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2010

ارامكو السعودية  
Saudi Aramco



making a difference

معاً نصنع الفرق  
Einen Unterschied machen  
Fazendo uma diferença  
Un apport de nouvelles perspectives  
Δημιουργώντας τη διαφορά  
बदलाव लाना  
Fark yaratmak  
Marcando la diferencia  
与众不同  
차별화하기  
Het verschil uitmaken  
создать разницу  
奮發有爲  
Membuat perbezaan

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2010

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A Saudi Aramco engineer checks pressure on a propane-transfer pump at a company gas plant.

Making a difference



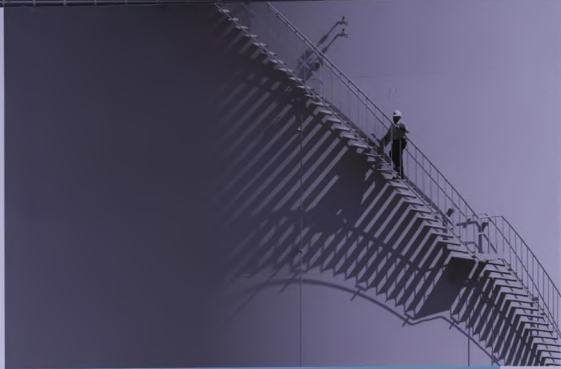


The Custodian of the Two Holy Mosques  
**KING 'ABD ALLAH IBN 'ABD AL-'AZIZ AL SA'UD**



**HIS ROYAL HIGHNESS AMIR SULTAN  
IBN 'ABD AL-'AZIZ AL SA'UD**

The Crown Prince, Deputy Prime Minister,  
Minister of Defence and Aviation,  
and Inspector General



## Key Figures

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### Oil reserves and production

Recoverable crude oil & condensate reserves	260.1 billion barrels
Crude oil production (average per day)	7.9 million barrels
Crude oil production (annual)	2.9 billion barrels

### Gas reserves and production

Gas reserves	279 trillion standard cubic feet
Gas production	
(raw gas to gas plants – average per day)	9.4 billion standard cubic feet
Gas production (annual)	3.4 trillion standard cubic feet

### New discoveries

Oil fields	Namlan, AsSayd, Qamran, Asan
Gas field	Jalarnid

### Wells completed

Oil exploration	27
Gas exploration	17
Oil development	148
Gas development	105

### Workovers

Oil wells	88
Gas wells	13
Water wells	10

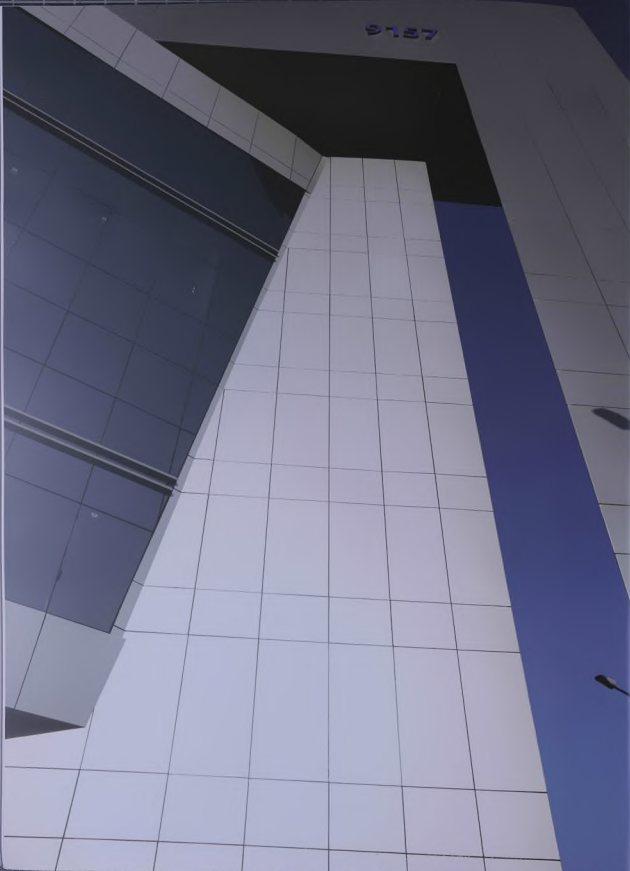
## Board of Directors

**Seated, from left:** H.E. Dr. Khaled S. Al-Sultan, H.E. Dr. Abdul Rahman A. Al-Iuwajri, H.E. Dr. Ibrahim A. Al-Assaf, H.E. Ali I. Al-Nami, Khalid A. Al-Falih and H.E. Dr. Mohammed I. Al-Sowayel. **Standing, from left:** Abdulaziz F. Al-Khayyal, Peter Woicke, Sir Mark Moody-Stuart, David J. O'Keilly, Salem S. Al-Aydi, Amin H. Al-Nasser

### Board convenes in China for first time

For the first time in its history, Saudi Aramco's Board of Directors in 2010 met in the People's Republic of China. The regular spring semi-annual meeting in Beijing on May 6-7 was a good occasion to celebrate the company's strong, multifaceted and mutually beneficial relationship with Chinese corporations and institutions. Saudi Aramco's record of success and reputation for reliability depends in large part on our international partners, customers, vendors and other service providers, and the various institutions and organizations with whom we interact in fulfilling our responsibilities as a major energy provider to the world. The Saudi Aramco Board's regular annual winter meeting is always held at its headquarters in Dhahran, Saudi Arabia.

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## Chairman's Message

**In 2010, it was evident in the petroleum industry that the more things changed,**

the more they stayed the same. Last year, we saw once again that as economies expand and contract, demand for energy largely follows suit.

During 2010, we witnessed a tentative rebound of the global economy, led in particular by the economies of developing Asia, from the worldwide recession that began in 2008. A steady and reliable supply of energy was needed to fuel that growth, in particular the petroleum and petroleum products required to build new infrastructure, fuel vehicles, fire power plants, boost food production and sustain the industries that manufacture products — often themselves made of hydrocarbons — that enhance the quality of life for consumers around the globe.

Looking forward, as the global economic recovery appears to gather speed and gain strength, so too will the demand for a greater supply of petroleum energy. In fact, global energy demand is projected to grow by some 40 percent within the next two decades, as more people attain higher levels of prosperity and require more energy to power their more affluent lifestyles. Asia alone is expected to account for 60 percent of that incremental growth, heralding further transformation in the global energy landscape.

But once again, even as some things change, others will remain the same. For example,



petroleum will continue to be central to the world's health, happiness and prosperity for the foreseeable future. Therefore, even as we sustain our efforts to find and produce more hydrocarbon energy reliably and responsibly, we must also strive to use all of our resources more efficiently, both to conserve them for future generations and to protect the planet by reducing our environmental footprint.

The Custodian of the Two Holy Mosques, King 'Abd Allah ibn 'Abd Al-'Aziz Al Sa'ud, and Crown Prince Sultan ibn 'Abd Al-'Aziz Al Sa'ud continue to provide valuable support to Saudi Aramco as it strives to fulfill its mission as the Kingdom's national petroleum enterprise. Coupled with the wise guidance of the nation's leadership, over the past year the efforts of the men and women of Saudi Aramco have solidified the company's well-earned reputation for reliability of supply and prudent stewardship of the nation's valuable natural resources. I would like to take the opportunity to thank each of them for their valued contributions and unwavering dedication throughout 2010.

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



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وعاء تخزين البوتان  
R.83.D.5002  
BUTANE PRODUCT

## President's Foreword



**A dedicated work force of talented people with a sense of purpose made the year**

2010 a signal success for Saudi Aramco, even as the worldwide petroleum industry and global economic system faced stressful times. With hard work, forbearance and a continuing commitment to operational excellence, plus a far-seeing and patient investment strategy, our company once again made a positive difference in our nation and around the globe.

We continued our proud legacy of discovery, finding four new oil fields and one new gas field, and we added six new oil reservoirs and three new gas reservoirs to existing fields.

Honoring our tradition as a reliable and stabilizing force in world energy markets, Saudi Aramco maintained its globally essential spare-oil production capacity while increasing gas production capacity and output to all-time highs.

Our shipping subsidiary, Vela International Marine Limited, added four new double-hulled tankers during the year, ensuring reliable and environmentally responsible delivery of crude oil to world markets.

Refining and petrochemicals investments and operations reached new milestones, promising a future of beneficial products and profitable returns from affiliated facilities in Saudi Arabia, the United States and Asia.

With two of the world's fastest supercomputers at our company headquarters, Saudi Aramco

has long been a global technology leader, and we enhanced our reputation in 2010 with the launch of the award-winning GigaPOWERS™ reservoir simulation technology.

While pioneering new ways to protect the environment, we produced more energy for the world. A prime example is our innovative Manila project's complex causeway system, completed last year, which permits drilling in shallow waters while preserving a precious ecosystem.

In the corporate citizenship realm, Saudi Aramco took a giant step last year when construction began on the truly transformative King Abdulaziz Center for World Culture.

I am deeply appreciative of our Board of Directors for their prudent guidance and sage counsel throughout the year.

And all of Saudi Aramco's more than 54,000 men and women, from the youngest apprentices to the longest-serving veterans of company service, made an enormous difference in 2010, greatly benefiting our nation and the world.

**Khalid A. Al-Falih**  
President and Chief Executive Officer,  
Saudi Aramco

## Introduction

Saudi Aramco was the world's second largest producer and top exporter of crude oil in 2010

Below: A jets' vapor trail crosses far above Saudi Aramco's Ju'aymah Gas Plant. Top: A rig in the remote Shaybah oil field.

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### Despite lingering effects of the global financial crisis that began in 2008, Saudi

Aramco enjoyed continued success in 2010, making a positive difference in the lives of the Kingdom's citizens and consumers around the world. The company's strategy throughout the economic downturn was to sustain its traditional long-term view of petroleum supply and demand, forging ahead with — and formally completing — the largest oil-production-capacity expansion program in its history, plus moving resolutely forward with a variety of other projects designed to maintain the company's reliability and competitiveness, to ensure the stability of global oil markets now and in the decades to come.

Ups and downs in the world economy and in the oil-and-gas industry are traditionally cyclical and largely unavoidable, so the company's longstanding policy is to keep building for the future as forecast by energy analysts worldwide — a future in which crude oil will continue to be a leading source of energy.

Saudi Aramco was the world's second largest producer and top exporter of crude oil in 2010, and was the only major producer that was a leading supplier to all three major market regions — North America, Europe and Asia — and the leading supplier of crude to Asia. We were the top supplier to China, providing roughly a million barrels of oil per day (bpd), a quarter of that country's total oil imports,

and to Japan, South Korea and Taiwan. Our international joint and equity ventures in North America and Asia ensure dedicated outlets for our crude oil exports and help provide a reliable supply of refined products and petrochemical feedstock for consumers and industries in these regions.

Our long-term view includes seeking to expand our investments in downstream ventures in large and expanding markets where economies of scale and volume growth can be realized, and where refining operations can be integrated with petrochemical production.

### Building reserves, increasing capacity

During the year, the company maintained its world-leading conventional crude-oil reserves at 260.1 billion barrels, replacing 2010 production with oil from new field discoveries, expansions of existing fields and production optimization. Four new oil fields and one new gas field were discovered during the year, and six new oil reservoirs and three gas reservoirs were added to existing fields. Two oil increments completed in 2010 — Khurais and Khursaniyah — added 1.7 million bpd of oil production capacity. We also maintained our maximum sustainable production capacity of 12 million bpd, reached in 2009, including considerable spare capacity to help stabilize international oil markets during any potential crisis. Despite our top-tier positions in reserves and production, we continue exploring for new reserves and building production capacity because we know demand for oil will continue to grow in the years ahead. Our actions are predicated on our legacy of always delivering to our customers and on our commitment to remain the world's most reliable supplier of petroleum.

In 2010, Saudi Aramco kept new and existing customers, both domestically and abroad, well-supplied with crude oil and petroleum products, producing 7.9 million barrels per day (bpd) of crude oil and 9.4 billion standard cubic feet per day (scfd) of natural gas, and exporting just over 2 billion barrels of oil and 316.4 million barrels of natural gas liquids (NGL).



A Saudi Aramco oil rig stands sentry on a drilling island in the Manifa oil field in the Arabian Gulf.

We were also successful in 2010 in improving our ability to meet domestic demand for natural gas, mainly for petrochemical feedstock, power generation, water desalination and industrial fuel, and to ramp-up for expected sharp increases in demand in the next few decades. The company knows that the country's high economic prosperity and population growth will be challenging drivers of future domestic energy demand.

Drilling of three previously discovered gas fields, including Karan, the company's first offshore non-associated gas field (produced independently of oil), proceeded on schedule in 2010. Development of a fourth field, Midyan, was completed, and the company also started drilling tight-gas tests for developing relatively nonporous gas reservoirs in the northwest areas of the Kingdom, a challenging but significant opportunity for expansion of gas production with applications in many areas of the country.

The Upstream Gas Joint Ventures, with four European and Asian industry partners, continue to search for new gas reserves in the Rub' al-Khali desert.

Expanded gas-production capabilities allowed the company to markedly increase its gas output in 2010 to an all-time high of about 8 billion standard cubic feet per day (scfd) during

the high-energy-demand summer months, when 300 million scfd of non-associated gas (produced independently of oil) was processed to manage peak demand and reduce burning of crude oil for power generation.

### Planning ahead

Responding to long-term forecasts of continued strong growth in energy consumption worldwide, Saudi Aramco's preparations for the future are serious, substantial and sustained.

Most analysts forecast that the share of fossil fuels in the global energy supply will remain in the range of 80 percent to 84 percent over the next two decades and that crude oil will retain its primacy in this mix. Oil and gas combined are projected to meet more than 50 percent of worldwide energy needs for at least the next quarter-century. In addition to robust demand in developed countries, energy consumption is expected to jump exponentially in developing countries, especially in Asia and particularly in China.

### Expanding refining & petrochemicals

In tandem with programs to increase hydrocarbon production, the company also increased investments in 2010 to expand refining and petrochemical production capacities. One key driver is the strategy to add domestic

capacity for refining heavy oil, which will assume a larger proportion of our production as the years go by; another driver is the desire to integrate refineries with petrochemical facilities to produce more value from crude oil and create jobs in associated conversion industry parks. In the coming years, we will expand and optimize our portfolio of international marketing and refining assets by seeking appropriate new investment opportunities in promising markets.

During the year, Saudi Aramco moved forward on the development of two new 400,000 bpd export-oriented refineries — the integrated Saudi Aramco Total Refining and Petrochemical Program (SATORP) refinery in Jubail and the full-conversion Red Sea Refining Company facility in Yanbu'. SATORP will maximize diesel and jet fuel output, and produce paraxylene, benzene and polymer-grade polypropylene. The refinery at Yanbu' will be able to process most grades of crude oil, including heavy crude oil, to produce an array of valuable products, such as gasoline and NGL, that meet international standards and specifications.

Feasibility studies and front-end engineering and design (FEED) for Saudi Aramco's proposed joint venture with The Dow Chemical Company at Jubail Industrial City II continued to progress in 2010. Also, following production start-up of Petro Rabigh's ethane cracker and associated

units in 2009, on the West Coast, work continued in 2010 on a second-phase addition to this integrated refinery and petrochemical plant, an equity venture with Sumitomo Chemical Co. of Japan, to significantly expand the facility's petrochemical production capacity and product range.

Because Saudi Aramco is committed to increasing its downstream activities, especially in petrochemicals, we formally established a Chemicals organization in 2010 to oversee our growing petrochemicals portfolio.

A 325,000-bpd expansion of the Motiva refinery at Port Arthur, Texas, in the United States, a joint venture of Shell and our Houston-based affiliate, Saudi Refining, Inc., is progressing on schedule to achieve a throughput capacity of 600,000 bpd, making it the largest oil refinery in the U.S.

Development is under way on a 400,000 bpd semi-conversion refinery, which can process most crude oil grades, and a marine terminal at Jazan in the Kingdom's southwest to meet local requirements for refined products and to efficiently satisfy utilities demand in the western region. In addition, it will provide a primary foundation industry for the Jazan Economic City development, which will encourage further development of the city and region.

Fujian Refining & Petrochemical Co. Ltd. (FRPC), the equity venture of Aramco Overseas Co. (AOC) in China, enjoyed a successful year as refining margins increased, producing more than 11 million tons of refined products and more than 3 million tons of petrochemicals.

In South Korea, AOC equity venture S-Oil made big strides on its Onsan Refinery Expansion Project, slated for completion in 2011, and established new markets in the Asia region.

### Encouraging innovation

Saudi Aramco strongly believes that innovation will drive success in the oil-and-gas industry in the 21st century, so we have placed a top priority on encouraging innovation and

Saudi Aramco strongly believes that innovation will drive success in the oil & gas industry in the 21st century





inventiveness among employees. The goal is to maintain our competitive edge in the coming years and to maximize recovery rates, increase the efficiency of our operations and reduce the environmental footprint of hydrocarbon energy.

Overall, the company devoted significant funding to innovative technology programs, and the targeted focus is bearing fruit: 34 patents were awarded in 2010 to the company by the U.S. Patent and Trademark Office, and 104 new technologies and inventions were protected through patent applications filed in 2010.

Proof of Saudi Aramco's growing technological prowess was the demonstration in 2010 of the second generation of our award-winning GigAPOWERS<sup>SM</sup> (Parallel Oil, Water and Gas Enhanced Reservoir Simulator) developed by the Exploration and Petroleum Engineering Center's Advanced Research Center. GigAPOWERS is an industry first in allowing simulation of giant fields at extremely high resolution, sharply increasing geoscientists' ability to more clearly discern the critical properties of reservoirs.

Last summer, our award-winning "reservoir robots" (Resbots<sup>SM</sup>) concept reached a new milestone with the industry's first live field test to inject microscopic reservoir nano-agents (1/10,000th the width of a human hair) into an observation well. This successful trial brought us closer to developing game-changing Resbots — designed to pass through nano-scale pores in reservoir rock to characterize, report and interact with the reservoir environment.

In a promising new technology application, Saudi Aramco's Research and Development Center (R&DC) trial-tested an advanced membrane separation technology for the first time in 2010, to study its ability to remove nitrogen and acid gas contaminants from hydrocarbons. Also R&DC made an important step toward improving future gas-oil separation plant (GOSP) design and of three-phase flow with the first three-dimensional computer simulation of oil-water-gas mixture flows inside a full-size GOSP vessel, using computational fluid dynamics.



## Protecting the environment

Since 2001, Saudi Aramco has significantly increased spending on environmental programs, and eight company-sponsored environmental programs were completed in 2010, including installing smokeless systems on 29 natural-gas flares, and upgrading wastewater systems at company facilities across the Kingdom. These projects include: upgrades of various flare systems; upgrades of sanitary wastewater treatment facilities in Dhahran, Riyadh, Rabigh and others areas; replacement of a refrigeration system in Riyadh; and addition of a diesel hydrotreater complex at Ras Tanura Refinery.

Improving the environmental performance of transportation fuels was another Saudi Aramco priority in 2010. We continued our focus on cleaner-burning, more efficient fuel formulations for next-generation combustion engines, alongside other environmental efforts, such as pre-refining desulfurization of crude oils and carbon capture. Funds were also allocated for a CO<sub>2</sub>-enhanced oil recovery demonstration project to boost reservoir production through carbon injection.

Saudi Aramco's Renewable Energy Strategy to research, pilot, and locally commercialize and manufacture renewable energy in the Kingdom made significant progress in 2010. Among new projects, we invested in building a 10-megawatt (MW) solar installation at our

Opposite: The Exploration & Petroleum Engineering (EXPEC) and Engineering Center twin towers in Dhahran. Top: A company aircraft takes off.

new North Park office building and facilitated installation of another solar-power facility at Farasan Island to replace burning of diesel. Solar Frontier K.K., an affiliate of our Showa Shell equity venture in Japan, built small-scale pilot solar-power facilities in Saudi Arabia with capacities of between 1-2 MW and formulated plans to build world-scale manufacturing facilities in the Kingdom.

Power Systems, a new company administrative organization, was established to oversee and execute our energy efficiency efforts, including drafting the renewable-energy strategy.

### Valuing human resources

To enhance the company's productivity and capabilities now and in the future, we strengthened our commitment to human-resource development in 2010 by increasing enrollment in already substantial training and development programs, and building three new major training and leadership centers. At the end of 2010, there were 54,798 employees in the company, including 47,741 Saudis, or 87 percent, and 7,057 expatriates.

In 2010, enrollment in the College Degree Program for Non-Employees rose to 1,781, including 1,293 in out-of-Kingdom institutions. Apprentice enrollment, including those at

joint ventures, was 5,442 at year's end. These programs, and others like them, are designed to equip the youth of the Kingdom with the skills necessary to take on the many challenges facing the company and the country in the years ahead.

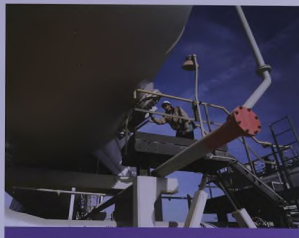
Employees this year continued to be awarded prestigious honors and accolades at regional and international levels, further testament to the effectiveness of our human-resource development policies.

### Diversifying the economy

During the year, the company continued its efforts to diversify the local economy. About 80 percent of the goods and services Saudi Aramco needed to operate were purchased from local vendors, local warehousing of inventory was substantially increased, and the roster of approved local suppliers and manufacturers was expanded.

### Reaching out

The company continued to act responsibly as a caring corporate citizen, making a positive difference at home and wherever we operate. A major focus was our domestic Traffic Signature Safety Program, which made significant strides educating and enabling citizens to practice traffic safety — as drivers



Saudi Aramco is as much "big iron" as it is state-of-the-art technology.

and passengers — through a multi-faceted program to improve road-safety engineering, education, enforcement and emergency response. The ultimate goal is to reduce injuries and fatalities and protect property on the Kingdom's roads.

Also in 2010, several initiatives were pursued in the citizenship arena, including a program to support the Kingdom's long-term imperative of becoming a knowledge-based economy. We continued to develop our flagship cultural institution: the King Abdulaziz Center for World Culture in Dhahran. We also were proud to assist with the further development of the King Abdullah Petroleum Studies and Research Center in Riyadh, and the King Abdullah University of Science and Technology on the west coast. We also plan to support the enhancement of the Kingdom's general education institutions by providing extra-curricular activities in areas such as problem solving, math and science.

Employees, dependents and Saudi Aramco community members generously contributed their time, effort and money to benefit many others in 2010, as the company sought to demonstrate its corporate values with human action. In addition, hundreds of young volunteers clocked more than 82,000 service hours to make the company's summer, Ramadan and 'Id programs a resounding

success for the more than 250,000 people who attended the various events.

### Embracing the future

Despite the uncertain global business environment throughout 2010, Saudi Aramco continued to meet myriad challenges, honor its commitments, build for the future, and touch the lives of billions of people around the world.

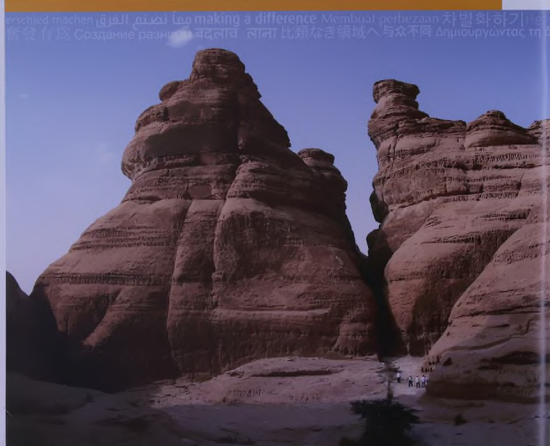
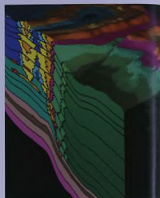
Whether we were successfully managing and developing the Kingdom's massive crude-oil reserves, expanding our natural-gas operations, exploring new horizons in the downstream segment, enhancing our stewardship of the environment, or better harnessing technology and talent, the company once again transformed the notion of "Energy to the World™" into tangible reality — making a difference in 2010.

Saudi Aramco continues to touch the lives of billions of people around the world



## Exploration

Below: Company geoscience professionals go for field hunting for clues to potential hydrocarbon reservoirs. Top: A cross section of an oil reservoir model.



### The company increased the pace of its Kingdom-wide exploration program in 2010

to prepare for future hydrocarbon demand. These efforts yielded success, with the discovery of four new oil fields and one new gas field, increasing the total number of Saudi Aramco discovered fields to 112, plus the addition to existing fields of six new oil reservoirs and three new gas reservoirs. Saudi Aramco uses cutting-edge technology to continuously search for new petroleum reserves, and its exploration program is becoming more focused on frontier and emerging areas, such as the Red Sea. The company is also exploring potential in conventional and unconventional reservoirs, offshore plays and deep-water targets.

• **Red Sea program** — In 2010, Saudi Aramco stepped up seismic activity in relatively unexplored areas with potential to add significant reserves. One key project was a major expansion of exploration operations in the Red Sea, with the deployment of a second seismic crew. The transition zone 2D seismic crew that commenced work in November 2009 continued acquiring data along the northern Red Sea coast that will be integrated with all existing seismic and well data to create an improved understanding of the potential of the basin. A marine 3D crew began operations in October 2010 in the northern Red Sea, acquiring data in deeper offshore waters, as Saudi Aramco expands its expertise in deep-water exploration.

• **Arabian Gulf seismic programs** — Work continued on the 3D marine and transition-zone seismic acquisition program to support the Manifa Field development, which started in November 2009, and two additional 3D marine seismic crews started operations in the Arabian Gulf. One crew is acquiring data over the Hasbah field to support the planned 2.5 billion scfd gas increment for the new Wasit Gas Plant. The second crew is focused on deeper exploration targets, and will also produce improved seismic images and characterization of shallow oil-producing reservoirs.



Specialists analyze information on a large screen at the company's Geosteering Center site.

• **Dense seismic data acquisition testing** — In support of improving the quality of images derived from seismic surveys, a next-generation seismic crew was deployed to complete a test of dense-seismic data acquisition over the Marzouk oil field.

• **Mobile geo lab** — In 2010, the company deployed a trailer-mounted Mobile Geological Laboratory for rig-site assessments of the fossil record in reservoir rock. Microscopic, organic-walled plant and animal fossils — essential to identifying subsurface rock formations — are extracted for study from small quantities of drill cuttings or cores during drilling, to accommodate timely and optimum drilling decisions.

• **Tight gas initiative** — Saudi Aramco has begun a strategic initiative to evaluate "tight" gas and shale gas potential in the Kingdom ("tight" refers to low-flow, low-permeability gas reservoir rock). The initial focus is in the northwest and in the area of Ghawar, where gas infrastructure exists. Initial knowledge-building from similar plays in North America is being supplemented with internal technical studies and research programs to help solve geological and engineering challenges unique to Saudi Arabia and to locate specific wells



**Exploration** planned for 2011. The company is innovatively combining knowledge and research to maximize gas reserves and production from conventional and unconventional resources in order to meet growing domestic demand.

• **Upstream Gas Program** — The four Upstream Joint Venture (UJV) companies continued gas exploration programs in the Rub' al-khali. The 2004 ventures resulted from the Natural Gas Initiative (NGI) of the Supreme Council for Petroleum and Mineral Affairs. The objectives are to maximize economic and social benefits to the Kingdom by entering into joint ventures with international energy companies to explore for natural gas fields in specific areas of the Rub' al-khali desert (also known as the Empty Quarter). The UJV activities are undertaken in parallel with Saudi Aramco's own Kingdom-wide oil and gas exploration program. The partnerships include:

•• **EniRepSa Gas Limited** (EniRepSa — 50 percent ENI, 30 percent Repsol, 20 percent Saudi Aramco). EniRepSa's first Exploration Period (FEP) was extended by the Ministry of Petroleum and Mineral Resources (MinPet) until June 27, 2011, for the reprocessing of the Anbak 3D seismic data, and then it will decide whether to drill the fourth remaining commitment well.

•• **Sino Saudi Gas Ltd.** (SSG — 80 percent Sinopec, 20 percent Saudi Aramco). SSG has decided to enter into a Second Exploration Period (SEP), and MinPet has approved its plans.

Right: A Saudi Aramco marine vessel drops buoys for an offshore seismic test. Opposite top: A caravan of seismic vehicles snakes across the desert.



Saudi Aramco uses cutting-edge technology to continuously search for new petroleum reserves

•• **Lukoil Saudi Arabia Energy Ltd.** (Luksar — 80 percent Lukoil, 20 percent Saudi Aramco). Luksar decided to enter into the appraisal phase and not to enter the SEP, retaining the appraisal area in Tukhman and Mushayib. Luksar drilled its first appraisal well (Tukhman-4) and encountered a very tight reservoir in the Unayzah zone. Luksar is performing further studies, looking to improve well rates via fracture stimulations.

•• **South Rub' Al-Khali Co. Ltd.** (SRAK — 50 percent Shell, 50 percent Saudi Aramco). SRAK drilled its last FEP well, Kidan-7, in the southern end of the North Kidan field. The well flowed high gas rates of 44.5 million scfd in the Arab-C formation. A test in the Arab-D indicates the upper zone is gas-bearing while the lower zone is in the gas-water transition zone. The results of Kidan-6 and -7 wells have led to an increase

in reserves in the North Kidan Field compared to those previously looked by Saudi Aramco. SRAK has also decided to enter into a SEP.



## New oil and gas fields discovered

During 2010, Saudi Aramco discovered four new oil fields and one new gas field, increasing the total number of company-discovered hydrocarbon fields to 112.



The company also discovered six new oil reservoirs and three new gas reservoirs in existing fields, and extended, confirmed and delineated reserves in its Midyan, Jaladi, Rabib, Shilbah, Manifa, Nujiyyan, Habari, Shaden, Khurais, Jalamid, Husbah, Karan and Tinat fields.

Newly discovered fields are:

• **Namlan-1** (New Oil Field Discovery) Namlan-1, exploration well (BI-33), located 166 kilometers northwest of Al Jubail, was tested and flowed 566 barrels of oil per day (bpd) and 0.22 million standard cubic feet of gas per day (scfd) from the Hith Stringers.

• **AsSayd-1** (New Oil Field Discovery) As Sayd-1, wildcat well (BI-33), located 400 kilometers north of Riyadh flowed 500 bpd from the Hith Stringers reservoir and 185 bpd from the Ranthan reservoir. This well confirmed the presence of a significant Hith fairway along the flanks of the Gomia Basin.

• **Arsan-1** (New Oil Field Discovery) Arsan-1, wildcat well (BI-33), located 120 kilometers southeast of Riyadh, flowed 125 bpd from the Unayzah A and continues the successful drilling in the Duayban Siriyyan area of Central Arabia.

• **Qamran-1** (New Oil Field Discovery) Qamran-1, wildcat well (BI-33), located in the Rub' al-khali 180 kilometers west of Shaybah field, flowed 630 bpd from the Mishal reservoir. The well is expected to flow at a higher rate if stimulated. This is the first oil field discovery in the Rub' al-Khali since the start-up of recent exploration efforts in the area.

• **Jalamid-3** (New Gas Field Discovery) Jalamid-3 exploration well (BI-33), located 95 kilometers south east of Turayf, was tested and flowed 12.1 million scfd from the Sarah reservoir.



# Oil Operations

Our efforts to add capacity underscore the company's continuous commitment to making a difference in the lives of energy consumers worldwide

Below: Saudi Aramco in 2010 put final touches on two historic oil increment projects that added 1.7 million bpd to the company's output capacity.  
Top: A company supervisor on the job.



## Saudi Aramco, in 2010, put finishing touches on major parts of the biggest

capital program in its history that began in 2009, raising maximum sustainable oil production by 1.7 million bpd to 12 million bpd. But we didn't stop there: Significant progress was made on another giant oil increment — 900,000 bpd Manifa, an Arabian Heavy crude oil field, we added more than 200,000 bpd in our maintain potential program; and launched an upgrade of Safaniya, the world's largest offshore oil field. Even though the world was well-supplied with oil at the end of 2010, global and domestic demand is expected to increase in the future. Our efforts to add capacity underscore the company's continuous commitment to making a difference in the lives of energy consumers worldwide, including working to bring heavy-oil fields on stream and building specially equipped refineries to process that oil.

In September, Saudi Aramco President and CEO Khalid A. Al-Falih addressed the World Energy Congress (WEC) in Montreal, Canada, stressing that the need for safe, abundant and affordable energy will continue to grow at a significant rate as global economic prosperity spreads and the world's population adds a projected 2 billion more people by 2050. Al-Falih emphasized the need for world leaders to find an optimal balance of key factors to help meet global demand. The WEC, which meets every three years, drew more than 5,500 delegates from more than 50 countries in 2010, including chief executives of some of the world's largest energy producers, government ministers, academics and the media.

Al-Falih also was a keynote speaker at CERAWEEK 2010 in Houston, Texas, which is a prestigious annual conference attended by world energy leaders. The Saudi Aramco President and CEO stressed that energy is essential to nearly every economic activity and that a strong world economy relies heavily on reliable, affordable energy supplies. In looking to the future, Al-Falih told delegates, leaders of the energy industry need to focus on what he called "the Triple-A Triangle,"

comprising three major imperatives: adequacy of supply, affordability and environmental acceptability. The CERA conference drew 2,200 delegates from more than 55 countries, and encouraged leaders to move from an era of economic challenges to a new phase of energy investment and growth.

During 2010, the following major Saudi Aramco oil-operations projects were in various stages of development and completion:

## Projects

### • Completed projects

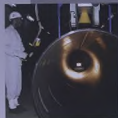
• **Khuraib increment:** The giant Khuraib Crude Oil Increment is the largest of several Saudi Aramco projects intended to boost the production capacity of Saudi Arabia's oil fields to meet current and future world demand. The Khuraib facilities are designed to produce 1.2 million bpd of Arabian Light crude oil. The Khuraib project comprises three oil fields: Khuraib, Abu Jitan and Mazali. In addition to high-quality Arabian Light crude oil, Khuraib can produce approximately 450 million scfd of associated gas and 80,000 bpd of produced NGL condensate. Khuraib was commissioned in June 2009, and in 2010 it reached its maximum sustainable capacity. Khuraib has the most advanced intelligent-field applications of any field in the company's roster, maximizing oil recovery and protecting its reservoirs.



## Supporting the local economy

One of the principal ways that Saudi Aramco supports local economic development is by preferentially purchasing locally manufactured goods and services for use in company projects.

In 2010, Saudi Aramco purchased \$3.6 billion in materials, and just over \$3 billion, or 85 percent, was awarded to local suppliers and manufacturers.



The company also awarded 2,157 service contracts and amendments during the year, totaling \$16.4 billion; 77 percent awarded to local companies and contractors.

We also shifted \$40 million worth of materials to the local market for warehoused inventory in 2010, bringing the cumulative value of our locally warehoused materials to \$240 million.

In addition, the company qualified and approved an additional 151 local suppliers and 32 domestic manufacturers in 2010 as potential sources of supply. The total number of registered local manufacturers with Saudi Aramco grew from 677 in 2001 to 961 in 2010.

Saudi Aramco is also engaged in a program to establish long-term supply agreements as an incentive for new, competitively priced manufacturers to establish new facilities in Saudi Arabia for specific oil-industry-related goods.

•• **Khursaniyah Program:** The complex at Khursaniyah, which includes an oil-processing facility and gas plant, reached 500,000 bpd of crude production capacity after Khursaniyah Gas Plant, which has a capacity of 1 billion scfd, was commissioned in April. Khursaniyah blends Arabian Light oil from the Khursaniyah, Abu Hadriya and Fadhili fields, and generates 300 megawatts (MW) of electricity with its on-site co-generation plant, providing power to the plant and exporting excess power to the national grid to support the Kingdom's energy demand.

### • Ongoing projects

#### •• **Manifa Increment Development:**

Significant progress was achieved in 2010 on Manifa, the giant Arabian Gulf offshore field under development. It is the fifth largest oil field in the world, and output will be used as feedstock for planned refineries in the Kingdom.

Project elements completed during the year included all drilling islands, as well as the main and lateral causeways. Construction of the Manifa Central Processing complex has begun, with the main pipeline and process area pipe rack completed. Manifa is designed to produce in staged increments — 500,000 bpd of Arabian Heavy crude oil by 2013 and 900,000 bpd by 2014. Manifa field is located in shallow and environmentally sensitive waters, necessitating maximizing drilling from onshore sites while minimizing offshore platforms. (To protect the environment, cuttings re-injection [CRI] wells have been drilled on each platform to eliminate the need to transport drill cuttings by barge. Re-injection of cuttings disposes of drilling waste in an economical, environmentally friendly way.)

The Manifa development will accommodate a Central Processing Facility with gas-oil separation, wet crude handling, crude stabilization, gas gathering and compression, produced water disposal, water injection and other related facilities. Field development includes 41 km of causeway and 3 km of bridges to support 27 drilling islands for the shallow water wells, and 13 offshore platforms for deeper water producing and water injection



Below: Huge vessels distinguish a plant that processes crude oil from the massive Khurais field. Top: A company offshore rig stands out in the Arabian Gulf.



wells. Onshore facilities include 15 drill sites, a Central Oil and Gas Processing Facility, water supply wells and injection facilities, and multiple gathering, water injection, and product transportation pipelines. This plant will include all necessary utilities and a 420-megawatt co-generation plant.

•• **Safaniya Phase I Upgrade:** The first phase of the two-phase program was initiated to install Electrical Submersible Pumps (ESPs), upgrade crude-gathering facilities and provide power supply for Central and North Safaniya as part of the Safaniya field Master Development Plan. The upgrade's strategic objective is to help maintain Safaniya's maximum production capacity of Arabian Heavy crude. The project will provide electrical power and upgrade existing wellhead platforms to accommodate top-side electric equipment for ESPs. The project will also provide a new tie-in platform and a 42-inch trunk line that will transport crude oil from the new tie-in to an onshore



Saudi Aramco and Chinese partners exchange gifts and strengthen ties at a company event in China.

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GOSP. The project is currently in detailed design. Completion is anticipated in late 2013.

• **Maintain Potential Program (MPP)**

Two maintain-potential programs provided upstream facilities to sustain oil and gas production from newly developed and existing fields. The scope included connecting new wells, monitoring and testing well systems, pipelines to transport crude oil and gas to processing facilities, and drilling support structures.

\*\* **Onshore MPP.** Eighty-four new oil and water wells were connected in 2010, increasing oil production capacity by nearly 232,000 bpd, and 66 new gas wells were completed, increasing gas production capacity by approximately 1.14 million scfd.

\*\* **Offshore MPP.** During 2010, there was an increased emphasis on installation and integration of down-hole instrumentation,

multiphase flow meters and remote terminal units on 60 existing offshore production platforms that support the company's intelligent-field initiative to enable real-time reservoir performance monitoring. Also, the critical Safaniya crude trunk-line system to support the field master plan was completed. The project performed the world's first 5-km shore pull for dual pipelines, installing the pipelines with more precise and less environmentally disruptive horizontal directional drilling technology rather than seafloor dredging.

Saudi Aramco took part in the "China and the World Economy: Beyond the Crisis" forum in China

• **Asia gatherings**

\*\* **China Development Forum 2010:** Saudi Aramco President and CEO Khalid Al-Falih participated in the three-day China Development Forum 2010 on March 20-22, hosted by the Development Research Center of the State Council. The annual forum provides a platform for face-to-face dialogue among international business leaders, heads of international organizations, world-class scholars and senior government officials on topics related to China's development. The forum theme was "China and the World Economy: Beyond the Crisis."

\*\* **Asia Energy Leaders Summit 2010:**

Khalid Al-Buainain, Senior Vice President of Downstream, attended the Asia Energy Leaders Summit 2010 in Beijing in early June. Major topics discussed were sustainable energy policies and strategies, with a focus on nuclear, coal, oil and gas, ways energy efficiency and renewables can contribute to a low carbon society, and energy poverty and financing.

Oil Operations

**Land Management System**

Saudi Aramco's corporate land concessions and reservations are truly enormous, encompassing more than a tenth of the Kingdom's land mass, primarily in Saudi Arabia's Eastern and Central provinces. Company operations are Kingdom-wide and connected by a wide network of more than 5,000 km of utility and pipeline rights-of-way. Corporate expansion has resulted in the company's land reservations increasing nearly three-fold since 1980, with considerable future growth expected from new oil and gas discoveries.

To better manage this vast land area that is not much smaller than Great Britain, Saudi Aramco launched its state-of-the-art Land Management System, which is an integral part of SAP, the company's front-end business-enterprise system. The new system interjects geographic intelligence into thousands of corporate land records by fully integrating GIS (geographic information system) information with SAP data.

Previously, to manage land-related business, the company relied on a variety of fragmented, non-integrated information with multiple interfaces. The earlier system was not integrated with Saudi Aramco's SAP core business system and required higher maintenance overhead and increased training for staff to master separate databases and related system administration skills.

The new Land Management System automated and streamlined 17 separate land-related business processes and fully integrated three other business systems through a single window. Authorized users are now able to perform all land-management-related activities through SAP, including land use permits, well approvals, land requests and land encroachments.

Another key benefit of the new system is the ability to remotely monitor lands through a change detection solution that uses satellite imagery to detect changes in land use. In addition to physical on-site field inspections, this proactive means of protecting land resources offers a valuable tool in the prevention of unauthorized land utilizations.

The SAP Land Management System is an unprecedented world-class solution to large-scale land management that will allow Saudi Aramco to efficiently manage its land needs well into the future.

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## Gas Operations

Gas projects took center stage at Saudi Aramco in 2010

Below: Saudi Aramco gas plants provide natural gas to fuel the Kingdom's industry and economy. Opposite: Highly trained employees man our gas plants.



erschaffen machen الفرق ما تصنع الفرق Making a difference. Membuat perbedaan 차별화하기 新 就 意 義, Создание разницы बदलाव, लाना 比 积 不 足 领域 へ 与 众 不 同 差异 创造 力

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Gas projects took center stage at Saudi Aramco in 2010, as the company sharply

focused on ensuring a steadily increasing supply of natural gas and NGL products via the Master Gas System (MGS) for the Kingdom's growing industrial sector, including fuel for power generation and water desalination and feedstock for the burgeoning domestic petrochemical industry. Ethane and NGL products are critical feedstocks for the Kingdom's downstream petrochemicals industry to manufacture value-added consumer products and generate jobs.

To help meet these goals, key milestones were marked in development of three new offshore non-associated gas fields — Karan, the company's first in the northern area, to be followed by the Hasbah and Arabiyah fields. The company commissioned and achieved full capacity at the 1 billion scfd Khursaniyah Gas Plant and the 3.8 billion scfd Hawiyah NGL recovery plant in 2010. Construction is under

way for processing non-associated Karan gas in Khursaniyah Gas Plant. Development also was started on Wasit Gas Plant, and a site preparation contract was awarded for the Shaybah NGL Project.

### • Gas plant projects

• **Khursaniyah Gas Plant:** Built to expand the Kingdom's petrochemical products portfolio, Khursaniyah Gas Plant (KGP) began operation in 2010, north of Dhahran. KGP is designed to process 1 billion scfd of associated gas and 80,000 bpd of condensates from Abu Hadiyya, Fadhill, Khursaniyah, Marjan, Salaniyah and Zuluf oil fields. KGP can produce up to 560 million scfd of sales gas for the MGS and 260,000 bpd of ethane plus NGL (C<sub>2</sub>+NGL), 1,800 metric tons per day of sulfur and 300 MW of power. KGP uses turbo-expander technology to maximize valuable ethane recovery. The plant is integrated with Khursaniyah Central Oil Processing Facilities to minimize required utilities and capture synergies. KGP will be expanded in 2012 to process non-associated gas from the Karan field. With the Karan expansion, KGP output will increase to 1.8 billion scfd of sales gas and 280,000 bpd of NGL.

• **Hawiyah NGL Plant start-up:** The Hawiyah NGL Recovery Plant, which came on-stream in 2009 to supply incremental ethane and NGL products to the Kingdom's petrochemical industry, was commissioned in January 2010 to begin providing additional NGL to the MGS. The plant was designed to process 3.8 billion scfd of sweet gas, with 95 percent NGL recovery, from the nearby Hawiyah and Haradh gas plants. The facility produces 290,000 bpd of ethane plus NGL and supplies the MGS with 3.4 billion scfd of sales gas. This facility uses turbo-expander technology to maximize valuable ethane recovery.

• **Shaybah NGL:** The Shaybah NGL Recovery Program will increase NGL production, helping meet increasing in-Kingdom demand for petrochemical feedstock and ensuring secure and sustainable NGL product supply. The program will build a grass-roots NGL facility capable of processing 2.4 billion scfd of gas

Gas Operations

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### Karan Field

Saudi Aramco's first offshore non-associated gas field development

Discovered by Saudi Aramco in April 2006, Karan gas field is the first non-associated gas field located in Saudi territorial waters of the Arabian Gulf, 160 kilometers north of the company's headquarters in Dhahran. Non-associated gas fields do not have an associated oil column and can thus be produced without waiting to deplete the oil reserves before producing the gas cap associated with an oil field.



The Karan field was discovered when the Karan-6 well drilled into deeper formations, finding gas in the khuff carbonate reservoirs laid down from 200 to 299 million years ago in the Permian and

Triassic periods. With a khuff gross thickness up to 1,000 feet, Karan's is the thickest khuff reservoir section ever encountered in Saudi Arabia. The khuff formation ranges in depth from 10,500-13,700 feet, and Karan lies in medium-depth waters of 40-60 meters.

Karan, designed to produce 1.8 billion standard cubic feet per day (scfd) of raw dry

gas to support the company's Master Gas System, will be produced from 21 increment wells distributed over five offshore wellhead platforms. The gas production will be staged with five wells already drilled and completed that will be tied-in and commissioned for 400 million scfd in early production planned for four months during 2011 summer peak demand. Three other platforms with 14 wells will be drilled, completed, tied-in and on stream in June 2012, and the remaining two wells and platform will be ready in April 2013, bringing the field to full-capacity production. By January 2011, overall drilling and completion progress was 78 percent.

Produced gas will be co-mingled at one Tie-In Offshore Platform through five 20-inch subsea flowlines. Then, gas will be transported via one 38-inch subsea pipeline onshore to the Khursaniyah Gas Plant (KGP), where new gas-processing facilities are being constructed. This project marks a milestone in the company's gas expansion program.

Additional khuff offshore gas fields, similar to Karan, at Arabyah (1.2 billion scfd) and Hasbah (1.3 billion scfd) were recently discovered and have been approved for development, with drilling to start in June 2011. These fields along with other offshore gas discoveries will provide a vital part of the Kingdom's gas production for the foreseeable future.

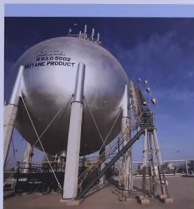
and yielding 190,000 bpd of ethane plus NGL. It will also increase the gas-handling capacities of the four existing Shaybah GOSP's to allow higher gas-oil ratios. Shaybah NGL Plant will utilize turbo-expander technology to maximize ethane recovery. New fractionation facilities to handle the additional NGL from Shaybah will be installed at Wasit Gas Plant to capture utilities and project execution synergies. To support the early start of the Shaybah NGL Project, a site-preparation contract was awarded in November, and project proposals were completed. The program is scheduled for completion in 2014.

**\*\* Wasit Gas Plant Development.** To meet the kingdom's energy demand beyond 2014, the non-associated gas from the offshore Arabyah and Hasbah fields will be developed for processing in a new stand-alone gas plant at Wasit, located 8 kilometers from Khursaniyah Gas Plant. Wasit Gas Plant has been designed to process 2.5 billion scfd of Arabyah and Hasbah non-associated gas from 13 offshore gas platforms in the Arabian Gulf. Once completed in mid-2014, the plant will produce 1.8 billion scfd of sales gas. This fuel will support electric power generation throughout the Kingdom and rapidly expanding petrochemical and other industries.

In addition, the plant will include a new facility to fractionate NGL recovered from Shaybah to be used as feedstock for the petrochemical industry. The new NGL fractionation module will process 240,000 bpd of ethane plus NGLs to satisfy growing local customer demand for ethane, propane, butane and natural gasoline. Site preparation and temporary communications contracts have been awarded, and work is under way at the site. All major purchase orders have been awarded, and the main automation contractor selected. The project aims to help eliminate burning of crude oil for industry and power generation, thus increasing crude exports. The gas plant will utilize the relatively new Sullin® gas-treatment technology, which increases the efficiency of the sulfur recovery units from about 95 percent to 99.3 percent.

**\*\* Nu'ayyim Downstream Facilities.** Completion of the Nu'ayyim Downstream Facilities in January 2010 provided additional crude degassing/gas handling facilities at East-West Crude Pipeline Pump Station No. 3 and for 138 kilometers of gas pipeline from Nu'ayyim GOSP to the Ghazal Field Remote Header. The pipeline extension was built for Nu'ayyim gas bound for processing at Haradh Gas Plant, and the pump station was upgraded to de-gas and stabilize the field's produced crude oil before transport to the Kingdom's West Coast. Nu'ayyim produces 100,000 bpd of Arabian Super Light crude oil and 100 million scfd of natural gas. The field is 250 km south of Riyadh and about 50 km northeast of the existing Hawtah Plant, which was the company's first Central Region oil-producing facility.

**\*\* CO<sub>2</sub>-Recovery Pilot Project:** As part of Saudi Aramco's environmental road map to evaluate means for lowering CO<sub>2</sub> emissions and in line with the company initiatives to enhance oil recovery, a CO<sub>2</sub>-recovery pilot project was initiated to recover 40 million scfd of CO<sub>2</sub>.





The company's gas facilities supply an increasing stream of natural gas to the Kingdom's Master Gas System. Opposite: An engineer checks a valve at Ju'aymah Gas Plant.

from Hawiyah NGL Plant acid gas stream for injection into the Uthmaniyah Field. Seven wells are planned in the pilot project, with a comprehensive evaluation program including selective coring and saturation logs for characterizing the reservoir at close spacing and monitoring the water-CO<sub>2</sub> flood.

•• **Haradh Gas Plant debottlenecking:**

Haradh Gas Plant capacity was debottlenecked to reach 1.8 billion scfd of raw gas, yielding approximately 1.7 billion scfd of sales gas to the MGS, thus improving efficiency and output, and increasing gas supply to the gas system. The Condensate System De-bottlenecking project was completed in September 2010, increasing the plant's condensate handling capacity 64 percent, from 140,000 bpd to 230,000 bpd.

• **Gas field projects**

•• **Karan Field Development Phase 1:**

Discovered in 2006, the Karan non-associated gas field is being developed to meet the Kingdom's increasing demand for sales gas for industrial fuel and feedstock, water desalination and electric power generation. It is Saudi Aramco's first offshore non-associated gas field. The field will be produced from 21 increment wells distributed over five offshore wellhead platforms, and the raw gas will be transported through a 110-kilometer subsea pipeline to Khursaniyah Gas Plant (KGP) for processing. When fully operational in 2012, the project

will produce 1.8 billion scfd of raw dry gas to support the company's MGS. The Karan project's engineering and procurement are substantially complete, and construction activities neared peak levels in 2010. A total of 18 million contractor man-hours were achieved without a lost-time incident by year's end. Drilling of the central platform wells was finished, with initial production of 400 million scfd planned during peak summer demand starting in 2011; output of raw gas is expected to be 1.5 billion scfd by 2012.

•• **Midyan Field Development Project:**

Ten new Midyan wells and workovers were successfully completed as part of the gas-development project in northwest Saudi Arabia to replace crude oil and diesel burning in the area (crude is burned to generate electricity during peak summer demand). The overall outcome from drilling delineation and development wells was favorable, and the gas production target was revised higher, from 50 million scfd to 75 million scfd for 20 years.

•• **Hasbah/Arabiyyah fields development:**

Located northeast of Dhahran, the Hasbah and Arabiyyah gas fields will have seven and six single-well platforms, respectively, with each well producing an average rate of 200 million scfd, all converging to one tie-in platform per field. The system is capable of delivering up to 1.2 billion scfd of gas from Arabiyyah and 1.3 billion scfd of gas from Hasbah to Wasit Gas Plant, part of Saudi Aramco's strategy to meet in-Kingdom energy demand from 2014 onward. Drilling will commence in the first quarter of 2011 for Arabiyyah and in the second quarter for Hasbah.

• **Gas distribution expansion** — This project will expand the MGS's distribution network, adding 215 kilometers of 56-inch pipe parallel to existing lines, increasing system sales-gas capacity from 6.5 billion to 7.2 billion scfd — to Saudi Aramco customers and company facilities in the Eastern Region. The expansion is projected to be on-stream in 2011.



## Refining & Petrochemicals

Saudi Aramco refineries and support facilities will be increasingly integrated with petrochemical production. Below: Saudi Aramco's Yanbu' terminal on the Red Sea. Opposite: Motiva Refinery expansion project activity in Houston.



Saudi Aramco is also developing associated industrial parks to create jobs and stimulate economic activity

### Saudi Aramco is working to expand its domestic refining capacity to meet growing

local and global demand for refined products while taking advantage of the close proximity of feedstock by integrating petrochemical facilities with certain refineries. Company refineries produce a wide range of petrochemicals, including propylene and polypropylene, low- and high-density polyethylene, benzene, paraxylene and butadiene.

The company also is developing associated industrial parks to convert petrochemical commodities into consumer goods, to create jobs and stimulate economic activity. The company moved forward on two major refinery projects in 2010 — the Red Sea Refining Co. (RSRC) and Jazan Refinery projects — and also achieved significant success in producing reduced-sulfur fuel.

### • Projects

•• **SATORP grass-roots refinery:** Saudi Aramco Total Refining and Petrochemical Co. (SATORP), a joint-venture mega-project between Saudi Aramco and France's Total Oil Co., is building a 400,000-bpd grassroots, full-conversion refinery at Jubail II Industrial City on Saudi Arabia's east coast. By year-end 2010, the engineering, procurement and construction progress was per plan. When

completed, the refinery will produce products to meet growing domestic and world demand for environmentally friendly fuels. It will also be among the first refineries in the Middle East to produce petroleum coke.

••• **RSRC grass-roots refinery:** In July 2010, Saudi Aramco's Board of Directors gave final approval for construction of a 400,000-bpd grassroots, full-conversion refinery at Yanbu' Industrial City under the wholly owned subsidiary Red Sea Refining Company (RSRC). The new refinery will process Arabian Heavy crude oil and produce products to supply the Kingdom's demand for refined products and also export high quality products to the international market. In July, Saudi Aramco signed contracts with local and international contractors for detailed engineering, procurement and construction. Saudi Aramco is currently finalizing discussion with a foreign partner to establish RSRC as a joint venture.

•• **Jazan Refinery and Terminal:** The 400,000-bpd semi-conversion refinery (producing light products and fuel oil) and marine terminal will meet local demand for refined products and efficiently satisfy utilities demands in the Western Region. In addition, it will provide a primary foundation industry for the Jazan Economic City (JEC) development, which will encourage further development of







Above: A component for the expansion of the Motiva refinery in the United States is moved to the plant.

the city and region. The refinery will be capable of processing Arabian Medium crude oil or a 50/50 mix of Arabian Heavy and Medium grades. The facility will be located in JEC and ultimately integrated with a power plant and water facility. The grassroots marine terminal will have the capability to receive crude oil and refined products and to export refined products. Single Point Mooring (SPM) will be provided for offloading Very Large Crude Carriers; a subsea pipeline will carry oil from the SPM to the tank farm. Two fixed berths will be provided for Altamax-rated product carriers. Work on the project began in 2011, and completion is projected for the first quarter of 2017.

- Petro Rabigh** — For Petro Rabigh, 2010 was a remarkable year, marked by its reaching full commercial operation and achieving its first full year of profitability, as well as exceeding the complex's 2009 operating capacity, production and sales. The integrated refining and petrochemical complex on the Red Sea produced and marketed more than 112 million barrels of refined petroleum products in Saudi and international markets during the year, 29 percent of which were exported; and nearly 2 million metric tons of petrochemicals, 94 percent of which were exported. Also during the year, Petro Rabigh signed an agreement to provide propylene oxide and polyether

polyol to Saudi Advanced Industries Co. and National Manufacturing Co., for manufacturing polyurethane material used in producing furniture, and in automotive, construction and thermal insulation components.

- Motiva expansion** — Construction on the Crude Expansion Project at Motiva's Port Arthur, Texas, refinery is progressing well in line with Motiva's expectations. Handover operations is planned to start late 2011 with product-in-tank in the first quarter of 2012. Three hundred twenty-two processing modules were manufactured in the United States and Mexico, and delivered to the site in 2010. Installation for nearly all of the units was completed by year-end, representing the largest module installation project ever undertaken onshore. Additionally, all disciplines were fully active on site by year's end, and pre-commissioning plans were in full swing. When complete, the expansion will add 325,000 bpd of flexible complex-crude capacity (the capacity to process almost any type of crude oil), making Port Arthur the largest-capacity refinery in the United States and one of the largest in the world, with a total throughput capacity of 600,000 bpd. The incremental volume will process heavy sour and high-acid-content crudes, and improve profit margins. The project will also install a 75,000 bpd hydrocracker that has 55,000 bpd of

When complete, the expansion will make Port Arthur one of the largest-capacity refineries in the world

gasoline/diesel flexibility to capture the highest margin available. Expansion of the refinery will enhance the company's ability to meet growing demand in North America. Motiva Enterprises LLC is a joint venture between Saudi Aramco's Houston-based affiliate, Saudi Refining Inc., and Shell.

- Fujian refinery** — Net income improved as refining margins increased in 2010 for Fujian Refining & Petrochemical Co. Ltd. (FRPC), which processed an average of 230,000 bpd of crude oil during the year. FRPC produced more than 11 million tons of refined products in 2010, and more than 3 million tons of petrochemicals, exporting 7.1 million tons of products and 2.5 million tons of petrochemicals, including olefins, aromatics, polyethylene and

## Clean fuels

Saudi Aramco has implemented a Clean Transportation Fuels (CTF) Project that will install new equipment at the company's domestic refineries by 2015 to meet new gasoline and diesel products requirements.



The new equipment will position the refineries to produce gasoline and diesel fuel with ultra-low sulfur (ULS) content, only 10 parts per million. These are equivalent or better quality grades

than fuels distributed in North America and Europe. This improvement will enable the use of advance emission-control technologies in light and heavy-duty vehicles that will almost eliminate emissions of nitrogen oxide (NOx), sulfuric oxide (SOx) and particulate matter that are linked to health problems. Besides producing ULS gasoline and diesel, the new equipment will also reduce benzene and aromatics content from the current level.

All of Saudi Aramco's wholly owned domestic

refineries will be producing CTF gasoline. In addition, CTF diesel will be produced at Riyadh and Ras Tanura Refineries, while Yanbu' Refinery will maintain its current production of low-sulfur (500 ppm) off-road utility diesel to meet local diesel-fuel demand.

Riyadh and Yanbu' Refineries will produce the new gasoline through the use of conventional refinery processing, while Ras Tanura Refinery will go further in transitioning the refinery into a petrochemical feedstock producer. The project at Ras Tanura Refinery will install new units that will extract the aromatics from the gasoline and use them to produce benzene, toluene and paraxylene. The benzene and toluene, which can be used as solvents or industrial feedstock, will be used to support new petrochemical projects in the Kingdom. Paraxylene production will be exported for use in the growing worldwide polyester-based clothing industry.

Domestic joint-venture refineries in Jubail and Yanbu', as well as the future Jazan Refinery, also are installing equipment for the production of CTF gasoline and diesel from these facilities as well.





polypropylene. Within China, FPCC sold nearly 4.2 million tons of products and 2.9 million tons of petrochemicals. The FPCC board during the year approved a study of an ethylene cracker expansion project.

- Showa Shell** — Saudi Aramco equity venture partner continued to pursue its expansion in the solar business, forming a subsidiary, Solar Frontier, to manage its solar activities. As part of its efforts to expand its international presence, Solar Frontier opened two international offices — one in Germany and one in California, in the United States. In 2010, the company completed all structural work for the 900 MW per year manufacturing plant in Miyazaki prefecture, Japan, and started product testing at the facility. When fully operational, the plant will be one of the world's largest single thin-film solar technology manufacturing plants.

- S-Oil** — S-Oil, an Aramco Oversees Company equity venture in Korea, is expected to complete the Onsan Refinery Expansion Project during the first half of 2011, after three years of planning, engineering, and construction. In 2010, S-Oil developed its strategic framework, which included three strategic directions — expanding its refining business, integrating petrochemicals, and entering into the new and renewable energy business to achieve profitable, sustainable growth. During 2010,

S-Oil continued to grow its product sales channels in Asia, including India, Japan and Australia, as part of its diversified marketing strategy. Further, the company's domestic light-oil market share reached its highest level ever in December 2010.

- Low-sulfur diesel** — To help enhance the quality of domestic transportation fuels, Saudi Aramco in 2010 completed the construction of a new diesel hydro-treater plant at Ras Tanura Refinery. This project will enable the implementation of the second phase of the Saudi Aramco Fuel Quality Roadmap, which aims by 2016 to supply ultra-low-sulfur (10 parts per million) diesel fuel for transportation and 500 ppm for utility fuel Kingdomwide to will help improve air quality. The first phase of the Fuel Quality Roadmap was launched in 2007 after commissioning the hydrotreater plants at Yanbu' and Riyadh refineries. With implementation of the second phase, sulfur in diesel will be reduced by 95 percent.

- SAMREF, SASREF clean fuels** — The Saudi Aramco Shell Refinery Co. (SASREF), a joint venture of Saudi Aramco and Shell, completed a clean-fuels project in March 2010, producing 100,000 bpd of ultra-low-sulfur diesel fuel (10 ppm), while the Saudi Aramco Mobil Refinery (SAMREF) in Yanbu', a joint venture of Saudi Aramco and ExxonMobil, is continuing to implement its Clean Fuels Project. SAMREF intends to meet the Kingdom's fuel specification requirements by reducing sulfur content in gasoline and diesel fuel to 10 ppm by December 2013.

- Marafiq Project** — Saudi Aramco equity venture Marafiq Co., through its subsidiary Lawreed, launched commercial operations of the water desalination and electrical power mega-project in Jubail in 2010. The plant is designed to produce 800,000 cubic meters of water per day and 2,750 MW of electricity. It is the world's largest integrated power and water desalination project, representing about 10 percent of current power generation capacity in Saudi Arabia. Marafiq is also developing another project in Yanbu, on the west coast, to produce



At left: A safety slogan greets an employee at the Ras Tanura Refinery terminal complex.

60,000 cubic meters of water per day and about 750 MW of electricity by 2015.

- Ju'aymah/Petrokemya spent caustic** — A total cost avoidance of \$1.5 million was realized from an agreement signed by our Ju'aymah NGL Fractionation and Petrokemya petrochemical plants in Jubail to treat at Petrokemya facilities 400,000 gallons per year of generated spent caustic from the Ju'aymah plant. The agreement localized processing of the spent caustic, saved time and 79.2 percent of processing costs, and streamlined administrative requirements.

## Research & Technology

Work began during the year on a new Corporate Data Center in Dhahran

Below: Impressive technological advances marked Saudi Aramco's 86th achievements in 2010.  
Right: An aerial rendering of the King Abdullah Petroleum Studies And Research Center.



### Saudi Aramco's research and development efforts paid off handsomely in 2010, with

the unveiling of GigaPOWERS™, a second-generation version of its award-winning, state-of-the-art reservoir simulation technology. Company scientists also achieved impressive gains in nanotechnology with the successful injection of nano-agents into an observation well under live field conditions. Saudi Aramco's upstream research aims to spur recovery rates, improve long-term management of reservoirs, lighten the company's environmental footprint and increase resource conservation. The company deploys cutting-edge technology to increase production to optimum levels, improve operational efficiencies and enable better stewardship of resources. To provide data support for advanced exploration, producing, distribution and reservoir management, work began during the year on a new Corporate Data Center in Dhahran.

- **GigaPOWERS** — Saudi Aramco unveiled its unrivaled giga-cell reservoir simulation technology, GigaPOWERS, in January. GigaPOWERS is the second generation of the company's leading reservoir simulator, POWERS (Parallel Oil, Water and Gas Enhanced Reservoir Simulator), which simulates fluid movement in reservoirs to optimize production, injection and management of the reservoirs. GigaPOWERS sets a new industry apex of being able to simulate giant fields at extremely high resolution, enabling far more precise analysis of reservoir properties than was previously possible. GigaPOWERS received two prestigious awards: "The Innovative Thinker Award" by World Oil and "Best Technology of the Year" at the Abu Dhabi International Petroleum Engineering Conference (ADIPEC).

- **Resbots** — In 2010, Saudi Aramco achieved the industry's first field test of reservoir nano-agents — a milestone for its Resbots™ (reservoir robots) program. In June, engineers of the Upstream organization's Advanced Research Center demonstrated for the first time that specialized nano-agents can be injected and produced under live field conditions in an observation well. Three years ago, company

technologists originated the concept of sending nano-sized detectors through the reservoir to gather in-situ data for enhanced reservoir mapping and characterization. That vision earned Saudi Aramco a 2008 World Oil Award. Saudi Aramco has been leading the industry ever since, developing the agents and demonstrating that they can be injected into and later removed from reservoir carbonate rock. Developers envision that Resbots will be able to measure, report and interact with the reservoir environment — to monitor and alter reservoir properties to maximize oil recovery.

- **Joining MIT** — As part of its strategy to collaborate with the world's leading institutions and to develop more environmentally

friendly fuels, Saudi Aramco in 2010 joined the Massachusetts Institute of Technology's Energy Initiative (MITI) as a sustaining member. The five-year participation will support MITI's research and development of new energy technologies and improve processing techniques for cleaner fuels.

- **Land Issues** — The Saudi Aramco land reservation system encompasses over 85,000 km<sup>2</sup>, primarily in the Eastern and Central provinces. Managing and protecting this vast area, which includes over 5,000 km of pipeline rights-of-way, is a substantial challenge. In 2010, Saudi Aramco launched a world-class land-management system that leveraged the company's expertise in SAP business systems

by fully integrating SAP with thousands of geographic land records. The new system allows remote monitoring of reservation lands via satellite imagery and enables the company to more efficiently and effectively monitor and manage its land holdings, which are an asset essential to the Kingdom's and the company's future.

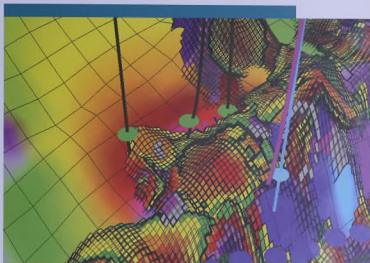
- **Data Center** — The Corporate Data Center is being constructed to meet the fast-growing, state-of-the-art computing requirements for advanced information technology (IT), and exploration and petroleum engineering solutions. The project will construct approximately 23,000 square meters (m<sup>2</sup>) of building structures, including 6,000 m<sup>2</sup> of raised-floor computing area, 4,500 tons of cooling capacity, 12 MW of standby generator power, and 8 MW of uninterrupted power supply. It will also provide a new 115-kilovolt/30-megavolt-amperes substation building with associated transmission lines. Completion is scheduled for 2011.

- **Improved IT efficiencies** — The Information Technology organization has adopted a new model for building and delivering its applications services and infrastructure within Saudi Aramco based on "private cloud" computing. The new model utilizes technologies such as virtualization that enable efficient utilization of computing resources while increasing the speed of deploying applications solutions to business users. Some benefits are:

- Computing capacity increased three-fold, coupled with a 26 percent reduction in the number of physical servers.
- After consolidation and migration to the new virtualization technology, the average response time of computing resources per business transaction has improved by up to 50 percent.
- Data storage capacity has grown more than 20 percent per year.
- With storage virtualization techniques, more than 500 terabytes (TB) of virtual-tape backup

capacities have been migrated, reducing backup time of critical applications by 30 percent.

- **Plants in 3D** — In its effort to find state-of-the-art solutions to serve its corporate clients, the company announced the launch of 3D Plant Visualization in July, as part of the Corporate Engineering Drawing Management System (iPlant). This new iPlant functionality will enable corporate users to visualize Saudi Aramco plants in three dimensions, with easy, efficient and quick access to information related to engineering drawings through the 3D model of the plant. This will enable faster, more effective analysis of operations and safety issues.

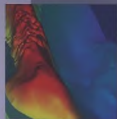


The company in 2010 launched an advanced version of GigaPOWERS, its industry-leading reservoir characterization technology.

New iPlant functionality will allow users to visualize company plants in three dimensions

## GigaPOWERS: Using brain-power to manage precious resources

The detailed simulation of the Kingdom's oil and gas fields is a critical tool in the management of the nation's most precious resources. The complex physical, chemical and thermodynamic mathematical



equations required to accurately describe a hydrocarbon field was previously limited by the processing power of the industry standard reservoir simulators. However, Saudi Aramco's

Computational Modeling Technology Team (CMTT) has changed all that with the development of GigaPOWERS.

The GigaPOWERS journey began back in 1994 with a team of eight people, of which only three were reservoir simulator developers. Progress was slow in the first four years, but in 1998 a lean, streamlined team was formed. New specialists were recruited, and the new team soon produced the first early version of the POWERS simulator.

This type of work traditionally has been done by major vendors and universities, but the CMTT believed it could be achieved in-house. In 2002, the team successfully simulated the entire Ghawar reservoir as one model.

The core team hasn't changed since 1998, testament to the opportunities that Saudi Aramco offers in this field and the cohesive nature of the CMTT. The team has been grown, bringing on younger, less-experienced specialists to ensure that the group's knowledge, experience, motivation and professionalism are shared and passed on.

GigaPOWERS is an enormous team effort, and the work requires specialists with unique skills. Everyone in the field comes from the same background — computational mathematical modeling for petroleum engineering. It's a small international community in which everyone knows one another. It makes recruitment fairly straightforward and allows the team to choose people that will fit well within the team.

The team has built a new standard and has plenty of scope to go even further to increase GigaPOWERS already world-leading computational power.



## Propylene yields four times greater than conventional FCC operations were achieved

### • ECC environment capacity expansion —

To satisfy growing demand from Saudi Aramco's Upstream personnel for more computing resources, various solutions were implemented in 2010 by the EXPEC Computer Center (ECC). ECC expanded its computer capacity by 47 percent and online disk space by 27 percent. ECC also expanded computer capabilities of the reservoir simulation environment to accommodate GigaPOWERS users. The largest single storage installation in Saudi Aramco's history — 1.5 petabytes (1,500,000 gigabytes) of high-performance storage — was implemented in 2010 in support of exploration activities.

• **HS-FCC success** — Collaborating with industry leaders is a key focus of Saudi Aramco, including hosting a two-day New Business Development Forum for international



executives and technical staff responsible for the development of High Severity Fluid Catalytic Cracking (HS-FCC) technology. Representatives came from Japan's Nippon Oil Corp., France's Avens, U.S.-based Shaw Group and Saudi Arabia's King Fahd University of Petroleum and Minerals (KFUPM). With Saudi Aramco, these entities form a consortium working on the technology. HS-FCC is a breakthrough in the refining and petrochemicals industry thanks to a unique downflow FCC. The advanced technology allows refineries to produce petrochemicals from heavy oils by converting refinery gas-ols into products suitable for integrated petrochemical processes. The configuration produces more gasoline fuel at the same light olefin yields than a traditional reactor design. Propylene yields four times greater than conventional FCC operations were achieved in pilot-plant studies.

### • New sulfur applications —

In 2010, Saudi Aramco identified several key applications for sulfur in construction materials to reduce demand for asphalt. The first achievement is the development of an asphalt mix made with the company's newly invented sulfur-based asphalt modifiers. The new asphalt mix, in terms of its resistance to deformation, outperformed existing mixes made with internationally marketed modifiers. In addition, to reduce demand for asphalt and prolong the life of asphalt pavements, Saudi Aramco, in collaboration with the Ministry of Transport, in 2010 concluded a five-year sulfur asphalt performance evaluation program, which demonstrated that the performance of "elemental sulfur asphalt" is comparable to "polymer-modified asphalt." The company also developed a sulfur-concrete mix that reduces water consumption, CO<sub>2</sub> emissions and conventional cement demand. When deployed, the results of these innovative ideas will reduce demand on asphalt, defer capital investment and add value to sulfur. Saudi Aramco has mandated that all company-built asphalt roads use sulfur applications, and the first such road using this material will be constructed and demonstrated in 2011.

## Hardier roads with sulfur asphalt

Saudi Aramco, in collaboration with the Ministry of Petroleum and Mineral Resources, the Ministry of Transportation (MOT) and King Fahd University of Petroleum and Minerals (KFUPM), is leading an effort in the Kingdom to provide higher-quality and longer-durability roads through the implementation of Sulfur Extended Asphalt (SEA) technology.

This technology will deliver improved properties of petroleum binder (asphalt roads are typically 5 percent binder, and the remainder is crushed rock). The SEA technology will also increase the volume of asphalt available (due to the additional volume of sulfur blended into the binder) to meet increasing demand as the country's economy grows.



Sulfur is a byproduct of the processing or refining of natural gas and crude oil.

Seventy-five percent of the sulfur produced in-Kingdom is derived from gas, 25 percent from oil.

SEA Technology was first applied internationally in the 70s when sulfur prices were relatively low and oil prices were relatively high. Worldwide, a significant number of roads, airports and other pavement structures were constructed and sulfur-asphalt technology developments were made during this time.

In the late 70s, research was begun in-Kingdom (KFUPM and Gulf Canada) and three test-road sections were constructed in the Eastern Province (Kuwait diversion, Abu-Hadiyah Expressway, and KFUPM Test Road 3). Although the three sections did not

perform as hoped, research continued, even as interest worldwide declined due to rising sulfur prices.

In the past decade, international interest in SEA has resurged. Recent presentations, made by Saudi Aramco employees and KFUPM to an international sulfur consortium group, the Sulfur Institute (ISI), demonstrated encouraging results. ISI is now actively promoting SEA to the United States Federal Highway Administration and other channels. Saudi Aramco approached the MOT in the mid-2000s concerning application of SEA in the Kingdom. At that time, the stockpile of sulfur in the Kingdom was growing and the company was looking for ways to effectively use sulfur. Following successful testing/demonstration of test roads over a four-year period (2005-2009), the technology was promoted more strongly.

In 2009, the MOT began considering applying SEA technology and is now pursuing an execution strategy and evaluating the economics on a Kingdom-wide basis. Deployment of the technology will help meet the Kingdom's asphalt demand by expanding the volume of asphalt by as much as 15,000 to 20,000 barrels per day due to added sulfur volume.

Hundreds of roads have been constructed using SEA technology since the 70s in countries such as the U.S., Canada and China, including in areas of extreme heat and cold. The technology exceeds the performance of conventional asphalt and is more economical. Saudi Aramco recently mandated that all company-built asphalt roads will be constructed using SEA technology. This year, the company will construct and demonstrate its first SEA road — an 8.4-km, four-lane, heavy-load road at Wasea Bulk Plant — and it has established a multi-departmental team that plans to help MOT deploy the technology on a Kingdom-wide basis.





• **Membrane separation technology** — As a demonstration of the company's commitment to investing for the future, 2010 marked the largest funding ever in our Research and Development Center programs. To upgrade sub-quality natural gas fields, the company is conducting, at Sheddum Gas Plant, trials of membrane separation technology for the first time to study cost-effective means to upgrade sales-gas quality by removing nitrogen and acid-gas contaminants using advanced membrane technology. Once the pilot program has validated the technology, it will be deployed, with potential for significant cost savings to the company.

• **Oil-gas separation in 3D** — A breakthrough was made in 2010 when the Research & Development Center completed an important step toward improving future GOSP design and understanding of three-phase flow, when it successfully achieved the world's first three-dimensional computer simulation of oil-water-gas mixture flows inside a full-size GOSP vessel using Computational Fluid Dynamics. A further breakthrough was achieved by the installation of an online salt-in-crude analyzer — an industry first and designed in-house — providing continuous and unmanipulated online analysis. The project, which began in 2009 and was completed in 2010, helps assure that company products meet salt-content specifications.

• **EcoRight™ MBR** — A new wastewater treatment technology developed by the Environmental Protection Department that inexpensively treats oily or industrial wastewater is being commercialized as EcoRight™ MBR (membrane biological reactor). The innovation uses granular activated carbon in a modified MBR. Saudi Aramco developed the base idea and then teamed with Siemens Water Technologies to synthesize the idea into a commercial product. Five patents have been submitted and are pending on the central idea and associated technologies. The EcoRight process, applicable throughout Saudi Aramco, removes a high concentration of organic materials in wastewater, with lower operating and capital costs compared to existing

technologies. In areas where water is scarce, the system allows for the inexpensive reuse of wastewater, thus conserving groundwater and reducing dependence on costly desalinated water. In areas where discharges must meet strict environmental requirements, the system can provide the treatment necessary for compliance. Since it provides the same removal capacity as much more energy-intensive technologies, it qualifies as a green technology.

• **Oil fingerprinting** The R&DC has built a unique instrument designed to identify oil with lasers, providing instantaneous analysis for crude oil identification, oil product contamination, oil spill identification, deterioration in oils (such as transformer or lube oils) and spot checks on exports to prevent illegal cross-border transportation. The laser is used to excite the fluorescence spectra of oil within extremely short time frames — two to five nanoseconds. All the fluorescence data is coalesced, and two-dimensional diagrams are produced, which serve as oil spectral fingerprints for identifying types of oil.

Left: A corridor in our R&D Center. Below: The company is studying wind- and solar-generated power applications.



## Transportation & Distribution



Below: In 2010, Saudi Aramco upgraded its fleet of fixed-wing aircraft and helicopters.  
Above: An employee tracks distribution of crude oil and products.



### Saudi Aramco's shipping subsidiary, Vela, celebrated its 25th anniversary in 2010

#### Saudi Aramco subsidiary Vela International Marine Limited turned 25 years old in

2010, celebrating a successful quarter century of reliably distributing the company's crude oil and products to customers around the world. Saudi Aramco also expanded its global reach by officially inaugurating a subsidiary office that informally opened the year before in New Delhi, India; modernized its aviation fleet; and increased the length and reliability of its massive pipeline network.

- Okinawa storage** — On December 14, the Tank Lease Agreement and the Throughput Agreement between Saudi Aramco and Japan Oil, Gas and Metals National Corp. (JOGMEC) were signed by both parties in Dhahran, for the storage of Arabian crude oil at Japan's Okinawa storage facilities. The signing of agreements follows Saudi Aramco's agreement earlier in June with Japan's Agency for Natural Resources and Energy for a joint project to use crude oil storage facilities in Okinawa. The project will secure storage for Arabian crude oil in Japan and is expected also to further strengthen the company's commitment in the fast-growing Asian market, by having readily available crude oil supplies for its commercial customers in the East. "This agreement further underlines our long-standing relationship and commitment to be a reliable long-term supplier to our customers in the wider Asia region," said Dawood M. Al-Dawood, vice president of Marketing, Supply and Joint

Venture Coordination. The agreement allows for approximately 3.8 million barrels of Arabian crude oil to be stored initially at the facilities, with the option of expanding storage in the future. The first shipment was delivered on February 23, 2011, and the first export shipment, 700,000 barrels to a Korean term customer, sailed from Okinawa on March 8.

- Marketing in China** — Formed in tandem with FRPC, our refining venture in China, the Sinopec SenMei (Fujian) Petroleum Co. Ltd. (SSPC), has exclusive rights to market all FRPC gasoline and diesel production in the Fujian Province market and additional rights to market excess gasoline and diesel products outside the province. Marketing of refined products by SSPC commenced before the FRPC project was completed, and by year-end 2010, SSPC was marketing up to 110,000 bpd of gasoline and diesel in the Fujian market — a 72 percent market share in region that is home to 36 million people — through its network of 777 retail stations and 14 product terminals.

- Air, land and sea** —
  - Vela 25th anniversary** — In 2010, Vela celebrated 25 years of operation by taking delivery of the final four of 14 new double-hulled very large crude carriers (VLCCs) built in the past decade to replace its single-hulled fleet. The new tankers are the Antares Star, Virgo Star, Matar Star, and Hornam Star. Formed in September 1984 to provide marine transportation for Saudi Aramco crude oil, Vela today operates 19 seagoing vessels worldwide. Vela also disposed of five older single-hull VLCCs during the year and two more early in 2011, leaving just one single-hull vessel in the fleet. Domestically, Vela moved approximately 220 million barrels of product, approximately 600,000 bpd, via 693 separate voyages on 34 different vessels; internationally, the shipper moved approximately 500 million barrels of crude, or approximately 1.4 million bpd, in 243 voyages on 80 vessels.

- New Heavy Lift Barge-ARB-3** — The new four-legged, self-elevating, heavy-lift crane barge ARB-3, constructed at Jurong Shipyard

The last three  
of nine new Agusta  
AW139 helicopters  
arrived in May at Ras  
Tanura airstrip



Mechanics repair one of Saudi Aramco's helicopters, which ferry employees to job sites and handle other key tasks.

in Singapore and rare in the market, was delivered to Saudi Aramco in October. The barge hull is 110 meters long, 42.5 meters wide and 9 meters deep. The heavy-lift crane barge was designed for operations in depths from 5 meters to 60 meters in the Arabian Gulf. Climate-controlled offshore accommodation is provided for a total complement of 124 persons in a five-tier superstructure on the main deck. Some of the barge functions include recovery and repair of subsea pipelines and cables,

maintenance support, plant test and inspection, diving support, structural repairs and platform installations.

•• **Heavy equipment modernization:** As part of Saudi Aramco's fleet modernization plan for aging heavy equipment, the Equipment Services Department received 28 locally rented all-terrain cranes procured under a long-term lease contract instead of owning. These state-of-the-art cranes, with increased ground clearance for greater mobility on rough terrain surfaces as well as on paved areas, will replace rough-terrain cranes that have been in service for more than 25 years.

•• **Aviation fleet replacement.** The last three of nine new Agusta AW139 helicopters for the Phase 2 fleet replacement program arrived in May at Ras Tanura airstrip. These replaced Aviation's Bell Helicopter aircraft. In 2010, the company also received three Embraer ERJ 170 LR jets to replace Dash-8 aircraft, and two new Beechcraft King Air 350CER aircraft, replacing Twin Otter (DHC-6) planes. These replacements are part of a program starting in 2010 to modernize the company aircraft fleet and make it more efficient, effective and safe.

•• **Fleet Management System:** As part of the efforts to monitor and control the movement of fuel- and product-distribution trucks, Saudi Aramco has implemented a strategy to install a Fleet Management System (FMS) on each truck to enhance safety. The implementation strategy calls initially for compliance of distribution-

contractor trucks with Saudi Aramco as well as government regulations mandating strict control over petroleum product transportation. FMS devices were installed voluntarily by relevant truck drivers in 2010. The company developed new FMS technical specifications to help truck drivers and customers standardize their new devices.

•• **Truck standards:** As part of our efforts to pursue safe tanker-truck operations inside and outside company facilities, Saudi Aramco worked with the Saudi Arabian Standards Organization to revalidate the Tank Truck Design standard as well as to develop and approve the new Tank Truck Inspection and Periodic Maintenance Standards. These standards will be enforced through a new truck integrity program that is being developed in collaboration with the Inspection Department.

## Vela expands fleet with four new double-hulled tankers

Saudi Aramco's shipping affiliate, Vela International Marine Limited, took delivery of four new very-large crude carriers (VLCCs) in 2010 from South Korean shipbuilder Daewoo Shipbuilding & Marine Engineering, bringing its double-hulled VLCC fleet to 14.



The new arrivals concluded an ambitious decade-long program to replace 15 single-hulled VLCCs, built in the 1990s, with 14 double-hulled crude carriers. In addition to the new tankers

delivered in 2010, Vela took delivery of four VLCCs during 2001-2003, built by Hyundai Heavy Industries in Ulsan, South Korea; and another six from 2007-2009, built by Daewoo. The proactive move was in line with international environmental regulations

mandating the phase-out by 2015 of single-hulled tankers, which are more vulnerable to oil-spill incidents.

Measuring more than 300 meters long — about the length of three American football fields or three soccer pitches — and weighing approximately 45,000 tons without cargo, a single VLCC costs more than a \$100 million to design and build, and is able to haul precious Saudi Aramco crude oil from Saudi Arabia to countries around the world, for up to a quarter of a century.

In addition to shipping Saudi Aramco crude oil to international customers, Vela is also involved in time- and spot-chartering, successfully competing in that global marketplace, especially in Asia and India.

Supplementing its VLCC fleet, Vela also owns and operates five product carriers (four medium-range tankers and one Aframax, a small tanker with less than 120,000 metric tons deadweight capacity).





A new Vela supertanker is launched in Seoul, Korea.

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•• **Driver Simulator Program:** The Transportation Department introduced a Driver Simulator Program in the first quarter of 2010. The main objective was to evaluate and train drivers of heavy vehicles (tractors and buses) in defensive driving behaviors, and to enhance their overall awareness. In 2010, 180 drivers completed this program. The simulator program features driving scenarios in Arabic, English and Urdu with different driving conditions, recording of driving parameters and mistakes, and feedback reports.

• **Bulk Plants —**

•• **Bulk Plant benchmarking study:** To measure and improve distribution efficiency and performance, the company collaborated with an international consultant to conduct a benchmarking study for all its 21 bulk plants to provide a comparative analysis against 70 similar plants worldwide. The study was completed in October 2010 and will be used in a manpower optimization study to streamline operations and reduce costs.

•• **New kerosene additive systems:** The company completed commissioning of kerosene chemical additive systems at Medina and Abha bulk plants in 2010 to produce Jet A-1 and JP8 fuels for commercial and military aircraft, respectively. The initiative diversified the jet-fuel supply network in the Western Region by making use of an existing asset that will also support the kerosene inventory turnover of Saudi Strategic Storage Project sites SSSP-6 and SSSP-7. It also enhanced logistics and minimized truck clustering at specific supply nodes, improving traffic control and safety, and will provide a back-up to ease response to demand escalation when needed.

•• **Operating Two SPMs at Jazan Terminal.**

To overcome the high demand at the company's southwestern bulk plants and to avoid depletion of SSSP products, two single-point mooring (SPM) berths were operated simultaneously at Jazan Terminal. One berth was dedicated to offloading gasoline and the other for diesel oil discharge operations. This



steel pipeline, 24 km of subsea pipeline and 57 km of replacement utility-water pipes in company communities, as well as to downhole and in-plant piping and valves. Nonmetallic products have proven to lower lifecycle costs more than 25 percent compared to carbon steel, plus improve corrosion resistance and ease of construction. Saudi Aramco has led development of an international certification/qualification program for nonmetallic piping installers.

operation allowed accommodation of more ships. The simultaneous mooring optimized operations and helped ensure a continuous supply of refined products.

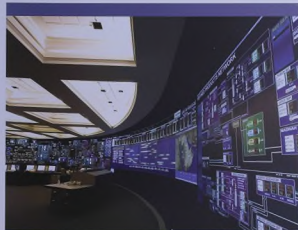
• **Pipelines —**

•• **Nonmetallic program:** To better control corrosion, promote conversion of oil to petrochemicals and improve the supply chain, Saudi Aramco in 2010 launched a strategic program to expand the use of nonmetallic materials in its pipelines, infrastructure and other applications in operating facilities. During the year, the company applied nonmetallic products to more than 4 km of hydrocarbon pipeline, 2.17 km of high-pressure water pipeline, 9.49 km of thermoplastic-lined carbon-

•• **Pipeline flow-rate increases:** To meet anticipated product demand growth in the Eastern and Central regions and reduce potential hauling costs (and traffic-accident risks) as well as maintain optimum SSSP-1 and SSSP-3 product inventories, flow rates of the two pipelines from Ras Tanura to the Dhahran Bulk Plant and from Dhahran to Riyadh were increased by operating the existing shipper pumps in parallel. This action increased maximum flow rates to Dhahran by nearly 11 percent, to 260,000 bpd, and to Riyadh by 30 percent, also to 260,000 bpd.

•• **Shedgum-Yanbu' pipeline Phase II:** As part of Saudi Aramco's continuous efforts to meet increasing ethane and NGL demand on the west coast, the East-West NGL Pipeline's Shedgum-to-Yanbu' (SHY-1) line capacity is being increased from 425,000 bpd to 585,000 bpd maximum sustained production capacity. This will be achieved by installing a fifth NGL shipper pump and a pipeline loop. Facilities under construction include stabilized crude, NGL, sour-gas and fuel-gas pipelines to support the increased production capacity target. Construction is well underway, and completion is forecast in 2011.

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At left: The "Big Board" at Saudi Aramco tracks the movement all the company's oil and gas production. Top: A new pipeline is laid in the desert.

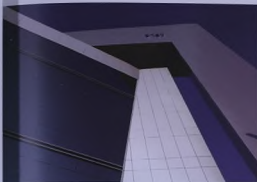
## Human Resources

Saudi Aramco continues to operate one of the world's largest industrial training and human-resource development programs

Below: The College Development Program is developing young Saudi women for company positions. Top: The new Upstream Professional Development Center.

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### Spotlighting the longstanding and critical importance that Saudi Aramco places on human-resource development, the company in 2010 inaugurated three major HR complexes: the Upstream Professional Development Center and the Human Resource Service Center, in Dhahran, and the Leadership Center in Ras Tanura. In addition, some 3,500 employees will be located in the new 13-story North Park Office Complex when it opens in Dhahran in 2011. Saudi Aramco continues to operate one of the world's largest industrial training and human-resource development programs, testament to the company's core belief that employees are its most valuable resource.

#### • Projects —

•• **Upstream Professional Development Center.** The 12,980 m<sup>2</sup> Upstream Professional Development Center, completed in November, is designed to prepare Saudi Aramco's exploration and development work force to succeed in a changing world and a challenging upstream environment, and to effectively and efficiently close the knowledge gap that exists between retiring professionals and the large influx of new employees. The center can provide training to 550 upstream professionals per day. It includes 18 high-tech lecture theaters and program rooms, eight team rooms, two display rooms, a library and other facilities.

•• **RT Leadership Center.** Instilling the company's values is the core mission of the new three-story Corporate Human Resources Development Center in Ras Tanura, known as the Leadership Center, which was inaugurated on September 29 to meet the company's future demand for leadership, and supervisory and professional training. As the company faces new challenges, it is critical for Saudi Aramco to produce and support emerging and enduring leaders through succession planning, employee retention, increasing global interconnectedness, a highly globalized and mobile employee base, changing workplace demands and continuously evolving skill sets. The Leadership Center was built to respond directly to these needs. The 7,500-square-meter building contains 22 classrooms, two 100-person multipurpose rooms, two computer labs to support state-of-the-art technologies in leadership and professional development, a 400-seat auditorium and a 250-seat multipurpose room. Training at the facility focuses on four main areas: learning, behavior and organizational change, and improved business line performance.

•• **North Park Office Complex.** The North Park Office Complex, named Al-Midra Tower, will contain 3,500 offices and work stations to replace the East and North administration buildings in Dhahran's Core Area. The project includes a 13-story office complex, 500-seat auditorium, community center, access roads, utilities and communications. Occupancy is planned for 2011. The company plans to seek "Silver Certification" of the project from Leadership and Environment Design, an internationally recognized green-building certification organization. The building will monitor indoor air quality and enable fresh air intake to be tailored to the building's needs; reflective low-emission window glass, in tandem with building insulation, will provide thermal control, and sunshades over the complex's 4,500 parking spaces will double as solar panels supplying 10 MW of power to the buildings. In addition, a destination-focused control-dispatcher system will ensure that Al-Midra Tower's 16 elevators make the fewest stops possible, thus saving energy.

Human Resources

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The company launched a new approach to mentoring professional employees

→ **Al-Hasa Training Center.** Thousands of young Saudis will be learning the skills needed for careers in the oil, gas and petrochemical industries at a new national training center being developed in the Eastern Province region of al-Hasa, and Saudi Aramco is playing a key role in its creation and development. The center is scheduled to be fully operational in 2014. The company recently signed a Memorandum of Understanding with the National Industrial Training Institute (NITI), a joint project between Saudi Aramco and the Technical and Vocational Training Corp. (TVTC). NITI will be a legally independent, not-for-profit training entity solely controlled by its own board of trustees and chaired by Saudi Aramco. The new private/public partnership will address a community need for a world-class industrial training program to develop a trained and skilled Saudi work force, reduce unemployment and support the kingdom's Saudization goals.



• **Intellectual Capital and Development of a World Class Work Force** —

→ **Intellectual Capital.** The company is focused on capturing expert knowledge (intellectual capital) from employees before they leave the company, optimizing use of existing knowledge within the company, and making subject-expert knowledge readily accessible to those personnel who need it to perform their work. These efforts, along with others, will contribute to the development of competent and effective personnel who will be empowered with the knowledge they need.

→ **New mentoring approach.** The company in 2010 launched a new approach to mentoring professional employees: the Project Management Mentoring Pilot Program. In the program, mentors and mentees work together to create the necessary goals for the mentees to develop their professional growth in Saudi Aramco, and it will equip mentors and mentees with key skills for developing a productive mentoring relationship.

→ **Recruitment campaigns.** In 2010, the company participated in a number of in-Kingdom and out-of-Kingdom recruitment campaigns, including participation in major events to promote the company's education sponsorship programs.

• **Training and development** — Saudi Aramco operates a wide array of programs that train employees from entry-level trainees, to mid-career professionals, to seasoned specialists. Among the key programs are the College Degree Program for Non-Employees (CDPNE), the Apprenticeship Program for Non-Employees (APNE) and the Regular Development Program (RDP). In addition to these programs, the company executed a number of initiatives in 2010 that improve the quality of employee training.

→ **CDPNE.** For more than five decades, Saudi Aramco has sponsored selected students through the CDPNE to study in more than 500 universities at home and in major industrialized countries all over the world. This year's 1,757

Right: The new Upstream Professional Development Center in Dhahran. Opposite: Female technicians work in a company research lab.



**Toastmasters thrives at Saudi Aramco**

Few human activities provoke as much primal fear as public speaking, which is why Toastmasters International (TMI) today boasts 12,800 clubs and more than 260,000 members worldwide. Fifteen of those clubs, totaling nearly 500 members, currently



operate within Saudi Aramco, and the company has been a moving force behind development of Toastmasters-chartered clubs all over the Kingdom and the Arabian Gulf region.

The first Toastmasters Club in Saudi Arabia, an English-speaking group, was founded in 1978 by Aramco employees, and the first Arabic-language club — the Oladh Toastmasters Club — was chartered by a Saudi Aramco group in 2007. The company's success in starting and maintaining active Toastmasters clubs over many years has been an effective catalyst to the formation of non-Aramco clubs throughout the region. The clubs make a dramatic difference in the lives of members by helping them sharply improve their communication,

public speaking and leaderships skills — skills that are equally valuable on the job and off.

"This is a big company filled with very smart people, younger and older, from all sorts of backgrounds. They have important ideas, but, because of culture and personality they can't always get those ideas across," says Abdullah A. Harthi, TMI Division F governor and senior supervisor for area maintenance for Saudi Aramco's Yanbu' Crude Terminal Maintenance Section. "Toastmasters gives them tools to make themselves heard in effective, positive ways."

The level playing field of toastmasters meetings allows every member equal opportunities to progress as far as they want. Besides improving skill-sets on the job, many Saudi Aramco employees have used the skills they've learned at club meetings to compete and win local, regional and international TMI competitions.

Local Toastmasters clubs also sponsor public speaking education programs for middle and high school students during school breaks. Advanced club members run the programs to help children get a head start on skills that will serve them throughout their lives.



## Employees start national IT club

In the beginning of 2004, Awadh M. Qufali and a few friends from Saudi Aramco began doing volunteer information-technology (IT) training in the Dhahran and nearby al-Khobar communities, trying to spread IT knowledge and practical skills to regular people.



By the following year, the sharply increasing demands from the community for the group's expertise and hands-on training indicated that the organization needed

a more formal identity and more financial resources to continue spreading the IT canon, much less expand activities, said Qufali, a telecommunications employee in the Communications Operations Department.

After two years of effort trying to secure support, the group in 2007 enlisted the sponsorship of the Prince Mohammad bin Fahd bin Abdulaziz Program for Youth Development (PMPYD), which was impressed by the group's vision to create a nonprofit organization to spread IT information and skills among Saudi communities across the Kingdom.

Since then, the IT Club ([www.sauditc.com](http://www.sauditc.com)), as it now calls itself:

- Created a summer youth camp (the Technology Generation Program), which was held for the third year in the summer of 2010.
- Developed an e-Government Services Program called *Tawweej*, using Microsoft Windows/Office, training 480 Saudi government workers with Saudi Aramco IT employees' support, and has signed a memorandum of cooperation with Microsoft and General Electric to support IT development in Saudi society using different Microsoft applications.

- Initiated an Open Source Open Day to popularize open-source applications utilization and development (three Saudi universities hosted the day on their campuses in Dhahran, Riyadh and Jeddah). Open-source software is generally free to anyone, without copyright limitations, allowing users to study, change or improve it.
- Succeeded in having Saudi Arabia officially certified as an expansion initiative of AIESEC, Association Internationale des Etudiants en Sciences Economiques et Commerciales. AIESEC is the world's largest student-driven organization whose aim is to encourage young people to discover and develop their potential so they can positively impact society. Currently, AIESEC has 50,000 members in more than 1,600 universities.
- Conducted more than 120 training sessions, courses and workshops.

Qufali, the club's founder and chairman, said he and the board have ambitious plans. "We hope to expand in the Kingdom and to have more partnerships with more technology companies and organizations, and to be one of the most distinctive and professional nonprofit organizations in the world. Moreover, we want to recruit more professional members to support and help fulfill our mission."

IT Club affiliates are now active on both coasts in the Kingdom (Dhahran and Jeddah) and in Riyadh in the interior.

"The IT Club idea is new and attractive for people at different ages who like technology," Qufali said. "The voluntary work environment, and the organizational proficiency of the team, helped attract new members to participate in the Club activities."

The club's management structure has different groups, under the board, responsible for different activities. Planning is approved by the chairman, and coordination is handled by each group as per its needs.



The company strongly and consistently supports self-development in its quest to develop a knowledge culture.

At year-end 2010, about 4,460 trainees were enrolled in all Saudi Aramco training centers.

participants, with 1,296 studying out-of-Kingdom, is the largest COPNE group in the past five years. The participants studying out of Kingdom are not only developing their knowledge and skill sets, they are strengthening our international business relations and serving to improve understanding between cultures.

•• **BDP:** The company contributed to the development of regular professional employees through advanced degree programs, specialist programs and short- and long-term work assignments in and out of Kingdom. By year-end, 453 employees were enrolled in these programs, the highest number in the past five years.

•• **APNE:** Saudi Aramco continued to train Saudi high school graduates in its APNE program. In 2010, the year-end level in all training centers reached approximately 4,460 trainees. The program was restructured to produce well-rounded graduates equipped with the necessary skills to meet future job demands. The program now includes a non-academic co-curricular program of six modules covering key skills in the areas of life, communication, studying, thinking, community service and lifelong learning.

•• **Knowledge Transfer:** In 2010, the company expanded its Knowledge Transfer (KT) Program, targeting seven critical industrial jobs: process control systems technicians, maintenance electricians, maintenance machinists, metals mechanics, oil/gas operators, lab technicians and field service operators. At year-end, 122 line organization KT specialists were working full time within their respective organizations, to the benefit of approximately 5,200 employees across 20 departments.

•• **Saudi Aramco Professional Development Academy (SAPDA):** A new corporate program for students in the Professional Development Program (PDP) was launched in 2010. The seven-week SAPDA program includes workshops, guest speakers,



site visits and other activities designed to develop the potential of academy participants and inspire them to be part of the continuous success of Saudi Aramco and the wider community. The cornerstones of the program are workshops on safety, leadership, business communication and volunteerism. In 2010, 89 FDPs graduated from the first two SAPDA start-ups.

• **Women in Business:** Also in 2010, a new Women in Business program was successfully launched. This workshop focuses on how Saudi women can be successful in the corporate workplace, and includes a variety of class discussions, brainstorming and other activities to give women the motivation and tools to excel in the Saudi Aramco workplace. In 2010, approximately 50 women completed this program.

• **100 Patents:** The company on November 24 celebrated its 100th patent, which was granted in March, although more than 25 additional patents were subsequently granted, heralding a period of innovation in the company like none before. Although Saudi Aramco employees have been producing patents since 1950 — the first was granted to Edward Van Dornick's oil and gas separator — it wasn't until 2000 that a process was put in place to support that quest. In fact, 110 of the 125 patents granted to Saudi Aramco have been

granted since the introduction of the Intellectual Assets Management system, indicating that all those ideas needed was harvesting. Patents were awarded in 2010 for a wide variety of innovations, including a system to turn previously unusable wastewater into usable water, technology to analyze oil reservoirs to predict future production, and an improved technology that allows characterization of oil reservoirs at the highest resolution in the industry.

• **Technical development** — More than 1,000 Saudi Aramco employees in 56 professional categories earned international certifications in 2010. Also during the year, several new engineering professional certifications were introduced in Saudi Arabia, a significant milestone. Approximately 100 company professionals received certification under the Fundamentals of Engineering Certification exam, formerly known as Engineer-in-Training, and another 35 professionals were certified internationally in the American Society of Materials, Failure Analysis Certification, Maintenance Reliability Professional Certification and Fire Protection Professional Certification.

• **Asia Business and Culture Program** — A number of Saudi Aramco senior management and other executives participated in October in a weeklong tour of Asia as part of the company's Asia Business and Culture Program. The program exposes Saudi Aramco leaders to Asian culture and the region's way of doing business. October's trip included visits to four key cities: Seoul, Shanghai, Beijing and Tokyo. Participants attended presentations on various cultural and business topics, and met with customers to learn about their business portfolios and exchange views.

Our world-class work force represents nearly 70 different nationalities.

## More than 1,000 Saudi Aramco employees earned international certifications in 2010

• **Medical training** — Clinical training and technical assignments for Saudi Aramco Medical Services Organization (SAMSO) medical and nursing staff with leading medical universities and teaching hospitals in Australia will be encouraged under a cluster of agreements and memoranda signed by affiliate Aramco Overseas Company B.V. (AOC). AOC signed memoranda of understanding with health institutions in Australia and New Zealand, building on existing ties. Collaborative programs are planned at the University of Western Sydney, Australia, to train SAMSO nurses recruited from Saudi high schools; Monash University in Melbourne, Australia, to cooperate in the development and training of SAMSO doctors, nurses and paramedics; and Eastern Health Group, of Melbourne, to train doctors in emergency medicine to meet anticipated SAMSO demand for qualified professionals in the next 10-15 years.

• **ECC Help Desk certified** — Saudi Aramco's EXPEC Computer Center (ECC) has achieved its fourth Help Desk Institute (HDI) Support Center Certification. According to HDI, the ECC center is the first in the world to be recertified by HDI three consecutive times. HDI is a global association for IT service and technical support professionals, and is the premier certification body for the industry.



## Safety & Health

A comprehensive fire-fighting training facility helps protect employees and facilities from fire risks.



A safety culture infuses the company, and our medical facilities are second to none.

Health care for employees is better than ever at Saudi Aramco, with improved and expanded services, fire protection services also approved substantially in 2010 for employees and their dependents, and for company facilities, and safety and wellness programs grew.

- **Medical Services** — The Saudi Aramco Medical Services Organization (SAMSO) continued to provide world-class health care for employees and their dependents in 2010, upgrading systems and services. SAMSO's health-care facilities continue to be fully accredited by the respected Joint Commission International hospital accreditation organization.

- **Cancer screenings:** In a multi-year effort to achieve best-practice standards, we are increasing the screening rate for breast and cervical cancers to promote earlier detection and more effective treatment of cancer cases; patients who test negative derive significant comfort in the knowledge that they are cancer free.

The average hospital stay at company medical facilities has been reduced from 5.7 to 4.9 days, creating more open beds



- **Bariatric surgery increase:** Morbid obesity is a serious condition that substantially increases the risk of diseases such as cardiovascular disease, diabetes and cancer, among others. Thus, SAMSO expanded the bariatric surgery program for morbidly obese patients where diet and exercise were not viable alternatives. This lifesaving and life-enhancing surgery was performed on approximately 125 SAMSO patients in 2010.

- **Reduced hospital stays:** Our physician and nursing teams have made great progress in managing hospital admissions and optimum hospital-stay lengths. We have reduced the average stay from 5.7 to 4.9 days. This has had the effect of creating more open beds, significantly reducing the number of patients transferred from SAMSO to our network providers, and reducing our expenses, while simultaneously increasing both patient and staff satisfaction.



Saudi Aramco's fire prevention program is accredited by the International Board on Fire Service Professional Qualification (Pro Board)

•• **Emergency response:** Supporting the expansion of the oil-and-gas business by improving emergency disaster response is a top safety priority; as a result new paramedic units have been established at satellite clinics in remote Hadiyah and Hawiyah.

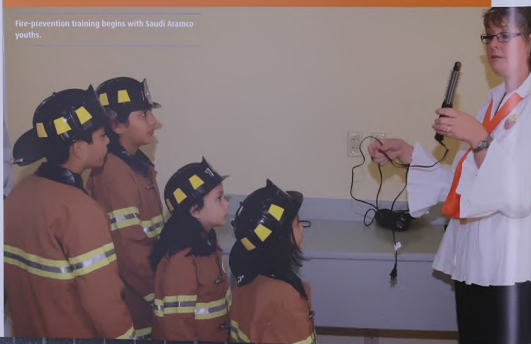
• **Safety workshops** — The company offered its World-Class Safety Workshop to more than 700 operations supervisors in 2010, providing them with tools to elevate the safety performance in their operating areas to advanced levels. Since it was first introduced in 2007, a total of 252 sessions have been offered to nearly 2,800 supervisory personnel. In addition, a number of specialized safety courses were offered to employees through both classroom training and e-Learning in areas such as incident investigation and root cause analysis, process hazard analysis, and hazard and operability studies. Sessions of the Safety Leadership Workshop were offered to 20 new managers and 42 division heads to help them properly implement the corporate safety management system.

• **Upstream safety** — Our Upstream organization continues to make significant progress with its focus on safety; incident rates have fallen dramatically from 2009

levels — lost-time incidents, down 16 percent; off-job disabling injuries, down 40 percent; motor vehicle incidents, down 13 percent; total recordable injuries, down 27 percent. These significant results were accomplished by conducting several, wide-ranging training workshops throughout the organization that enhance safety awareness and knowledge. Safety awareness also has been raised by monthly monitoring of leading and lagging safety indicators at the departmental level through the E6P Safety Dashboard. Dashboard information captures 12-month moving averages of normalized incident rates. This approach removes noise effects of real-time information and accounts for variations in man-hours and population while allowing for continuous monitoring.

• **Fire/emergency training** — Fire and emergency training at Saudi Aramco reached a new level when the Fire Protection Department was given accreditation by the International Board on Fire Service Professional Qualifications (Pro Board). The certified training provided by FiPD is required to meet international standards for proficiency and produces a better educated and more highly skilled firefighter. This translates into a safer company and community

Fire-prevention training begins with Saudi Aramco youths.



The highest honor and a blessing

One day in 1980, when Wasimah Nawwab was visiting the sick daughter of a friend in the children's ward at Saudi Aramco hospital in Dhahran, she noticed a lot of untouched food trays.

"I contacted the nurse in charge and told her that I wanted to visit some of those sick children every day before lunch in order to feed them and read interesting stories to them," said Wasimah, the wife of a former Aramco employee. "So, I started doing this. Later, I also began visiting some of the bed-ridden elderly female patients who were in need of service and comforting words."



Two years later, the Medical Department (now named the Saudi Aramco Medical Services Organization, SAMSO) began a formal but fledgling volunteer program. Wasimah has volunteered in the program since — for 30 years — and is the longest continuously serving, still active volunteer in the program. "I don't plan to ever stop volunteering as long as my health holds up," Wasimah said. "The more I serve, the more happy I feel. My motto for serving all is the saying of the Prophet Muhammad, 'The best people are those who benefit others the most,'" though it often feels to her as though she receives far more than she gives.

"I used to visit an old blind lady every day to feed her and, at her request, read her passages from the Qur'an," she said. "It was sheer joy to see her as she raised her hands in prayer for me. She always called me, 'Wasimah, my daughter.' I felt I was in heaven."

One of the most rewarding volunteer projects Wasimah recalls is when she worked with a 9-year-old girl with third-degree burns, reading her stories and feeding her during her recovery. "Her condition was really tragic," Wasimah said, noting that the girl was also refusing to take medications. Eventually, with kindness and perseverance, Wasimah was able to achieve what the nurses said they had not, and the little girl began to accept medications. "And the nurses said the girl's health had also

improved remarkably," she said. "A feeling of joy and gratitude overwhelmed me when I heard this."

Currently, the SAMSO program has more than 100 volunteers involved from many of the 70 nationalities represented in the company; a few of

the hundreds who have volunteered over the years. "The SAMSO volunteer program has set the gold standard in the Kingdom for such projects," Wasimah said. "It pioneered this program in 1982 within the company and then extended it to other Saudi communities in the Eastern Province and elsewhere in Saudi Arabia. Saudi Aramco can be proud of its achievements in this area." Program activities include playrooms for children at hospitals; delivering books, newspapers, magazines and gift items to patients; conducting annual breast-cancer awareness campaigns; caring for cancer in-patients; and assisting with outreach programs at Saudi hospitals in local communities.

In 2010, a new Industrial Security Center was built in Dhahran, opening in May

### 55,000 reasons to feel safer

Saudi Aramco employee Mohammad T. Al-Hazazi's superiors estimate that he has "inspired more than 55,000 people Kingdom-wide with an emotional presentation titled "Reckless Driving," including 50,000 in the company's summer program alone.

Al-Hazazi, a self-described "former reckless driver," volunteered to give safe-driving



presentations, in English and Arabic, as part of his Area Information Technology Department's (AITD's) Vehicle Safety Program. At first, it was just to increase driving safety awareness among AITD staff but soon expanded to other departments and organizations throughout the Kingdom.

One catalyst of the safe-driving program was a survey of AITD staff, which revealed that 54 percent of those surveyed believe that they could be described as reckless drivers; 85 percent get angry at fast drivers, slow drivers, traffic jams and tailgaters; 40 percent drive with excessive speed, and 44 percent drive aggressively and unsafely to discipline reckless drivers.

Al-Hazazi has only been with the company about a year, but during that time he has logged more than 80 reckless-driving presentations at schools, air bases and other locales around the country.

His main message is really two messages: "Your life is precious, save it" and "Your family is waiting for you, drive defensively."

Al-Hazazi said sometimes there are clear victories for safety. About a month after giving a presentation at a Saudi school, he said, one of the students who heard his presentation phoned Al-Hazazi. "He said, 'I'm calling to say hello and thank you for changing me for the better. And one more thing — I started using seat belts.'"

"This means a lot to me," Al-Hazazi said. "It makes me even more excited to spread the safety culture in Saudi society."

In his former reckless-driving days, Al-Hazazi said, he drove from the Eastern Province to Riyadh in about two and a half hours. If you follow the speed limit, it takes more than four hours. Since then, he has seen friends and loved ones injured and killed in traffic accidents, and when he joined Saudi Aramco, he became influenced by its pervasive safety culture.

Now, he says, "Each of us can do something to deliver an effective safety awareness message. It's a shared responsibility."

Since he joined Saudi Aramco, Al-Hazazi said, "The company educated me about the dangers and consequences of reckless driving, and convinced me to start driving more safely." He said he is committed to bringing the message of safe driving to all people but especially those in the younger generation, who are disproportionately involved in many serious and fatal vehicular accidents in the kingdom.



At left: Fire and emergency response drills are regularly conducted throughout the company. Below: A company firefighter pushes his limits in a physical fitness competition.

• **Loss Prevention** — In 2010, the Loss Prevention Department (LPD) was involved in a number of safety programs and initiatives to facilitate the creation of an injury- and incident-free workplace, and to strengthen Saudi Aramco's safety culture.

• **Risk assessments**: LPD supported a variety of state-of-the-art risk assessment studies for the company's many new and existing facilities as well as expansion projects. LPD also coordinated and exchanged risk assessment and management best practices and requirements with joint ventures.

• **Contractor safety prequalification**: To ensure that Saudi Aramco's contractor companies meet Saudi Aramco's safety performance expectations, proponent

evaluation teams successfully prequalified more than 140 contractor companies using the pass/fail methodology in the Contractor Safety Prequalification Guide, as required by the Saudi Aramco Contracting Manual. In conjunction with the guide's publication, hundreds of evaluation team members were trained by LPD for prequalification.

• **Plant assessments**: To enhance safe operations in exploration and producing facilities, LPD established the Plant Safety Assessment Program (PSA). The objective of the PSA is to conduct unannounced site surveys and provide feedback on the condition of facilities' key fire prevention and safety systems. A total of 15 departments, from Gas Operations, Northern Area Oil Operations and Southern Area Oil Operations, were surveyed during a seven-month period.

• **Industrial Security** — A new Industrial Security Training Center was built in Dhahran and opened in May. The center will facilitate critical training requirements for the Industrial Security work force to ensure proper physical security measures at all company facilities, including community areas. This center consolidates all specific training functions and provides a custom-built, sustainable solution to teach the knowledge, skills and applicable strategies that are essential to Security Operations.



## Communities

The company renovated  
35 Saudi Aramco Built  
Government Schools in  
2010

Community cultural events are frequent and well-attended, and the company's schools are first-rate.

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Communities



A lovely atrium graces  
the Al-Mujamma'  
community center in  
Dhahran.

**Saudi Aramco employees and their dependents continued to enjoy the many**

benefits of living in company communities across the kingdom during 2010. Local leisure amenities, schools and a wide array of community services, as always, remain top-notch. Opting to build homes outside Saudi Aramco communities in the popular Home-Ownership Program in 2010 were 1,103 Saudi employees. Company programs also benefit Saudi communities, including the renovation of 139 Saudi Aramco Built Government Schools.

• **Saudi Aramco Schools and Community Education**

— Saudi Aramco continues to improve its large school system for expatriate children, grades kindergarten through ninth, offering international standards, small class sizes, excellent facilities and unique educational opportunities. A new K4 (pre-kindergarten for 4-year-olds) program, akin to a preschool, was implemented in Saudi Aramco's Abqaiq, Udhayyiah and Ras Tanura communities, with a further expansion for Dhahran slated for the 2011-2012 school year. Focusing on language proficiency, literacy and numeracy readiness, and positive social interactions, the children will



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## Saudi Aramco Built Government Schools

In 2010, 35 Saudi Aramco Built Government Schools received facelifts, including complete repainting, landscaping, carpet and acoustic tile replacements, and comprehensive general maintenance as part of a program to uplift the structural and operational integrity of all 139 schools built in the program.

The renovations are a continuation of a program launched on Feb. 7, 1953, with the signing of an agreement between



Aramco and the Saudi government, and its amendments, in which the company committed itself to construct, maintain and support government elementary schools for boys under the

direction of the Ministry of Education. The agreement related to Saudi Labor law at that time, which stipulated that any company having more than 500 employees should

have schools for the children of its employees.

In 1959, a second agreement committed Aramco to building and maintaining intermediate government schools for boys, grades 7 to 9, and, in 1961, Aramco agreed to build elementary and intermediate schools for girls, after the government approved public education for females. Saudi Aramco and the Directors General for Boys and Girls Education in the Eastern Province in 1981 agreed on a comprehensive construction plan that added secondary schools to Aramco's government schools portfolio.

Over the years in the program, the company built 139 schools, consisting of 74 boys' schools (42 elementary, 28 intermediate, four secondary) and 69 girls' schools (37 elementary, 23 intermediate, five secondary), with a combined capacity of 2,895 classrooms sufficient to accommodate 85,852 students. These schools are located in a wide geographical area of the Eastern Province. Also Saudi Aramco operates schools in its company communities for children of expatriate employees.

receive an enriched instructional program that will provide each with the necessary skills to transition successfully into regular kindergarten (KG5) classrooms. Children are eligible to enroll in regular kindergarten at age 5. Currently, there are 94 students enrolled in the new K4 program in company communities.

- **Community Services** — Community Services (CS) sustained efforts in 2010 to make a difference in managing community and office services in a reliable, innovative, quality and cost-effective manner. CS has completed a number of renovation and maintenance projects to improve residential, recreation and office facilities' conditions, repair and preserve integrity of company facilities, and ensure the safety of employees and community residents. Major accomplishments include renovation of 1,240 housing units and construction of a new office building in 'Udhailiyah.



Opposite: Beautiful recreational beaches are located near a number of company communities. Below left: Saudi Aramco students practice playing musical instruments.

## Home Ownership Program

The large majority of Saudi Aramco employees are Saudi Citizens who live outside of company communities, and for more than five decades, we have made it easier for

them to afford their own homes through the Home Ownership Program. During the year 2010, 1,299 new home loans were granted and 245 free lots were distributed to eligible employees.



Over the life of the program, more than 59,000 new homes have been financed. In addition, the company has also started a pilot project involving a real estate developer to build houses for eligible employees.

Through the program, Saudi Aramco has helped create vibrant local communities near important Saudi Aramco operating areas around the Kingdom, and made the members of its work force stakeholders in continued local and national development. Strong local communities provide a safe and secure environment in which to raise families, and provide vital connections between individuals and the larger society. Home Ownership Program communities include landscaping, recreational facilities and children's playgrounds, in addition to necessary roads and utility infrastructure.

The program has developed communities in Dhahran, Rahmah, Abqaiq, al-Khobar, Safwa and al-Hasa in the Eastern Province, and Yanbu' on the West Coast.

# Corporate Citizenship



Below: When completed, the King Abdulaziz Center for World Culture will be a regional cultural and intellectual hub. Above right: A Saudi Aramco dependent student on a field trip in Africa.



## We consider corporate citizenship to be both a responsibility and a business

imperative. The breadth of Saudi Aramco's operational presence across the Kingdom, our position as the chief driver of national economic growth, and our strong working relationships with a variety of stakeholder groups have allowed us to assume a level of societal responsibility well beyond the scope of most other companies.

Saudi Aramco has established four focus areas that summarize our citizenship activities and future goals: Economy, Community, Knowledge and Environment. These four broad pillars are described briefly below. For more in-depth descriptions of these activities, please refer to the Saudi Aramco 2010 Corporate Citizenship Report.

The principles of corporate citizenship underpin our strategic approach across the full range of our business functions, for instance:

- Through a targeted and partnership-oriented approach to procurement, we aim to bolster the local economy and to create jobs.
- Through education and training for our employees and the community at large, we work to increase the skills and employability of the Saudi work force.



Saudi Aramco's citizenship program has four focus areas: economy, community, knowledge and environment

•• Through research and development, we strive to ensure our continued position as a global leader in energy technology and encourage the further diversification of the national economy.

There were many highlights in 2010. Detailed engineering was completed and main-building construction started in 2010 on the King Abdulaziz Center for World Culture, whose mission is to inspire among Saudi citizens, particularly children, a passion for and focus on learning, creativity and cross-cultural engagement. Work also began on the Saudi Aramco-directed project to develop the futuristic King Abdullah Petroleum Studies and Research Center in Riyadh, the Kingdom's first future-oriented global center for energy, environmental research and policy studies. In addition, the company implemented a wide variety of outreach programs domestically and around the world in 2010, including aiding Saudi industry by increasing local content in Saudi Aramco capital projects, inviting hundreds of orphans to annual Eid celebrations hosted by the company, and conducting a long list of charitable activities.

## Corporate Citizenship: Economy

We believe that an innovative, competitive and diversified economy is essential to the livelihoods of local communities, effective

Saudi  
Aramco  
awarded  
77% of  
\$16.4 billion  
in service  
contracts  
to local  
companies

management of the natural environment, availability of world-class educational opportunities, and our own business success. We aim to create progress by encouraging entrepreneurship and innovation, developing local supply chains and employment, and delivering quality products safely and consistently.

• **Encouraging Entrepreneurship and Innovation**

— Saudi Aramco strongly believes that economic success requires creativity, innovative thinking and entrepreneurial ambition:

•• Our Idea Management System, which allows employees to submit ideas to any organization within the company, captured approximately 13,118 employee ideas.

•• Our internal Innovation Tournament generated more than 1,800 innovative energy conservation ideas, representing representing significant potential savings to the company.

•• 30 patents were awarded to Saudi Aramco by the U.S. Patent and Trademark Office, and an additional 104 patent applications were filed.

•• Top inventions from throughout Saudi Arabia, including 11 by Saudi Aramco employees, were showcased in late May at Ibtikar 2010, the Saudi Innovation Exhibition, in Jiddah, on the Kingdom's West Coast.



This support extends outside of the company as well: the newly founded Saudi Aramco Entrepreneurship Center (SAEC) aims to be a game-changing source of funding and incubator for new businesses in the Kingdom. The SAEC funded three entrepreneurs in its pilot phase and aspires to fund more than 150 ventures in the next 10 years.

• **Developing Local Supply Chains and Employment**

— One of the principal means to support development of the domestic economy and create new jobs is to purchase locally manufactured goods and obtain local services. In 2010, Saudi Aramco:

•• Awarded 2,157 service contracts valued at a total of \$16.4 billion, 77 percent of which was awarded to local companies and contractors.

•• Awarded \$3.1 billion of the total \$3.6 billion in material procurement, or 85 percent, to the local market.

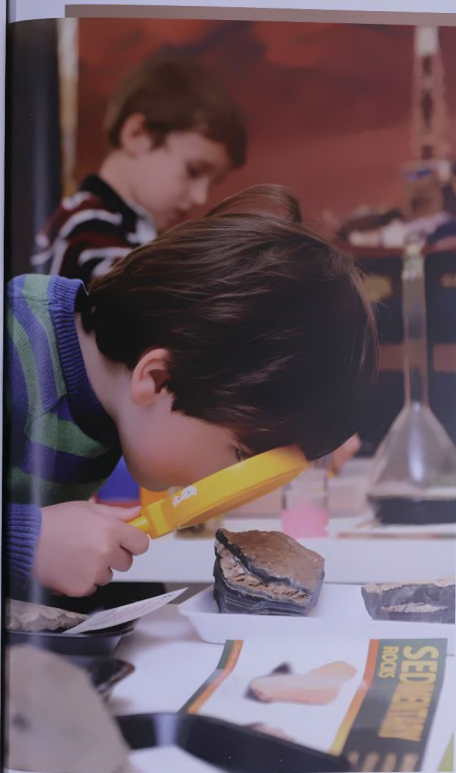
•• Locally warehoused \$240 million worth of materials, including \$40 million added during the year.

•• Approved an additional 151 local suppliers and 32 manufacturers as potential sources of supply. The total number of registered local manufacturers within Saudi Aramco grew from 677 in 2001 to 961 in 2010.

•• Through collaboration with our New Business Development organization, foreign investors and local manufacturers will continue to enhance local manufacturing and supplier capabilities.

• **Delivering Quality Products Safely and Consistently**

— Ensuring that our skilled work force delivers globally competitive products and services is essential to the Kingdom's economic goals as well as to our own commercial success. We carefully track where and why injuries occur to inform future prevention programs and drive performance improvements to minimize the possibility of accidents. Saudi



An abiding goal of Saudi Aramco's citizenship programs is the education and development of children.





Saudi Aramco mobile and community libraries, and international outreach programs encourage children to learn to love reading.

Aramco also promotes the company's standards, which are considered the hub of our engineering intellectual assets. These efforts are designed to boost the region's economy, as well as attract foreign investment. Over time, this will back the Kingdom's goal of diversification and create more jobs. In 2010, Saudi Aramco promoted one standard to the International Organization for Standards (ISO), and we have proposed 55 standards to the Gulf Cooperation Council Standardization Organization (GSO).

### Corporate Citizenship: Community

For the past 77 years, Saudi Aramco has played a unique role in supporting vibrant, healthy, productive communities in Saudi Arabia. We carry forward this tradition by promoting community health and safety, encouraging volunteerism, and targeting charitable contributions.

- **Promoting Community Health and Safety** — Reducing the incidence of road accidents in the Kingdom is a company priority. Saudi Aramco's Traffic Safety Signature Program aims to partner with other stakeholders to promote safe driving to significantly reduce traffic-

For the past 77 years, Saudi Aramco has actively supported vibrant, healthy, productive communities in Saudi Arabia

related deaths and injuries on a sustained basis. Saudi Aramco also sponsors the Safety Driving Simulator Trailer to educate young people on defensive driving — in 2010, 43,874 young people over age 15 visited the Simulator Trailer as it traveled through the Eastern Province. Our community work also extends into the areas of general health and well-being — the Saudi Aramco Wellness Program focuses on creating a culture of health through preventing injury and sickness, and the Smoking Cessation Program assists employees in quitting smoking through peer-led intervention by employees trained as smoking cessation facilitators. Since 2007, 1,899 employees enrolled in the program's clinics in 29 locations.

- **Building a Culture of Volunteerism** — In 2010, volunteers clocked more than 82,000 service hours in our various programs. More than 600 volunteers participated in

the 2010 Summer Program, many of them taking part in a pilot Web-based volunteer management system. The Saudi Aramco Medical Services Organization, which has had a volunteer program since 1982, places over 100 volunteers in important operational roles. Similarly, the King Abdulaziz Center for World Culture has enlisted part-time and full-time volunteers — with many more to come in the future — to help design the center's programs and contribute to the development of the organization as it approaches its opening.

- **Targeting our Charitable Giving** — Saudi Aramco targets charitable giving to maximize impact for people in need. In 2010, our School Kit for Needy Families Campaign generated more than \$346,000 in donations that paid for 15,400 school kits distributed to 65 charity centers. Saudi Aramco matched \$13 million in donations from approximately 10,000 employees for the Pakistan flood relief efforts. Saudi Aramco also sponsors a variety of events and initiatives around the world. For example, the company sponsored the 2010 British Science Festival, the largest public science festival in Europe, which attracted more than 80,000 visitors. Currently we are developing a strategy that will guide our selection process of programs and grants more effectively and track their progress and impacts over time.



A float at a Saudi Aramco-sponsored community environmental awareness day in Ras Tanoua.

### Corporate Citizenship: Knowledge

Cultivating a knowledge economy is important both in terms of our commercial competitiveness as well as the broader educational attainment and development of citizens throughout the Kingdom. We encourage our company's continued evolution as an innovator, and we support the Kingdom's knowledge hub by empowering individuals through world-class educational opportunities.

- **Investing in Education and Training** — In 2010, we strengthened our commitment to educational development. We established the Saudi Aramco Professional Development Academy to train participants on safety, leadership, business communication and volunteerism. Our Regular Development Program placed 450 employees in advanced degree programs, specialist programs and short- and long-term work assignments, and 1,750 students were enrolled in the College Degree Program for Non-Employees, which provides Saudi students the opportunity to receive a paid college education in areas of study required by Saudi Aramco with the intent of offering them employment upon graduation. We sponsor 10 university chairs and actively collaborate with many universities in Saudi Arabia and around the world.

- **King Abdullah University of Science and Technology**: The company is currently working with the institution on a number of research projects of mutual benefit. One example is the "Novel Seismic Attributes via Integral Invariants" project, which will develop new seismic attributes that are less sensitive to extraneous data flaws known as seismic "noise." Results should improve interpretation accuracy in exploration and development settings, particularly in more complex geological prospects, reducing risk and uncertainty.

- **King Fahd University of Petroleum and Minerals (KFUPM)**: Saudi Aramco continued its support of the Geoscience and Petroleum Engineering Fundamental Programs administered by KFUPM. This collaborative effort

## Renewable energy initiatives

Saudi Aramco achieved remarkable milestones during 2010 in the field of renewable-energy development and implementation.



The efforts were aimed at helping the Kingdom become an international leader in renewable energy and to conserve natural resources for future generations. To achieve that, initiatives were

launched to research, pilot and manufacture renewable-energy technologies and quality system integrators.

As the solar photovoltaic (PV) industry is now a fast-moving and complex industry, the company established collaborative projects with pioneering solar manufacturers, training centers and universities to support key activities in this arena. Several test fields were installed to assess the performances of different types of solar technologies under various climate conditions to determine the best technological match for optimum performance and investment. Moreover, the company is investing in building the world's largest solar-PV car park, with solar shades to supply 10 megawatts of electrical power to an adjacent office complex in Dhahran.

In addition, solar energy is used as an alternative to displace diesel-fuel burning for power generation in remote areas. As an example, offshore Farasan Island was identified as a potential area for diesel displacement, and a 500-kilowatt power generation project is currently under construction. In addition to solar, further studies are under way to study wind and geothermal energies at different locations.

with the university equips young professionals with required business skills, speeding up their learning curve. Consistent with Saudi Aramco Upstream's long-standing strategic research partnership with KFUPM, several long-term research programs were started in 2010 to investigate oil recovery, near-surface seismic and reservoir quality predictions.

•• **Education partnerships:** The company extended its assistance to higher education institutions through collaboration with KAUST, KFUPM, King Faisal University and Prince Mohammed University and other organizations to aid in teacher training, and increase student awareness and interest in math and science.

Nearly 40 percent of the Kingdom's population is under the age of 15

The unique design of the King Abdulaziz Center for World Culture complex is unlike anything in the world.

•• **University-level research:** Saudi Aramco actively participated in collaborative research spanning all engineering disciplines with leading universities around the world during 2010, including the Massachusetts Institute of Technology, Stanford (California) University, Cornell University (New York), Colorado School of Mines, Texas A&M University and University of Texas, all in the United States; Delft University of Technology in the Netherlands; and others.

• **Inspiring Saudi Arabia's Young People** — With nearly 40 percent of the Kingdom's population under age 15, it is essential to our future success to educate, guide and inspire our next generation of leaders. Some of our efforts in 2010 included:

•• Developing a Youth Master Plan that will provide access to a wide range of intellectual and cultural resources designed to boost young Saudis' cultural literacy and foster a new generation of active and aware citizens. The plan aims to enrich the lives of 2 million young people in the Kingdom by 2020.

•• Continuing to support and maintain the Saudi Aramco/Siemens Discovery Initiative, which aims to awaken children's passion for learning. The initiative provided training for 190 teachers in the Eastern Province, who will impact 5,700 students.

•• Supporting the 9th annual Summer Program for Gifted Students, with particular focus on development of program details and



## Environmental Master Plan

Although Saudi Aramco's environmental protection initiatives go back many years, the company launched a formal Environmental Master Plan (EMP) in May 2001. The purpose of establishing the EMP was to bring all of the environmental projects under a single stewardship umbrella to emphasize the importance of environmental programs and provide additional focus. It was endorsed by the Board of Directors in May 2001 with a slate of 38 projects. As of 2010, the EMP included a total of 52 projects.

The EMP projects were initially ranked according to potential impact on human

health and the environment. The ranking called for the first projects to be funded in the area of reducing sulfur dioxide (SO<sub>2</sub>) and volatile organic compound (VOC) emissions. As

these projects were completed, areas of lower risk or projects required to bring the company into compliance with Government regulations were funded. An update on the Master Plan presented to the board in 2007 expanded the focus with the introduction of a clean transportation fuels program that sought to reduce automotive emissions by lowering sulfur levels in fuels to 10 parts per million (ppm), as well as reducing benzene and aromatic levels in gasoline.

The Master Plan has a current focus to bring existing company facilities into compliance with current environmental regulations in the Kingdom, and to enhance stewardship of the Kingdom's environment in areas where we operate. We also strive, through the EMP, to support our communities by protecting their environments and to serve as a role model.

New projects are added to the EMP as part of our regular business-plan cycles and are being administered as part of the capital program work process, and the company has also committed funding to our joint-venture partners for environmental programs.

Seventy-nine percent of the EMP projects will be completed by 2013, and all of them by 2015. Once the slate is completed, 37 million gallons per day (gpd) of sanitary wastewater and 29 million gpd of industrial wastewater will have been brought into compliance, representing nearly 100 percent of Saudi Aramco water use. In that same time-frame, Saudi Aramco will also have reduced volatile organic compound (VOC) air emissions 80 percent from the 2001 levels (these compounds are basically light hydrocarbons that pollute the air and also contribute to the formation of low-level ozone, creating a haze in the atmosphere) and sulfur oxide (SO<sub>x</sub>) air emissions 80 percent from the 2001 levels (at high levels, these compounds create an unpleasant odor and may cause irritation of the eyes, nose, throat, and lungs).

EMP projects completed in 2010 include: conversion of 29 conventional gas flares to High-Pressure Air-Assisted Smokeless systems to comply with Presidency of Meteorology and Environmental criteria; upgrade of sanitary wastewater system capacity of Dhahran's sewage and wastewater treatment plants from 10 million gpd to 14 million gpd; installation of 13,800 meters of sewer lines and four lift stations at South Riyadh Bulk Plant; updating oily-water collection and disposal systems at nine Western Region bulk plants; and installation of a wastewater treatment plant in Rabigh. The projects also include construction of a diesel hydrotreater complex in Ras Tanura to reduce the sulfur levels of diesel fuel sold into the marketplace.



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## Corporate Citizenship: Environment

Proper environmental stewardship is integral to our work, in terms of the way in which we produce them. Safeguarding the Earth's natural resources is a job for all of our employees, and this philosophy is embedded into our operations and research programs. Our environmental efforts focus on enhancing energy efficiency, protecting the natural environment and developing cleaner energy technologies.

### • Enhancing Energy Efficiency —

Saudi Aramco's energy efficiency efforts are steered by the company's Energy Management Program (EMP), which was initiated in 2000 following the creation of a company-wide policy to commit to "the efficient production and use of energy" and to "reduce overall energy costs and conserve resources used in producing energy." The EMP's overall strategic elements.

\*\* Reduce energy consumption of existing facilities by 2 percent annually.

\*\* Design Saudi Aramco facilities to be energy efficient.

\*\* Influence and promote energy efficiency at Kingdom level.

In 2010, Saudi Aramco finalized utility fuel allocation guidelines to help cut rising domestic fuel demand, and improve the overall power and water production efficiency in the Kingdom. Implementation is expected to achieve a 20 percent reduction in utility demand by 2030, and more thereafter.

Saudi Aramco is supporting the King Abdullah Petroleum Studies and Research Center (KAPSARC), a new future-oriented research and policy center committed to energy and environmental exploitation and analysis. The centerpiece of this facility will



Above: President and CEO Khalid Al-Falih plants a mangrove during a company-sponsored project.

supervising student activities as mentors during the one-month program.

\*\* Initiating a three-year renovation project to provide a major uplift to all 139 Saudi Aramco Built Government Schools.

### • Promoting Cultural Understanding

— Construction started in 2010 on the King Abdulaziz Center for World Culture, "the Center." This iconic facility will be an 80,000 m<sup>2</sup> multi-story complex in Dhahran, near the Saudi Aramco Exhibit, consisting of a public library, a lifelong learning center, children's discovery center, exhibition halls, auditorium, museum and archives. The Center is scheduled for opening in 2012. Also in 2010, Saudi Aramco World, the company's flagship English-language magazine, kicked off its sixth decade of publication, fostering cultural understanding around the globe.

Saudi  
Aramco  
invested  
in building  
the world's  
largest  
solar-PV  
car park in  
Dhahran



be the 69,000 m<sup>2</sup> research and office complex. Completion is forecast in 2012.

#### • Protecting the Natural Environment

— The company has had an Environmental Protection Policy since 1963 and was the first in the region to use environmental impact assessments to help determine the viability of capital projects. In 2010, Saudi Aramco continued exerting its utmost efforts to ensure that all measures are taken to prevent oil spills, and that all resources are constantly maintained in a state of readiness to effectively respond to any potential accidental spill. Additionally, as part of Saudi Aramco's environmental road map to evaluate means for lowering CO<sub>2</sub> emissions in line with enhanced oil recovery, a CO<sub>2</sub>-recovery pilot project was initiated to recover 40 million scfd of CO<sub>2</sub> from Hawiyah NGL Plant's acid gas stream for injection into the Uthmaniyah field.

#### • Developing Cleaner Energy Technologies

— Saudi Aramco is positioned to make substantial impacts in the development of future technologies. These include refinements to the extraction and use of fossil fuels as well as renewable energies. In 2010, we created a new Power Systems organization within the company to plan and execute renewable energy projects. In addition, collaborative projects were initiated with solar photovoltaic (PV) pioneers, and several solar test fields were installed to assess the performances of different types of solar technologies under various climate conditions. The company invested in building the world's largest solar-PV car park in Dhahran, to supply 10 MW of electricity to the new North Park 4 office complex. Saudi Aramco also continued its focus on cleaner-burning, more efficient fuel formulations for next-generation combustion engines in 2010. We are working on this in-house as well as in conjunction with other companies and institutions in the Kingdom and internationally.



Right: Summer students at a 3D demonstration at Saudi Aramco. Opposite: The daughter of a company employee embraces recycling.



## Using electricity wisely

As a major stakeholder in the Kingdom's electrical power sector, Saudi Aramco shoulders a major responsibility. The company is the sole supplier of fuel for electricity generation in Saudi Arabia, and it is itself a major producer and consumer of electricity. Saudi Aramco has created a new Power Systems organization to help mitigate a number of significant challenges in the sector, including high demand growth, inefficient energy use, and the need for large capital investments to meet current and future expansion.

The goal of the new organization is to ensure that the company takes full advantage of available power-use mitigation measures and opportunities to reduce demand on high-value hydrocarbon fuels and reduce carbon emissions, minimizing overall utility costs and conserve fuel and power now and in the future.



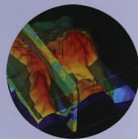
Subsequently, Saudi Aramco has initiated a number of in-house initiatives that can demonstrate a national model toward power generation efficiency and optimum utilization of electricity. These initiatives can be summarized as below:

- Solar: At North Park-4 office complex in

Dhahran, 120,000 photovoltaic (PV) solar panels from a subsidiary of Saudi Aramco's Japanese venture partner Showa Shell will generate 10 megawatts (MW) of electricity for the complex. The panels will be atop shades covering the car park, which will be the largest solar car park in the region and one of the largest in the world. The company also will be testing different solar technologies from 25 different PV suppliers and developing commercial pilot projects.

- Wind: The company will also complete the assessment of its ongoing feasibility study of wind-generated electrical power at different sites in the Kingdom. This initiative will include development of technical standards, engineering evaluation, economical studies and material specifications for different applications, in addition to hosting and attending technical forums and visiting project sites to exchange knowledge and deploy the latest technologies.
- Co-generation Expansion Program: The company is in the process of expanding to 2,000 MW in the next five years the capacity of its energy-efficient co-generation facilities, which reuse steam and electricity for various work at its industrial plants.
- Peak Power Demand Management: A cross-functional team from various stakeholder organizations will be established to identify intermittent power loads so that operating hours of various facilities can be shifted from peak, high-demand hours to off-peak times. Policies and tariffs will be implemented to encourage more off-peak power use, enhancing average power-reserve margins.

## Awards



Below: Vela International Marine Limited, Saudi Aramco's shipping subsidiary, received the International Tanker Operator Award in 2010. Inset: Model of an oil reservoir using the award-winning GigaPOWERS technology.



**Dawood M. Al-Dawood, left, vice president of Marketing, Supply and Joint Venture Coordination, receives the International Energy Company of the Year award from Frederick Pater of Hart Energy.**



- No. 1 oil company** — Respected industry journal Petroleum Intelligence Weekly, for the 22nd straight year in 2010, ranked Saudi Aramco No. 1 among the world's top 50 oil companies. PIW ranked the company first in oil reserves and production of liquids, two of six criteria in the rankings; others include gas output and reserves, product sales and distillation capacity. Rounding out the overall top 10 companies were, in order, National Iranian Oil Co., ExxonMobil, Venezuela's PDV, China's CNPC, the United Kingdom's BP, Royal Dutch Shell of the Netherlands, Chevron and ConocoPhillips of the United States, and Total of France. The top 100 on the PIW list control 87 percent of the world's oil reserves and 72 percent of the gas reserves.

- S-Oil honored** — Aramco Overseas Company's Republic of Korea equity venture S-Oil was selected as one of the Top 250 Global Energy Companies by Platts (No. 11 in refining and marketing in Asia, and No. 15 globally), the world's largest energy information provider, and was selected by the Dow Jones Sustainability Index's World Index among the top 10 percent of 2,500 leading global companies. It was the first time a Korean refiner was included in the list, and S-Oil is the only refiner in the Asia-Pacific region that is currently listed in the World Class Index. S-Oil was also named World Class of the Year for the second consecutive year by the Korea CEO Association, and also was selected among outstanding companies in terms of sustainability management by leading domestic organizations such as the Korea Standards Association and Hankyoreh Economic Research Institute.

Saudi Aramco ranked world's No. 1 oil company for 22nd consecutive year

- Hart Energy award** — In recognition of its excellence in global energy, Saudi Aramco was honored as the 2010 "International Energy Company of the Year" by Hart Energy Publishing, one of the world's largest energy industry publishers. The award was presented March 24 in Phoenix, Arizona, in the U.S. Now in its 23rd year, the annual award presentation recognizes companies that have demonstrated operational excellence and leadership in the industry.

- Tanker operator award** — Vela International Marine Limited was presented the Tanker Operator Award at the Oct. 26



The China Friendship Award, one of China's highest honors, was presented to Abdallah Al-Subaiyyal of Saudi Aramco in 2010.

Seatrade Middle East Maritime Awards in Dubai. The award recognizes Vela's outstanding management of significant changes in the company in 2010 while continuing to deliver more than 1.5 million barrels of crude oil and products per day to customers worldwide in a safe and environmentally sound manner. Vela also was a sponsor of the Technical Innovations Award, which went to Wartsila company, recognizing a project or product with the potential to significantly improve efficiency of any aspect of ship operations and/or cargo.

• **Devlin Award** — In June, Vela won the Jones F. Devlin Award for the third year in a row. Issued by the Chamber of Shipping of America, the award is for operating two full years or more without occupational injury. In addition, all qualifying Vela vessels were awarded the American Chamber of Shipping Environmental

Awards, given to vessels that have no reported oil spills in the previous two years.

• **Environmental Stewardship Excellence**

**Award** — Saudi Aramco was honored with the "Environmental Stewardship Excellence Award" in June 2010 in Dubai. The award lauds Saudi Aramco's achievements, leadership and contributions toward protecting the Kingdom's and the region's natural environment. Saudi Aramco's corporate environmental protection policy, supported by numerous engineering standards, procedures, general instructions and environmental programs, ensures the protection of air, food and water quality, the marine environment, groundwater resources and public health. The event was organized to honor organizations that have brought exceptional recognition to their respective constituencies,

communities, countries and regions through their leadership and achievements, including environmental stewardship and sustainability.

• **ADIPEC award** — Saudi Aramco won the 2010 Energy Company of the Year Award, and president and CEO Khalid A. Al-Falih received the Executive of the Year Award during the 14th Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC 2010) in November. Also, GigaPOWERS was named the Best Innovation or Technology of the Year at the event.

• **3 Star Award** — The Research and Development Center (R&DC) recently earned a 3 Star Recognition Award for Excellence from the European Foundation for Quality Management (EFQM), marking the first organization in Saudi Arabia to attain the status. R&DC adopted EFQM's Excellence Model as part of its commitment to excellence. The model is a nonprescriptive framework based on nine criteria for assessing management and business processes in leading-edge organizations.

• **Gas processors' award** — In May, Aramco Services Company in Houston coordinated Saudi Aramco's acceptance of the Gas Processors Association President's Award for Safety Improvement in the United States, as well as nine Facility Safety Awards to recognize individual gas processing plants that achieved the milestone of 500,000 work-hour increments without a lost-time incident.

• **Fujian Friendship Award** — Abdallah Al-Subaiyyal, Vice President of Fujian Refining and Petrochemical Co. Ltd. (FRPC), was conferred the Fujian Friendship Award by the Fujian Provincial Government on February 6, 2010. This is the second Friendship Award presented to Abdallah Al-Subaiyyal; he received his first award — the China Friendship Award — from the hands of Chinese Premier Zhang Dejiang at the Great Hall of the People in Beijing last year. The China Friendship Award is the highest prize awarded to expatriate experts working in China by the state government, and Al-Subaiyyal is the first Arab to receive the award. Subaiyyal's excellent



contributions to the economic development of the Fujian province as well as its utmost professionalism towards the Fujian Friendship Award. Al-Subaiyyal has been the key driver of friendship between Saudi Arabia and China, particularly in Fujian Province, ever since the venture was formed in 2007.

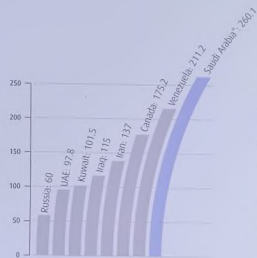
• **Bullock Award** — In recognition of the company's achievements promoting the professional certification of its Finance staff, the James Bullock Award was presented to Saudi Aramco at the 2010 annual meeting of the Institute of Management Accountants (IMA). Saudi Aramco is the first company outside the United States to receive the Bullock award, which recognizes organizations that provide "outstanding sponsorship, encouragement and support of the CMA Certification Program." Currently, 24 percent of Finance staff members hold one or more professional certifications. Finance's goal over the next five years is to increase this certification rate to 36 percent. Contoller's is the champion of two key professional certifications, the CPA (Certified Public Accountant) and the CMA (Certified Management Accountant).



## Saudi Aramco by the numbers

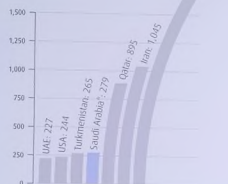


Below: Saudi Aramco's Operations Coordination Center tracks distribution of all the company's crude oil, gas, NGL and refined products.



**Crude Oil Reserves**

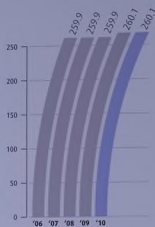
Billions of barrels  
Source: Oil & Gas Journal  
\*Source: Saudi Aramco



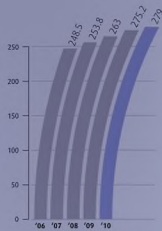
**Natural Gas Reserves**

Trillion cubic feet  
Source: Oil & Gas Journal  
\*Source: Saudi Aramco

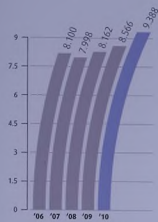




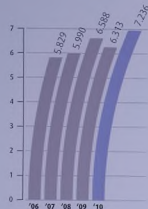
**Recoverable Crude Oil & Condensate**  
billions of barrels



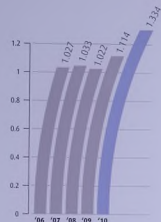
**Recoverable Gas (Associated and Non-associated)**  
billions of scf



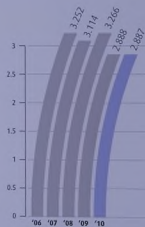
**Raw Gas to Gas Plants**  
billions of scfd



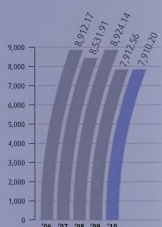
**Delivered Sales Gas**  
billions of BTUs per day



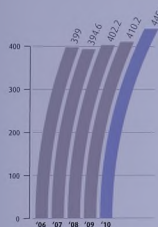
**Delivered Ethane Gas**  
billions of BTUs per day



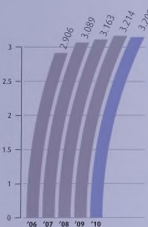
**Crude Oil Production - Annual**  
billions of barrels



**Crude Oil Production - Daily**  
thousands of barrels



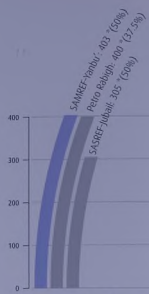
**NGL from Hydrocarbon Gases**  
millions of barrels



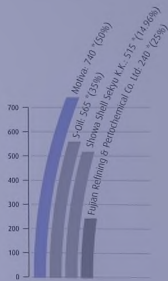
**Sulfur Recovery**  
millions of metric tons



**Domestic Refining Capacity**  
Thousands of barrels per day



**Domestic joint and Equity Ventures Refining Capacity**  
Thousands of barrels per day  
\*% Saudi Aramco ownership



**International Equity and Joint Ventures Refining Capacity**  
Thousands of barrels per day  
\*% Saudi Aramco affiliate ownership



**Total Refining Capacity**  
Thousands of barrels per day

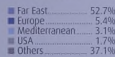
## Exports by region



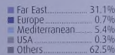
### Crude Oil



### Refined Products



### NGL\*



\*Includes sales on behalf of SASREF & SASREF

### Classification of Saudi Crude Oil

Arabian Super Light (ASL)	API-40*
Arabian Extra Light (AXL)	API 36-40*
Arabian Light (AL)	API 32-36*
Arabian Medium (AM)	API 29-32*
Arabian Heavy (AH)	API-29*



### Ships Calls at Saudi Aramco Terminals

Exports from Ras Tanura, Jazanah and Yanbu, and transfers at Jiddah, Jubail, and coastal bulk plants

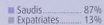
Crude Oil	1,756
Products	816
LPG	308
<b>Total</b>	<b>2,880</b>





**Saudi Aramco  
Manpower**

Total employees: 54,798



## Saudi Development Programs

### Number enrolled at year-end 2010

**Apprentice Programs** (enrollments)

Apprenticeship program (Saudi Aramco)	2,258
Apprenticeship program (joint and equity ventures)	521
<b>Total Apprentices</b>	<b>2,779</b>

**College Degree Program Non-employees (CDPNE) & Associate Degree Program Non-Employees (ADPNE)** (enrollments)

College Continuation Program	112
College Preparatory Program (Includes 19 for Associate Degree Program Non-employees (ADPNE))	321
<b>Total CDPNE/ADPNE</b>	<b>433</b>

**Cooperative Program** (enrollments)

Co-op Program students	420
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**Regular Development Programs** (enrollments)

Advanced degree	143
Advanced medical/dental	7
Two-year technical degree	32
Short-term technical training program	25
U.S.A. company assignment	4
<b>Total Regular Development Program participants</b>	<b>210</b>

### Year-end level 2010

**Apprentice Programs**

Apprenticeship program (Saudi Aramco)	4,460
Apprenticeship program (joint and equity ventures)	573
<b>Total Apprentices</b>	<b>5,033</b>

**College Degree Programs & Associate Degree Program Non-Employees**

College Degree Program Non-employees (CDPNE)	1,419
College Preparatory Program	316
Associate Degree Program Non-employees (ADPNE)	45
<b>Total College Degree program participants and ADPNE</b>	<b>1,780</b>

**Cooperative Program**

Co-op Program students	104
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**Regular Development Programs**

Advanced degree	330
Advanced medical/dental	15
Two-year technical degree	71
Short-term technical training program	19
U.S.A. company assignment	4
<b>Total Regular Development Program participants</b>	<b>439</b>



## Crude Oil, Natural Gas & Refined Products

Crude Oil & Refined Products (barrels)	2009	2010
Crude Oil Production, excluding NG blended	2,888,082,578	2,887,723,698
Crude Oil Exports	2,060,741,025	2,020,345,893
Crude Oil Transported Using company or Chartered Vessels	487,631,000	471,324,000
Refined Products Production	496,197,789	499,777,459
Refined Products Exports	149,367,259	133,423,868

Natural Gas	2009	2010
Feed to Gas Plants (billions SCF/day)	8.556	9.388
Sales Gas (methane) (trillions BTUs/day)	6.313	6.985
Ethane (trillions BTUs/day)	1.114	1.334
<b>Total Delivered Gas</b>	<b>7.427</b>	<b>8.319</b>
Liquids in-lieu of methane (trillions BTUs daily)	0	0.251

Natural Gas Liquids - Production	2009	2010
<b>NGL Production from Hydrocarbon Gases (barrels)</b>		
Propane	152,261,722	168,512,868
Butane	100,679,040	106,639,505
Condensate	82,839,545	93,969,126
Natural Gasoline	74,467,706	75,924,401
<b>Total NGL Production</b>	<b>410,248,013</b>	<b>445,045,900</b>

Natural Gas Liquids - Produced for Sale	2009	2010
<b>NGL Sales from Hydrocarbon Gases (barrels)</b>		
Propane	137,503,460	157,086,648
Butane	79,748,080	90,267,407
Condensate	8,881,499	11,454,420
Natural Gasoline	51,438,402	57,611,673
<b>Total NGL Exports (excludes sales on behalf of SAMREF and SASREF)</b>	<b>277,571,441</b>	<b>316,420,148</b>

### Sulfur

Sulfur	2009	2010
Sulfur Recovery (metric tons)	3,213,678	3,200,012
<b>Sulfur Exports (excludes sales on behalf of SAMREF and SASREF) (metric tons)</b>	<b>2,809,711</b>	<b>3,040,964</b>

## Principal Products Manufactured at In-Kingdom Refineries (barrels)

2010	LPG	Naphtha	Gasoline	Jet Fuel Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
Ras Tanura	3,345,757	16,994,770	41,408,333	4,743,839	75,092,484	29,202,323	7,702,833	178,490,339
Yanbu <sup>1</sup>	2,857,515	(1,480,268)	16,317,699	(1,017,258)	32,774,339	33,627,814	-	83,079,841
Riyadh	2,073,772	-	13,404,769	3,444,229	22,509,231	18,797	6,899,455	48,350,253
Jiddah	973,397	4,963,888	5,432,264	(630,798)	8,714,680	7,397,927	3,610,168	30,461,526
<b>Total Domestic</b>	<b>9,250,441</b>	<b>20,478,390</b>	<b>76,563,065</b>	<b>6,540,012</b>	<b>139,090,734</b>	<b>70,246,861</b>	<b>18,212,456</b>	<b>340,381,959</b>

<sup>1</sup>Negative figures primarily indicate products that were reprocessed into other refined products.

## Saudi Aramco Share

2010	LPG	Naphtha	Gasoline	Jet Fuel Kerosene	Diesel	Fuel Oil	Asphalt & Misc.	Total
SAMREF (309,000)	-	-	19,571,000	9,118,500	16,494,000	12,669,000	-	57,543,500
SASREF	1,798,000	13,450,000	2,362,000	10,590,000	12,187,000	13,560,000	-	53,947,000
<b>Total JV</b>	<b>1,489,000</b>	<b>13,450,000</b>	<b>21,933,000</b>	<b>19,708,500</b>	<b>28,681,000</b>	<b>26,229,000</b>	<b>-</b>	<b>111,490,500</b>
<b>Grand total**</b>	<b>10,739,441</b>	<b>33,928,390</b>	<b>98,496,065</b>	<b>26,248,512</b>	<b>167,771,734</b>	<b>96,475,861</b>	<b>18,212,456</b>	<b>451,872,459</b>

\*\*Petro Rabigh share not included in totals.

## Domestic Product Sales by Region (barrels)

2010	Central	Eastern	Western	Total
LPG	2,371,515	5,336,401	5,891,548	13,599,464
Gasoline	57,157,522	30,548,103	67,146,511	154,852,136
Jet Fuel/Kerosene	7,439,515	2,776,572	13,422,290	23,638,377
Diesel	70,226,358	49,922,704	104,086,103	224,235,165
Fuel Oil	(424,309)	3,509,012	80,177,681	83,262,384
Asphalt & Misc.	7,425,997	8,418,610	6,919,849	22,764,456
<b>Total</b>	<b>144,196,598</b>	<b>100,511,402</b>	<b>277,643,982</b>	<b>522,351,982</b>

2009	Central	Eastern	Western	Total
LPG	1,670,694	5,915,059	5,622,197	13,207,950
Gasoline	53,193,402	29,079,722	62,849,932	145,123,056
Jet Fuel/Kerosene	7,522,249	2,801,279	11,917,907	22,241,435
Diesel	62,963,488	47,171,946	104,712,051	214,847,485
Fuel Oil	598,344	7,878,260	74,540,643	83,017,247
Asphalt & Misc.	6,878,708	8,021,318	6,780,043	21,680,069
<b>Total**</b>	<b>132,826,885</b>	<b>100,867,584</b>	<b>266,422,773</b>	<b>500,117,242</b>

\*\*Totals include Petro Rabigh product

## Domestic Operations

- Abha: ●
- Al-Jawf: ●
- Al-Hasa: ●
- Al-Sulayyil: ●
- Dhahran: ●
- Duba: ●
- Jazan: ●
- Jiddah: ● ● ● ● ●
- Ju'aymah: ● ● ● ● ●
- Jubail: ● ● ● ● ●
- Najran: ●
- Qassim: ●
- Qatif: ●
- Rabigh: ● ● ● ● ●
- Ras Tanura: ● ● ● ● ●
- Riyadh: ● ● ● ● ●
- Safaniya: ●
- Tabuk: ●
- Turath: ●
- Yanbu': ● ● ● ● ●

- Saudi Aramco Refinery
- Joint Venture Refinery
- Terminal
- Bulk Plant
- Integrated Refinery and Petrochemical Plant
- Marafiq (Electricity & Water Utility)
- Luberel (Saudi Aramco Lubricating Oil Refining Co.)

## International Operations

- **Houston:** Aramco Services Co. | Saudi Refining Inc. Aramco Associated Co. | Motiva Enterprises LLC
- **Washington, D.C.:** Aramco Services Co.
- **New York City:** Saudi Petroleum International, Inc.
- **Bermuda:** Stellar Insurance Ltd.
- **Curaçao:** Bolanter Corp. N.V. | Pandlewood Corp. N.V.
- **London:** Saudi Petroleum Overseas Ltd. | Aramco Overseas Co. B.V.
- **Rotterdam:** Texaco Esso AOC Maatschap | Team Terminal B.V. Texaco AOC Pumpstation Maatschap
- **The Hague:** Aramco Overseas Co. B.V.
- **Alexandria:** Sumed Arab Petroleum Pipelines Co.
- **Dhahran:** Saudi Aramco World Headquarters
- **Al-Khaffji:** Aramco Gulf Operations Co Ltd.
- **Dubai:** Vela International Marine Limited
- **New Delhi:** Aramco Overseas Co. B.V.
- **Beijing:** Saudi Petroleum Ltd.
- **Hong Kong, Shanghai:** Aramco Overseas Co. B.V.
- **Fujian:** Fujian Refining & Petrochemical Co. Ltd. (FRPC) Sinopec SenMei (Fujian) Petroleum Co. Ltd. (SSPC)
- **Tokyo:** Aramco Overseas Co. B.V. | Saudi Shell Sekiyu K.K. Showa Shell Sekiyu K.K.
- **Seoul:** S-Oil Corporation | Aramco Overseas Co. B.V.
- **Singapore:** Saudi Petroleum Ltd.





