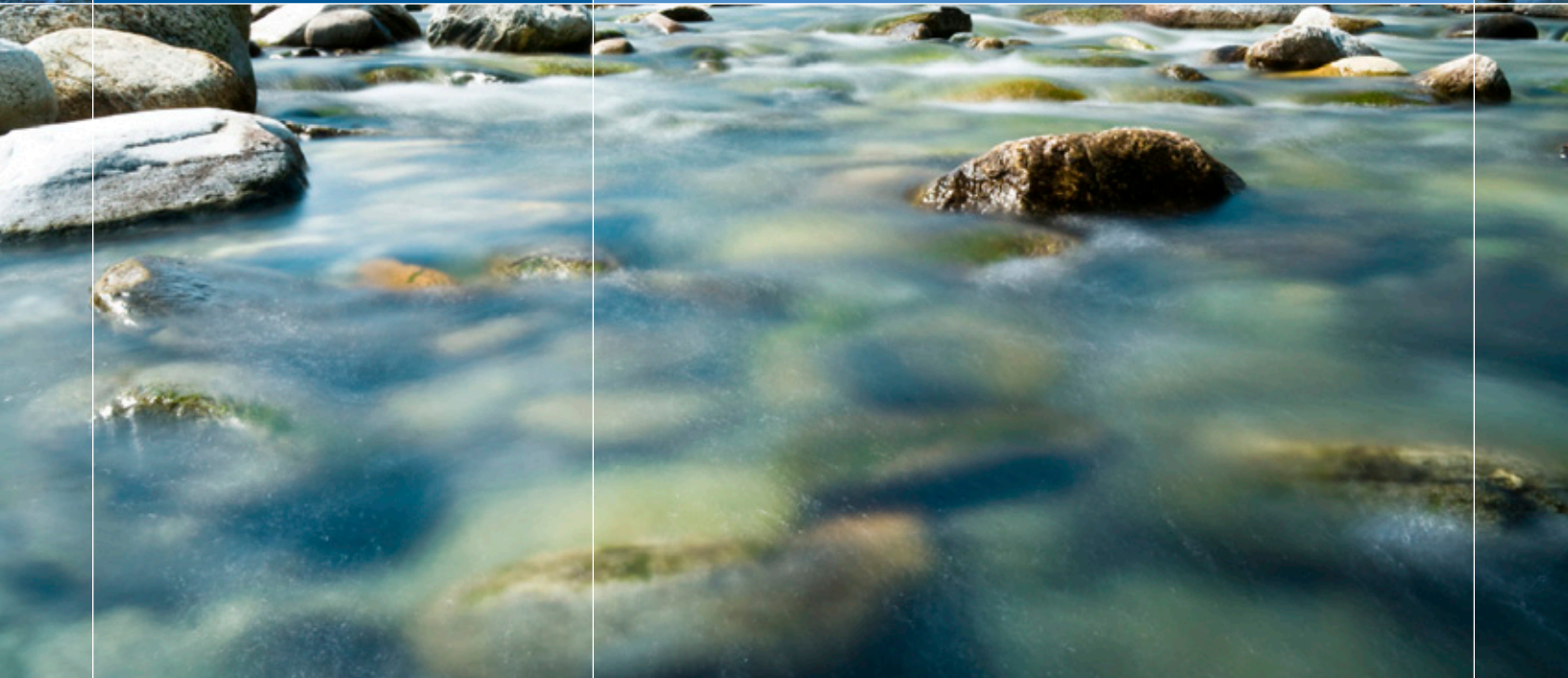


# NALCO ENERGY SERVICES

*Essential Expertise for Sustainable  
Energy Development*



Across the asset chain, the oil and gas industry faces mounting obstacles that challenge its ability to feed the world's growing appetite for energy in environmentally sustainable and cost-effective ways. Successfully achieving these goals requires drillers, producers and refiners to partner with technology providers that offer more than a product, but instead deliver services and solutions that provide long-term, profitable and environmentally sustainable gains for every stage of the asset lifecycle.

For more than 80 years, the Energy Services division of Nalco, an Ecolab Company, has brought unrivaled technological expertise, on-site experience and an expansive range of treatment solutions to local, regional and multinational customers up and down the hydrocarbon development chain. Nalco Energy Services is not merely a chemical company, but rather a provider of sustainable solutions that ensure your wells, production facilities, pipelines, refineries and petrochemical plants operate efficiently, profitability and safely.

### **A Major Player in Energy Development**

The Energy Services division is a critical component of the Nalco overall portfolio. In 2010, we contributed more than 40% of Nalco 2010 global sales revenue of US\$ 4.25 billion, and our growth rate of 7-9% per year is the fastest of any division.

The Energy Services core business model, which centers on technology deployment coupled with on-site problem solving, has a global impact extending to nearly 50,000 customer locations in more than 150 countries.

### **Committed to Safety**

Core to our business are the Nalco Safety, Health, and Environment Sustainability Principles. These principles define how we conduct our operations worldwide with regards to the health and safety of people, and the protection of the environment.

Our business units have adopted a system that's modeled on the Plan-Act-Check-Excel approach to identifying and managing SH&E issues and follows ISO, OSHA and the chemical industry's Responsible Care standards for its scope and content. This system is designed to incorporate the highest SH&E standards and global best practices, and focuses on measuring continued improvements in SH&E performance.

### **THE ADOMITE® GROUP**

### **Essential Expertise for Well Services**

For more than a quarter century, the Nalco Energy Services Adomite group has delivered a comprehensive portfolio of additives and component technologies that are incorporated into bulk fluids for drilling, well cementing, acidizing and the rapidly developing market of hydraulic fracturing stimulation.

Our service company clients incorporate our products into fluid technologies that address operational challenges in unconventional reservoir stimulation, deepwater, coal bed methane and conventional production. Central to our success in this initiative is a flexible, reliable and robust supply chain that ensures the right products are delivered to the specific rig site or fracturing operation, on time and on spec.



Adomite is estimated to hold a 13% market share of the US\$1.3 billion global market for well fluids. The division's future growth strategies focus on fracturing—with particular emphasis on new water-management offerings aimed at recycling and reducing the amount of water used in hydraulic fracturing. We also plan to expand our offerings in new friction reducer technologies, a soon-to-be-launched prop and transport system and proprietary, environmentally sustainable technologies,

- **Flow Assurance**, designed to prevent deposition of materials—paraffins, asphaltenes, scale and hydrates—that impede flow in production equipment.
- **Production Maximization** technologies—including demulsifiers, foamers and viscosity reducers—that work to boost production in systems that suffer from liquid impairment, flow restrictions or short retention times in separation equipment.
- **Produced Water Management**, which leverages Nalco's expertise as a global leader in water treatment technologies and services to process produced water such that it can be disposed of in an environmentally sustainable manner, or re-injected downhole to maintain reservoir pressures and boost production.

Oil and Gas Field Chemicals currently represents 47% of Energy Service sales and an estimated 26% of the global market share. Continued growth will come from new production—in particular, the more-difficult-to-produce hydrocarbons from ultra-deepwater fields in Brazil, the Gulf of Mexico and West Africa; unconventional oil and gas shale plays in North America and internationally; and heavy oil and oil sands.

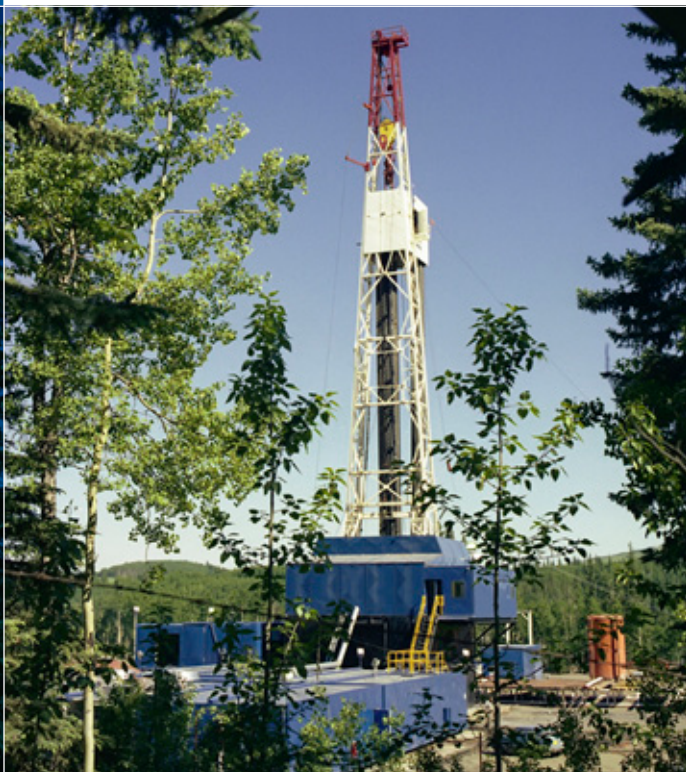
## TIORCO® ENHANCED OIL RECOVERY

### Extending the Life of Oil Wells

With the acquisition of TIORCO in 2007, and the launch of BrightWater® technology, Nalco Energy Services has set up a comprehensive reservoir management program for enhanced oil recovery (EOR) design and field implementation. In addition to industry-leading technology, TIORCO brings a wealth of in-field, reservoir engineering /simulation, and laboratory expertise to identify, model, quantify and select the optimal application strategy for each asset.

To expand our in-house capabilities, we acquired FabTech in 2011. FabTech provides custom engineering, design and fabrication of onshore and offshore facilities being used for EOR projects such as polymer, alkaline surfactant polymer (ASP), water-alternating-gas (WAG), and CO<sub>2</sub> plants. In addition, Fab Tech designs and builds custom solutions for water injection, water desalination, and produced water disposal/recycling plants.

The current global market size for EOR services is estimated at US\$600 million, of which TIORCO holds approximately 15%. Our growth in this market is focused on both the increased adoption and movement of our technology worldwide, as EOR demonstrates itself to be a cost-effective alternative to infill drilling.



We also plan to expand our Adomite services to include more packaging and component options for Tier II customers, as well as a global geographic expansion of our offerings and a greater emphasis on providing more services at the well site.

## OIL AND GAS FIELD CHEMICALS

### Meeting Your Production Potential

Our Oil and Gas Field Chemicals group delivers the technologies and onsite services to safely and efficiently manage the critical challenges facing oil and gas producers, from several years before first oil to field decommissioning.

The main components to the Oil and Gas Field Chemicals offering include:

- **Asset Integrity Management**, a full range of corrosion mitigation, monitoring and management programs aimed at maximizing equipment longevity and minimizing the risks inherent with corrosion failures.



## DOWNSTREAM SERVICES

### Essential Expertise for Your Refining Challenges

For more than 80 years, Nalco Downstream Energy Services has built a world-class reputation as the global leader in refining process treatments, fuel additives, petrochemical processes and water treatment. More than 1,200 Nalco employees operate in over 350 refineries and 400 petrochemical plants across six continents to provide comprehensive, sustainable and safe treatment solutions designed to:

- Maximize plant throughput while minimizing total cost of operations
- Upgrade lower quality feedstocks to meet stringent environmental regulations
- Monitor and mitigate potential threats to water treatment systems, including fouling, corrosion and scale
- Consistently produce on-spec fuels for a variety of feedstocks, including opportunity crudes
- Ensure all refinery and plant operations are conducted with the highest attention to safety

Our Downstream team takes a total treatment approach to refinery processing, which combines industry-leading process technologies with experienced onsite engineers, an R&D commitment to customer-driven innovation and a global network of experienced industry technical consultants.

This approach extends to the water treatment system, which is the lifeblood of any refinery or chemical plant. The 3D

TRASAR® program, our industry-leading water treatment technology, detects changing process parameters that may lead to fouling, corrosion or scale, and makes appropriate corrective actions to the treatment program, quickly and efficiently. The net result: systems that can be run closer to their optimal limits with a minimum of risk.

Downstream Services represents 39% of Energy Services revenue, and has an estimated 43% of the US\$1.6 billion global market. Our growth is focused on CAPEX projects in the Eastern Hemisphere, particularly the Middle East, Asia and India. Technology penetration is also a major driver for market growth, particularly with 3D TRASAR automation in boilers, crude units and wastewater treatment. Our all-encompassing package for refinery treatment programs known as the Refined Knowledge® program is generating a great deal of interest among our clients, as is the use of our Scorpion® technology to process high-acid opportunity crudes.

## GROWTH ALIGNED WITH CUSTOMER GOALS

The challenges of a dynamic market that continues shifting to more difficult-to-reach and heavier oil have created ongoing opportunities for Energy Services to innovate, differentiate and create greater value for our clients.

We will continue to extend our technology leadership in critical markets as part of our growth strategy, which includes deepwater and ultra-deepwater EOR, automated monitoring systems, unconventional oil and gas production and water management. At the same time, we are embracing several management strategies aimed at expanding and streamlining our global footprint.

### Expanded Reach in BRIC Countries and Beyond.

Energy Services has a strong commitment to investing in our international operations using locally sourced expertise and infrastructure.

Over the past two years, Energy Services grew by more than 60% in the BRIC countries—Brazil, Russia, India and China—growth that is expected to increase through proactive investments in a local management structure. Such a structure leverages Energy Services technology and expertise through sustainable local entities or joint ventures, and sets up a strong footprint consisting of capable local leadership and locally sourced sales and service, blending and distribution, and relationships with local regulatory authorities and NOCs.

Energy Services has recently expanded such investments into several countries, including a supply base and laboratory in Brazil, a blending plant and lab in Russia, plants in Egypt and infrastructure in China.

### Leveraging R&D, Training and Globalization

From Alaska to Angola, Energy Services is committed to ensuring that every client receives the same best-in-class technical support and treatment technologies. Therefore,

as part of our global growth strategy, we employ processes aimed at standardizing our technological offerings, training and technical support so that every customer receives a consistent high level of service, regardless of their location.

This level of standardization ensures that global technical support and relevant expertise are available for any project as needed, a corporate-standard set of safety and ethics practices are followed and all relevant personnel undertake comprehensive technical and support training.

## **PROVIDING FAR-REACHING SUSTAINABLE SOLUTIONS**

Like our customers, Nalco Energy Services places the highest priority on environmental stewardship in all aspects of our business operations.

A key tenet of our environmental sustainability approach is the smart use and protection of natural resources. To that end, we lead the industry in developing innovative technologies and are committed to providing solutions that drive gains in health and safety at every customer location. Our chemistries are tested against the strictest toxicity, biodegradation and bioaccumulation requirements, ensuring that they meet—and often exceed—environmental regulations regarding the usage and discharge of materials.

Ensuring the highest sustainability for a client's production equipment, water treatment facility, refinery or petrochemical plant requires proper implementation of Nalco Energy Services chemistries and processes. To that end, we take a total systems approach to our treatment strategies,



linking our upstream processes to downstream wastewater treatment and crude refining whenever possible. The ultimate goals of this approach: ensuring lower energy usage, more efficient water usage and recycling, extended asset life and a reduced environmental footprint—while ultimately lowering your total cost of operation.

Another fundamental component of sustainability centers on finding more energy resources and using thoughtful and methodical processes to maximize their recovery. This concept threads through every Energy Services product line, whether it be Adomite well stimulation additives for hydraulic fracturing, Oil and Gas Field's Production Maximization technologies, TIORCO EOR technologies aimed at producing harder-to-extract oil, or Downstream Services' technologies that optimize the economic potential of opportunity crudes.



## GLOBAL COMMITMENT, GLOBAL REACH

The Nalco corporate commitment to lowering total cost of operations extends beyond delivering cost-effective chemical treatments. We also bring dedicated and experienced technical professionals, proven processes and a robust global supply chain to each customer. The result: comprehensive and customized treatment strategies that optimize each asset's operation.

**World-class R&D professionals.** Our Research & Development (R&D) team is comprised of more than 500 researchers, 40% of whom have PhDs and have generated more than 2,000 patents and more than 4,700 unique chemical formulations. Energy Services R&D works closely with customers to optimize their current chemical treatment programs and to develop next-generation treatment solutions that address new operational challenges as they arise.

**Onsite experts and technical support.** Nalco Energy Services employs more than 7,000 sales engineers and service technicians, with technical degrees and backgrounds in chemistry, biology, and chemical, environmental and mechanical engineering. Our onsite experts supplement their formal schooling with comprehensive training programs that teach technical and problem-solving skills, as well as courses that are specific to the challenges of their client base.

**Industry and technology experts.** Nalco Energy Services onsite experts and support teams are backed by a dedicated technical support team consisting of Key Account Managers (KAMs) who help ensure that the necessary resources are available and that Nalco technologies and processes are seamlessly aligned with key corporate goals.

Our sales staff is also supported by a global force of more than 40 Industry Technical Consultants (ITCs), each with an average of more than 20 years of industry experience. ITCs support clients with collective knowledge from hundreds of sites around the world.





**Processes putting technology to work.** Without a proper deployment system in place, even the most innovative technologies will not live up to their full potential. Nalco Energy Services has perfected several proven process systems to assure that specific customer needs are met.

These include processes to thoroughly analyze a customer's operating systems to identify problem areas and recommend improved treatment programs, strategies for maximizing return on investment by minimizing corrosion-related damage, a sequential value-delivery roadmap for comprehensive account management and a formal gap-analysis process that compares current site practices to best practices within Nalco and the industry at large.

**A robust, global supply chain.** Because even customers with a global reach have distinct local needs, Nalco Energy Services has developed global distribution channels that

ensure quick and cost-effective delivery of people, technology and chemicals.

Our global manufacturing footprint – with facilities in the United States, United Kingdom, Latin America, the Middle East and the Asia/Pacific region—is matched with a transportation infrastructure that provides efficient access to Nalco's best-in-class chemical treatments, wherever they are needed. In addition, Nalco pre-registers its chemicals prior to import or export, ensuring their availability in any region or regulatory environment in the world.

Nalco has developed a manufacturing certification program that enables continual improvement in our processes, procedures and products. In addition, all Nalco plants are undergoing a comprehensive program of accreditation to either ISO14001 or Responsible Care 14001, a global standard for environmental sustainability.

# Nalco Commitment to Sustainability

**Nalco demonstrates and delivers world-class environmental performance leadership for our customers, while also working to improve our own operations related to the environment, social and economic objectives of sustainable development.**

## Helping Customers Operate Sustainably

Nalco Company is the world's leading environmental solutions provider. We create value for customers and Nalco through services and technologies that save water and energy, enhance production and improve air quality, all while reducing total cost of operation.

Nalco programs create significant economic value for customers. The environmental return on investment (eROI) we provide includes savings from reducing water and energy use, conserving assets, reducing solid waste disposal, and improving utilization of natural resources and raw materials.

## Our performance as disclosed in our annual Sustainability Report includes:

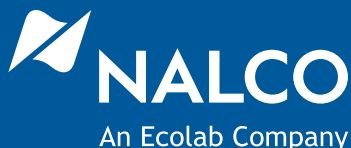
**Energy and Air Emission Reductions:** Nalco has achieved a 10 percent reduction in energy use from 2007 levels, ahead of our corporate target date of 2012. Nalco plants and major facilities have identified and implemented more than 160 energy reduction actions around the globe. Our total greenhouse gas (GHG) emissions have declined over the same period. Our global GHG and nitrogen oxides (NOx) emission intensity (emissions per ton produced) have also been reduced.

**Water Use:** We are constantly evaluating opportunities to reduce our water use and have implemented numerous water reduction projects at our global manufacturing sites. Customer water savings by using our technology solutions dwarfs the impact of our own facilities. One of our technologies alone, 3D TRASAR® cooling water automation, annually saves more than 60 times our total water use in a year.

**Waste Reduction:** Our five-year trend for waste generation was positive, reducing both total waste and waste per metric ton produced. Waste reduction efforts at our largest manufacturing site, in Garyville La., were recognized with an Environmental Leader Program award from the Louisiana Department of Environmental Quality.

As part of our commitment to continuously improving our environmental performance, our manufacturing plants around the world are undergoing a comprehensive program of accreditation to either ISO14001 or Responsible Care®14001, the global standards for environmental performance.

We can always improve, which is why we continuously strive to do better – for our employees, our communities and our customers.



### NALCO COMPANY

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