

STAFFING THE ENERGY INDUSTRY

A SURVEY ON
CURRENT AND
FUTURE SKILLS
NEEDS

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Highly skilled and educated graduates, particularly in engineering and science, are critical for Ireland to deliver on its ambitious energy targets. There is compelling evidence suggesting that we are beginning to fall behind the EU average and other countries with whom we compete, in our ability to draw students to these professions. For Ireland to attract foreign direct investment and for us to move up the value chain we need ongoing focused programmes at both primary and secondary levels to ensure an adequate supply of engineering graduates into the future.

John Power, Director General, Engineers Ireland

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JANUARY 2009

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Executive Summary

- Talent is in short supply to meet the increasing demands of the energy sector. The shortage of skills will increase cost and cause slippage in the delivery of projects. Companies should now be developing human resources strategies which will ensure that the right talent is in place to deliver future business objectives.

- To date in Ireland the supply of technically qualified people has generally met demand and a lack of skills has not hampered the growth of the energy sector. The international situation is different in that the survey suggests that engineers are in short supply in Europe and in the Far East.

- At home, demand, especially for electrical engineers, will outstrip supply as the output of suitably qualified people decreases and some graduates are attracted to overseas opportunities. The fall-off in the numbers of electrical engineering graduates from some of our major universities will hamper growth.

- The industry acknowledges that as it invests, demand will increase for engineers and scientists. Skills, experience and understanding will need to be developed in areas such as commercial management, financial engineering, mergers and acquisitions, the evolving carbon market and the green agenda. Demand will be strongest for electrical engineers, computer scientists and commodity traders. Skills in project management and stakeholder management will need to be developed.

- The green agenda will provide business opportunity worldwide. The move towards carbon neutral energy, renewables, new fuels and raw materials for generating energy will create openings. Export opportunities will arise for engineers and scientists to sell their know-how and consulting skills overseas in developing markets.

- Stronger ties will need to be developed with the universities and institutes of technology. The creation of a Department of Energy Engineering at University College Cork and the appointment of a professor to this department is a positive move. The survey suggests that stronger relationships need to be developed between the industry and educational institutions in influencing future curriculum content and the output of suitably qualified graduates.

- Although the energy industry itself has very mixed views on how it is perceived by the public at large, in terms of career opportunity, graduates in general have a very positive view of the sector and place it high in order of career preference.

INTRODUCTION

Climate change, the green agenda, cooperation by governments worldwide to reduce greenhouse gas emissions and the phenomenal economic growth in Asia have created an unprecedented interest in energy. With the focus on alternative green energy and the huge investment in this sector, the question arises – is one of the major barriers to growth going to be a shortage of qualified people? MERC Partners recently undertook a survey to build a clearer picture of the energy sector and the challenges it will face on human resources and talent management in the coming years. The report is set out below.

International Dimension

Japan is running out of engineers. Like Ireland, the number of school leavers entering engineering and technology related fields is reducing. To improve matters, industry has conducted advertising campaigns intended to make engineering look sexy and cool and, uncommon historically in Japan, companies are importing foreign engineers or exporting the work to where the engineers are, in countries such as India.

China graduates about 400,000 engineers every year and is slowly but surely taking over Japan's position as Asia's greatest economic power.

Japan's biggest problem, not unlike Ireland, may be the effects of affluence. Products of a wealthy society, young people are unfamiliar with recession downturns or the hardships suffered by their parents and grandparents, post World War II. They do not see the point

in pursuing tougher courses in mathematics, engineering and the sciences, when they can have an easier life in college with more fun and social activity. School leavers are now choosing courses in economics, commerce, the arts and law with a view to pursuing better paid jobs in banking, finance and the professional services sectors.

Right across Europe, companies are finding it hard to recruit skilled engineers and technologists. So what is happening in the various countries? The answer is a series of far-sighted measures from awareness programmes at primary and secondary level schools to creating campus companies in universities and technical colleges. Siemens provides kindergartens with a discovery box containing experiments for three to six year olds, ranging from electricity to the environment and water. Other business organisations are collaborating with universities in funding campus companies involved in research and development and in commercialising innovations. The German association of engineers estimates that there are 95,000 vacant posts for engineers, up from 18,000 just three years ago. This is due to the surge in demand but also to the fall-off in students taking technical degrees.

The Irish Dimension

School leavers continue to pursue careers in greater numbers in areas other than engineering and the sciences. The perception is that there is more money in other professions and this combined with the shorter hours and better social life in college means that universities are struggling to fill places in engineering and the sciences. A spokesperson for Engineers Ireland, in highlighting the rewarding and diverse possibilities associated with a career in engineering, recently stated "it is worrying that colleges are having difficulty filling engineering places despite a record increase in CAO offers. Despite the current downturn, we will see notable job opportunities in pharmaceuticals, medical devices, environmental engineering as well as a demand for process and project engineers. But if we don't get more engineers, the Green Agenda, for example, will take longer to implement".

The overall number of engineering students in Irish universities in 2007 was 11,758, down from 12,299 in 2006 and 12,711 in 2005.

Decrease in numbers of students taking engineering %

2006 over 2005

3.2%

2007 over 2006

4.4%

Total over 2 years

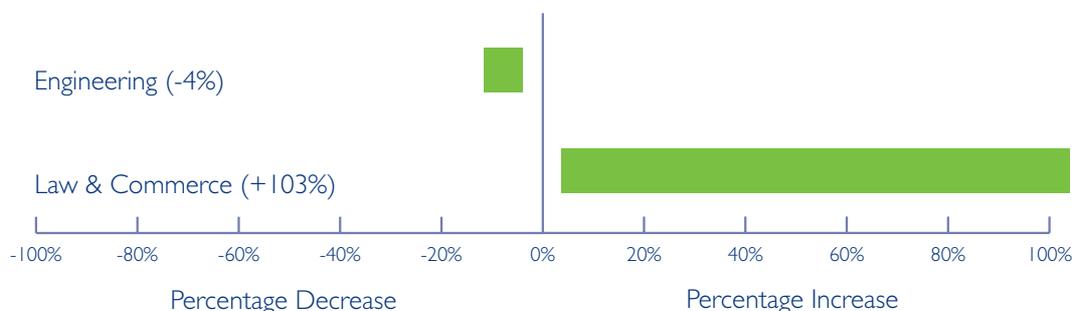
7.5%



A positive trend is that the number of females taking engineering in the last decade has increased from 16% of total in 1997 to 23% of total in 2007.

Another interesting statistic is that in 1993 a total of 3,929 engineers graduated in Ireland whilst in 2004, the figure was 3,780, a decrease of 4%. In 1993, 7144 commerce and law students graduated. In 2004 the figure was 14,525, an increase of 103% !

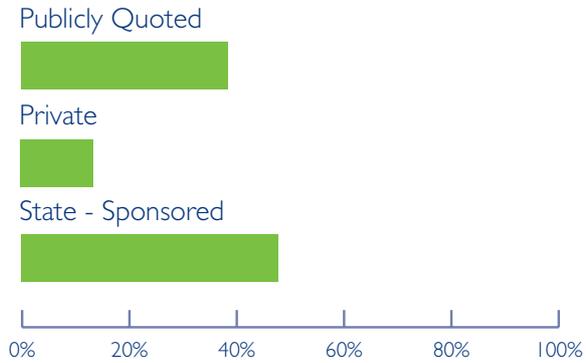
Graduate Number Trends 1993 - 2004



Survey Population

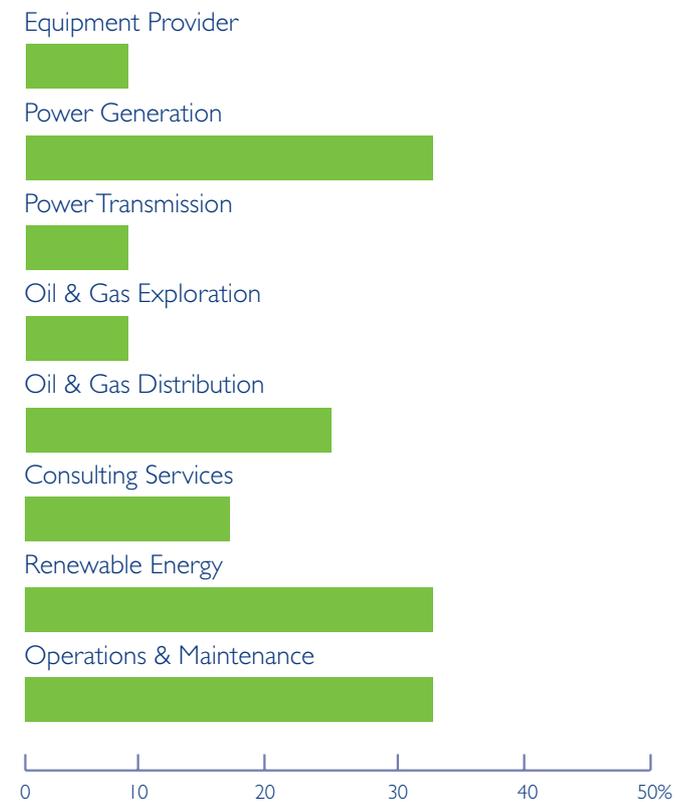
Survey participants represent a cross section of publicly quoted, private and state sponsored bodies.

The status and ownership of the companies are listed below.

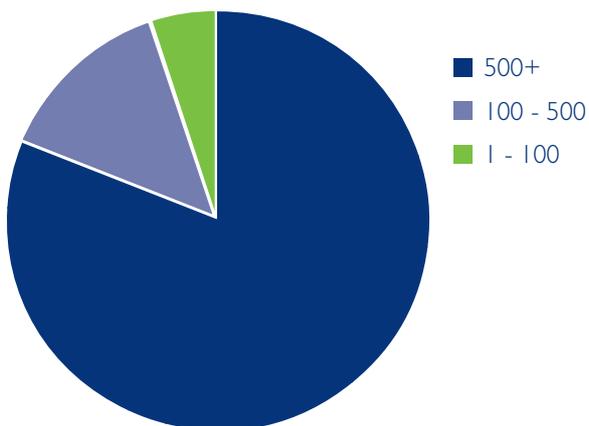


Representation by Business Sectors

A number of the companies surveyed are involved in more than one area of the energy business, with representation as follows:



Numbers Employed by Participating Companies



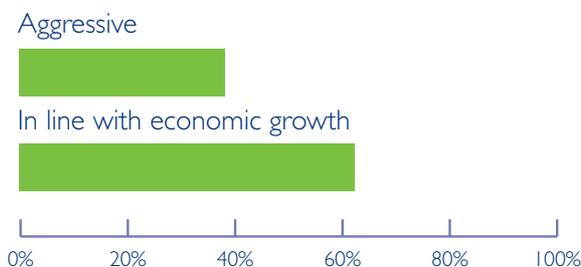


Current Availability

Despite the huge growth in activity, all participants confirmed that no project was delayed or cancelled in the last 5 years because of a shortage of qualified professionals. The response has been – when ever engineering skill or business know-how was needed, it has been found. In some cases, executives had to be recruited from overseas. An example of this was in the trading area, with the opening up of markets and the arrival of the Single Electricity Market. One participant recruited a team of experts from the UK market. This team has been successful in training and developing local talent and the company is now self-sufficient with suitably trained people with the necessary trading, pricing and analytical skills to operate successfully in this new market.

New entrants to the energy market, especially in renewables, will joint venture with companies with the traditional engineering expertise in delivering projects. Design, build and operate activities will be outsourced. When asked about growth strategy and prospects, all participants responded positively. Most start-ups and existing companies establishing business in the energy sector for the first time have very aggressive growth strategies in place.

Growth Plans for Participating Companies



The huge investment envisaged will mean increased demand for talent. Serious concern was expressed by participants about the availability of appropriately qualified graduates. In order of priority the functions with greatest demand will be:

Table A - Engineering Functions in order of Demand

1	Electrical Engineers
2	Stakeholder Managers
3	Project Managers
4	Traders
5	Environmental Engineers
6	Computer Scientists
7	Business Developers
8	Mechanical Engineers
9	Commercial Analysts / Hedging Specialists
10	Civil / Structural Engineers
11	Geophysicists
12	Marine Engineers

Much was said about the evolving deficit of qualified people and individual comments included:

"Engineers with stakeholder management experience especially in dealing with regulatory issues are in short supply."

"Not enough electrical engineers are being graduated by the universities and current graduates are all being absorbed by the established players."

"We had to recruit engineers from the Far East and Poland – we could not find them in Ireland."

"We will continue to recruit the expertise we don't have from abroad and grow our own under these experts."

"We will need 100+ engineers over the next year, primarily electrical and mechanical with some civil and are deeply concerned about our ability to find them."

"In renewables, especially wind, the most difficult aspect is the early stage, i.e. project outline design, planning, approval and stakeholder management. The implementation stage is straight-forward. Engineers with experience of managing stakeholder expectations are proving difficult to find."

"Engineers with business development experience are scarce".

"We are concerned that the universities and colleges will not be outputting sufficient graduates with power engineering skills to meet the future demand."

"The high cost of living in Ireland is an issue for us in hiring in engineers from abroad".

Irish energy companies are seriously concerned about skills availability. Ireland is a small player and will struggle on the global stage. Outsourcing of certain activities will be necessary. One company has gone so far as to appoint a Resourcing Project Manager to look at future skills needs and to plan and deliver the medium term and long term recruitment strategy.

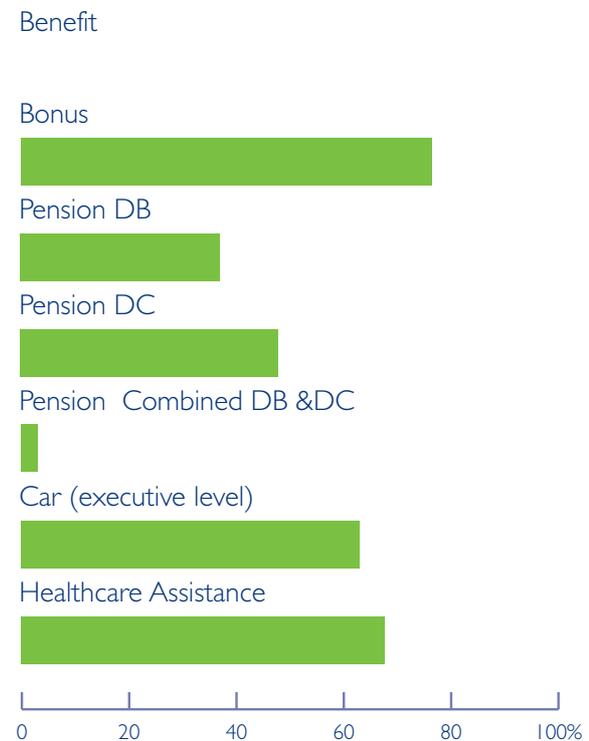
Remuneration & Benefits

When asked what their base compensation strategy was, companies responded as follows:



Some companies have a deliberate policy of paying upper quartile base salaries. Others indicated that they have a policy of paying the median / market rate. A norm is for companies to conduct extensive benchmarking to confirm market rate and then pay above that rate to improve their competitive position and attractiveness. A small number of participants do not have a policy or strategy on compensation, but it was their view that they were paying competitive market rates. Structure and processes which are valued include remuneration committees and annual salary benchmarking against the market and competition. One company specifically mentioned use of the "Hay" evaluation system for assessing the value and importance of key executive positions and remuneration levels. Bonus was the most common benefit provided, with 77% of companies having such schemes.

Benefits data gathered are as follows:



Other Benefits

An important benefit mentioned by many participants, particularly attractive in the retention of staff, is the provision of fully sponsored continuous professional development, be it internal on-the-job training or external, such as MBA or masters programmes. Benefits in the areas of death in service insurance, long-term disability and permanent health insurance were also mentioned. Whilst bonus levels in most cases were quoted at the 0% to 20% level, one company pays an exceptional level of bonus running to 100%, another pays up to 60% and a third company has a variable bonus running to 30%. Other benefits mentioned include a lucrative long-term service incentive bonus scheme, share options and share purchase incentive bonus schemes.

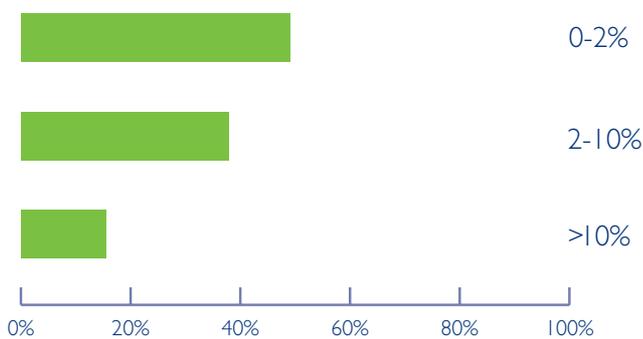


Retention of Staff

Retaining experienced staff is going to be vital. With the enormous funds earmarked for investment, competition for engineers and technical people will be fierce. The ability right now of companies to retain staff is good. The concern is really in the future as competition for scarce resources overheats.

The following are the current attrition rates within participating companies:

Staff Attrition Rates in Participating Companies



Where the attrition was low, reasons such as "dynamic business", "positive culture", "job security", "company in exciting early stages of development" were quoted. Those with rates at or about the national average stated reasons like "natural attrition", "young engineers and technologists picking up the travel bug and travelling / working internationally". Where the rates were high, comments included "demanding working environment – people are leaving for better work / life balance reasons"; "career progression not fast enough"; "better remuneration and benefits available elsewhere"; "location".

Employer Branding

Strategic initiatives in branding and culture are being used by some companies to attract people to their organisations. Accreditation and employer of choice awards, such as "excellence through people", "Technology Fast 50", "Best companies to work for in Ireland" are being pursued to attract potential employees. In excess of 60% of participating companies have taken some initiative in this area. One company in particular includes a "high performance culture and development of top talent" comment in its mission statement. Another company conducts frequent employee surveys on the quality of the company as a place to work in. In a recent comprehensive survey which this company conducted, 80% of the workforce responded positively on key job satisfaction issues. Again, continuous professional development (CPD) programmes are important in motivating and retaining staff. One company in particular stressed the importance of treating employees in a helpful and respectful way, sometimes to the extent of assisting or counselling on difficulties arising outside the workplace.



Training & Development

In excess of 50% of companies surveyed are CPD (continuous professional development) accredited by Engineers Ireland. Many companies invest heavily in training and development, primarily for the value-add in terms of improved skill sets but also for competitive and retention reasons. Two companies surveyed have a core competency system in place which drives the development strategy. Typically five to six core competencies are agreed for a particular position / function and during annual performance appraisal, improvement in competency is assessed, weakness identified and development strategy agreed. Within one of these two companies, 48% of all staff is currently undergoing some level of training and development.

Various approaches were mentioned by participants to include:

- A formal succession planning strategy, with a personal development structure and career path well defined for professional employees.
- Opportunities for staff to develop international expertise and cultural understanding through working at overseas subsidiaries.
- A formal two year graduate development programme in place, with a very significant budget allocation to this activity.
- Quarterly reviews to identify high potential employees for streamlining into specific training programmes.
- Mentoring and coaching, conducted by external consultants, primarily focused on fast track employees to develop their leadership skills.

Some companies admitted that training and development and CPD strategies are not what they should be. This weakness is recognised and a number of participants have plans to seriously up their game on career planning and training in the near term.

The Sourcing of Talent

Participants were surveyed on their approach to recruiting new talent. Questions were asked on the broad range of recruitment options adopted.

The methodologies used are as follows:

Sources of Staff

Milk Round



General Recruitment Advertising



Executive Search



Own Careers Website



General Website Advertising



Overseas Recruitment



The impact of the Internet and the growing development of career / opportunity specialist sites within company websites is becoming prevalent, albeit with moderate success to date. The general consensus was that with the large increase in use and dependence on the Internet, this approach will prove successful into the future. About 40% of companies indicated that due to difficulty in sourcing talent locally, overseas recruitment campaigns have been conducted, in some cases through direct advertising, in other cases through executive search and the use of specialist overseas recruitment agencies. Interestingly, only one company mentioned that the lack of technical resources delayed rather than curtailed growth. A reflection of the cosmopolitan nature of the energy industry in Ireland is the number of expatriates working in the business. One company has employees with 24 different nationalities, another 20 and another 13.

Relationships with Universities

With the fall-off in the number of engineers graduating in the last twenty years and with the growing demand for qualified people in the energy sector, it is important that strong relationships continue to be built with the universities in order to deliver future graduate requirements. The survey enquired as to how participants are currently influencing third level education institutions regarding funding, input to curriculum content and other activities.

Current initiatives include:



A strongly held view on the part of some participants was that rather than the industry influencing the universities on curriculum content, the universities on a joint basis should have in place an industry liaison person, part of whose role would be to visit with leading edge companies in the energy sector to ascertain future skills needs and to subsequently influence the various institutions on curriculum change. Two companies in particular are active at secondary education level in providing programmes and funding to assist in the development of an interest in engineering and the sciences. One company mentioned the positive effect of the Engineers Ireland "STEPS" programme in stimulating the interest of secondary students in engineering and the sciences.

Image of the Energy Industry

For the energy industry to attract the right graduates, a positive image will have to be developed and sustained. How is the industry viewed right now by the public and by graduates? What is the energy industry's perception of its own business? The survey produced extremes of responses from the very negative to the positive. Marginally above 50% of responses were negative regarding the image and positioning of the industry. Comments include:

"dull and conservative"

"the public and stakeholders need to be educated, especially vested interest groups, on major projects of national importance"

"educate school kids on the activities of the industry"

"the industry is not promoting itself well in Ireland, other countries are well ahead"

"more promotion needed, we should be actively promoting the industry"

"public perception is poor, not helped by Shell Corrib Gas negative press"

"major utilities still seen as monopolistic and conservative"

On a more optimistic note, many participants have a positive view of the sector and made comments such as:

"improved greatly in last few years; fast moving, dynamic and attractive"

"significant spend on corporate social responsibility has improved image"

"the activities of Airtricity and subsequent media coverage did an excellent job in promoting the renewables sector"

"wind, wave and renewables getting good press and viewed positively"

"image improving and environmentally friendly initiatives must be promoted actively in the media"

"the sector is attractive for graduates, they see growth potential and good career prospects"

To maintain the evolving positive image, most participants were all clear that more needs to be done in branding and promoting the industry.



Political Dimension

According to most participants, EU regulation, opening up of markets and competition has been good for Ireland and for the energy industry. The move away from state monopoly and the removal of local political influence have been positive. However open markets and competition have not driven prices down. A point made was that power generation is capital intensive and difficult to open up to competition in a cost effective way. One spokesperson expressed concern that with deregulation, less emphasis may be placed on safety and standards and that these just have to be maintained. Another said that progress has been too slow: “we are well behind the UK, which has a much more open market and there are still serious issues with pricing and tariffs”. One participant was positive on the opening up of markets but was negative on the bureaucracy: “there is now too much demand for data, reports and statistics”. Also the view was expressed that too high a percentage of the business remained in the public sector, with further public sector companies entering the fray. Another participant expressed concern with connectivity to the transmission grid and stated that the regulator needs to have a more positive influence on this. The general consensus is that the regulatory framework needs to be reviewed. Also the view was expressed that a more robust debate on nuclear energy needs to take place.

Deregulation has been positive for investment and the creation of jobs. New companies are setting up, not alone because of business opportunity but also because of the level competitive playing pitch. There was agreement on the importance of developing a strong representative body to promote the sector and to negotiate with government and the regulator on key issues.

**green
energy**

"A large percentage of professionals in the oil and gas industry will retire in the next 10 years. There is therefore a need to search far and wide for experienced talent, while at the other end of the spectrum, we must work closely with the universities to ensure that greater numbers of engineers and scientists are equipped for careers in the energy sector"

Lachy Rhodes is leader of the global Energy Practice Group for IIC Partners, Executive Search Worldwide. IIC is the world's eighth largest search organization by revenue, with 55 offices in some 40 countries. MERC Partners is the Irish member firm of IIC Partners.



MERC Partners

MERC Partners, founded in 1980, is a market leader in senior management and board recruitment, delivered through retained executive search and advertised selection services.

Pioneers of executive search in Ireland, the firm is proud of its blue-chip client portfolio, comprising many of the leading multinational, indigenous, semi-state and not-for-profit organisations. The MERC Partners brand has long been identified with integrity, discretion, expertise and successful delivery, enabling the firm's clients to gain a competitive edge through the quality of their senior management teams.

MERC Partners is the Irish member of IIC Partners, one of the world's top ten executive search firms, which provides the combination of the most recognised brand in Irish management recruitment with the depth of research, expertise and reach of a leading global organisation. With over 50 offices world-wide, our clients expect us to search internationally to identify and recruit the best management talent, regardless of whether that talent is "on the market" or not.

Bill Hennessy conducted this survey. He is one of the founding partners of MERC Partners. Bill has an electrical engineering background and heads up MERC Partners' practice group for the Energy Sector.



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Acknowledgement

MERC Partners would like to thank the HR Directors and senior executives of companies who took time from their busy schedules to participate in this survey. Their comments and insights regarding the skill needs of the energy sector will be helpful to the industry as a whole in the challenging times ahead.



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