

# ENERGY IS OPPORTUNITY

Annual Review 2013



Our business portfolio is being reshaped to meet evolving requirements in our upstream and downstream activities as well as across the Kingdom as a whole.

**ENERGY IS OPPORTUNITY—IN THE KINGDOM AND AROUND THE GLOBE.** 

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#### **ABOUT THIS REVIEW**

This 2013 Annual Review is one half of a two-volume corporate report; the other volume is the 2013 Citizenship Report. Together, they represent our continued annual practice of reporting on our operational, organizational, social and environmental achievements and goals. Our reporting has been informed by internationally recognized guidelines developed by the Global Reporting Initiative (GRI), ISO 26000 and the International Petroleum Industry Environmental Conservation Association (IPIECA). These guidelines help us identify, structure, prioritize, evaluate, and present key issues that are relevant and meaningful to our stakeholders. For past reports, please visit www.saudiaramco.com.

COVER PHOTO
OVER THE LAST 80 YEARS, SAUDFARAMCO HAS
GROWN TO BECOME A FULLY INTEGRATED, GLOBAL
PETROLEUM AND CHEMICALS ENTERPRISE.
PHOTO ABOVE
THE JU'AYMAH NGL PLANT IS A KEY
COMPONENT OF OUR MASTER GAS SYSTEM.



The Custodian of the Two Holy Mosques
King 'Abd Allah ibn 'Abd Al-'Aziz Al Sa'ud



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## Who We Are

The Saudi Arabian Oil Company (Saudi Aramco), a fully integrated, global petroleum and chemicals enterprise, is the stateowned oil company of the Kingdom of Saudi Arabia. Throughout our 80-year history, we have become a world leader in hydrocarbons exploration, production, refining, distribution, shipping and marketing.

We rank first among oil companies worldwide in terms of crude oil production and exports, and natural gas liquids (NGL) exports, and are among the leading producers of natural gas. We are also among the world's leading refiners and are moving further downstream into chemicals production.

Seoul Beijing 18 15 BBB BERRE Xiamer 16 14 **Fujian 8** The Haque Rotterdam Singapore 13 New Delhi New York City 12 Dhahran Du Washington, D.C. **Alexandria** Bermuda Turaif 🎃 Houston Al Jawf Tanajib □ □ Safaniya
Jubail ○ ■ □ □ □ Khursaniyah Tabuk 🁚 Duba 🔾 🁚 Ju'aymah
Ras Tanura Yanbu' ○ 🍅 🔳 🖜 Khurais 🔼 Riyadh 🙆 🁚 Rabigh O Curacao SAUDI ARABIA Shaybah 🔼 Jiddah ○ 🌢 🍁 ★ Al-Sulayyil া Najran Jazan O 0 Key Figures

#### INTERNATIONAL OPERATIONS/ **EXPORT SHIPPING ROUTES** 1 HOUSTON

Aramco Services Company (ASC) Aramco Associated Company Saudi Refining, Inc. Motiva Enterprises, LLC

#### 2 WASHINGTON, D.C.

Aramco Services Company (ASC)

3 NEW YORK CITY

#### Saudi Petroleum International Inc. (SPII)

4 BERMUDA

#### Stellar Insurance Ltd.

5 CURAÇÃO Bolanter Corp. NV

Pandlewood Corp. NV 6 LONDON

#### Aramco Overseas Company

B.V. UK Ltd. Saudi Petroleum Overseas Ltd. (SPOL)

#### 7 ROTTERDAM

TEAM Terminal B.V.

#### 8 THE HAGUE

Aramco Overseas Company B.V.

#### 9 MII AN

Aramco Overseas Company B.V.

#### 10 ALEXANDRIA

The Arab Petroleum Pipeline Co. (SUMED)

#### 11 DUBAI

Vela International Marine Limited

#### 12 NEW DELHI

Aramco Overseas Company B.V.

#### 13 SINGAPORE Aramco Overseas Company B.V.

14 XIAMEN Aramco Asia-Xiamen

#### 15 BEIJING

Aramco Asia

#### 16 FUIIAN

Fujian Refining and Petrochemical

#### Company Ltd. (FRPC)

Sinopec SenMei Petroleum Company Ltd.

#### 17 SHANGHAI

Aramco Asia-Shanghai 18 SEOUL

#### Aramco Asia-Korea

S-Oil

#### **19 TOKYO**

Aramco Asia-Japan Showa Shell Sekiyu K.K.

#### **OUR CORPORATE VALUES**

INTEGRITY SAFETY **ACCOUNTABILITY EXCELLENCE CITIZENSHIP** 

**WORKFORCE** as of 31 December 2013



#### **OIL RESERVES AND PRODUCTION**

- Recoverable crude oil and condensate reserves: 260.2 billion barrels
- Average daily crude oil production:
- o Annual crude oil production: 3.4 billion barrels

#### **GAS RESERVES AND PRODUCTION**



- Gas reserves: 288.4 trillion standard cubic feet
- o Gas production (raw gas to gas plants average per day): 11.0 billion standard
- o Gas production (annual): 4.0 trillion standard cubic feet

WHAT WE DO

WHERE WE'RE GOING

## What We Do

Over the last 80 years, we have grown to become the world's largest integrated energy enterprise. Saudi Aramco manages conventional crude oil reserves of 260.2 billion barrels and gas reserves of 288.4 trillion standard cubic feet.

In 2013, we produced 3.4 billion barrels of oil, about one in every eight barrels of the world's crude oil production. Our gas production, in terms of raw gas to gas plants, was 4.02 trillion standard cubic feet, the most in a single year in our history. We also produced 455.9 million barrels of natural gas liquids (NGLs), including 86.8 million barrels of condensate

Saudi Aramco and its subsidiaries own or have equity interest in domestic and international refineries with a total worldwide refining capacity of 4.9 million barrels per day (bpd), of which our equity share is 2.6 million bpd, making us the world's sixth largest refiner. In 2013, we produced 494 million barrels of refined products and exported

121 million barrels, nearly matching our record numbers from 2012. We exported 2.5 billion barrels of crude oil in 2013, with 53.8 percent exported to Asia.

As a vertically integrated company, we work to unlock energy opportunities from exploration to distribution. Our upstream activities are focused on exploration and production. This stage involves the search for crude oil and natural gas reservoirs onshore and offshore, the management of field development for optimal long-term production, and the efficient extraction of crude oil, condensates and natural gas.

Our downstream activity includes refining, selling and distributing crude oil and condensates, fractionating natural gas and selling and distributing natural gas, NGLs, petrochemicals and petro-

## Where We're Going

Producing an average of 9.4 million barrels of crude oil a day, we play a critical role in supplying world oil markets. Today our upstream business is a global leader, known to our customers as the world's most reliable supplier.

But we want to do more. We want to achieve more. This is why we are engaging in an unprecedented corporate transformation. By maximizing the value of our resources—both our hydrocarbon resources and human resources—we are creating groundbreaking opportunities for the Kingdom and the world.

This journey starts with maintaining and enhancing our preeminence as the world's leading supplier of energy. By moving into unconventional gas, we will help meet growing energy demand at home and across the globe, establishing the Kingdom as a hub of excellence in global energy technology and services.

Our downstream businesses will become a vehicle for growth in the Kingdom, fueling commerce and economic diversity. We are building a thriving domestic energy services sector that by 2020 will serve the majority of Saudi Aramco's needs and compete on an international scale. Directly or indirectly, we expect our investments will create approximately 500,000 new jobs, opening up opportunities for generations of Saudis embarking on careers in the energy sector.

The company continues to bring together initiatives designed to make the business more efficient, agile and sustainable while raising our potential through our people's ingenuity and relentless energy—all with the view of remaining a leading global energy company for years to come.



#### **BOARD OF DIRECTORS**



Saudi Aramco's Board of Directors is chaired by His Excellency Ali I. Al-Naimi, Minister of Petroleum and Mineral Resources. The Board of Directors steers Saudi Aramco's business and organizational objectives through leadership, review and guidance. The Board oversees the company's business affairs, works with management to determine the company's mission and long-term strategy, oversees senior management succession planning, establishes internal controls, and assesses company opportunities, risks and strategies for risk mitigation. The Board consists of both outside directors and representatives from senior management.

FRONT ROW (FROM LEFT):

**H.E. Dr. Majid Al-Moneef** is the Secretary General of the Supreme Economic Council of Saudi Arabia.

**H.E. Dr. Mohammed I. Al-Suwaiyel** is president of King Abdulaziz City for Science & Technology (KACST).

**H.E. Dr. Ibrahim A. Al-Assaf** is minister of Finance for Saudi Arabia.

**H.E. Ali I. Al-Naimi** is minister of Petroleum and Mineral Resources for Saudi Arabia, and chairman of Saudi Aramco's Board of Directors.

**Khalid A. Al-Falih** is president and chief executive officer of Saudi Aramco.

**H.E. Dr. Khaled S. Al-Sultan** is rector of King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran.

BACK ROW (FROM LEFT):

**Abdulaziz F. Al-Khayyal** is senior vice president of Industrial Relations at Saudi Aramco.

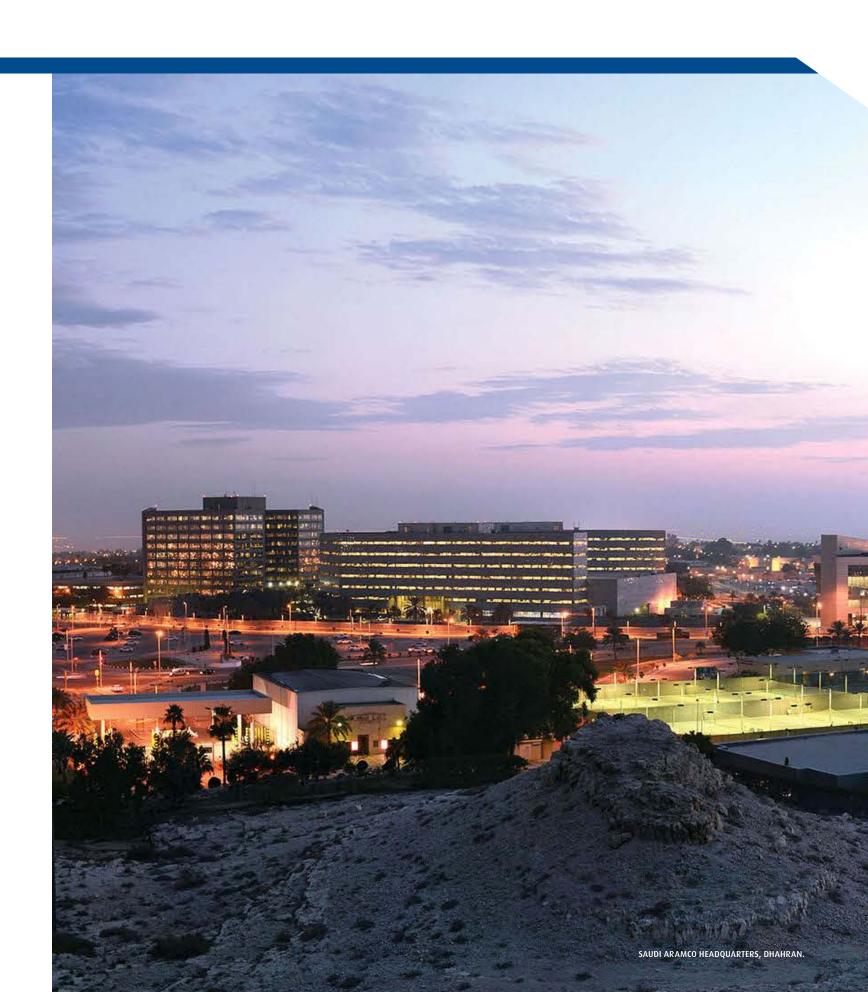
**Peter Woicke** is a former managing director of the World Bank and chief executive officer of the International Finance Corporation.

**Sir Mark Moody-Stuart** is a former chairman of Royal Dutch Shell.

**Andrew F.J. Gould** is non-executive chairman of BG Group and the former chairman and chief executive officer of Schlumberger Limited.

**Amin H. Nasser** is senior vice president of Upstream at Saudi Aramco.

**Salim S. Al-Aydh** is senior vice president at Saudi Aramco with special portfolio.



#### CHAIRMAN'S MESSAGE

### SAUDI ARAMCO CONTINUES TO INNOVATE AND MAKE PROGRESS ON ITS STRATEGIC TRANSFORMATION INTO A FULLY INTEGRATED ENERGY ENTERPRISE.

The global economy showed positive signs of growth in 2013 as Europe and the United States gradually eased out of recession. In spite of continuing challenges, 2013 was a year of energy opportunities. Global energy demand continued to grow, particularly in Asia where Saudi Aramco is the leading supplier to the four largest oil-consuming nations.

Saudi Aramco maintained its undisputed position as a leading global energy supplier and enjoyed another highly productive and successful year. This was thanks to the company's sound strategic vision and the tireless efforts of its employees worldwide. Saudi Aramco made exciting new oil and gas discoveries through its continued implementation of the largest exploration program in the company's history. More importantly, it is also well positioned for long-term growth and success.

After 80 years of proud history, Saudi Aramco continues to innovate and make progress on its strategic transformation into a fully integrated energy enterprise. The company provided energy to the world and also served the communities where it operates and strengthened the Kingdom's development through job creation and capacity building. In support of the company's Strategic Intent, Saudi Aramco instated and filled the position of Chief Technology Officer and made significant progress toward strengthening Saudi Aramco's role as a world-leading technology creator.

The Board of Directors and I are grateful for the continued support of
The Custodian of the Two Holy Mosques, King 'Abd Allah ibn 'Abd Al-'Aziz Al
Sa'ud, and Crown Prince Salman ibn 'Abd Al-'Aziz Al Sa'ud. I remain convinced
that, under their judicious leadership, Saudi Arabia will move forward with our broad and
determined development goals, supported by Saudi Aramco and energized by the opportunities
the company continues to create.

Ali I. Al-Naimi Minister of Petroleum and Mineral Resources Chairman of the Board of Directors



#### PRESIDENT'S FOREWORD

### SAUDI ARAMCO COMBINES ITS RESOURCES, LEADING KNOW-HOW AND PIONEERING MINDSET SO THAT WE CONTINUE TO BE A CATALYST FOR INNOVATION.

In 2013, Saudi Aramco celebrated our 80th anniversary with one of the most successful years in our remarkable history. I am grateful for the hard work of the company's employees and for the collaboration and support of our stakeholders. Together, we can be proud to have strengthened

Saudi Aramco's position as a visionary global energy leader and the world's largest integrated energy enterprise.

Whether drilling in the deep waters of the Red Sea for the first time or selling new products to China, we embraced our transformation and enabled new opportunities along our full value chain from upstream to downstream and new businesses. We maintained our position as an upstream powerhouse and expanded our capabilities with respect to conventional and unconventional resources. In 2013, we finalized the groundbreaking and award-winning Manifa oil field project ahead of schedule and increased our proven reserves to their highest level ever. We also increased our sales gas supply to the domestic Master Gas System. In the downstream, we commissioned the Saudi Aramco Total Refining and Petrochemical refinery (SATORP) and progressed in various other strategic refining and petrochemical projects.

Saudi Aramco combines its resources, leading know-how and pioneering mindset so that we continue to be a catalyst for innovation. In this spirit, we established new global research centers to develop our technical innovation pipeline for the future. In 2013, we also continued helping a new generation of entrepreneurs through our Wa'ed initiative and placed a renewed emphasis on engaging and developing our young employees. Our focus on the technologies

and talent of tomorrow underpin Saudi Aramco's position as a driver for positive change and a creator of opportunity in the Kingdom and beyond.

At Saudi Aramco we remain strongly committed to our high standards of safety, reliability and integrity in all our operations. We are also dedicated to building the capacity of our diverse workforce of men and women while engaging in a major transformation of our business and our corporate culture. This transformation builds upon the same Corporate Values that have brought the company so much success to date. It will also enable us to achieve our Strategic Intent to become the world's leading integrated energy and chemicals company within this decade.

As you read this 2013 Annual Review, I encourage you to explore not only the past year's many exciting accomplishments but also the foundation blocks Saudi Aramco has laid to ensure our future delivers on the theme of "energy is opportunity"—in the Kingdom and around the globe.

Khalid A. Al-Falih
President and Chief Executive Officer





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## Our Strategy

**Saudi Aramco** is constantly seeking and creating opportunities for

## a more prosperous, cleaner and more energized world. We have embarked on an ambitious corporate transformation guided by our Strategic Intent, our overall vision for Saudi Aramco through 2020. These advancements will not only ensure that Saudi Aramco remains a global leader in crude oil and NGL production and exports, but will also propel us into the top-tier of chemicals companies worldwide and reaffirm our commitment to the Kingdom's future in a rapidly changing world. THE MANIFA FIELD CAME ON-STREAM THREE

#### **OUR STRATEGIC INTENT**

Delivering on this vision will take commitment, resolve and focus to achieve. Throughout this transformation, the success of our strategy will be measured through four objectives: **SHAPING OUR BUSINESSES, ENABLING THE** KINGDOM, OPTIMIZING OUR PROCESSES and BUILDING OUR **CAPABILITIES.** Each of these will be fulfilled through a series of initiatives designed to unlock the innovation and value that our company is uniquely placed to deliver.



#### **SHAPING OUR BUSINESSES**

Pursuing the commercial activities that will help us achieve our strategic objectives

Since its founding, Saudi Aramco's business portfolio has become significantly more complex, creating the need for a refinement of our corporate strategy that will result in massive growth in some areas, and a scaling back or divestiture in others. Our business portfolio is being reshaped to meet evolving requirements in our upstream and downstream activities as well as across the Kingdom as a whole. It is also expanding in scope and technological prowess to become more integrated, global and diversified.

Toward this end, every initiative's scope is based on a thorough analysis of current resources and capacity, future demands and efficiency needs and the competitive landscape for global markets. Our long-term crude oil mix strategy is designed to help us maximize the value we create upstream while making the most of the opportunities we have downstream.

Unconventional gas has become a game changer in our upstream production strategy and a potential fuel for the Kingdom's energy demand growth. While maintaining a continued focus on renewables and alternative energy, we have also begun our journey toward becoming a global leader in chemicals.



1st Polymer sale (China)

3 New agreements for

#### **OUR STRATEGY**





At its core, our 2020 Strategic Intent is about the future of the Kingdom as much as it is about the direction of the company. The strategic pillar Enabling the Kingdom builds on our heritage of providing opportunities for the citizens of the Kingdom for mutual and long-lasting impact. One of our core competencies is recognizing and creating opportunities in the domestic energy sector. A key area of focus in this sector is the promotion of a more balanced and sustainable national energy strategy. Saudi Aramco has launched numerous corporate initiatives to address issues such as energy efficiency and the diversification of the energy supply.

Activities are under way to promote energy efficiency across the Kingdom —from transportation, residential and industrial uses to reduce domestic demand by the equivalent of 2.4 million barrels of oil a day by 2030. Through dialogue and partnerships with government and other business groups, Saudi Aramco is encouraging adoption of energy-efficient technologies and practices as well as accelerating development of alternative and unconventional

energy sources to conserve our hydrocarbon wealth.

At the same time, our Energy to the Kingdom initiative focused on growing and diversifying our energy supply, saving energy across all sectors and creating opportunities for sustainable economic growth. We deployed the Lead by Example initiative, identified as an opportunity for Saudi Aramco to demonstrate leadership in non-industrial energy efficiency by implementing energy saving technologies. The goal is to achieve a minimum of 35 percent savings in energy use in the nonindustrial sectors by the year 2020.

We began implementing our strategy for a Competitive Saudi Energy Sector, which in 2013 focused on driving four areas: The Industrialization & Energy Services Company (TAQA), offshore, marine services and unconventional gas.

Saudi Arabia is a young nation, and its population is growing rapidly. More than 5 million new jobs will be needed over the next two decades to employ the emerging workforce. Saudi Aramco is committed to creating new high-value job opportunities by facilitating

the launch of sustainable new energy and chemical-related businesses in the Kingdom. For example, during 2013, we helped five new manufacturing facilities to start production of different strategic commodities such as chemicals, valves, heat exchangers and power systems. Additionally, we helped five existing manufacturers expand their production capabilities. Their total investment of \$266 million to the local economy helped to create more than 1,300 job opportunities and has provided local contractors with opportunities for further downstream investments.

## 35% BY 2020

Reduce Saudi Aramco's nonindustrial energy use by a minimum of 35%

## 2.4M BY 2030

Reduce domestic energy demand by 2.4 million barrels of oil per day

M = million

#### **OUR STRATEGY**



To achieve the aspirations of our 2020 Strategic Intent, it is necessary to optimize and streamline many of our corporate processes by evaluating the core functions they play across the entire organization and identifying the best ways to harmonize and integrate them better.

A vital initiative that supports this goal that was fully implemented in 2013 is Saudi Aramco's Single Business Plan planning cycle, which brings together all aspects of planning, such as materials, invoices, headcount and support services, narrative development and performance planning. We have also created a structured operational excellence system that tracks four focus areas—reliability, efficiency, cost effectiveness and HSE (health, safety and environment)—and taps into every aspect of Saudi Aramco's business. An example of Saudi Aramco Operational Excellence in action is the companywide implementation of six new emerging inspection technologies that are estimated to achieve a significant annual cost avoidance per operating facility, not including non-tangible

benefits such as increasing reliability and safety of the plants and reducing environmental impacts. Saudi Aramco has also made progress in many areas related to environmental excellence: in 2013, for example, flaring at all Saudi Aramco facilities was reduced by over 17 percent.

Saudi Aramco's risk management processes are also intricately intertwined with its corporate strategy. In 2013, the company prepared and delivered the 2040 Global and Kingdom Economic and Energy Outlooks, providing indepth analysis, as well as short-, medium- and long-term projections of major macroeconomic fundamentals and energy sector trends. In addition, Saudi Aramco developed a set of scenarios for testing the robustness of the company's strategies, and continued upgrading integrated modeling tools to enhance future economic and energy outlook capabilities. The newly established Saudi Aramco Enterprise Risk Management function ensures that risk management is embedded in the company's planning and decisionmaking processes. The company's Internal Auditing function reports to

the President and CEO and plays a key role in assessing where the company is positioned from a governance, risk and compliance standpoint. Rigorous and well-coordinated auditing processes allow Saudi Aramco to make appropriate changes to our controls infrastructure to address risks adequately. As part of its application of international best practices in corporate governance, Saudi Aramco is also audited externally at the direction of Saudi Arabia's Supreme Council for Petroleum and Minerals Affairs.

These initiatives aimed at process optimization enable Saudi Aramco to respond with greater speed and flexibility to changing business and operational conditions, and to be more efficient in its use of material and human resources as it enters into new businesses and expands its global reach. Ultimately, a more profitable, agile, reliable and effective Saudi Aramco directly and indirectly strengthens the economy of Saudi Arabia and ensures continued prosperity for its people.

#### **BUILDING OUR CAPABILITIES**

Developing our talent and deepening our technology knowledge base

Critical to Saudi Aramco's continued transformation into the world's leading integrated energy and chemicals company is the need to further develop our talent and deepen our technology knowledge base.

The vanguard initiative that enable us to achieve this objective is the Leadership Engine program, which aspires to create a higher-performance organization and a global employer of choice in the energy industry. Saudi Aramco's commitment to developing our employees' skills not only helps improve their short-term performance but also prepares them for leadership in our expanding global energy and chemicals enterprises. To ensure that we prepare for the future, our Young Leaders Advisory Board (YLAB) communicates messages about the corporate transformation to the under-35 employee population. Simultaneously, YLAB gathers feedback from the company's larger youth population and shares this input with corporate management.

Saudi Aramco is making substantial investments in research and development (R&D), launching a network of strategic global research centers and increasing our R&D personnel, all with the aim to build capacity within the company to create and refine the innovative technologies needed to grow our energy business and expand into new areas such as chemicals. Strategic alliances were built with premier research organizations—both industrial and academic—and our venture capital subsidiary, Saudi Aramco Energy Ventures (SAEV), continued to invest in start-up technology companies around the globe.

These efforts assist us in introducing the latest technologies to maintain our company's competitive advantage in the marketplace. Technological innovations help us to find more oil and gas, significantly increase the recovery of petroleum resources, develop unconventional gas and renewable energy sources, and engineer systems that are cleaner and use fuel more efficiently. Leadership in upstream and downstream R&D also more broadly supports the nurturing of a flourishing knowledge economy in the Kingdom. Through this strategic focus on innovation, Saudi Aramco has positioned itself to become a foremost creator of technology while strengthening the Kingdom's economy through education, training and entrepreneurship opportunities.





#### **UPSTREAM OPERATIONS OVERVIEW**

All of us at Saudi Aramco are working toward the same goal—to remain the world's most reliable supplier of energy while transforming into a world leading integrated energy and chemicals company. As we continue to shape our businesses and expand our portfolio, Saudi Aramco remains the key swing producer in the global energy economy by maintaining substantial spare crude oil production capacity to help stabilize the worldwide oil market whenever disruptions happen. Roughly one in every eight barrels of oil produced around the world today comes from Saudi Aramco.

Our upstream operations continue to lead the industry in scale of production, operational reliability and technology development. In the past two years, we have increased our crude oil production when needed to address market supply imbalances, providing crucial stability to the global market, and we continue to make massive investments to maintain the world's largest spare oil production capacity. We continue to maximize the potential of our hydrocarbon resources by focusing on sustainability and using technology to maintain our positive trajectory of improvement in reservoir recovery, reliable operations and production.

The year 2013 also saw us make significant progress on two offshore developments: Manifa, the world's fifth largest oil field, and Karan, the Kingdom's first nonassociated offshore gas field. We added new oil and gas reserves as we continued to implement the largest exploration program in the company's history.

We added three oil and two gas discoveries to our portfolio, bringing our total number of discovered fields to 121. This included exploration and drilling operations in the deep waters of the Red Sea, where we made a new

oilfield discovery at Al-Haryd, in addition to our previous gas find at Shaur within this frontier region. In our core operational areas, we found oil in Duhul and Salsal and discovered new conventional gas fields at Turayqa in the Rub' al-Khali and at Mihwaz in central Saudi Arabia. These discoveries are integral to supporting our critical gas business, which is geared toward meeting the Kingdom's domestic energy needs and powering industrial development.

Saudi Aramco's unconventional gas program also became fully operational in 2013, offering a promising new resource for the Kingdom's energy needs.

Our world-class research and development facilities have furthered our ability to explore for and maximize extraction of the Kingdom's resources, especially in challenging, complex environments. This work lays the foundation for exciting opportunities both in the present and the future. 20 :: Energy Is Opportunity :: **Saudi Aramco** 2013 Annual Review :: 21

#### **EXPLORING NEW OPPORTUNITIES**



#### **Red Sea Exploration**

In 2012, Saudi Aramco's frontier exploration program in the Red Sea resulted in a significant gas discovery at Shaur, which we viewed to be a potential game changer in the future of the Kingdom's energy mix. In 2013, we continued exploration and drilling operations in the Red Sea's deep waters, where we made a new oilfield discovery at Al-Haryd. Also in 2013,

the first deep water Drill Stem Test operation for Saudi Aramco was successfully executed at Duba-1, located in the Northern Red Sea. Tests conducted in sea water at a depth of 2,127 ft. indicated tight reservoirs for potential future development.

#### Manifa

The Manifa crude oil increment has been a monumental achievement in company history in terms of production,

MANY VIEW US AS A 'SUNSET INDUSTRY.' I STRONGLY DISAGREE. IN FACT, I WOULD STRESS THAT...WE ARE NOT EVEN AT MID-DAY...I WOULD EVEN ADVOCATE THAT WE HAVE THE POWER OF TIME TRAVEL BY RENEWING, REINVENTING AND REDISCOV-ERING OURSELVES IN MEETING TOMOR-ROW'S ENERGY CHALLENGES.

-AMIN H. NASSER, SENIOR VICE PRESIDENT,

technology and manpower. For the first time in the company's history, a program has combined onshore, offshore and a causeway in a single project. In addition, the project has broken world records in reservoir engineering, drilling and well servicing. Two world records were set in the Manifa field by drilling the deepest 61/8-inch hole section to over 37,000 feet and deploying the longest 7-inch liner with a length of over 18,000 feet to a depth of 26,000 feet.

The Manifa field was successfully put into production in April 2013, three months ahead of schedule, and achieved 500,000 bpd capacity by July 2013. By the time it reaches its full potential at the end of 2014, the Manifa field will have the capacity to produce 900,000 bpd of Arabian Heavy crude oil, 90 million scfd of gas and 65,000 bpd of condensate. It will also deliver feedstock to Jubail and Yanbu'. The project consists of 41 kilometers of causeways, three kilometers of bridges, 27 drilling islands, 13 offshore platforms, 15 onshore drill sites, water supply wells, injection facilities, multiple pipelines and a 420 MW heat and electricity plant.

Saudi Aramco hired 360 young Saudis to operate and maintain Manifa under the supervision of more experienced Saudi Aramco employees. The new



hires represent the company's varied operations and include engineers, operators and maintenance personnel who have had extensive classroom and practical training, as well as hands-on experience in similar operations.

**2** world records

ahead of schedule 1 UNESCO Award nomination

I SEE MANIFA AS A GIANT PROJECT AND A VIVID EXAMPLE OF SAUDI ARAMCO'S CAPABILI-

TIES WHEN IT COMES TO HUGE PROJECTS. TO ME, BEING PART OF THIS GIANT PROJECT IS

A SOURCE OF PRIDE, LIKE WEARING A MEDAL. THIS ACCOMPLISHMENT COULD NOT HAVE

BEEN ACHIEVED IF IT WAS NOT FOR THE DEDICATION AND ROUND-THE-CLOCK EFFORTS OF

THE WORKING TEAM.—KHALID A. AL-ABDULGADER, MANAGER, MANIFA DRILLING DEPARTMENT

The project's innovative engineering design was created to optimize the field's production capacity, while caring for the environment. Prior to construction, our experts conducted extensive engineering and ecological assessments to ensure that the marine ecosystem would not be adversely affected by

developing the field. As a direct result of these studies, Saudi Aramco constructed three kilometers of bridges to span the migration paths of various marine species, maintaining natural water flow and preserving natural marine nurseries. At the same time, the man-made islands and the main and lateral causeways for the project were constructed to house shallowwater wells, a more cost-effective option than offshore rigs. The project's success earned it a UNESCO Environmental Responsibility award nomination.

BRIGHT AND SHINING EXAMPLE IN OUR CORPORATE HISTORY...IT REALLY OPENS A NEW PAGE IN TERMS OF OVERCOMING VARIOUS HURDLES AND COMPLEXITIES MOST NOTABLY THROUGH HUMAN AND TICULARLY CITIZENSHIP, BY CARING FOR THE ENVIRONMENT, SAUDIZATION AND RELYING ON NATIONAL VENDORS TO THE

• 90 million scfd of gas

• **65,000** bpd of condensate

—KHALID A. AL-FALIH, PRESIDENT AND CEO

THE MANIFA STORY WILL BE A VERY TECHNOLOGICAL INNOVATION. IT IS A TES-TIMONY TO THE COMPANY'S VALUES, PAR-

#### **EXPLORING NEW OPPORTUNITIES**



#### Khurais

The Khurais crude oil increment has become a company showpiece to visiting dignitaries and an example of the company's ability to handle megaprojects with a keen eye on the values of safety and excellence. Commissioned in May 2009, Khurais currently has the capacity to produce 1.2 million bpd of Arabian Light crude oil, 70,000 bpd of condensate and 320 million scfd of gas.

In 2013, Saudi Aramco began a project to expand crude oil production capacity to reach 1.5 million bpd of Arabian Light by 2017. The expansion project capitalizes on the successful design of the Khurais Central Processing Facility to accommodate an additional 300,000 bpd of production and 500,000 bpd of

water injection capacity. The facility's design is engineered according to the highest industry standards and places specific emphasis on sound, environmentally friendly processes. Khurais wells employ the latest Intelligent Field technologies, including real-time rate measurement and remote control and surveillance capabilities. Its bestin-class reservoir development plan was designed using GigaPOWERS, our powerful proprietary reservoir modeling technology, to produce a high-resolution model to simulate optimal reservoir performance. In addition, an accelerated evaluation program was successfully completed to capture fluid and reservoir properties and performance, allowing Saudi Aramco to develop new reservoir targets.

#### Shaybah

Two major projects were in progress at the Shaybah field this year. First was a 250,000 bpd oil production expansion increment, which will be completed by the end of 2015. The expansion will provide the Shaybah field with a capacity of 1 million bpd of Arabian Extra Light crude oil, double its initial capacity when it came online in 1998. In 2013, the Shaybah drilling plan continued with two key strategies in place to maximize recovery: the first to place wells at deeper locations away from the gas cap to maximize oil recovery, and the second to increase the average reservoir contact from 6 to 10 km, enhancing production from the deep, tight faces of the reservoir.

Second was the construction of a new NGL recovery plant that will be completed by the end of 2014 with a production capacity of 275,000 bpd in line with the company's corporate strategy to maximize revenues by significantly boosting the recovery of resources. The project involves the construction of inlet facilities, gas treating units, NGL recovery trains, dehydration, residue gas compression, acid gas compression, NGL storage and shipping, an upgrade of the gas handling capacity for the four existing Shaybah gas-oil separation plants and other associated electrical and nonelectrical utilities. The project also includes a major upgrade to increase the power generation capacity to more than 1 gigawatt by installing

four cogeneration units, seven single cycle units, a 50-kilometer 230 kilovolt transmission line, and the associated electrical and nonelectrical utilities.

In recognition for its environmental protection efforts, including a planned 600-square-km wildlife reserve, the Shaybah Producing Facility won Saudi Aramco's 2013 President's Award for Environmental Stewardship.

#### Wasit

Saudi Aramco made major progress on the Wasit Gas Plant in 2013, as site development, temporary facilities and communications were nearly complete by the end of the year. When it is completed in 2014, Wasit will be one of the largest nonassociated gas plants Saudi Aramco has ever built. As a stand-alone gas plant, Wasit's integrated facilities will process 2.66 billion scfd of nonassociated offshore Khuff gas from Arabiyah and Hasbah. Along with Karan, it will raise the Kingdom's gas processing capacity by about 40 percent. Under normal conditions, Wasit is expected to supply 1.7 billion scfd of sales gas to the Master Gas System and have inlet facilities potential of up to 3.05 billion



#### **BARRELS OF OIL PER DAY**

Future capacity of Shaybah, double its original

#### **EXPLORING NEW OPPORTUNITIES**



scfd of raw gas during emergencies or demand peaks. The plant also includes one fractionation module designed to produce ethane, propane, butane and natural gas.

The cogeneration facility at the plant will generate 750 MW of power and is expected to produce 4,200 metric tons per day of molten sulfur. As part of our energy efficiency efforts, Wasit will also be the first in the Kingdom to use Sulfinol-M gas treating technology to improve the efficiency of sulfur recovery units from 95 to 99.1 percent. In 2013, the Wasit Saudization Job Fair was conducted to help enable the employment of Saudis in construction activities. More than 8,000 applicants attended the job fair, of which more than 3,000 were given job offers.

#### Midvan

In 2013, Saudi Aramco launched its first project in the Tabuk region in the Kingdom's northwest, where procurement and construction work for a gas plant in the Midyan gas field is under way. The Midyan field, discovered in the early 1990s during the Red Sea coastal plain exploration, was studied to identify ways to optimize economic production. The facility will be fully operational by 2016, at which time it will be capable of producing and processing 75 million scfd of nonassociated gas and 4,500 bpd of condensate.

The Midyan project will include the establishment of two pipelines stretching 98 kilometers to deliver sales gas and stabilized hydrocarbon liquids to a sophisticated power plant near Duba to generate electricity with high efficiency and to avoid burning high-value diesel. This is in line with our strategic vision to respond more efficiently to the needs of our growing customer base.

The Wasit, Karan and Midyan facilities are all important components of Saudi Aramco's Nonassociated Gas Development Program, which aims to support and expand all domestic Saudi industry, including steel and cement factories; water desalination plants; electricity production; ammonia and urea plants; methanol industries to produce antifreeze, solvent, fuels and other materials; and numerous other energy related projects.

#### Fadhili

One of Saudi Aramco's goals throughout its strategic transformation is to improve capital efficiency by 20 percent. As part of that initiative, in 2013 the company held a workshop of the first Integrated Project Team (IPT), which was formed to plan and execute the Fadhili Gas Plant Program. The project team is planning the delivery of a mega-project that brings nonassociated gas from the onshore Khursaniyah field and the offshore Hasbah field. The Fadhili IPT was joined by members of the newly established Capital Program Efficiency and Value Assurance organization in a workshop that focused on capital efficiency. As Saudi Aramco's capital expenditures increase to meet domestic and global demands, the 20 percent efficiency potentially represents billions of dollars of cost avoidance that can be used for the benefit of the Kingdom.

#### Haradh

Haradh Gas Plant successfully increased its capacity by 8 percent to 1.95 billion scfd following the completion of the sales gas compression relief system, using in-house resources. This enables the plant to process an additional 150 million scfd when the need arises.



## UNCONVENTIONAL GAS PROGRAM

and the Rub' al-Khali.

A significant component of our corporate strategy is to retain our preeminence as the world's most reliable supplier of energy while entering new operational areas. These new areas include large-scale expansion in exploration and development of unconventional gas resources.

in three areas of Saudi Arabia: the Northwest, South Ghawar

Unconventional gas refers to the deposits of natural gas trapped in shale and tight sands. This gas was not commercially viable to produce until recently. Today, tapping this resource is an important strategic step for continued economic development in the Kingdom for the following reasons:

Unconventional gas will help meet Saudi Arabia's own energy demand, and is the preferred fuel for power generation and water desalination due to its increased efficiency and cleaner burning qualities compared to other fossil fuels.

- The resulting increase in the total gas share of the Kingdom's energy mix will increase the volumes of higher value diesel and crude oil available for export.
- As a resource-intensive operation, estimates of direct jobs can be up to 10,000 (including contractors) for every 1–2 billion cubic feet of gas produced daily, with up to four times as many indirect jobs. These jobs also require expert skills and training, and therefore stimulate demand for advanced support sectors and a knowledge economy.

The company's unconventional gas program became fully operational in 2013. Only two years after launching our own unconventional gas program in the frontier Northern Region, we are ready to commit shale gas for the development of a 1,000 MW power plant that will feed a massive phosphate mining and manufacturing sector in the Kingdom and drive that region's development and prosperity. Saudi Arabia will be among the first countries outside North America to use shale gas for domestic power generation.

We are actively exploring for unconventional gas resources in three areas of Saudi Arabia: the Northwest, South Ghawar and the Rub' al-Khali. Due to the large scale of these unconventional gas resources and the complexity and

#### **EXPLORING NEW OPPORTUNITIES**



intensity of the activity associated with their development, significant investment opportunities and economic benefits lie in the full value chain of this emerging industry.

Furthermore, the full unconventional gas value chain such as site development, rig preparation, drilling, fracking, completion, well tie-in, production and maintenance are poised to grow rapidly between now and 2020. The opportunity presently exists for unconventional gas sector manufacturers and service providers to serve Saudi Arabia and neighboring countries by targeting localization within Saudi Arabia as their operational hub.

## Innovations in Hydraulic Fracturing Technology

When it comes to extracting unconventional or tight natural gas, the best technique found so far is fracturing, also known as fracking. Saudi Aramco's constant focus on environmental stewardship has led it to push for new and better ways to conduct fracturing operations with the least environmental impact possible.

New hydraulic fracturing technologies are being developed to significantly improve cost efficiency, increase recovery rates, reduce environmental impact and enhance well productivity across shale, deep sandstones, and carbonate formations in the Kingdom:

 Pulsed gas fracturing improves wellto-reservoir connectivity by generating a fracture network near the wellbore by using a propellant.

- Plasma technology uses high-electric discharge to generate supersonic stress waves to induce fracture in the reservoir.
- CO<sub>2</sub>-based fracturing fluid may meet the water supply challenge in largescale fracturing jobs.
- Staged fracturing is evolving into cost-effective techniques by creating multiple hydraulic fractures in horizontal wells without using mechanical isolation tools. Research and development collaboration between Saudi Aramco and Schlumberger Limited has discovered methods to control simultaneous fracture initiation, marking the first multiple fracture initiation research in the oil and gas industry.
- The use of microseismic fracturing proved to be a valuable tool in the first Northwest shale gas well to assess the efficiency of the fracture network generated through hydraulic fracture treatments. This was the first time this technology was deployed in Saudi Aramco to assess four different fracturing technologies. The technology provided a better understanding of the geometry and complexity of the fractures generated for each type of fracture design.
- An innovative fracture propping concept is being developed by the Advanced Research Center of our Exploration and Petroleum Engineering Center (EXPEC ARC) to chemically convert fracturing fluid into solids in situ. The fracturing fluid will be a system containing multiple liquid and/or gas components. Upon being catalyzed by the reservoir temperature, the fluid is set into a porous medium to keep the fracture open while at the same time providing high conductivity.



Saudi Aramco is also exploring new methods for using fracturing fluid technology to get the maximum amount of natural gas out of the ground with minimum ecological impact. The recent development of environmentally friendly polymer-free fracturing fluids—with superior operational performance—represents a major technological advance in the petroleum industry.

#### Unconventional Gas Resources Development Program

Unconventional gas plays a significant role in Saudi Aramco's upstream production strategy and as a potential growth area to meet the Kingdom's energy demand. The mission of our Upstream Professional Development

Center (UPDC) is to ensure a sustainable, capable upstream workforce by providing effective and efficient professional development for all petroleum engineers and geoscientists. UPDC's immersive learning environment accelerates learning through allowing participants to combine field experience with high-tech simulation.

UPDC has developed a training program that leverages the North American shale gas experience of three major service companies to equip upstream professionals with the knowledge and skills required to successfully exploit this new growth area. Our Exploration, Petroleum Engineering, Drilling & Workover and Production Engineering organizations selected a total of 56 young professionals to participate in

the program. The 18-month programs consist of 30 percent classroom training and 70 percent on the job field training.

#### Flaring Minimization

As a company dependent on natural resources, Saudi Aramco considers the environment to be a significant priority. Saudi Aramco has made progress in many areas with respect to environmental excellence. Our ongoing goal is to be globally competitive in terms of our social responsibility and environmental stewardship.

The Saudi Aramco Engineering Standard asserts various goals with respect to air quality, source emission controls and the elimination of discharge of toxic substances. Flare minimization plans are meant to eliminate

#### **EXPLORING NEW OPPORTUNITIES**

#### FLARE GAS MITIGATION

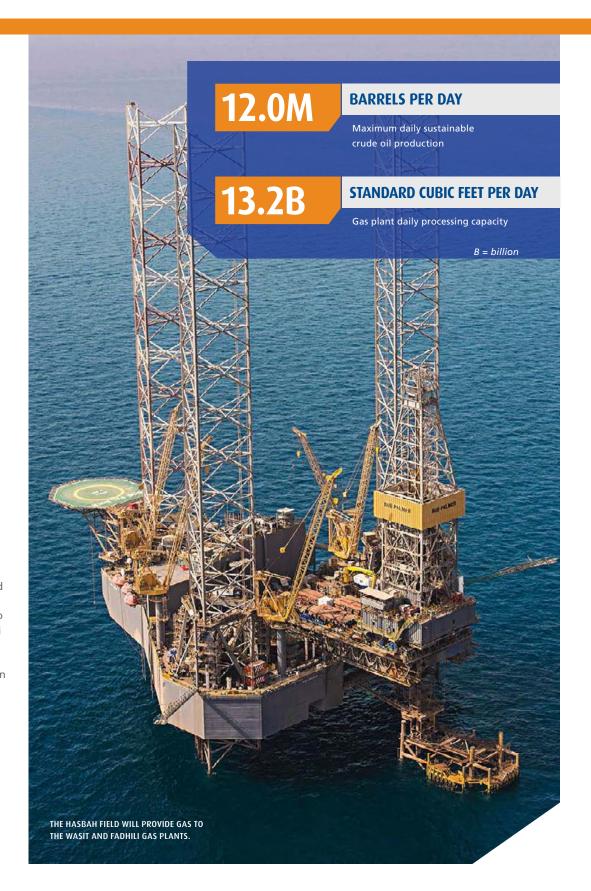
IN 2013 ALONE, FLARING AT ALL SAUDI ARAMCO FACILITIES WAS REDUCED BY OVER 17 PERCENT.

17+%

THE VOLUME OF FLARED GAS IS NOW LESS THAN 1 PERCENT OF RAW GAS PRODUCTION, MAKING SAUDI ARAMCO AMONG THE GLOBAL LEADERS IN FLARED GAS REDUCTION.

hydrocarbon flaring to lighten the environmental footprint of facilities while generating additional revenues from the captured hydrocarbons.

In 2013, Saudi Aramco completed the development of Flare Minimization Plans at all its facilities to provide a consistent and focused approach to measure, monitor and control gas flaring. As a result of this program, flared gases across its gas operations have been reduced 31 percent compared to 2010. In 2013 alone, flaring at all Saudi Aramco facilities was reduced by over 17 percent, translating to annualized cost avoidance in flaring of \$29 million per year.



#### LOOKING FORWARD: INNOVATIONS IN UPSTREAM OPERATIONS

Saudi Aramco's strategic, long-term outlook on research and technology development is consistent with our development plans for our oil and gas fields—allowing us to maximize reservoir performance, and add further value to our integrated energy value chain.

Saudi Aramco's Exploration and Petroleum Engineering Advanced Research Center, also known as EXPEC ARC, is the upstream research arm that tackles the challenges of maximizing oil and gas recovery while reducing the associated developmental cost through innovative technologies and better understanding of our reservoirs. We are pursuing R&D to bring about breakthrough achievements—beyond simple or merely incremental enhancements. In 2013, we made significant progress in developing a series of these technologies.

#### SmartWater Flood Field Pilot

SmartWater Flood is the first homegrown recovery technology that can provide substantial additional oil recovery through simple tuning of the ionic composition of the seawater treated at our Qurayyah facility for injecting into producing fields to maintain reservoir pressure. The execution of a multi-well field pilot is being planned at North 'Uthmaniyah, and Saudi Aramco is conducting fundamental in-house research to better understand the fine details of recovery from the atomic/molecular scale to the reservoir scale.

#### Reservoir Nanoagents

The idea behind reservoir nanoagents is an industry-first concept that focuses on in situ reservoir illumination and intervention based on advances in nanotechnology. The technology targets smart nanoengineered particles

and devices that can traverse the reservoir to support formation evaluation, reservoir monitoring, and oil recovery. In 2013, the realization of a stable magnetic nanoparticle successfully completed the proof of concept in the lab, making way for a demonstration in a shallow multiwell field trial.

#### Prosperity

EXPEC ARC has developed an easy-to-use application titled Prosperity that enables the explorationist (as opposed to a reservoir quality specialist) to routinely predict reservoir quality in a variety of sandstones. This tool provides an interface that allows the user to make rigorous predictions of reservoir quality but with a minimum of required inputs. The application also utilizes a sophisticated diagenesis model, leveraged with our Geology Technology Team's extensive reservoir quality data-

base, to make reservoir quality estimates at the location of interest.

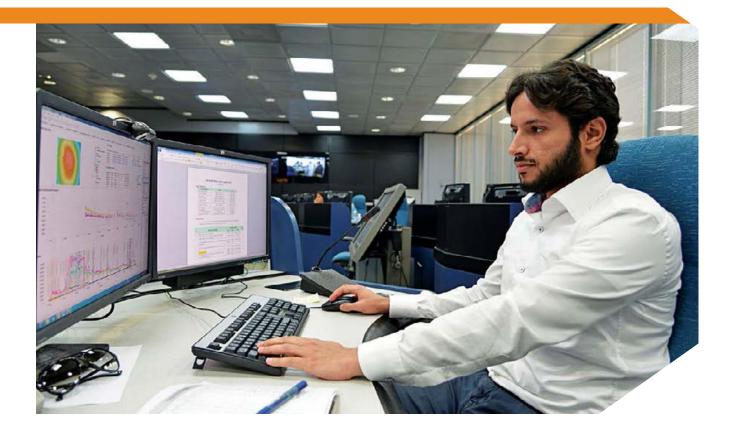
#### **DETECT Coherency Technology**

Recent advances in automatic fault detection along with practical innovations in coherency technology have been incorporated into Saudi Aramco's industry-leading DETECT software platform. These developments enhance considerably the value of 3D seismic data, reduce interpretation cycle time for prospect generation and improve success rates for drilling both for exploration and field development. The application of DETECT technology not only has resulted in better definition of subsurface images but has also contributed significantly to the identification of fractures and channels—key components for our unconventional gas exploration efforts.



#### **EXPLORING NEW OPPORTUNITIES**





#### Microwave Energy to Mobilize Heavy Oil

In response to the recent effort to leverage heavy oil and tar reserves in the Kingdom, EXPEC ARC designated a new laboratory to accommodate R&D experiments associated with improving well productivity and overall reservoir depletion efficiency. A special custom-designed apparatus is being constructed with the objective of placing enabling materials deep in the reservoir and maximizing heated reservoir volume from a microwavesource antenna situated in the wellbore. Enabling microwave technology could mobilize billions of barrels of new hydrocarbon resources and significantly increase the Kingdom's reserves and recovery rates. A patent application is already in place to protect the development of a new tool and method to deploy the new technology.

#### First Drilling Microchip

This project is an industry first towards developing low-cost oilfield drilling

microchip sensor technology. The development combines a new mobile, reliable and miniature sensor system for downhole drilling measurements with an application for acquisition of temperature and pressure data along the entire wellbore. The expected future business impact includes optimizing mud and cement formulations while drilling, and further reducing well cost by providing an alternative low-cost data acquisition system. This technology was recently highlighted in the September 2013 issue of the Society of Petroleum Engineers' Journal of Petroleum Technology. It is expected that the first generation microchip will be ready for field deployment by the end of 2014.

#### Downhole Video Camera

We successfully conducted the first worldwide trial of a high-temperature resistant and high-quality downhole video camera capable of withstanding temperatures of up to 350 degrees Fahrenheit, surpassing the existing

tool in the market, which could only tolerate temperatures up to 260 degrees Fahrenheit. This breakthrough is a result of our continued work with service providers to modify or manufacture tools to handle our harsh well environment. This success will open the door for optimizations in obstruction removals and fishing jobs.

SAUDI ARAMCO RECOGNIZES THAT R&D IS KEY TO ITS GROWTH AND IS ON A COURSE TO BUILD ITS RESEARCH PROGRAM AS PART OF A FAR-REACHING PLAN TO BECOME A GLOBAL LEADER IN ENERGY AND CHEMICALS. THIS INVESTMENT BUILDS ON DECADES OF STRONG IN-KINGDOM R&D ACHIEVEMENTS.—CHARLES KRESGE, CHIEF TECHNOLOGY OFFICER, SAUDI ARAMCO





#### DOWNSTREAM OPERATIONS OVERVIEW

Saudi Aramco is more than an oil company; we are stewards of the Kingdom of Saudi Arabia's vast hydrocarbon resources. While in our past we focused primarily on crude oil and gas, now we are rapidly progressing toward becoming the world's leading integrated energy and chemicals company. As a visionary company that provides products across the entire value chain, from crude oil to chemicals and plastics, we look to optimize our position by expanding further through successful joint ventures and by developing and applying cuttingedge technologies. We expect our work to further strengthen the economy by creating, either directly or indirectly, approximately half a million jobs throughout the Kingdom over the next several years.

As we solidify our leadership in our core business, two imperatives must be met. First is an emphasis on profitable growth through the diversification of our business portfolio. The second is a focus on the Kingdom's economic agenda, particularly our support for local economic development. In 2013, our downstream operations achieved success on both these fronts. In refining, we continued to supply the domestic market with fuels and feedstock cost-effectively. Increasing global demand for chemicals and fuel products, however, will require Saudi Aramco to widen its focus to grow its businesses accordingly. Refineries such as the Saudi Aramco Mobil Refining Company (SAMREF) joint venture will strengthen our competitive position for years to come by producing worldclass fuels. Our partnerships such as Saudi Aramco Total Refining and Petrochemical Company (SATORP), Sadara Chemical Company and Yanbu Aramco Sinopec Refining Company (YASREF) strengthen our strategic position globally as well as serve our domestic needs and enhance the broader competitiveness of the Kingdom's industries.

The localization of the Saudi energy sector can help raise the Kingdom's gross domestic product (GDP) and standard of living by boosting regional economic development through employment and foreign direct investment. It can also directly impact our operations through improved efficiency and quality, allowing us to navigate an evolving industry with greater agility. Saudi Arabia's demographic profile also presents opportunities for supporting the further development of a knowledge economy. The Kingdom has a rapidly growing population, with half of the population under the age of 25, and it also enjoys a highly educated and talented female population, whose participation in the workforce has substantial room to grow. Taking advantage of these human resources can help the company to realize its future vision.

Saudi Aramco therefore aspires to facilitate the development of an economic ecosystem that helps attract, establish and promote energy-related domestic industries that are globally competitive and create employment opportunities for Saudis. We have

#### **EXPANDING OUR PORTFOLIO**



1,200

#### **DIRECT JOBS AT SATORP**

Our SATORP joint venture is creating 1,200 direct jobs in the Kingdom, each of which helps create a further five indirect jobs.

begun developing a series of major integrated industrial clusters that will help diversify our energy mix while also providing national benefits from economic diversification to the expansion of value-adding activities and the creation of high-quality jobs. The Competitive Saudi Energy Sector initiative, for example, is designed to achieve the following key objectives:

- Increase Saudi Aramco's proportion of in-Kingdom spending in manufacturing industries from less than 30 percent today to 70 percent over the next decade.
- Increase the Saudization of jobs in the sector from existing levels of around 20 percent to 70 percent.
- Promote a sustainable ecosystem that supports a thriving energy sector in Saudi Arabia.
- Develop Saudi energy sector industries that are globally competitive.

 Contribute to the creation of 500,000 direct and indirect jobs in the Kingdom.

The ripple effect of our work can be seen throughout our communities. Large-scale initiatives like those outlined in this Annual Review encourage investment in Saudi manufacturing, help develop industrial "clusters" adjacent to our operations and provide training to local manufacturers and suppliers in areas ranging from safety to ethics.

The immediate impact of our expanding downstream portfolio also helps stimulate broader opportunities inside the Kingdom and globally.



## EXPANDING THE LOCAL ECONOMY

#### SATORP

The Saudi Aramco Total Refining and Petrochemical Company, or SATORP, a joint venture with France's Total, is a newly constructed 400,000-bpd full-conversion refinery with integrated petrochemical production. It will be among the most complex refineries in the world, converting Arabian Heavy crude oil into high-quality products including gasoline, kerosene and diesel, as well as petrochemical products such as benzene and propylene. The SATORP refinery is also the first producer of petroleum coke and paraxylene in the Kingdom.

Construction was completed in 2013, and all units are expected to be in full operation by the end of the first quarter of 2014. At year's end, the crude oil throughput was 56,000 bpd and the refinery had shipped seven fuel cargoes, including a naphtha shipment. In an auspicious coincidence, the first cargo from SATORP was loaded on Saudi National Day.

Joint ventures such as SATORP are a powerful expression of our corporate strategy. They not only incubate Saudi-owned small and medium-sized manufacturers and service providers but also reinforce Saudi Aramco's commitment to foster a knowledge-based economy in which thousands of Saudi technicians, engineers and operators can find exciting job opportunities. The refinery is creating over 1,200 direct jobs in the Kingdom, each of which in turn helps create a further five indirect employment opportunities.

#### Sadara

The Sadara Chemical Company, a joint venture with the Dow Chemical Company, represents the synergy between one of the world's leading energy suppliers and one of the world's leading science and technology companies. Sadara will operate a world-scale, integrated chemicals complex in Jubail Industrial City II. Jubail Industrial City is an established petrochemicals center in the Eastern



Province of the Kingdom complete with an industrial port, pipeline corridors, utilities and supporting industries. In addition to supporting local demand, the complex's strategic location makes it ideally suited to drive economic growth in fast-paced, emerging markets in Asia, the Middle East, Africa and Eastern Europe.

Full commercial operations are expected to begin in 2016. Sadara's complex will consist of a hydrocarbon and chlorinebased production facility capable of producing up to 3.2 million tons per year of diversified chemicals and plastic products. This level of productivity will allow Sadara to introduce new value chains and high-performance products throughout the Kingdom. Sadara and the adjoining value park will deliver a full range of value-added, performance products destined for the emerging markets of Asia Pacific, the Middle East, Eastern Europe and Africa. By the second half of 2015, Sadara will already have begun producing plastic and chemical products that Saudi-owned companies can use to produce plastic bags, detergents and foam materials for domestic and international markets. Ultimately, Sadara will be an active contributor to Saudi Arabia's strategy to become a hub for future downstream industrialization of chemicals and plastics.

Sadara and related investments are expected to generate substantial income for the region and thousands

of direct and indirect employment opportunities. Output from Sadara's 26 chemical processing plants will generate an estimated \$10 billion in revenues within a decade of commencing operations. Sadara currently has over 475 apprentices and 235 on-the-job trainees undergoing comprehensive manufacturing and engineering training programs in state-of-the-art centers both inside and outside Saudi Arabia. Already with an estimated 1,500 currently on staff, Sadara will ultimately employ more than 3,000 people and contribute to an additional 15,000 nondirect employment opportunities. The value park will create more than 20,000 quality jobs, directly or indirectly, for Saudi nationals.

#### YASREF

In 2013, our Yanbu Aramco Sinopec Refining Company refinery project made significant progress toward its start-up in 2014. As a joint venture, YASREF also stands as a model of foreign direct investment in the Kingdom and another positive phase in Saudi Aramco's relationship with China's Sinopec.

#### **EXPANDING OUR PORTFOLIO**





## SAUDI ARAMCO'S INDIRECT ECONOMIC IMPACT

BECAUSE SAUDI ARAMCO IS A MAJOR FORCE IN THE DEVELOPMENT OF OUR LOCAL TALENT AS WELL AS IN THE MAINTENANCE OF OUR LOCAL AND NATIONAL ECONOMY, WE TAKE ENORMOUS PRIDE IN THE POSITIVE EFFECTS OF COMPANY ACTIVITY IN THE REGIONS IN WHICH WE OPERATE. OUR NEW BUSINESS DEVELOPMENT ORGANIZATION ENCOURAGES MANUFACTURERS TO PURSUE POTENTIAL OPPORTUNITIES, EXPAND PRODUCT LINES, INVEST IN STATE-OF-THE-ART TECHNOLOGIES AND EXPAND EXISTING FACILITIES, ALL IN LINE WITH OUR STRATEGY TO HELP ENABLE THE KINGDOM.

ESSAM AL-ZAMIL'S VISION TO CREATE AN ONLINE GAME THAT ALSO TEACHES
MATH AND SCIENCE WAS REALIZED THROUGH SUPPORT PROVIDED BY WA'ED,
OUR ENTREPRENEURSHIP SUBSIDIARY.



YASREF, when completed, will be the Kingdom's most advanced refinery. The project involves the construction and operation of a 400,000 bpd integrated petroleum refinery in the Yanbu' Industrial City located on the west coast of Saudi Arabia along the Red Sea. The refinery will process 100 percent Arabian Heavy crude oil and produce gasoline, high-quality diesel and liquefied petroleum gases (LPG) as well as byproduct sulfur and petroleum coke for export. YASREF will include process units for the separation and conversion of the feed crude oil into finished products, for utility and offsite systems to support the refinery operation, and for associated feed, intermediate and product storage facilities.

In addition to the enormous direct impact YASREF will have, the refinery will provide significant annual revenues and approximately 6,000 direct and indirect job opportunities for Saudis. As part of Saudi Aramco's efforts to develop a quality local workforce, YASREF is working with Riyadh Refinery to train new apprentices to operate the YASREF facility. By the end of 2013, 24 apprentices had completed the six-month training program.

#### Jazan Refinery and Terminal Project

The Custodian of the Two Holy Mosques, King Abdullah, launched the Jazan Economic City Project as part of a strategy to nurture non-oil based industries, expand the Kingdom's existing industries to serve domestic needs and rejuvenate the Jazan region by providing an additional source of employment opportunities. The refinery and terminal will help enable the development of industrial clusters.

Construction will start in 2014, and

when completed in late 2016, the refinery will have the capacity to process 400,000 bpd of Arabian Heavy and Arabian Medium crude oil as well as produce 80,000 bpd of gasoline, 250,000 bpd of ultra-low sulfur diesel and over 1 million tons per year of benzene and paraxylene products. The Houston, Texas office of our subsidiary company, Aramco Services Company, is supporting 65 employees during the front-end engineering and design (FEED) phase of the project's Integrated Gasification Combined Cycle complex, which will use the refinery's by-product to economically and efficiently generate 2,400 MW of electricity to cover the refinery's needs, enable the development of small industries nearby and provide power for cities in the area.

Furthermore, the workforce to build the Jazan Program is expected to exceed 40,000 over the next four years. Saudi Aramco adopted a new Human Resources strategy with its business partners that, rather than setting Saudization targets, created a consortium from among the contractors and public sector entities to train a local workforce for the program. Through the Jazan Contractors Consortium for Training and Employment, or "Maharat," 550 young Saudis from Jazan commenced their training in October 2013. The total intake will reach 5,000 over a four-year period. The objective is to qualify these young Saudis for jobs required for the construction phase of the project, participate in advancing national development and contribute to the economic development of Jazan.



#### **EXPANDING OUR PORTFOLIO**



#### Petro Rabigh

An integral part of Saudi Aramco's strategy to integrate petrochemical production with refining, this joint stock company was initially founded as a joint venture with Japan's Sumitomo Chemical Company. The development of Phase II of Petro Rabigh includes a new aromatics complex and an expanded facility to process 30 million standard cubic feet per day (scfd) of ethane, and approximately 3 million tons per year of naphtha as feedstock, to produce a variety of high value-added petrochemical products. Progress is rapidly being made to expand the product slate of Petro Rabigh, and the company will begin marketing products in 2014.

By the end of 2013, agreements had been reached with tenants for 25 of the 30 sites in the adjacent value park and potential tenants have been identified for the remaining sites.

#### SAMREF

The Saudi Aramco Mobil Refining Company is a joint venture with ExxonMobil in Yanbu' that supplies high-value products at a competitive cost while maintaining world-class safety, reliability and environmental protection.

In 2013, SAMREF completed the first two phases of the \$2.2 billion Clean Fuels Project, a major environmental project to serve the needs of the Kingdom. The project will reduce the sulfur levels in gasoline and diesel by more than 98 percent, to 10 parts per million (ppm). Ultra-low sulfur fuels allow the use of improved pollution control devices that reduce diesel emissions more effectively but can be damaged by sulfur. When powering the latest technology engines on tractor-trailers, buses, marine vessels and off-road equipment, these fuels will meet upcoming fuels specification regulations in the Kingdom and reflect our ongoing efforts toward producing environmentally friendly

products. Overall project construction progress was 93 percent at year-end, with the third remaining phase to be completed by mid-2014.

The refined products produced by SAMREF support the Kingdom in general and the Western Province specifically by contributing to the development of Yanbu' Industrial City. In addition to its excellent safety record and mechanical reliability, SAMREF provides training and career development for its workforce, 94 percent of which are Saudi nationals.

#### Luberef

The Saudi Aramco Lubricating Oil Refining Company, or Luberef, created in cooperation with Jadwa Industrial Investment, is another successful joint venture project that helps drive the economic growth of the Kingdom. Luberef is currently the sole producer of virgin base oils in the Gulf Cooperation Council (GCC). It has two solvent extraction base oil refineries: one in Jiddah and the other in Yanbu', with a total capacity of 4 million barrels per year. About 70 percent of Luberef's production is sold to the Kingdom's domestic market; the balance is exported internationally, mainly to the United Arab Emirates. Luberef is in the midst of a \$1.45 billion expansion project to increase its operations in Yanbu' Industrial City to cover new base oil products.

#### Ras Tanura Refinery

Ras Tanura Refinery is the largest complex of its type in the Middle East and one of the largest in the world. The greater Ras Tanura area is home to a vast array of operations from refining to aviation and roughly one in every eight Saudi Aramco employees works in Ras Tanura. The Port of Ras Tanura, which includes Sea Island, North Pier and Ju'aymah offshore terminals, is the largest crude oil export terminal in the world. The refinery can stabilize 1.2 million bpd of crude oil for shipping to international customers, and it



94%

#### **SAUDI WORKFORCE AT SAMREF**

Our SAMREF joint venture has a 94% Saudi workforce.

THIS IS MY CHANCE TO BE PART OF THE TRANSFORMATION OF ONE OF THE GREAT-EST COMPANIES IN THE WORLD.—AHMAD ABULFARAJ, ENGINEER, RAS TANURA COMMUNITY SERVICES

"

generates 178 megawatts of power using four steam turbines and two third-party cogeneration units. The excess power generated by these units is delivered into the Saudi Electricity Company's Eastern Province power grid. Ras Tanura meets 31 percent of domestic demand for refined and natural gas liquid (NGL) products, making it an integral refinery in the Kingdom's economy.

In 2013, Ras Tanura received ISO 14001:2004 certification, which focuses on environmental management systems and other standards related to specific environmental aspects such as

life cycle analysis, communication and awareness and auditing. This certification provides assurance for the current operations while also providing practical tools to help Saudi Aramco constantly improve our environmental performance by identifying and controlling the environmental impact of our businesses.

#### Bahri

In November 2012, as part of Saudi Aramco's strategy to continue expanding internationally, Vela International Marine Limited (the wholly owned shipping subsidiary of Saudi Aramco) agreed to merge its fleet and operations with the National Shipping Company of Saudi Arabia (Bahri) to create a world-scale diversified global shipping company. Under a long-term shipping agreement signed in connection with the transaction, Bahri will become the exclusive provider of very large crude carrier (VLCC) shipping services for crude oil sold by Saudi Aramco on a delivered basis and will

take responsibility for maintaining a reliable fleet. Following the receipt of necessary approvals. Vela will transfer to Bahri ownership of its entire fleet, consisting of 14 VLCCs, a floating storage VLCC and five product tankers.

#### Maritime Sector Expansion

Saudi Arabia's maritime sector has been identified as an industry with high development potential. The development of an integrated Maritime Yard at Ras El Khair, a joint venture between Saudi Aramco, SembCorp Marine of Singapore and Bahri, is a key anchor initiative to fast track the development and localization of the maritime industry and the related value chain. Saudi Aramco expects the project to create additional export capability, raise domestic GDP and provide significant numbers of jobs for Saudis.

#### **EXPANDING OUR PORTFOLIO**



8.8M

**WORK HOURS** 

Our Fujian, China, joint venture achieved 8.8 million workhours without a Lost-Time Injury by 2013.

Maritime Yard revenues are expected to grow to \$2.5 billion annually by 2023, with \$250 million being generated from vessel maintenance, repair and overhaul activities and \$2.25 billion from marine construction activities, including oil and gas offshore rigs and platforms as well as selective segments of shipbuilding. At full capacity, the Maritime Yard will employ a workforce of approximately 13,600, of which approximately 7,000 will be Saudinationals.

#### Aramco Trading

In 2013, the Saudi Aramco Products
Trading Company, known as Aramco
Trading, grew its refined products business with estimated year-end export
volumes at 403,000 bpd. In March
2013, it obtained new storage and
blending capabilities with a 10-month
lease on 800,000 barrel tank facilities
in Fujairah, UAE, enabling improved
product handling, sourcing and upgrading. In addition, the company showed

sustained growth in ship chartering and logistics, risk identification and management, and data capture and reporting.

## EXPANDING OUR GLOBAL REACH

Our global affiliates provide a wide range of services, including marketing crude oil, NGL and chemicals products, ioint venture coordination, procurement, inspection, research and development, project management, human resources development, government and public relations, and communications. Through the regional offices of Saudi Aramco Asia Company ("Aramco Asia"), we continue to deepen our presence in one of the world's fastest growing regions. These international ventures will continue to play an important role in Saudi Aramco's corporate transformation to become a global leader in energy and chemicals by 2020.

#### lapar

Saudi Aramco, through one of its affiliates, has a 14.96 percent interest in Showa Shell, one of the largest refiners in Japan. Showa Shell's shares increased in value by 115 percent in 2013. This compares against a 52 percent gain in the benchmark NIKKEI for the same period and confirms the market's upbeat assessment of Showa Shell's stellar business outlook. Showa Shell also outperformed its peers, such as Tonen General and Cosmo, primarily due to its solar energy business.

In 2012, Solar Frontier, a subsidiary of Showa Shell, successfully installed a 10.5 MW solar power system at Saudi Aramco's Al-Midra office tower. More than 120,000 photovoltaic panels were installed on the parking shade structures to produce clean power for the building.



#### China

One element of Saudi Aramco's chemicals strategy is to encourage and create new businesses that use our products. Aramco Asia continued to actively pursue potential refining and petrochemicals opportunities in Asia, including a refinery/marketing venture with PetroChina to develop a 260,000 bpd grass roots full-conversion refinery in Yunnan province. Definitive agreements are expected to be initialized in the first quarter of 2014. PetroChina commenced construction of the refinery in 2013, which was 18 percent complete by year's end.

In a historic development, 2013 also saw Saudi Aramco's first polymer sale go directly to a customer in Xiamen, China, who immediately converted it into stretch film that will be used by other companies for packaging. The products sold were produced by Fujian

Refining and Petrochemical Company Ltd. (FRPC), Saudi Aramco's equity venture. China is the primary focus for Aramco Asia's polyolefin marketing business. From this initial transaction, the annual sales of FRPC are expected to grow to 200,000 metric tons (mt) of polyethylene and 130,000 mt of polypropylene, with Aramco Asia's Xiamen office targeting both direct customers and distributors. Aramco Asia will market aromatics from other Saudi Aramco facilities in addition to polyolefin, with both representing major growth businesses for the company's downstream operations.

FRPC's ongoing Steam Cracker Debottlenecking Project achieved 8.8 million work-hours without a lost-time injury by the end of 2013. When fully operational in 2015, the project will increase refining capacity from 240,000 to 280,000 bpd, ethylene capacity from 800 to 1,100 kilo tons per annum (kta), polyethylene production from 800 to 960 kta and polypropylene production from 400 to 550 kta. It will also add a new ethylene oxide/ethylene glycols production capacity of 180/400 kta. The project will capitalize on demand growth and efficiency enhancements to increase sales revenue in the Fujian market.

#### Korea

The Republic of Korea is Saudi Arabia's fourth largest trading partner. Saudi Aramco owns a significant stake in S-OIL, a petroleum and refinery company based in Seoul. In November, S-OIL won the highest award in the Korea Brand Awards: the Presidential Award. Hosted by the Ministry of Trade, Industry and Energy and organized by the Institute for Industrial Policy Studies, the Korea Brand Awards is the only national award program related to brands, and S-OIL is the first refiner to receive the Presidential Award.

#### **EXPANDING OUR PORTFOLIO**

#### Republic of Indonesia

In 2012, Aramco Asia and PT Pertamina signed a Memorandum of Understanding (MOU) to evaluate the economic feasibility of building an integrated refining and petrochemical project in Tuban, East Java, in the Republic of Indonesia. The proposed project would process 200,000–300,000 bpd of crude oil and produce high-quality refined petroleum and petrochemical products to meet rising demand in Indonesia and elsewhere in Southeast Asia. In 2013, the MOU was extended for one more year until February 2014.

#### **United States**

Motiva Enterprises, a Houston-based refining and marketing joint venture between Saudi Refining, Inc. (SRI), a Saudi Aramco subsidiary, and a Shell Oil affiliate, completed its expansion project in 2012, but startup activities were interrupted by an operational incident that required repairs to the crude oil distillation unit. In 2013, the joint venture was able to meet its target of a January restart, and was able to ramp up production and achieve design capacity on the crude oil unit. Additionally, all of the other new units were operating at or near design capacity at the end of 2013. In 2014, SRI will continue to work with Motiva to maximize throughputs and raise volumes where possible.

#### **EXPANDING STRATEGICALLY**

#### RetailCo

Saudi Aramco's Retail Team developed a number of strategic options for the company's participation in the domestic retail market and secured company approval to launch RetailCo as a wholly owned subsidiary of Saudi Aramco. RetailCo's objective is to build and operate service stations in select areas of the Kingdom using a Company-Owned, Company-Operated business model for the fuel component of the business, while potentially outsourcing the majority of the nonfuel component to partners who would add value to the business and its brand. By the end of 2013, the project was in the early implementation phase.

#### **New Pipelines**

In 2013, Saudi Aramco commissioned 11 additional pipelines to its network with a total length of 935 kilometers and an additional capacity of 1.45 million bpd for Arabian Heavy crude oil, 83,000 bpd for Arabian Light, 65 million scfd of sales gas, 90 million scfd of sour gas and 65,000 bpd of condensate. The additional length represents an increase of about 3 percent in the network from 2012, reaching 20,419 kilometers of pipelines operated, maintained and mothballed.

#### **Enhancing Operational Excellence**

Over the past 10 years, Saudi Aramco has embarked on a corporate initiative to deploy advanced process control solutions company-wide to maximize high-value products, improve process controls and minimize energy usage in process plants. Saudi Aramco will continue to identify opportunities for improving refinery availability and utilization, and increasing white products' yields to help position company refineries within the first quartile of the Solomon Fuel Refinery Performance Ranking. Efforts to optimize the refining process performance are expected to result in a total improvement of 2 percent on benchmarking factors and an increase in white products by 13,000 bpd of gasoline.



## **ENABLING THE KINGDOM: HAJJ**

THE 2013 HAJJ SEASON LASTED FROM SEPTEMBER 7– NOVEMBER 18. DURING THIS PERIOD, SAUDI ARAMCO MET THE FOLLOWING DEMAND:

**51,000** Approximate average daily jet fuel demand (in barrels) through North Jiddah, Yanbu' and Madinah Bulk Plants, up **51%** from normal average daily sales

3.7M Barrels of total jet fuel throughput reached

22,000 Approximate number of aircraft refueled from Jiddah and Madinah airports, at an average rate of 303 aircraft per day

10.9M Barrels of gasoline sold, up 2.3% from 2012

14M Barrels of diesel sold, up 4% from 2012



SAUDI ARAMCO, AS A MAJOR CONTRIBUTOR TO THE ECONOMY AND A MAJOR ENERGY USER IN ITS OWN RIGHT, IS A LEADER IN EFFORTS TO IMPROVE ENERGY EFFICIENCY. THIS IS DEMONSTRATED THROUGH THE SIGNIFICANT ACTIONS UNDERTAKEN IN ALL OUR OPERATIONS.

—KHALID A. AL-FALIH, PRESIDENT AND CEO



#### **ENERGY EFFICIENCY**

Saudi Aramco is a leader in efforts to improve energy efficiency and has developed cost-effective, innovative solutions and efficient resource management practices. On average, since the year 2000, the company has been able to achieve a 2 percent annual reduction in energy intensity in industrial facilities, which has resulted in a savings of around 150,000 barrels per day of oil equivalent (bpdoe). This was realized through various initiatives such as cogeneration, retrofitting industrial equipment and process enhancements.

In recent years, the national demand for energy has increased dramatically to the point where the volumes meant for export may decline to unacceptably low levels in the coming two decades. For example, the national demand for electricity has increased by about 7 to 8 percent annually for the past five years. Therefore, improved energy efficiency is a national goal and concern. In 2013, the company

launched energy conservation policies to improve levels of energy efficiency in all operating facilities, whether industrial or nonindustrial, to support energy efficiency efforts in the Kingdom.

The company achieved energy savings of roughly 9,000 bpdoe in support of the Kingdom's Energy Initiatives under the Saudi Aramco Energy Management Program. The Zero Discharge Technology was implemented in more than 400 well-site operations in 2013, which reduced hydrocarbon waste generated from each well site to a few kilograms and enabled the recovery of more than 260,000 barrels of oil and 70 million scf of natural gas. In addition, through our Lead By Example

initiative, we identified opportunities to achieve a minimum of 35 percent reduction in energy consumption through energy efficiency measures in transportation as well as in new and existing houses and buildings. At the same time, Saudi Aramco's Energy to the Kingdom initiative focuses on growing and diversifying our energy supply, saving energy across all sectors, and creating opportunities for sustainable economic growth. Efficiency, renewable energies (solar energy in particular) and hydrocarbon allocation strategies are major contributors that are expected to manage growing domestic energy demand in the mid- and long term.

### ENERGY CONSERVATION SAVINGS ACHIEVED OVER THE YEARS (2000–2013) (MBDOE)



MBDOE = thousands of barrels per day oil equivalent

#### **EXPANDING OUR PORTFOLIO**



#### Cogeneration

Saudi Aramco signed three new energy conversion agreements in 2013 to build and operate efficient cogeneration plants at three major oil and gas complexes in the Kingdom. Cogeneration technology, which captures and utilizes the heat produced in power generation, has a thermal efficiency of more than 80 percent compared to conventional generation efficiency of 40 to 50 percent. It also uses less fuel and lowers emissions for better environmental performance. The agreements demonstrate Saudi Aramco's commitment to pursue energy efficiency throughout its operations. Upon completion, the new cogeneration power plants will efficiently provide electricity and steam needs at the company's Abqaiq, Hawiyah and Ras Tanura facilities.

The cogeneration facilities will also serve as a benchmark for energy efficient power production and will further enhance the Kingdom's power sector. The plants will generate a total of about 900 MW of power and 1,500 tons of steam per hour when they come

on stream in 2016. Saudi Aramco's partners will operate the cogeneration plants for 20 years, providing electric power and steam to all three Saudi Aramco facilities. Saudi Aramco will hold a 50 percent stake in the new cogeneration plants. In addition, electricity generated by these plants is normally used locally, making losses due to long-distance transmission and distribution of power negligible.

#### **Water Conservation**

Protection of groundwater resources in Saudi Arabia is of vital importance as the Kingdom's aquifers supply over 90 percent of the water used in the country. As they are essentially nonrenewable due to the arid climate, they can pose risks to human health and the environment if negatively impacted. In this context, Saudi Aramco assigns a high priority to the responsible use of the Kingdom's precious water resources. The majority of water utilized in our operations is seawater, and while freshwater only represents a small part of our water use, our Water Conservation Strategy has an overall target of reducing the company's

projected freshwater consumption by 70 percent by 2022.

All of the sanitary wastewater in Dhahran is treated and reused, with 70 percent of water reused companywide. We are also expanding our use of xeriscaping at Saudi Aramco facilities. Xeriscaping is characterized by the use of evergreen flora that is highly tolerant to poor soil conditions and hot arid climates and includes a wide variety of trees and shrubs. This reduces water consumption by about 40 to 50 percent as compared to conventional gardening.

#### LOOKING FORWARD: INNOVATIONS IN DOWNSTREAM OPERATIONS

#### Naphtha-fueled Vehicles

In 2013, after only two years of research and collaboration with leading German car engine design firm FEV, Saudi Aramco scientists successfully demonstrated the potential of naphtha, a gasoline-like fuel, in a modern diesel engine. As Saudi Aramco expands its research and innovation portfolio

through global partnerships and collaboration, the successful test drive has shown, for the first time, that a naphthafueled vehicle is capable of meeting today's European efficiency and emissions requirements while maintaining high comfort and drivability levels.

More than a fifth of energy demand is consumed in transportation, mostly from oil. As the world's largest oil producer, Saudi Aramco has a key role in shaping future mobility and addressing upcoming fuel challenges. Considered a complement to gasoline, diesel and jet fuel, naphtha requires less processing and upgrading in the refinery than modern diesel fuels and is therefore cheaper to produce. Saudi Aramco's research has shown that lighter, less processed fuels such as naphtha, when used in diesel engines, can also reduce environmental impact through lower emissions.

#### Crude Oil to Chemicals

Our Chemicals organization has a strategic objective to develop and deploy its own technologies and has been working on a number of key initiatives relating to technology development. For example, a demonstration unit for crude oil-to-chemicals technology has proven successful in Teijin, China and the scaling up to an 80,000 bpd process plant is under consideration.

#### CO, into Polyols

Novomer, Inc. (Novomer) is a U.S.-based chemical technology company engaged in the development of catalytic platforms to convert carbon dioxide (CO<sub>2</sub>) into useful products such as polyols, which are used to produce a range of polymers frequently found in foams, insulations and coatings. Saudi Aramco has executed an option agreement with Novomer for the right to purchase Novomer's polyols business, concurrent with the execution of an agreement between Saudi Aramco Energy Ventures (SAEV) and Novomer.

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SAUDI ARAMCO AND OTHER INSTITUTIONS IN THE KINGDOM ARE COMMITTED FOR THE VERY LONG TERM TO INVEST IN THE DISCOVERY OF THINGS THAT ENTERPRISING CHEMISTS DREAM OF—FOR EXAMPLE, BREAKTHROUGHS IN CONVERTING  ${\rm CO_2}$  TO OTHER CHEMICALS.

—ABDULRAHMAN F. AL-WUHAIB, SENIOR VICE PRESIDENT, DOWNSTREAM





While we are building assets and broadening our portfolio, we have not ignored the capacity building that is so essential to the company's successful transformation. As we expand our business and geographical reach, the need to strengthen the talent pipeline and develop and retain a world-class workforce has never been more important. This is especially true in light of the shift in the company's age demographic and the challenges it poses to bridge the knowledge gap across employee generations.

867 2012 671 2011 474 2010 312 2009

Programs are in place to enhance workforce planning, recruitment and retention. At the same time, we are continuing to build our training and development efforts to provide our people with the right learning opportunities. In addition, we are implementing performance management systems to enable us to evaluate and reward our employees appropriately and select leaders and professionals based on performance-based criteria. Offering our employees challenging career opportunities to enrich their learning will allow them to grow with the company.

#### RAISING OUR POTENTIAL

#### OPERATIONAL HEALTH AND SAFETY

The hydrocarbon industry has inherent risks. Yet from its inception 80 years ago, the company has worked to embed safety as a core value in everything it does. A culture of safety is supported inside the company and promoted in our communities through a variety of initiatives that tackle our society's most critical safety challenges. This safety culture will become even more important over time as Saudi Aramco increases the scale of its operations and ventures into new businesses such as petrochemicals and unconventional gas.

Saudi Aramco was involved in several major safety initiatives during 2013 to both strengthen its safety culture and enhance safety across its operations, including:

- Assessing and controlling risks:
  Risk-based safety management
  approaches identify hazards, analyze
  the risks associated with the hazards
  in terms of both consequences and
  likelihood, and assess measures to
  control the risks. The application of
  risk management principles, especially during the current period of
  expansion, can more effectively
  determine how to allocate resources
  to eliminate, mitigate or control risks.
- Improving safety standards, inspections and audits: The company introduced several new guides, standards and requirements related to safety management. A number of comprehensive risk-based inspections in line with industry recommended practices were conducted to ensure company operations meet those evolving standards.
- Conducting safety training and education: Our Safety Leadership and World-Class Safety Workshops equip management with the skills to be visible safety leaders and provide supervisors with practical tools to elevate safety in their operating areas to world-class levels.

Recognizing safety achievements:
The company's Exceptional Safety
Achievement Recognition Program
recognized employees in 2013 for
their contributions toward the
development of proactive safety initiatives that made a positive impact
on safety within their organizations
and the company.

As a result of these and numerous other safety initiatives, our lost-time injury (LTI) rate in 2013 dropped by 18.2 percent from 2012—and 25 percent from 2011—to 0.09 per 200,000 work hours. The second phase of Petro Rabigh has achieved 6 million accident-free work hours, and six other refineries reached between 1 million and 5 million accident-free work hours. This improvement was largely the result of rigorous in-the-field training and adherence to policies. For example, roughly every 50 workers at the Manifa project had a "safety man" during construction, and detailed evacuation plans have been put in place and well-rehearsed. Management at YASREF conducted 16 emergency drills and approximately 1,500 safety workshops for 32,000 individuals. In fact, such intensive safety procedures are standard across Saudi Aramco's numerous facilities.

LOST-TIME INJURY RATE
(Lost-time injuries per 200,000 work hours)





445

CONTRACTOR SAFETY PREQUALIFI-CATIONS SINCE 2010

#### Promoting Safe Behavior to Our Contractors

Despite these positive achievements, there were also some serious safety failures in 2013, and Saudi Aramco has taken steps to address these deficiencies. Regrettably, we lost two company employees and 14 contractors this year in on-the-job incidents. We will continue to learn lessons from each of these tragic events, and the safety of our employee and contractor workforce will continue to be our foremost priority. The expansion of company facilities and operations over the past decade has resulted in more contractors working on company projects, and with these increased numbers, there is increased responsibility to ensure their safety. At the operational level, the key areas of focus include eliminating risky behavior, while at the same time stressing rigorous adherence to our safety standards and processes.

In 2013, contractor safety remained an important element of Saudi Aramco's Safety Management System. The company issued a review guide for contractor site safety that outlined the necessary safety reviews for long-form capital construction contracts. To ensure that contractors meet company expectations regarding safety, the company implements strict requirements during the contractor selection and monitoring processes, including contractor safety prequalification and on-site safety performance monitoring. We also held contractor safety seminars and a Contractor Safety Symposium to address contractor-related safety initiatives and standards to improve communication on safety-related matters between contractor management and the company.



#### PROFESSIONAL DEVELOPMENT

Saudi Aramco coordinated with KFUPM and Dammam Community College to introduce a new degree program titled "Associate of Applied Science Degree in Safety Technology," making it available to company employees through a new sponsorship program. The degree is a three-year program, including a foundation year. The program was launched successfully in November 2013 with nine qualified company enrollees across company business lines. This type of program is the first to be introduced within the Kingdom and will be highly beneficial for those candidates who will eventually graduate and be prepared to become safety technicians supporting operations.

The Saudi Aramco Professional Development Academy (SAPDA) is a six-week corporate onboarding program for newly hired young professionals. The program is based on four cornerstones: Business Communication, Professional Leadership, Community Service, and Health and Safety. Participants attend workshops, interactive sessions, Leader as Teacher events, site visits and field trips. In addition, they apply learning through team projects. Accomplishments are showcased at the end of the program through a participant-led showcase

and graduation event attended by company management. In 2013, a total of 395 participants graduated from the program. Major accomplishments in 2013 included the introduction of a foundational workshop on Emotional Intelligence and the rollout of a new Project Management workshop developed in-house. The overall participant satisfaction level for the SAPDA program in 2013 was 82 percent.



2012: **379** 

2011: **322** 

2010: **46** 

#### RAISING OUR POTENTIAL



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THIS TRAINING PROGRAM (YASREF TRAINEES WORKING IN A MOTIVA FACILITY) IS A GREAT EXAMPLE OF INFORMATION SHARING THROUGH-OUT THE GREATER SAUDI ARAMCO ENTERPRISE. WE ARE UTILIZING THE KNOWLEDGE AND EXPERIENCE IN ONE JOINT VENTURE TO DEVELOP THE SAME IN A NEW JOINT VENTURE.—NABEEL AMUDI, PRESIDENT, SAUDI REFINING INC.

"

A new Accelerated Development
Program for Young Engineers, 14
weeks in duration, aims to address
the on-boarding development needs
of new engineers, increase technical
competency and bridge the talent
gap for new hires in an accelerated
manner. The Maintenance, Gas & NGL
Processing and Oil Processing program
elements have been developed and
were launched in September 2013 in
collaboration with the French Institute
of Petroleum.

#### Sadara Training Program

Our European affiliate, Aramco
Overseas Company (AOC), in 2013 supported approximately 150 on-the-job trainees from Sadara who are on assignment with venture partner The Dow Chemical Company at locations in the

Netherlands, Germany and Portugal. At year-end, 14 trainees had successfully completed their training assignments and returned to Saudi Arabia.

#### YASREF Training Program

In 2013, the Motiva joint venture in the United States implemented a program to train Saudi refining professionals to operate state-of-the-art equipment similar to that being installed at the YASREF refinery in Saudi Arabia. Three separate groups of trainees, mostly in their early 20s, were assigned to Motiva's Port Arthur refinery in Texas to learn how to operate and maintain a delayed coker unit, which heats residual oil from the refining process to maximize the recovery of valuable liquid hydrocarbons to produce petroleum coke,

primarily used for fuel. The newly built delayed coker unit at Motiva is similar to the new unit being constructed at YASREF. The trainees received maintenance training, in-the-field operations training, and learned the skills that will enable them to work productively and safely at the plant.

By working with the world's top technologies, the trainees are the "pioneers" of YASREF. Many will eventually impart their knowledge to others and have the opportunity to become supervisors and foremen. When fully staffed, the YASREF refinery will have about 500 operators and maintenance technicians, of which 250 to 300 will be working with delayed coker units.

#### Leadership Engine

Developing our human resources remains the key strategy for building our corporate capacity, expanding our business portfolio and creating growth opportunities for our employees. Saudi Aramco's Leadership Engine is part of a set of a development pipelines for leaders at all levels, designed to help the organization create a culture where innovation and creativity

THE PROGRAM IS PART OF A SET OF A
DEVELOPMENT PIPELINES FOR LEADERS AT
ALL LEVELS, WHICH WILL HELP THE ORGANIZATION TO CREATE A CULTURE WHERE
INNOVATION AND CREATIVITY ARE VALUED
AND ALL EMPLOYEES ARE RECOGNIZED
FOR THEIR CONTRIBUTIONS. BY CREATING
AN OPEN AND TRUSTING CLIMATE, LEADERS
WILL BETTER UNDERSTAND THE ASPIRATIONS OF TEAM MEMBERS AND HELP THEM
TO DEVELOP TO THEIR FULL POTENTIAL."

DANIELA KING, LEADERSHIP ENGINE

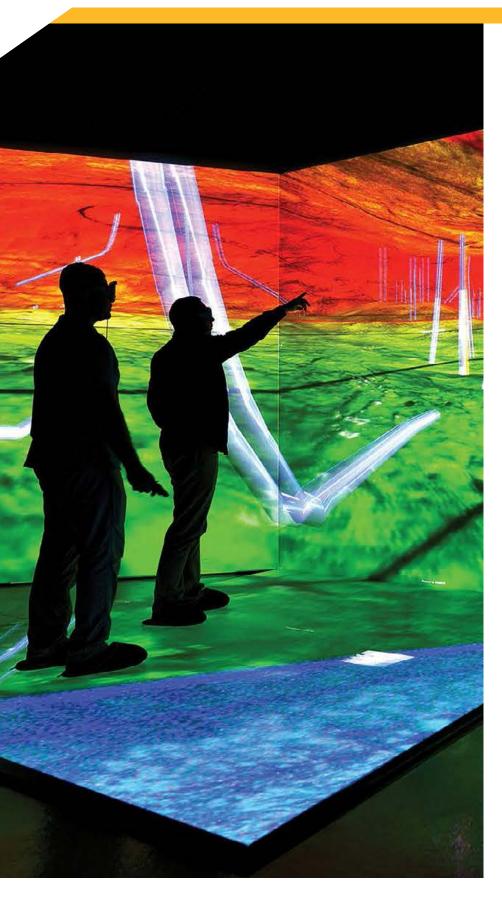
"THIS IS NOT LIKE ANY COURSE WE'VE ATTENDED. OUR WHOLE STYLE OF THINK-ING HAS CHANGED. FAHAD AL-SHAMMARY, FOREMAN, KHURSANIYAH GAS PLANT

"

are valued and all employees are recognized for their contributions. The completion of a five-month pilot project may well signify the beginning of a new era in shaping the development of our leaders of tomorrow. Initiated by a proposal generated by the Leadership Engine team, the program plans to provide industrial unit heads with a set of leadership tools to lead and inspire high-performing teams. The program took 18 unit heads on an extended developmental leadership journey, providing focused learning sessions, monthly business applications and supportive coaching sessions.



#### RAISING OUR POTENTIAL



#### FOSTERING INNOVATION

As Saudi Aramco continues to expand its portfolio, it is imperative that the company is at the forefront of technologies that maximize hydrocarbon recovery as well as supporting expansion into chemicals and higher-value derivatives. We're pushing forward from a traditional role as buyers and consumers of technology to our new global technology and R&D strategy. Saudi Aramco filed 152 patents in 2013 with the U.S. Patent and Trademark Office. The company was also granted 57 patents, only one short of the all-time company record set the previous year.

We envision becoming an enabler and creator of new technologies, and we are leveraging our new network of satellite research centers in North America, Europe and Asia to achieve this vision. In the past 18 months, the company and its subsidiaries have made substantial progress in its global R&D program, opening new research centers at the King Abdullah University of Science and Technology on the Red Sea in Thuwal, Saudi Arabia, and internationally in Aberdeen, Cambridge (Massachusetts), Delft, the Netherlands, Paris and, in the near future, Beijing. The two other U.S.-based centers will be officially inaugurated in 2014 in Houston and Detroit. We

IDEAS SUBMITTED THROUGH IDEA MANAGEMENT SYSTEM

201

6,201

PATENTS GRANTED BY U.S. PATENT AND TRADEMARK OFFICE





sponsoring innovative research: In 2013, Zeid Al Ghareeb, a Saudi Aramco sponsored student pursuing a Ph.D. in Petroleum Engineering at the Massachusetts Institute of Technology, was awarded a Seed Fund grant of \$150,000 for doctoral research from the MIT Energy Initiative (MITEI). The proposed research was endorsed by founding and sustaining members of the MITEI including Saudi Aramco, BP, Shell, Schlumberger and Chevron, among many others. Al Ghareeb was recognized for his research titled "Optimum Decision Making in Reservoir Management Using Reduced-Order Models." Al Ghareeb's research focuses on broadening the application of oil reservoir simulation for decision making in light of geological, operational and financial uncertainties using fast, physics-based reduced-order models

are working with the Korea Advanced Institute of Science and Technology to pursue a broad-based, long-term carbon management program, investigating carbon capture as well as its conversion into useful products.

An equally important driver of the R&D program is the role it will play in strengthening the Kingdom's research capacity, as well as the commercialization and manufacturing of company technologies. A core outcome of the global network is the ability to bring benefit to the Kingdom of Saudi Arabia through innovations that foster growth. Strategically located in geographic centers of excellence, the centers are ideally situated to access novel ideas and tap global talent wherever particular strengths may lie. The network aligns with and advances the groundbreaking work being conducted at our Exploration and Petroleum Engineering Center's Advanced Research Center and our Research and Development Center, both based in Dhahran.

We are also pursuing a myriad of research and technology development programs. We continue to establish partnerships with esteemed academic institutions such as King Fahd University of Petroleum and Minerals (KFUPM), King Abdullah University of Science and Technology (KAUST), the Massachusetts Institute of Technology (MIT) and the Georgia Institute of Technology in Atlanta in the U.S.

We also directly sponsor, at full cost to the company, more than 2,000 undergraduate and post-graduate university students through our College Degree Program for Saudi Aramco employees and non-employees. Supported by our Houston-based affiliate Aramco Services Company (ASC), the program is responsible for 1,129 Saudi Arabian students in 163 universities throughout North America. Of those, 780 students are earning a bachelor's degree and 35 are earning an associate degree as part of the non-employee program. The remaining students are employees, and 307 are earning graduate degrees while seven are earning associate degrees.

Supporting our efforts to accelerate the development and deployment of technology is the Saudi Aramco Energy Ventures subsidiary (SAEV). Its mission is to invest globally in startup and high-growth companies with technologies that are of strategic importance to the company, particularly with respect to its downstream operations.

Within Saudi Aramco, we continue to strengthen and sustain a robust, creative and innovative organizational culture. Our state-of-the-art Idea Management System is paramount to administering our innovation portfolio. The system enables higher-quality ideas, improves idea tracking and reporting, and provides a platform for innovation campaigns.



#### RAISING OUR POTENTIAL



### EXPANSION OF EMPLOYEE ENGAGEMENT

Generation Y—those born after 1980 —currently make up about 25 percent of our workforce. By 2020 they will be the largest demographic in Saudi Aramco and represent the company's leaders of tomorrow. Therefore, it is imperative that we engage these individuals in our strategic transformation process and ensure that their voices are heard as we move forward.

25 PERCENT OF SAUDI ARAMCO WORKFORCE BORN AFTER 1980



The Young Leaders Advisory Board (YLAB) was created in 2011 as an agent of change and sounding board for the company throughout the company's transformation. YLAB's mission is to engage and inspire Saudi Aramco's young population and serve as an active resource, providing solutions that drive the company toward achieving the Strategic Intent.

YLAB is comprised of male and female employees aged 35 and under. Currently YLAB consists of 16 Saudi Aramco employees, two of whom are full-time coordinators temporarily assigned to Saudi Aramco's Strategic Transformation Office for a term of 1.5 years. Members are a diverse group of individuals representing different business lines, salary levels, educational backgrounds and geographical areas. The YLAB team supports and executes projects that provide generational perspective and allow the company's youth population to actively participate in the strategic transformation.



#### Support Services

As a global, integrated energy enterprise, Saudi Aramco relies on a wide variety of support services across the company. Hard-working employees from organizations such as Marine, Transportation, Law, Finance, Corporate Planning and Human Resources (among many others) play a critical role in realizing the company's full potential.

Saudi Aramco's Information Technology organization plays a key role in enabling the success of the company. In 2013, Information Technology conducted more than 15 workshops and security briefings Kingdom-wide to highlight lessons learned from the 2012 cybersecurity incident at Saudi Aramco and shared recommendations on implementing security controls based on international standards and practices. Organizations and business partners participating in the workshops included: the Saudi Electricity Company, the Capital Market Authority, the Saudi Arabian Monetary Agency, numerous Saudi banks, the Yanbu' Royal Commission, SABIC, and joint ventures SAMREF, Luberef and YASREF, the Saudi Arabian Mining Company (Ma'aden), KFUPM and the Public Pension Agency.

#### ETHICS AND INTEGRITY

Saudi Aramco prides itself on being the world's largest oil company and for being one of the most respected. It is our reputation for reliability, our ability to deliver on our commitments, our good governance and our culture of innovation and teamwork that have made us among the most admired companies in the world. As our future business activities and operations substantially grow in scale and complexity, it is crucial that we continue to earn the reputation we have built over the past eight decades.

Saudi Aramco has always maintained the highest ethical and legal standards in the way it conducts its business, and firmly believes that the foundation of corporate integrity is personal integrity.

#### Code of Conduct

Our Business Conduct Handbook summarizes the principles and standards that enable each and every employee to preserve and build on Saudi Aramco's proud legacy, such as correct workplace conduct and personal accountability. It supplements various corporate manuals and outlines the company's policies on conflict of interest, financial integrity, workplace harassment, fair practices, safety, health and the environment, safeguarding assets and

information, and employee responsibility. It essentially reaffirms the guiding principles by which Saudi Aramco has achieved extraordinary success.

#### **Anti-Corruption**

In addition to the policies outlined in the Business Conduct Handbook, Saudi Aramco's robust Conflict of Interest and Business Ethics Policies are mandatory and are agreed to by each of its employees. The policy is proactively communicated to line and executive management, potential candidates and regular employees through various activities. Internal communication and reporting channels have been established to allow employees and third parties to report business ethics violations. A General Auditor Hotline is available to provide a secure and confidential venue for employees and outsiders to report suspected fraud, unethical conduct and irregularities.

At Saudi Aramco, we conduct intensive internal programs designed to increase ethical awareness and integrity among our personnel, while ensuring effective auditing and enforcement capabilities are in place to prevent fraud and abuse. In 2013, Saudi Aramco focused its internal fraud prevention and awareness campaign on defining gray areas, analyzing several ethical scenarios, and introducing means to

#### RAISING OUR POTENTIAL



VALUE OF MATERIAL PROCUREMENT SPENDING (in millions) AWARDED TO LOCAL MARKET

\$6,262 2012: \$4,522 2011: \$4,032 2010: \$2,932 2009: \$2,771

VALUE OF SERVICE PROCUREMENT (in millions) AWARDED TO LOCAL COMPANIES

\$30,432 2012: \$21,667 2011: \$19,500 2010: \$12,012 2009: \$12,723 PERCENTAGE OF MATERIAL PROCUREMENT SPENDING AWARDED TO LOCAL MARKET

2013
75%
2012: 89%
2011: 87%
2010: 86%
2009: 87%

PERCENTAGE VALUE OF SERVICE PROCUREMENT AWARDED TO LOCAL COMPANIES

2013 92% 2012: 85% 2011: 75% 2010: 77% 2009: 83% reach the best ethical decisions. The campaign visited more than 10 sites, conducted more than 80 sessions with approximately 4,300 people, and established a partnership with five administrative areas.

#### **Global Suppliers**

Through Corporate Purchase Agreements (CPAs) with global suppliers, Saudi Aramco aims to better leverage our combined materials and service expenditures, not only to obtain better pricing, but also to promote more local manufacturing (up to 50 percent by 2018), higher Saudization levels (up to 70 percent by 2018) and increased foreign investment. The company obligates global service contractors and suppliers to hire Saudi nationals from the day contracts become effective. In addition, contractors are also obligated to increase the Saudi manpower yearly during the course of the contract. To ensure compliance, Saudization is part of both prequalification and technical evaluation on all long-term contracts.

In 2013, the company signed CPAs with four leading global suppliers to cover materials and services for drilling completion equipment. These agreements, valued at over \$4 billion, mark a major milestone in the evolving partnerships between Saudi Aramco and its strategic partners.

#### LOCALIZATION

Saudi Aramco values our relationship with local suppliers as key to our ongoing success, and we have implemented several initiatives to help develop a competitive local industry. The approach to developing local manufacturing and higher Saudization levels is threefold:

- Secure longer-term purchasing agreements with local manufacturers by providing them with a business stream that fosters their long-term viability.
- Provide technical support to improve new manufacturers' technical abilities ensuring they bring production up to international standards and specifications.
- Encourage local manufacturers and service providers to increase their Saudization levels.

Examples include contract negotiations requiring certain suppliers to build local manufacturing facilities, close collaboration with service providers to meet or exceed their workforce Saudization targets, ensuring compliance through prequalification and technical evaluation of all longform contracts. One of the major enhancements of the standard contract template is the creation of a new schedule that standardizes Saudization terms and conditions to ensure consistent and effective implementation of Saudization requirements.

Our Annual Suppliers Forum was conducted in Dammam with more than 1,000 participants. The intent of the forum was to advance excellence in the Saudi Aramco supply chain, increase suppliers' awareness of the Saudi Aramco Supplier Performance Metrics and provide an opportunity to interact with suppliers.

#### Supplier Code of Conduct

Saudi Aramco is committed to conducting business in an ethical manner and has established the Supplier Code of Conduct to ensure our suppliers and contractors share these commitments. Saudi Aramco suppliers include vendors, manufacturers, contractors and sub-contractors who are registered with Saudi Aramco and seeking to provide goods, services, or personnel (including consultants) to Saudi Aramco, or are currently parties to agreements for such purposes with Saudi Aramco or one of its contractors.

Saudi Aramco suppliers must comply with all applicable laws, codes and regulations as set forth in procurement documents. In addition, the Supplier Code of Conduct outlines mandatory policies on environmental, health and safety issues, fair trade practices, ethical sourcing, conflicts of interest, bribery, kickbacks, gifts and fraud, monitoring and compliance. Saudi Aramco's Supplier Code of Conduct helps promote ethics across the Kingdom's private sector and assures our suppliers that we hold ourselves to those same standards.

## Citizenship

Saudi Aramco plays an important role in creating opportunities for the Kingdom of Saudi Arabia. We are constantly seeking to enhance our positive impacts on the Kingdom's economy, its communities and young people, and its natural environment. While supplying energy to the world is our core purpose, our sense of civic duty and mission extends far beyond running a successful business. Throughout our history we have strived to operate with strong and consistent principles: treating employees and local communities with respect, carefully managing environmental impacts, and sharing the benefits of success all with the intention of contributing to a prosperous future for Saudi Arabia and for the world at large.

This approach to citizenship has served as a driver of not just our own success, but also the success of Saudi Arabia. In many ways, Saudi Aramco's business strategy is a citizenship strategy with long-term ambitions directly tied to positive outcomes for the company, the Kingdom and the communities in which we operate. In 2013, we made significant progress on our citizenship strategy by sustaining economic growth and development, supporting productive and resilient communities, preparing for the knowledge economy, and enhancing the environmental sustainability of our business.

Saudi Aramco believes that its longterm success depends on being a good citizen everywhere the company or its affiliates do business. As the

For a more detailed overview of our citizenship initiatives, please refer to our 2013 Citizenship Report.

company seeks to expand its portfolio and presence worldwide, we are committed to external engagement efforts that benefit both Saudi Aramco and society as a whole. Along with the activities noted below, our international contributions include donations to respected academic and cultural institutions, humanitarian organizations, environmental advocates, and many other respected partners that help us meet the challenges that Saudi Aramco is facing inside and outside the Kingdom of Saudi Arabia.

#### **ECONOMY**

Saudi Aramco is committed to developing an economic ecosystem that helps attract, establish and promote energyrelated domestic industries that are globally competitive and create employment opportunities for Saudis.

We are working to develop local content by making significant investments in integrated industrial clusters in order to diversify our energy mix while helping to diversify the economy and create high-caliber jobs. We awarded over \$36 billion in contracts on material and services to domestic companies in 2013, using our influence to ensure that our suppliers follow our high standards in key areas such as ethics and integrity.

In the wider society, we focus on training, mentoring and educating Saudi workers so they can fill the specialized jobs created by this economic growth and diversification. We provide entrepreneurs and small- and medium-sized enterprises (SMEs) with the support and capital necessary to grow their businesses. In 2013, 137 young entrepreneurs successfully completed the training provided through our Wa'ed program to help establish small domestic enterprises.

#### COMMUNITY

Saudi Aramco recognizes that healthy Saudis and a dynamic, effective civil society are crucial to both the company's and the Kingdom's continued success.

Lowering the levels of smoking, improving awareness around healthy living strategies, and making the country's highways safer are top priorities for Saudi Aramco. These are not only social issues, but also economic ones the Kingdom's future economic success will require that its people are able to live healthy, productive and long lives. To this end, we trained 396 employees to become workplace wellness champions in 2013, bringing our total number to 11,346 across the company. Across the Kingdom we reached 800,000 students through our Traffic Safety Competitions, as well as assisting in the emergency response training of 79 Red Crescent professionals and 32 Traffic Police professionals.

We also work to enhance the reach and impact of nonprofit organizations across the Kingdom through both our targeted donations and through developing the talent and skills of capable nonprofit organizations in the Kingdom.

#### **KNOWLEDGE**

Through the King Abdulaziz Center for World Culture, Saudi Aramco is working to help the Kingdom participate effectively in the knowledge society of the future through the arts, creativity, innovation and increased cross-cultural awareness. To be globally competitive, Saudi Aramco is developing the next generation of highly skilled workers and intellectually curious citizens by providing training and inspirational learning initiatives focused on the arts, science, technology, engineering and math skills, creativity, innovation and entrepreneurship.

As it nears its physical completion, The King Abdulaziz Center for World Culture



continues to promote cultural knowledge and understanding through its multiple program offerings, such as the redesigned iThra Knowledge Program, which inspired and educated more than 360,000 visitors in 2013. Meanwhile, the company's iThra Youth Program reached 1,000 teachers and 25,000 students, providing them with unprecedented learning opportunities.

In 2013, 4,000 students received expert extracurricular training on subjects including science and math through our iDiscover initiative, part of our wider iThra Youth program that received the Innovation in Education award at the World Innovation Summit for Education (WISE).

#### **ENVIRONMENT**

Saudi Aramco recognizes that the long-term health of our company is integral to the health of the environment in which we operate, and that

our societal "license to operate" is dependent upon responsible environmental stewardship. We are committed to minimizing the environmental impact of our operations and products, and we constantly seek sustainable solutions for the industry that will ensure reliable and responsible access to energy.

In 2013, Saudi Aramco continued to demonstrate leading practice in environmental management through achievements such as ISO 14001:2004 certification of our Ras Tanura Refinery, LEED Platinum certification of our Al-Midra office building from the U.S. Green Building Council, and a UNESCO environmental responsibility award nomination for our Manifa project.

We are also investing heavily in energy efficiency, exploring renewable energy technologies and leveraging our extensive energy capabilities and resources to generate a thriving clean energy sector in the Kingdom.

Finally, we are working to protect biodiversity and build awareness of fragile ecosystems throughout the Kingdom. In 2013, Saudi Aramco and its communities planted 250,000 mangroves along the Arabian Gulf Coast and began development of an educational facility designed to build awareness of the ecological importance of mangroves.

#### LOOKING FORWARD

Saudi Aramco seeks to be an enabler in the community. We believe the best way we can leverage our core capabilities is to partner with other entities to share knowledge, increase capacity and multiply impacts. In 2014, we will expand our leadership role in forming influential cross-sector partnerships across the Kingdom. As we continue to transform our business, we also embrace our potential to unlock more and more opportunities within the company, nationally and around the world.

## 2013 in Numbers

Recoverable Crude Oil & Condensate (Billions of Barrels)	
2013	260.2
2012	260.2
2011	259.7
2010	260.1
2009	260.1

<b>Recoverable Gas</b> (Associated and Nonassociated (Trillions of SCF)	d)
2013	288.4
2012	284.8
2011	282.6
2010	279.0
2009	275.2

Crude Oil Production (Annual/Billions of Barrels)	
2013	3.433
2012	3.479
2011	3.310
2010	2.887
2009	2.888
(Daily/Millions of Barrels)	
2013	9.406
2012	9.506
2011	9.067
2010	7.910
2009	7.913

Delivered Sales Gas and Ethane Gas	C-1 C
(Trillions of BTUs Per Day)	Sales Gas
2013	8.087
2012	7.980
2011	7.369
2010	7.236
2009	6.313
	Ethane Gas
2013	1.408
2012	1.509
2011	1.399
2010	1.334
2009	1.114

Raw Gas to Gas Plants (Billions of SCFD)	
2013	11.01
2012	10.72
2011	9.882
2010	9.388
2009	8.556

NGL from Hydrocarbon Gases (Millions of Barrels)	
2013	455.9
2012	482.0
2011	461.4
2010	445.0
2009	410.2

SCF = standard cubic feet SCFD = standard cubic feet per day BTU = British thermal unit

Crude Oil & Refined Products		_
(Billions of Barrels)	2012	2013
Crude Oil Production, Excluding NG Blended	3.479	3.433
Crude Oil Exports	2.521	2.489
Crude Oil Transported Using Company or Chartered Vessels	0.625	0.578
Refined Products Production	0.507	0.494
Refined Products Exports	0.126	0.121

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Natural Gas	2012	2013
Feed to Gas Plants (Billions of SCF Daily)	10.72	11.01
Sales Gas (Methane) (Trillions of BTUs Daily)	7.980	8.087
Ethane (Trillions of BTUs Daily)	1.509	1.408
Total Delivered Gas (Trillions of BTUs Daily)	9.489	9.495

Natural Gas Liquids—Production	2012	2013
NGL Production from Hydrocarbon Gases (Millions of Barrels)		
Propane	188.6	176.7
Butane	122.6	114.2
Condensate	81.9	86.8
Natural Gasoline	88.8	78.2
Total NGL Production	482.0	455.9

Natural Gas Liquids—Produced for Sale	2012	2013
NGL Sales from Hydrocarbon Gases (Millions of Barrels)		
Propane	170.6	163.2
Butane	97.3	94.6
Condensate	8.7	5.7
Natural Gasoline	56.7	57.2
Total NGL Exports (Excludes Sales on Behalf of SAMREF and SASREF)	333.3	320.7

#### **2013 IN NUMBERS**

#### PRINCIPAL PRODUCTS MANUFACTURED AT IN-KINGDOM REFINERIES (Millions of Barrels)

				Jet Fuel/			Asphalt &	
2013	LPG	Naphtha	Gasoline	Kerosene	Diesel	Fuel Oil	Misc.	Total
Ras Tanura	5.486	14.586	43.187	7.017	76.846	32.857	8.037	188.017
Yanbu'	3.019	(1.834)	17.003	(0.543)	33.729	34.393	_	85.767
Riyadh	1.822	_	11.225	2.932	21.694	0.047	6.703	44.423
Jiddah	0.775	2.843	3.446	(0.02)	4.001	3.681	4.864	19.590
Total Domestic	11.103	15.595	74.861	9.386	136.27	70.977	19.604	337.796

SAUDI ARAMCO SHARE (Millions of Barrels)

				Jet Fuel/			Asphalt &	
2013	LPG	Naphtha	Gasoline	Kerosene	Diesel	Fuel Oil	Misc.	Total
SAMREF	(0.755)	_	20.226	9.402	12.922	15.472	_	57.267
SASREF	1.292	10.972	1.777	9.113	10.768	12.294	_	46.216
Petro Rabigh	0.615	7.089	5.593	4.186	11.274	12.278	_	41.035
SATORP	0.029	1.382	0.568	1.173	3.783	4.340	_	11.275
Total JV	1.181	19.443	28.164	23.874	38.747	44.384	_	155.793
Grand Total	12.284	35.038	103.025	33.26	175.017	115.361	19.604	493.589

 $<sup>{}^{\</sup>star}\text{Negative figures primarily indicate products that were reprocessed into other refined products}.$ 

	Domestic Refining Capacity (Thousands of Barrels per Day)		
550	RAS TANURA		
120	RIYADH		
90	JIDDAH		
240	YANBU'		

International Joint Ventures Refining Capacity (Thousands of Barrels per Day)		
(Triousarius Oi	barreis per bay)	
1,070	MOTIVA SAUDI ARAMCO AFFILIATE OWNERSHIP 50%	
669	S-OIL SAUDI ARAMCO AFFILIATE OWNERSHIP 35%	
395	SHOWA SHELL SEKIYU K.K. (SHOWA SHELL) SAUDI ARAMCO AFFILIATE OWNERSHIP 15%	
240	FUJIAN REFINING AND PETROCHEMICAL COMPANY LTD. SAUDI ARAMCO AFFILIATE OWNERSHIP 25%	

Domestic Joint Ventures Refining Capacity (Thousands of Barrels per Day)				
400	PETRO RABIGH SAUDI ARAMCO OWNERSHIP 37.5%			
400	SAMREF—YANBU' SAUDI ARAMCO OWNERSHIP 50%			
305	SASREF—JUBAIL SAUDI ARAMCO OWNERSHIP 50%			
400	SATORP—JUBAIL SAUDI ARAMCO OWNERSHIP 62.5%			

Total Refining Capacity				
(Thousands o	of Barrels per Day)			
1,000	WHOLLY OWNED DOMESTIC			
1,505	DOMESTIC JOINT VENTURES			
2,374	INTERNATIONAL JOINT VENTURES			
4,879	WORLDWIDE			
2,640	SAUDI ARAMCO SHARE			
_/ _/				

#### PRINCIPAL PRODUCTS MANUFACTURED AT IN-KINGDOM REFINERIES (Millions of Barrels)

				Jet Fuel/			Asphalt &	
2012	LPG	Naphtha	Gasoline	Kerosene	Diesel	Fuel Oil	Misc.	Total
Ras Tanura	4.075	14.53	39.60	6.658	71.33	34.80	7.790	178.8
Yanbu'	2.814	(1.536)	17.62	(1.030)	34.57	34.29	_	86.72
Riyadh	1.820	_	11.95	2.776	22.49	.0688	6.737	45.84
Jiddah	1.029	4.797	5.118	(.0776)	7.017	7.070	3.162	28.12
Total Domestic	9.737	17.79	74.29	8.326	135.4	76.23	17.69	339.5

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SAUDI ARAMCO SHARE (Millions of Barrels)

				Jet Fuel/			Asphalt &	
2012	LPG	Naphtha	Gasoline	Kerosene	Diesel	Fuel Oil	Misc.	Total
SAMREF	(0.672)	_	24.04	11.06	19.17	16.06	_	69.66
SASREF	1.429	12.35	2.178	10.00	12.43	14.20	_	52.60
Petro Rabigh	_	8.132	7.186	5.006	13.31	11.86	_	45.50
Total JV	.7565	20.48	33.41	26.07	44.92	42.13	_	167.8
Grand Total	10.49	38.28	107.7	34.39	180.3	118.3	17.69	507.2

#### **DOMESTIC PRODUCT SALES BY REGION**

(Millions of Barrels)

2013	Central	Eastern	Western	Total
LPG	1.819	6.223	6.138	14.180
Gasoline	67.538	36.785	79.814	184.137
Jet Fuel/ Kerosene	8.185	2.832	14.544	25.561
Diesel	82.079	59.561	117.806	259.446
Fuel Oil	0.851	2.118	110.412	113.381
Asphalt & Misc.	6.681	9.059	7.994	23.734
Total	167.153	116.578	336.708	620.438

Central	Eastern	Western	Total
1.932	6.285	5.537	13.75
64.37	35.22	76.33	175.9
7.742	2.846	14.17	24.76
80.05	58.98	114.4	253.4
.2419	2.293	94.97	97.50
7.314	8.702	6.966	22.98
161.6	114.3	312.4	588.4
	1.932 64.37 7.742 80.05 .2419	1.932     6.285       64.37     35.22       7.742     2.846       80.05     58.98       .2419     2.293       7.314     8.702	1.932     6.285     5.537       64.37     35.22     76.33       7.742     2.846     14.17       80.05     58.98     114.4       .2419     2.293     94.97       7.314     8.702     6.966

#### 2013 IN NUMBERS



Ship Calls by Product Type	2009	2010	2011	2012	2013
Crude Oil	1,755	1,756	1,959	2,068	2,018
Products	936	816	967	965	858
LPG	234	308	234	232	198
Total Ship Calls	2,925	2,880	3,160	3,265	3,074

<b>Sulfur Recovery</b> (Millions of Metric Tons)	
2013	3.900
2012	4.092
2011	4.579
2010	3.200
2009	3.214

Sulfur Exports* (Millions of Metric Tons)	
2013	2.482
2012	2.513
2011	2.899
2010	3.040
2009	2.809

<sup>\*</sup>Excludes sales on behalf of SAMREF and SASREF

#### 2013 EXPORTS BY REGION (Percent)

Asia	
<b>53.8</b>	CRUDE OIL
46.6	REFINED PRODUCTS
27.9	NGL*

Mediterranean		
6.7	CRUDE OIL	
2.1	REFINED PRODUCTS	
4.9	NGL*	
/		

Other	
17.0	CRUDE OIL
44.5	REFINED PRODUCTS
67.2	NGL*

<sup>\*</sup>Includes sales on behalf of SAMREF and SASREF

Europe		
5.4	CRUDE OIL	
6.8	REFINED PRODUCTS	
0.0	NGL*	
/		

U.S.	
17.1	CRUDE OIL
/	
0.0	REFINED PRODUCTS
0.0	NGL*

AWARDS WON BY SAUDI ARAMCO IN 2013



## The following are some of the awards won by Saudi Aramco in 2013.

For the 25th consecutive year, Saudi Aramco again earned the **No. 1** spot in the *Petroleum Intelligence Weekly*'s annual rankings of the world's top 50 oil companies.

The Manifa Project earned the **Innovative Project of the Year** award at the 2012 Oil and Gas Middle East Awards, announced early in 2013.

Our Sadara joint venture with The Dow Chemical Co. will be the largest chemical complex built in a single stage. The project required a dedicated financing team to complete the largest Islamic bond sukuk and the largest publicly listed sukuk in history, featuring participation from 26 commercial banks and 11 Islamic banks. The Sadara project has won six international awards for excellence, including the **2013 Global Sponsor of the Year** award by Project Finance International, the **Global Finance Deal of the Year** by the American Lawyer—Global Legal awards, and **Project Finance Deal of the Year** award by the *International Finance Law Review*.

Saudi Aramco was honored with the **International Distinguished Corporate Support Award** by the Society of Petroleum Engineers (SPE) at the organization's annual technical conference and exhibition in New Orleans. The award is given annually to companies that demonstrate significant global support of SPE in volunteering, in dissemination of knowledge and participation in SPE and its activities.

The EXPEC ARC Geophysics Technology Division was internationally recognized by the Society of Exploration Geophysicists (SEG) with the 2013 **SEG Distinguished Achievement Award** for advancing the field of geophysicists. The award recognized the division for making significant advances in

complex near-surface characterization, multiple elimination and imaging and coherency technology, publishing key papers in the area of land multiple suppressing technology, presenting the first practical application of inverse scattering series technology for land internal multiple suppression, among other achievements.

Saudi Aramco won four awards in October at the Oil and Gas Middle East Awards. We won with The Dow Chemical Company for International Collaboration of the Year, and one of our EXPEC ARC engineers was named Young Engineer of the Year. We also won Integrated Oil Company of the Year as well as Gas Project of the Year for our work on the Karan Gas Project.

In an award announced in 2013, our Khursaniyah, Haradh, and 'Uthmaniyah Gas Plants and Hawiyah NGL Recovery were recognized by the **Gas Processors Association** for achieving 500,000 to 4.5 million work-hours with no lost-time accidents in 2012.

Saudi Aramco won the **Gold Special Recognition Award** at the Emirates Energy Awards in October for our efforts and achievements in regards to energy management, including large energy projects, small energy projects, research and development, innovation and energy efficiency. A total of 14 Saudi Aramco energy engineers received "Energy Manager" international certification in 2013.



Saudi Aramco remains conscious of the need to ensure sufficient and sustainable supplies of energy for decades to come, even as the world struggles today to overcome significant pockets of energy poverty.

Those global issues are mirrored here in the Kingdom: creating new career opportunities for youth, curbing energy intensity, protecting the natural environment, and moving away from an economic model concentrated on the monetization of an abundant but ultimately finite natural resource. These issues take on added significance when one considers that the Kingdom is determined to transition from an energy-intensive to a knowledge-based economy, and in fact seeks to become a knowledge society.

Of course, just as the Kingdom is opening a new chapter, so is Saudi Aramco. Today, we are the top exporter of crude oil and natural gas liquids, and the world's largest oil company based on reserves, production and refining capacity. Successful organizations must keep pace with change, however, and with the whole world changing, the global community is calling on leading companies to find solutions to the grand challenges we all face.

That imperative has led us to design and deploy a top-to-bottom, side-to-side reexamination of our businesses—and even of the way we conduct business itself. We are expanding our business portfolio and asset base, reengineering our processes and recalibrating our behavior, and becoming more engaged in some of

the Kingdom's most pressing issues, including energy intensity, economic diversification, and the creation of new business opportunities for the private sector.

All of these efforts are ultimately just means to an end. Saudi Aramco's true goal is the realization of our corporation's fullest potential while enabling the Kingdom's development in the broadest terms—energy is opportunity for all. That means developing into a company that will not only change with the global energy landscape, but will lead that evolution. Saudi Aramco is determined to be the innovation company of the future—and we are working tirelessly to achieve this vision.

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