

Women in Energy

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On September 18, 2006, Iranian-born Anousheh Ansari became the first Arab woman to travel into space. She blasted off from Baikonur Cosmodrome in Kazakhstan aboard the Soyuz TMA-9 capsule carrying a new U.S.-Russian crew that docked smoothly at the International Space Station. Ansari's 10-day journey included a two-day trip to the space station. The event was covered by the press around the world, from CNN to the *Times of India* to the *Sydney Morning News* to Iranian TV.

The news concentrated on describing Ansari as Iranian-born, the first woman to pay her way into space and the fourth space tourist. The reports, however, missed the true significance of the news. Even if the event was made possible through a hefty personal investment of about \$20 million, Ansari's presence in space has tremendous significance for women worldwide. In fact, it should be a wake-up call for business leaders around the globe. At a time when the energy industry in every corner of the world is starving for young professionals willing to pursue technical careers, women are giving all the signs of being more than ready to embrace technology-oriented careers and engage in business activities related to technology.



Ansari's background, although impressive, is not unique. Born in Iran 40 years ago, she moved to the United States in her teens, learned English and eventually enrolled in college to pursue a degree in electrical engineering. She has a master of science degree in electrical engineering from George Washington University, and a bachelor of science degree in electrical engineering and computer science from George Mason University. Like her, women from around the world have come to the United States to access higher education for decades. Together with their U.S. counterparts, they have sought to advance their careers in science, technology, engineering and energy.

The Energy Industry, Then and Now

The energy industry is making news as it goes through yet another upward cycle, with all the excitement and challenges such cycles bring. Traditionally, this would spell good news. This time around, however, the good news has been offset by a harsh reality: This upward cycle is coinciding with a retiring workforce with few replacement personnel in sight. The relatively sudden rise of the service and information revolution, fueled by the fast, unprecedented global spread of the Internet, appears to have caught this venerable industry by surprise. Accustomed to riding the typical business cycle with corresponding expanding and shrinking of its specialized workforce, nobody seems to have paid close attention to the switch in career preferences by the younger generation. It did not help that in the 1980s industries across the board, first in the United States and a few years later in Europe, made a 90-degree turn from being oriented toward people to becoming oriented toward the bottom line, and they did so with a vengeance. Being laid off from an energy company in the 1970s meant a switch to another energy or energy services company. Not so in the 1980s when the job market was focusing on finance, accounting and legal professionals. Specialized energy workers found no place to go. Understandably, when their college-age children announced that they would pursue a career in finance or law, parents did not try to convince them to follow the family tradition of a career in petroleum engineering or geology. Two decades

later, the gap left by retiring technical professionals seems overwhelming. Exacerbating the problem is the fact that the service and information revolution is a global phenomenon, thus the workforce gap is affecting the energy industry in every corner of the world.

Even if the industry succeeds in once again attracting young people to its ranks, the results will be less than ideal. The reason? The balance of leadership within the industry around the world has shifted. Until recently, private international oil companies (IOCs) dominated the market and dictated strategy, leading from a strong technological advantage. Government-owned national oil companies (NOCs) were on the opposite end of the leadership spectrum. Today, that is no longer the case. NOCs are as strong as the IOCs and becoming stronger than them in many respects, forcing a reevaluation of traditional relationships. With NOCs being important global players and competing for the same technology and

be a labor-force participant. The spread is significant. Women with high school diplomas account for only 32.9 percent of the total female labor force, while those with a bachelor's degree or higher represent 72.9 percent of the total female labor force in the United States.

Arab Women Are Making Business History

The Arab world is awakening quickly to the enormous potential of this untapped resource. On May 13, 2005, H.R.H. Princess Lolwah Al Faisal of the Kingdom of Saudi Arabia (KSA) was in Houston addressing a congregation of businessmen with a speech entitled "Saudi Women Moving Up in Business." The novelty of having a princess, not a prince, addressing a male-dominated audience was quickly surpassed by the significance of the message being delivered. Princess Lolwah described the extensive economic reform under way in the Kingdom, from its admission to the

"There is no effective development strategy in which women do not play a central role.

When women are fully involved ... families are healthier. ... And what is true of families is true of communities and, eventually, of whole countries."

– Kofi Annan, former Secretary-General, United Nations

the same assets as IOCs, they are also strongly competing for that increasingly scarce specialized workforce.

With all major IOCs and NOCs targeting the same traditional talent pool, new resources need to be uncovered, developed and fully incorporated into the business environment. Perhaps the most important growing talent pool is the worldwide female population.

An Increasing Talent Pool

According to the U.S. Department of Labor, in 2005 the U.S. active workforce (those working or looking for work) included 69 million out of the 117 million women age 16 years and over. With a labor-force participation rate of 59.3 percent, women represented 46 percent of total U.S. labor. Seventy-five percent worked full time. Labor-force participation rates for U.S. women, by race, were: black, 61.6 percent; white, 58.9 percent; Asian, 58.2 percent; and Hispanic, 55.3 percent.

Women are projected to comprise 47 percent of the total labor force in the United States by 2014. They will also account for 51 percent of the increase in total labor-force growth from 2004 to 2014.

It is well documented that the higher a person's educational attainment, the more likely he or she will

World Trade Organization to the establishment of the High Commission on Tourism, which is opening the country to foreign visitors, and the creation of the General Investment Authority, described as a one-stop shop for foreign investors. By the time she mentioned the Supreme Economic Council, which is focusing on privatization to encourage new investment, the message sounded much like "Apertura," the privatization process that so dynamically dominated Latin America in the 1990s.

Improving the role of women is an integral part of KSA's economic reform. In Princess Lolwah's words: "The tremendous annual increase of female graduates that outnumbered male graduates for the past 10 years, as well as the opening of new positions for women in the market, pushed for more expansion of the role of the woman in the society in general and in business in particular." The Council of Ministers – the highest government body in the Kingdom – issued a nine-point plan urging the creation of more job opportunities for women, lifting a ban that kept women from jobs in most fields.

As vice chair of the board of trustees and general supervisor of Effat College, a women-only higher education institution based in Jeddah, Princess Lolwah knew what she was talking about. Effat College has

recently launched an engineering program for women. At the same time, Saudi Aramco has started a program specifically to train women in U.S. universities and hire them upon graduation.

The interest in developing youth in general and women in particular within the Arab world became evident again at the recent U.S.-Arab Business Forum held in Houston, Texas, in June 2006. The three-day forum was attended by an impressive number of high-level Arab leaders of 22 Arab countries and was led by H.E. Amre Mussa, secretary general of the League of Arab States.

Women are a tremendous untapped resource with a potential to make an enormous impact in any economy and any industry, in particular in the energy industry.

Behind the more public face of the U.S.-Arab Economic Forum is its parent organization, the American Middle East Economic Affairs Committee (AMEAC), an independent, not-for-profit organization that promotes improved U.S.-Arab relations. Led by cofounders Ahmad Chebbani, chairman, and Nasser Beydoun, chief operating officer, AMEAC organizes the U.S.-Arab Economic Forum every other year in selected locations. At the 2006 Houston-held economic forum, AMEAC officially launched three main initiatives: the Council of Mayors, the Council of Chambers of Commerce and The Women's Business Council. These three initiatives are designed to improve relations between the United States and Arab countries and are led jointly by U.S.-Arab leadership.

AMEAC's Women's Business Council is co-chaired by H.H. Sheikha Hissah Saad Al-Sabah, Princess of Kuwait (also chairwoman of the Arab Businesswomen Council) and American-Arab Wendy Acho of Michigan-based AMEAC. H.R.H. Princess Lolwah Al Faisal was recently in Houston attending the U.S.-Arab Economic Forum. As a panelist on "Getting Youth Development Right: The New Competitive Face of the Arab World," Princess Lolwah shared her insights on exploring new sources of competitiveness and ways to provide youth with the guidance necessary to cope in their respective countries as well as globally.

H.H. Sheikha Hissah Saad Al-Sabah of AMEAC's Women's Business Council was also an active panelist at the forum. In a session provocatively entitled "Move Over, Mister: The New Drivers for Development Are Here!"

the panel seriously discussed the means of establishing and strengthening mechanisms for women's participation and equitable representation at all levels of the political and economic process. Key programs and initiatives were highlighted that have proven successful in empowering and promoting the autonomy of women in the Arab world.

Results are becoming evident. Reforms in the KSA have allowed Saudi women today to hold, for the first time, leadership positions in mixed-gender organizations such as the Saudi Council of Engineers, the Saudi Management Society, the Jeddah Chamber of Commerce and the Saudi Lawyers Association.

In the political arena, all Gulf countries except Saudi Arabia have female ministers, and women have been elected to Oman's Lower House of Parliament. Attending the 2006 U.S.-Arab Economic Forum in Houston, Dr. Sami Al-Araji, deputy minister of industry and minerals of Iraq, highlighted the significance of the fact that women were already represented in the Iraqi Parliament back in the 1930s. Women in Western countries are also reaching new leadership levels. Outside the Arab world, six women hold positions as heads of state. The most recently elected include Dr. Angela Merkel, chancellor of Germany; H.E. Michelle Bachelet, president of Chile; and H.E. Ellen Johnson-Sirleaf, president of Liberia.

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Could Women Help Solve the Energy Labor Crisis?

Undoubtedly, the energy industry has traditionally been a male-dominated industry. Few incentives have been in place to attract women to this exciting field, and for a woman to enroll in an engineering school in the 1970s and even the 1980s required guts and determination. Once inside, however, most women would report having rewarding experiences and being able to earn the respect of their male counterparts.

Energy companies have steadily recognized female talent, and the number of female executives in energy-related companies has been increasing over the past two decades. Some of the most visible top female executives in the energy industry today come not from the engineering ranks but from more traditionally "female" fields ranging from English majors to finance and accounting. Over time, they have managed to prove that their skill sets match those required by the energy industry. Before getting there, however, they had to walk a long road up the ranks of their organizations to be accepted as equals and be allowed to contribute to their full potential.

The key question is this: Does the energy industry have the luxury of waiting for capable women to prove themselves, "as they painfully progress through the ranks of the organization," before starting to deliver to their full potential? Doubtful. It would make more sense to attract women into energy at an early age and give them opportunities to develop their full potential from the start.

With 50 percent of the world population being female and with many women unnecessarily finding themselves with few options but to follow traditionally "female" careers, it makes sense to invest in attracting women to enter the energy industry earlier.

Field Work

Granted, finding women on the drilling rig is not common, but it is not because women cannot do the job. Consider the case of Melissa Clare. As reported by the *London Times* on November 1, 2005, Clare was the first female drilling rig manager in the offshore oil industry in Aberdeen, Scotland, in which 85 percent of employees are male. She heads a team of 96 employees, 91 of whom are male. In her words: "They're all great professionals, some of whom have been working offshore since before I was born. Even in the time that I've been in the industry I've seen a change because more and more women are getting into these male-dominated roles." A spokeswoman for the U.K. Offshore Operators Association said Clare's appointment was the latest in a growing number of successes for women in the oil industry.

Clare's case illustrates that capable women can and do operate effectively in harsh environments, and given the opportunity, they can make excellent contributions in field work, both onshore and offshore.

Professional Work

But field work is only part of the picture. By engaging in professions such as geosciences, technology and engineering, women are particularly well positioned to make significant contributions in the development and application of next-generation energy technologies. In today's society, youngsters of both genders are constantly surrounded (bombarded may be more exact) by electronic games and gizmos that they learn to use at a very early age. It follows that young people, women included, should naturally be attracted to the latest subsurface technologies and nanotechnology. In fact, women could make an enormous impact on current and future initiatives in oil and gas exploration as well as in clean carbon, natural gas, nuclear power, wind, solar, biomass, fuel cell and hydrogen technologies. Female geologists, geophysicists, petroscintists, reservoir engineers, petroleum engineers

and asset managers could satisfy the industry's greatest needs for technical professionals by populating a large portion of the workforce in energy and energy services companies.

Addressing the Issue

As the competition for qualified technical professionals is at an all-time high, IOCs and NOCs are addressing the problem in different ways.

Energy companies, some more aggressively than others, are interviewing engineering and geology students and professionals living in countries that are geographically a world apart from the employer's base. The most aggressive employers – a category that includes some NOCs – are even providing accelerated English education to those who don't speak the universal language.

Surprisingly, some companies are choosing to do nothing or delaying decisions to act. Casual conversations with energy executives may reveal an overwhelming concern with the reality that attracting high school students to the energy industry might take "too much time." Lacking an immediate solution, paralysis sets in. Lost are opportunities to implement some progressive ideas like going beyond the border and offering summer internships and scholarships to the most promising foreign students who are close to graduation. The issue of visas for foreign students is becoming less of an excuse as Homeland Security continues to establish better mechanisms to open U.S. borders in a secure manner. In fact, 15,000 students from Saudi Arabia are enrolling in college campuses across the United States to attend the 2006 fall semester under a new educational exchange program brokered by President George W. Bush and King Abdullah bin Abdul Aziz al-Saud.



In the long term, some multinationals are considering sponsoring higher-education programs in other countries. These programs are designed to train students in their own countries while assuring them a local job upon graduation. Some of these initiatives were in place before the labor crisis became evident and were inspired by both the increasing reluctance of U.S. workers to relocate overseas (especially after 9/11) and the expense of maintaining expatriates. They should serve as a good foundation to help with the energy labor crisis.

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Across the board, however, companies are overlooking the potential of increasing the energy workforce by specifically targeting women for energy-related careers. To increase awareness among young women about the energy industry, consideration might be given to creating nationwide "Women in Energy" centers and "Energy Professional" high schools that help strengthen the concept of energy as a career of choice among boys and girls in junior high and high school.



Complementing the above, energy companies might consider attracting and retaining women by modernizing the work environment. Technology today makes it possible to offer options such as job sharing, telecommuting, part-time jobs, flextime and a compressed work week. Women and dual-career families would welcome the opportunity to have flexible schedules and operate partially from home without compromising productivity.

The Future

The energy industry is the industry of the future, and a very exciting one at that. Increasing technological advances are reshaping the industry, incorporating new areas of research and development. Whether increasing output from existing fields, finding new fields or investing in alternative energy sources, the contributions that the female population could make to the energy industry are considerable. Research in next-generation technologies in oil and gas, nuclear power, clean coal, natural gas, solar, wind, biomass, fuel cells and hydrogen will continue to require the development of a specialized workforce.

The current talent pool is not satisfying today's needs and cannot realistically be expected to satisfy the industry needs of the future. Action must be taken today to prevent the continuation of the crisis affecting the industry. The problem calls for some "out-of-the-box" thinking, and women around the world are ready to step up to the challenge. ■

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Dr. Kraljevic is a 25-year veteran of the energy industry, having worked in different capacities with companies such as Exxon, Enron, Mobil, El Paso and Halliburton, where she was director of business development for Latin American operations. A native of Chile, she moved to the United States in her early 20s and enrolled at the University of Arizona. She became the first woman in the university's history to earn a doctorate in chemical engineering, joining a group of only 200 women in the Americas at the time. As an active public speaker, she has addressed professional audiences in a dozen countries on business issues.