable future growth.

Our community outreach efforts also include promoting healthy lifestyles and well-being. In November, we were a key sponsor of the 20th **Annual Charity Run** on the Dammam Corniche. More than 8,000 runners registered for the event, which included a 5K event dedicated for people with special needs.

Through our community-based initiatives, we strive to empower teachers and students with the tools they need to advance their performance, instill a love for learning in the wider population, and provide opportunities for citizens from all walks of life to become actively engaged in their communities.

Global citizenship

Whether they live in the United States, Europe, or Asia, and whether they work in one of our Aramco offices or in a joint venture or project office, our people are involved in their communities. They volunteer their time to protect the environment and help the less fortunate, they mentor students and support schools, and they are engaged in improving the quality of the places they call home.

The United States

For the 11th consecutive year, our Houston office was the title sponsor of the annual **Aramco Houston Half Marathon**. Some 200 of our employees and family members volunteered



Completed in 2015, KAPSARC is a keystone in the Kingdom's research and innovation ecosystem.



Wherever they live and work around the world, our people are involved in making a positive impact on their communities.

during the three-day event and also supported “Run for a Reason,” a charitable component. Staff from the Aramco-Boston R&D Center, as well as staff, family members, and company sponsored summer students from our Houston office, donated time to initiatives supporting local food banks. Volunteers from our Houston office also joined community efforts to **improve and sustain seashore habitats** in Galveston Bay, Texas.

The **2015 Advanced Motorsports Enterprise** program at Michigan Technological University, which promotes interest in new automotive technologies, is aligned with research underway at the Detroit branch of our global research network and creates potential synergies between academia and the energy and automotive industries. We sponsored the participation of more than 150 undergraduate and graduate students in the program.

Europe

In the Netherlands, our office in The Hague supported charitable runs, walks, and bicycling events and staff from our London office volunteered with a charity group on a park regeneration project. The London office also helped facilitate the expansion of the **Cambridge Chemistry Challenge**, which encourages young people to study chemistry, enabling the number of participating students in the U.K. to nearly double and raising global participation to more than 16,000 high school students from more than 90 countries, including GCC nations.

Asia

The **Academy of Mathematics and Systems Science**, a national academic research center in Beijing, China, received assistance from our Beijing office to help the Academy expand its research and training capabilities in computational mathematics, engineering

computing, and other disciplines aligned with our business objectives. Our Beijing office also joined with Tsinghua University to sponsor two programs run by **Clean Air Asia**, supporting research into air quality and technologies for creating low emission urban environments.

Our Tokyo office provides support for the **Okinawa Coastal Ocean Observatory System**, a marine conservation initiative of the Okinawa Institute of Science and Technology that helps preserve coral reefs and enables research into maintaining biodiversity.

We believe that by engaging with local communities across a spectrum of shared values, we aid the growth of sustainable and dynamic societies. This belief is backed by our support of beneficial citizenship programs and initiatives and by the volunteer efforts of our people, inspiring brighter futures here in the Kingdom and around the world.

2015 in numbers

Crude oil and condensate reserves

(billions of barrels)



Gas reserves

(associated and nonassociated)

(trillions of scf)



Crude oil production

(annual/billions of barrels)

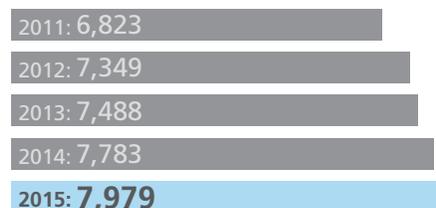


(daily/millions of barrels)

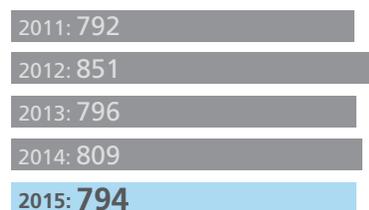


Sales gas and ethane produced

Sales Gas (millions of scfd)



Ethane (millions of scfd)



Raw gas processed

(billions of scfd)



NGL from hydrocarbon gases

(millions of barrels)



scf = standard cubic feet

scfd = standard cubic feet per day

NGL = natural gas liquids

Crude oil and refined products: production and exports *(millions of barrels)*

	2014	2015
Crude oil production, excluding condensate blended	3,480	3,708
Crude oil exports	2,544	2,603
Refined products production	566*	641
Refined products exports	168	232

NGL — production from hydrocarbon gases *(millions of barrels)*

	2014	2015
Propane	181.0	181.3
Butane	119.8	119.5
Condensate	83.5	83.1
Natural gasoline	86.9	90.5
Total NGL production	471.3	474.4

NGL — produced for sale *(millions of barrels)*

	2014	2015
Propane	167.5	165.5
Butane	97.8	96.9
Condensate	1.8	1.3
Natural gasoline	62.9	67.5
Total NGL sales	329.9	331.2

Sulfur recovery

(millions of metric tons)

2015	4.9
2014	4.4

Sulfur exports

(millions of metric tons)

2015	3.8
2014	3.6*

*Due to further data reconciliation, these figures have been revised.

Refining capacity *(thousands of bpd)*

FACILITY	Total Capacity	Saudi Aramco or Affiliate Ownership	Saudi Aramco Share of Capacity
Ras Tanura	550	100%	550
Riyadh	126	100%	126
Jiddah	78	100%	78
Yanbu'	245	100%	245
Petro Rabigh	400	37.5%	150
SAMREF — Yanbu'	400	50%	200
YASREF — Yanbu'	400	62.5%	250
SASREF — Jubail	300	50%	150
SATORP — Jubail	400	62.5%	250
Total domestic	2,899		1,999
Motiva — USA	1,070	50%	535
S-OIL — South Korea	669	63.4%	424
Showa Shell — Japan	445	14.96%	66.65
FREP — China	280	25%	70
Total	5,363		3,094.65

Chemicals production capacity *(kilotons per annum)*

PRODUCT GROUPINGS	In-Kingdom	Out-of-Kingdom	Total Capacity	Saudi Aramco Share*
Ethylene	1,300	1,100	2,400	763
Propylene	1,100	1,823	2,923	1,162
Paraxylene (Including Xylenes)	700	3,551	4,251	2,081
Benzene	600	1,268	1,868	912
Polyolefins	1,614	1,503	3,117	981
Others	1,316	1,775	3,091	1,117
Total	6,630	11,020	17,650	7,016

*Saudi Aramco's share of capacity is based on the percentage allocation of the capacity volumes based on the ownership structure in the respective entities. Saudi Aramco's share of Sadara is not included. Sadara was commissioned on December 5, 2015, but did not produce commercial volumes of chemicals by year-end.

Principal products manufactured at in-Kingdom refineries (millions of barrels)

2015	LPG	Naphtha	Gasoline	Jet Fuel/ Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
Ras Tanura	5.487	19.227	42.304	8.495	71.828	34.385	8.029	189.755
Yanbu'	3.461	3.8	10.485	(0.457)	34.037	35.110	—	86.436
Riyadh	2.11	—	11.379	3.95	21.249	0.026	7.184	45.898
Jiddah	0.714	2.54	3.738	(0.047)	2.922	7.790	6.383	24.040
Total domestic	11.772	25.567	67.906	11.941	130.036	77.311	21.596	346.129

Saudi Aramco Share (millions of barrels)								
2015	LPG	Naphtha	Gasoline	Jet Fuel/ Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
SAMREF	(0.571)	—	23.766	9.882	21.147	14.310	—	68.534
SASREF	1.269	10.540	2.255	8.963	14.112	12.678	—	49.817
Petro Rabigh	0.969	6.181	4.566	4.204	9.051	11.565	—	36.536
SATORP	0.629	3.525	15.639	10.070	43.732	0.643	12.079	86.317
YASREF	—	—	14.222	—	35.505	—	4.684	54.411
Total share	2.296	20.246	60.448	33.119	123.547	39.196	16.763	295.615
Grand total	14.068	45.813	128.354	45.060	253.583	116.507	38.359	641.744

Negative figures primarily indicate products that were reprocessed into other refined products.

Principal products manufactured at in-Kingdom refineries (millions of barrels)

2014	LPG	Naphtha	Gasoline	Jet Fuel/ Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
Ras Tanura	4.993	14.967	43.884	7.753	76.135	32.486	7.155	187.373
Yanbu'	2.374	3.246	11.537	(0.354)	29.343	30.873	—	77.018
Riyadh	1.784	—	10.926	2.682	19.213	0.032	6.521	41.157
Jiddah	0.940	2.892	3.983	(0.039)	2.398	9.217	6.388	25.780
Total domestic	10.091	21.105	70.329	10.042	127.089	72.608	20.064	331.328

Saudi Aramco Share (millions of barrels)								
2014	LPG	Naphtha	Gasoline	Jet Fuel/ Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
SAMREF	(1.091)	—	25.027	11.109	18.782	14.380	—	68.207
SASREF	1.330	11.693	2.216	9.411	14.221	13.280	—	52.151
Petro Rabigh	1.319	7.303	6.868	4.894	11.709	13.414	—	45.507
SATORP	1.303	3.941	11.130	8.238	31.576	7.485	—	69.027*
Total share	2.861	22.937	45.241	33.652	76.288	48.559	—	234.892*
Grand total	12.952	44.042	115.570	43.694	203.377	121.167	20.064	566.220*

Negative figures primarily indicate products that were reprocessed into other refined products.

*Due to further data reconciliation, these figures have been revised.

Domestic product sales by region *(millions of barrels)*

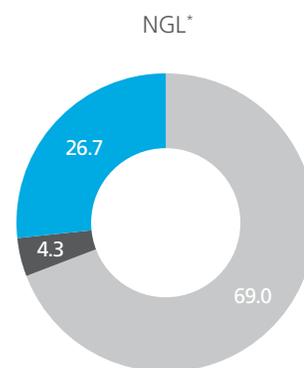
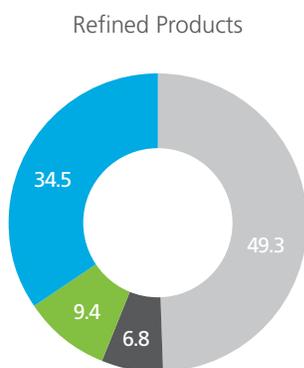
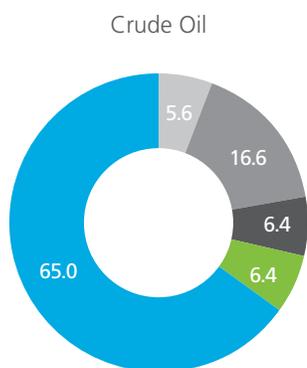
2015	Central	Eastern	Western	Total
LPG	2.095	7.513	5.806	15.414
Gasoline	71.873	41.014	93.511	206.398
Jet Fuel/ Kerosene	9.632	3.011	18.723	31.366
Diesel	81.248	64.540	130.756	276.544
Fuel Oil	0.32	2.273	132.879	135.472
Asphalt & Misc.	7.59	12.401	11.126	31.117
Total	172.759	130.753	392.801	696.313

2014	Central	Eastern	Western	Total
LPG	1.785	7.377	5.346	14.509
Gasoline	70.359	38.919	83.018	192.296
Jet Fuel/ Kerosene	8.820	3.141	15.837	27.798
Diesel	83.416	61.588	121.111	266.115
Fuel Oil	0.393	1.614	127.899	129.906
Asphalt & Misc.	6.810	10.422	11.359	28.591
Total	171.584	123.061	364.570	659.215

2015 exports by region

(percent)

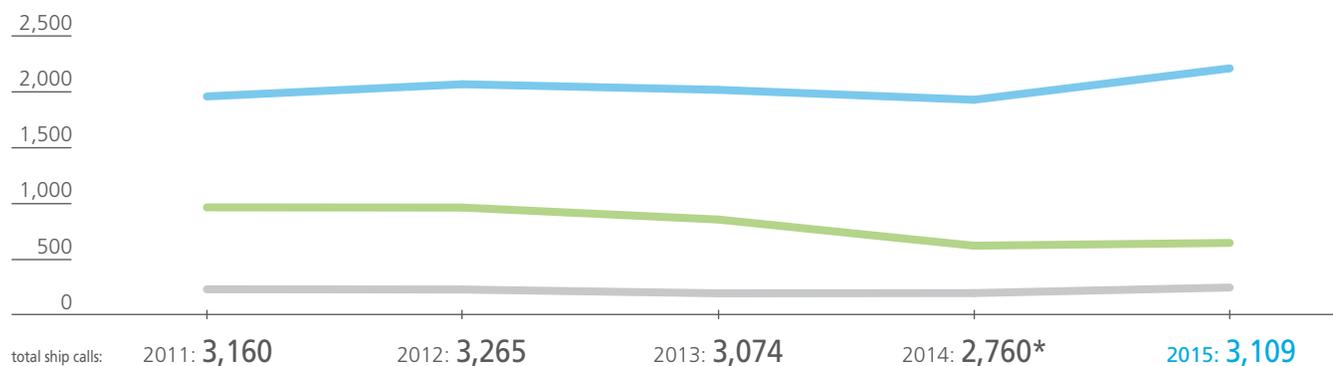
■ Far East ■ Northwest Europe ■ Mediterranean ■ U.S. ■ Other



*includes sales on behalf of SAMREF and SASREF

Ship calls by product type

■ Crude oil ■ Products ■ LPG



*Due to further data reconciliation, this figure has been revised.

Human Resources

employees

65,266

Saudi 54,666

expatriate 10,600

Saudi development programs

Participants enrolled at year-end 2015

Regular Development programs

704

College Degree Program for
Non-Employees (CDPNE)

1,407

College Degree programs

2,000

Apprentice Program

7,818

GenY turnover

1.5%

top performer retention

98%

CDPNE graduates joining
the company

383

Apprentice graduates joining
the company

3,774

awards

EXPEC ARC received two honors at the *World Oil Awards*. The **Best Exploration Technology** award recognized our collaborative efforts with a leading industrial partner for the successful field deployment of 3-D reservoir saturation mapping from crosswell electromagnetic surveys in horizontal wells. Our Production Technology Team received the **Best Production Chemicals** award for chemically induced pulse fracturing for unconventional reservoirs.

Our YASREF joint venture refinery won the **Construction Project of the Year** accolade at the 2015 Platts Global Energy Awards.

The production and processing teams at our Khurais and Abqaiq facilities earned awards from Frost and Sullivan's Manufacturing Leadership Council. Khurais collected two awards: The **Sustainability Leadership** award recognized our resource and energy optimization efforts, and the **Engineering and Production Technology Leadership** award recognized our innovative integrated analytical engineering performance monitoring tool. Abqaiq earned an award in the **Big Data and Advanced Analytics Leadership** category for an innovative system to improve energy performance, marking the third time Abqaiq has won this award.

At the 2015 Oil & Gas Middle East and Refining & Petrochemicals Middle East Awards, our Enhanced Oil Recovery Focus Area team, part of EXPEC ARC's Reservoir Engineering Technology organization, won the **Enhanced Oil Recovery Project of the Year** award for the Kingdom's first carbon capture, sequestration, and CO₂ enhanced oil recovery project.

We received a safety award in the International Facilities category at the 94th Annual Gas Processors Association Convention and eight separate gas and NGL facilities were recognized with **Facility Safety Awards**.

Our Ras Tanura Refinery won the Emerson Global Reliability Award for **Reliability Program of the Year**, the first time a company in the Middle East had received the honor.

At the Annual Technical Conference and Exhibition, the flagship event of the **Society of Petroleum Engineers (SPE)**, a number of company personnel received awards of distinction and a **President's Award for Section Excellence** was conferred on the SPE Saudi Arabia Section, which held 160 events attended by some 20,000 participants in a single year.

Our **Traffic Safety Signature Program** was awarded the Public Awareness Campaign Award by the Intelligent Transport Systems and Road Safety Forum for the second consecutive time.

Our Saudi Aramco **Environmental Education Program** received an award for the Best Oil/Gas CSR/HSE Initiative at the Abu Dhabi International Petroleum Exhibition and Conference Awards.

The International Federation of Training and Development Organizations recognized our Communities of Commitment and Practice knowledge-sharing initiative with a **Global HR Certificate of Merit** award. We were honored with the **Best Employee Value Proposition** award by LinkedIn Talent MENA. Aramco's office in The Hague was named the **Best Employer in South Holland** by Europe's leading survey company.

Saudi Aramco's publication, *AramcoWorld*, was honored in October in New York with 10 **magazine industry awards** from the international juried competition sponsored by *Folio* magazine.

Ethics and integrity

Our behavior is what defines us — as a company, as employees, and as people. As we continue to strive to be the world's leading integrated energy and chemicals company, everything we do

is anchored by our Corporate Values: Integrity, Safety, Accountability, Excellence, and Citizenship. Through the application of our values, we achieve the highest business and ethical standards, with ongoing dedication to building and maintaining trusted relationships.

Our comprehensive Corporate Governance structure is the mechanism that helps us define our strategic direction and ensures our industry leadership. It also shapes how we are seen by the world — including our customers, suppliers, and new and existing business partners. Our standards and integrity flow from our Board of Directors, which encompasses a wealth of diverse experience and a future-oriented mindset. The Board demands that management adhere to the highest personal and professional ethical standards, and ensures regular reporting and best-in-class independent auditing practices. The independent audit process, endorsed and monitored by the Board, ensures an independent, confidential, and robust review of company operations and provides a clear and transparent reporting channel from the independent auditors to the Board.

We employ a suite of policies, codes, and guidelines to support and guide our employees as they navigate the complexities of our global operations. These policies are our compass, and the benchmark against which we measure our performance and that of our partners — contractors, consultants, suppliers, affiliates, and joint ventures within the Kingdom of Saudi Arabia and abroad.

Our Supplier Code of Conduct and In-Kingdom Total Value Add program ensure our values and ethical standards are extended to, and maintained across, our supplier network, enabling long-term mutually beneficial partnerships that support the delivery of our commitments to our stakeholders.

