



KAZENERGY EURASIAN FORUM

Women's Energy Club

THE ROLE OF WOMEN IN SUSTAINABLE ENERGY AND LOCAL CONTENT DEVELOPMENT

Sue Whitbread
PWX Limited

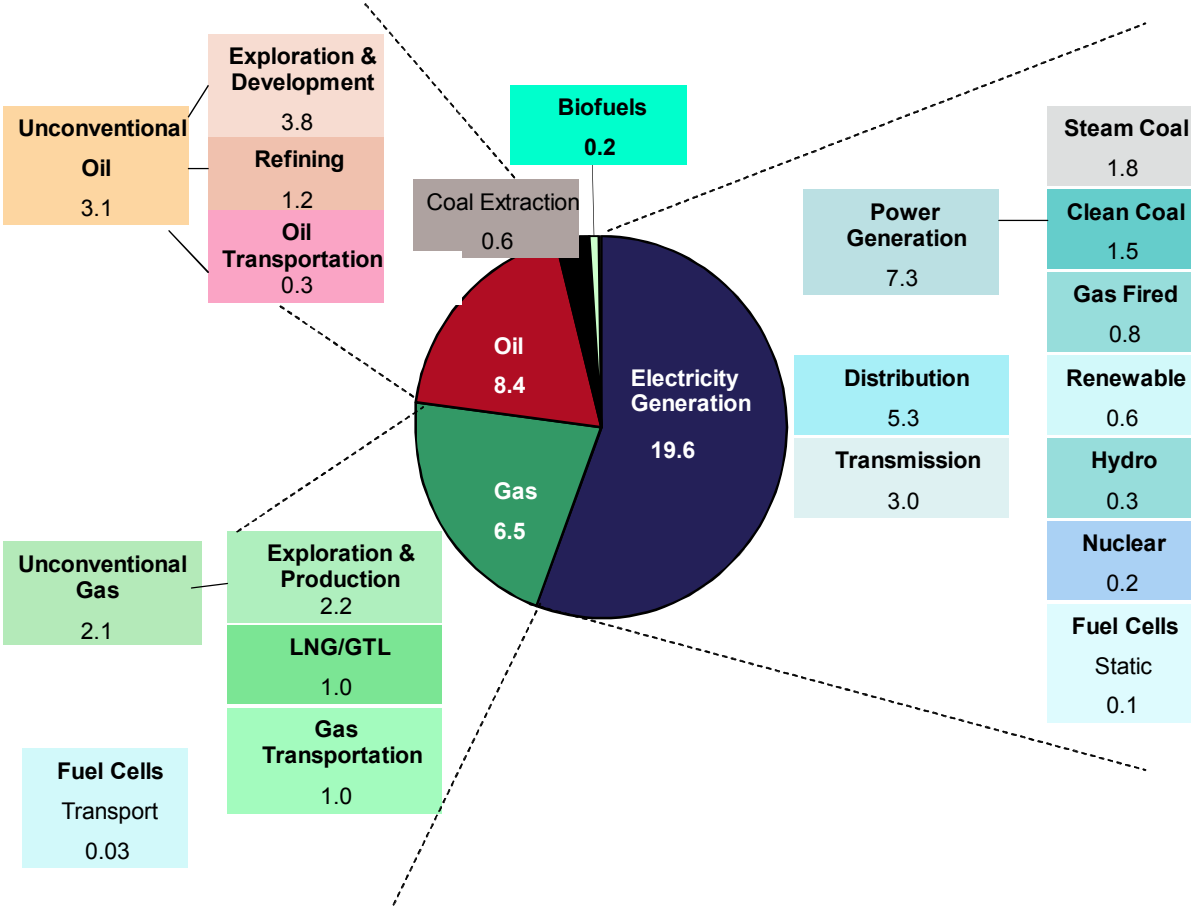
THEMES

The Energy Landscape and Employment Demographics

Challenges

Practical Initiatives

WORLD ENERGY LANDSCAPE TO 2035



World demand for energy to rise by one third – **17,000 Mtoe**

Expenditure on energy delivery could exceed **US\$ 34 trillion**

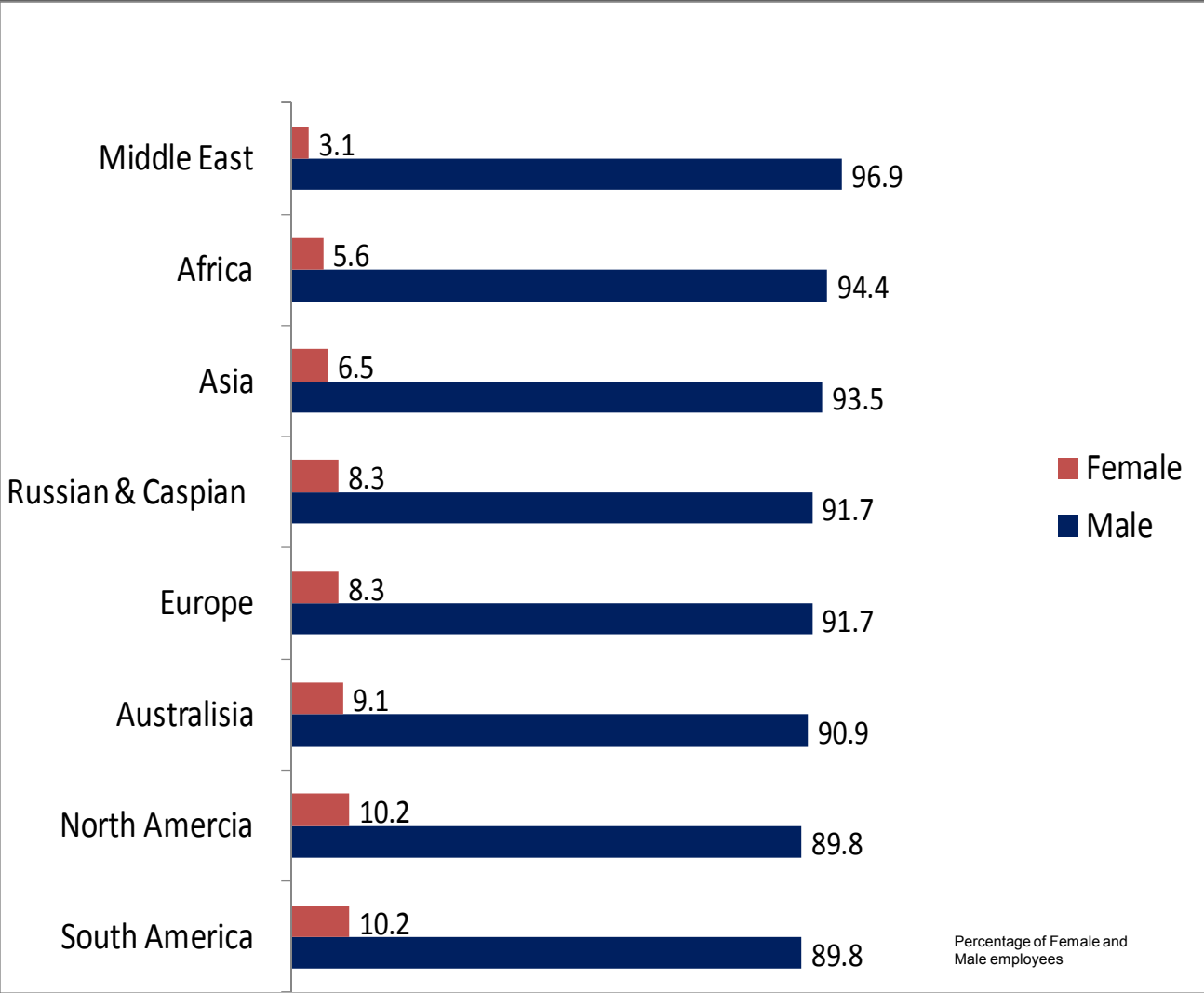
Over 50 percent of expenditure on **electricity generation**

Expenditure on oil & gas including unconventional resources **US\$15 trillion**

US\$5 trillion on non – nuclear renewable energy with an increasing trend

Over **60 percent of expenditure** will be required to maintain and **replace existing capacities**

OIL AND GAS SECTOR EMPLOYMENT DIVERSITY



Source Hays Recruitment 2013 Oil and Gas Salary Guide

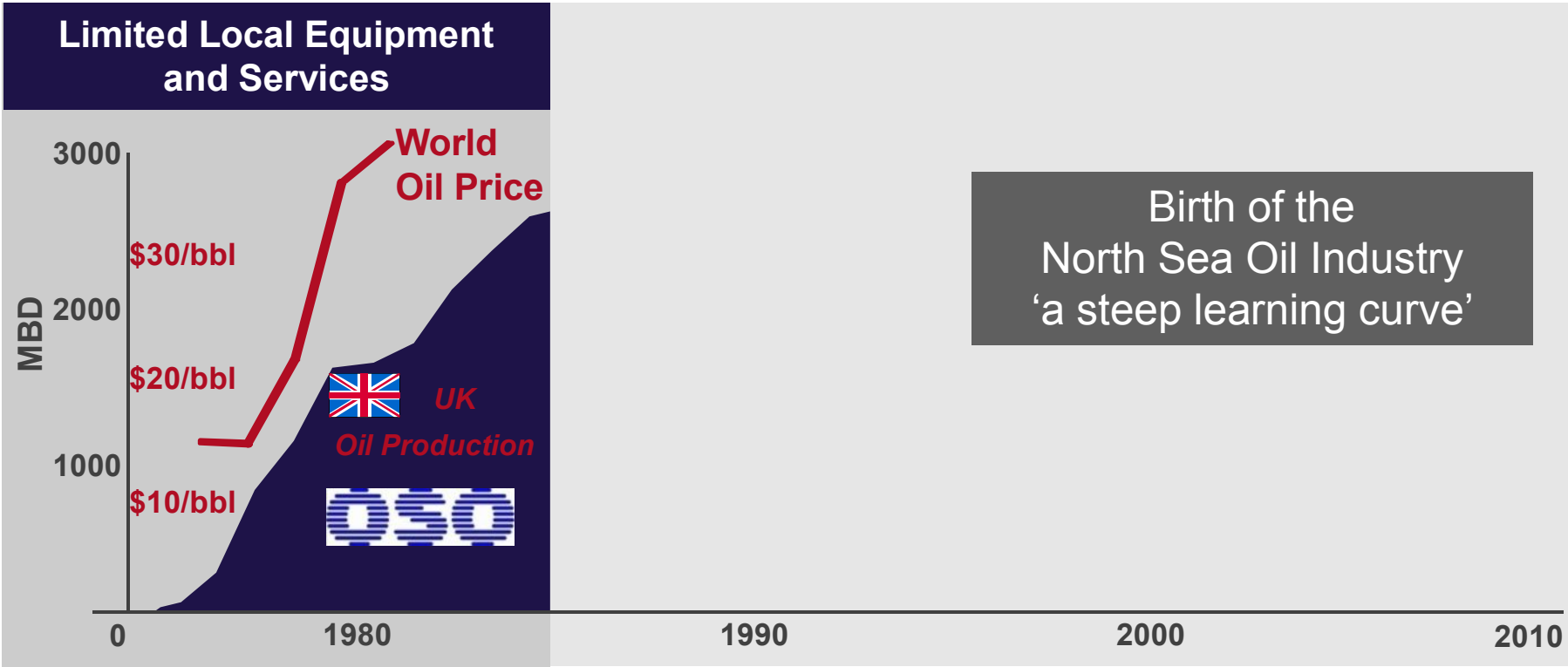
Oil industry direct employment is estimated at **60 million** personnel with over 600 million indirect personnel (throughout the supply chain)

It is estimated that **12 million** additional direct employee will be needed to deliver increase in production to 2035

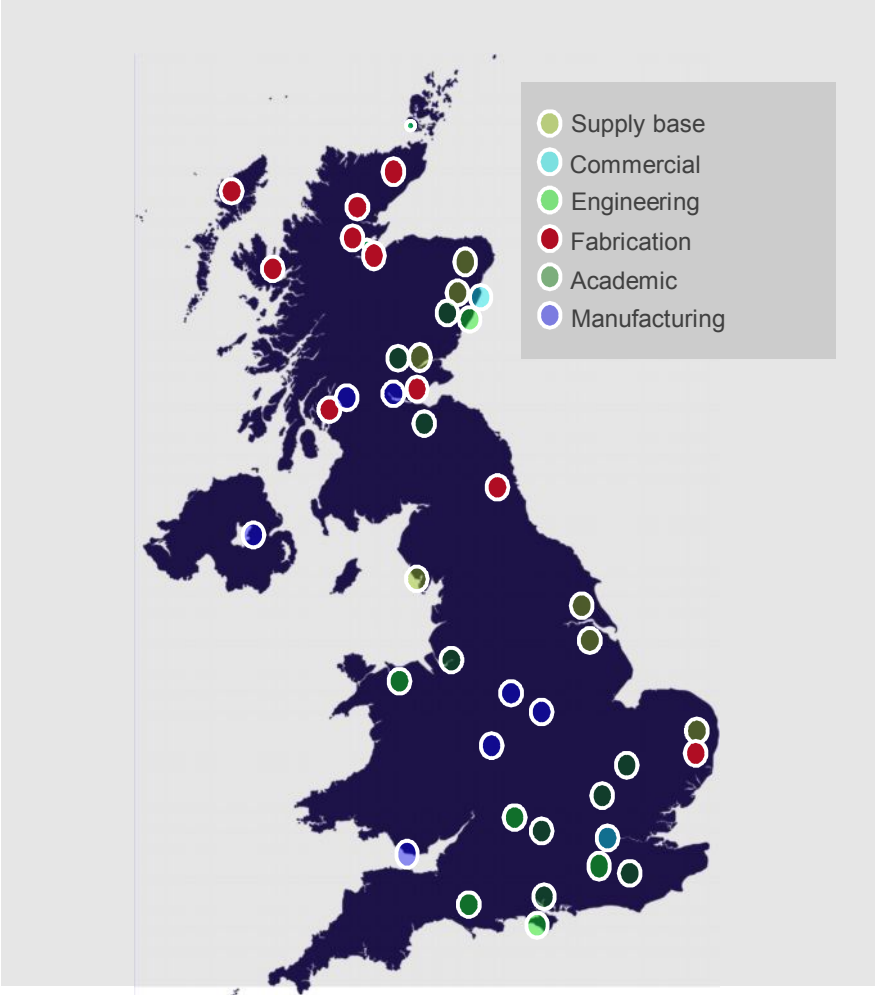
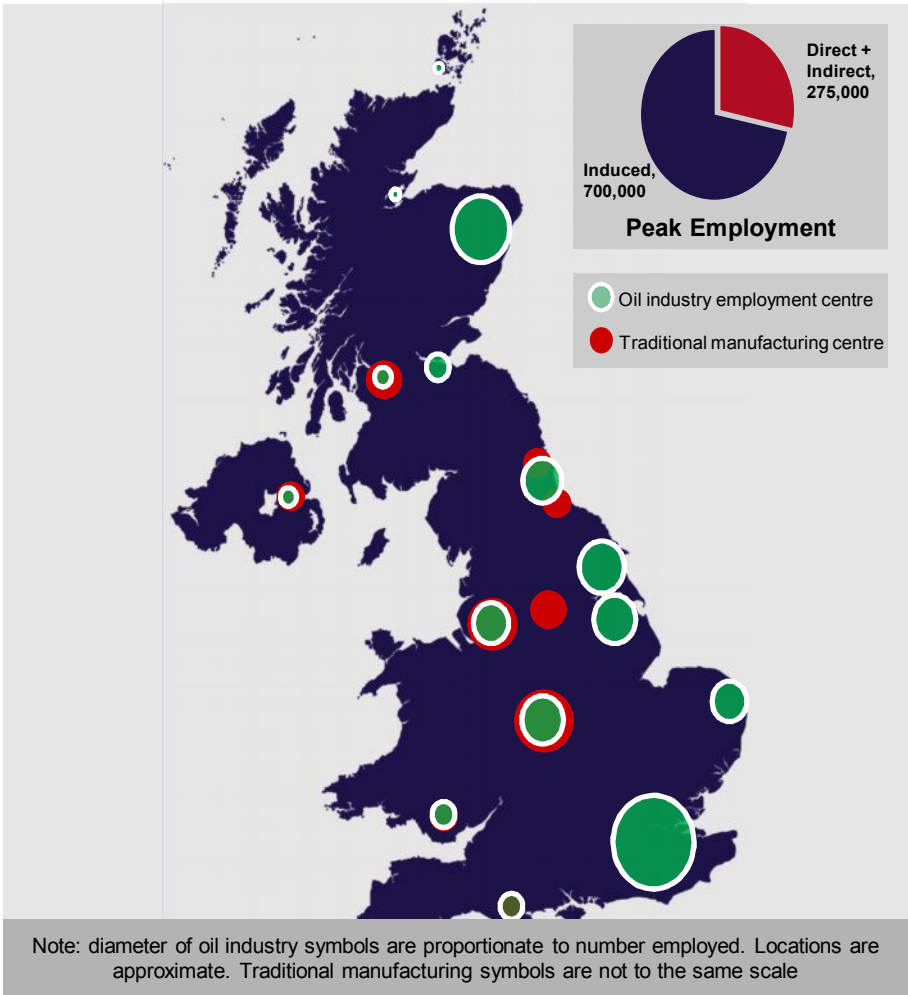
Women currently represent less than **10 percent** of the global work force

Less than **3.5 million women** work in skilled technical or engineering jobs

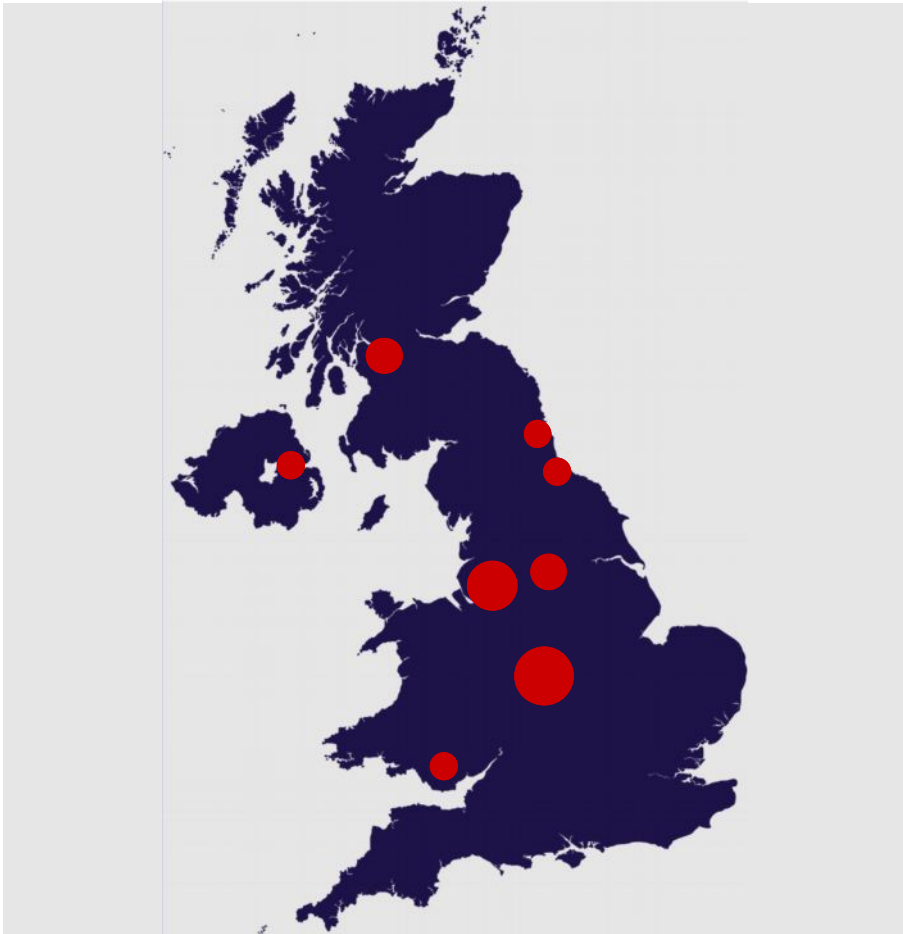
UK OIL PRODUCTION AND EMPLOYMENT TRENDS



UK OIL & GAS INDUSTRY EMPLOYMENT



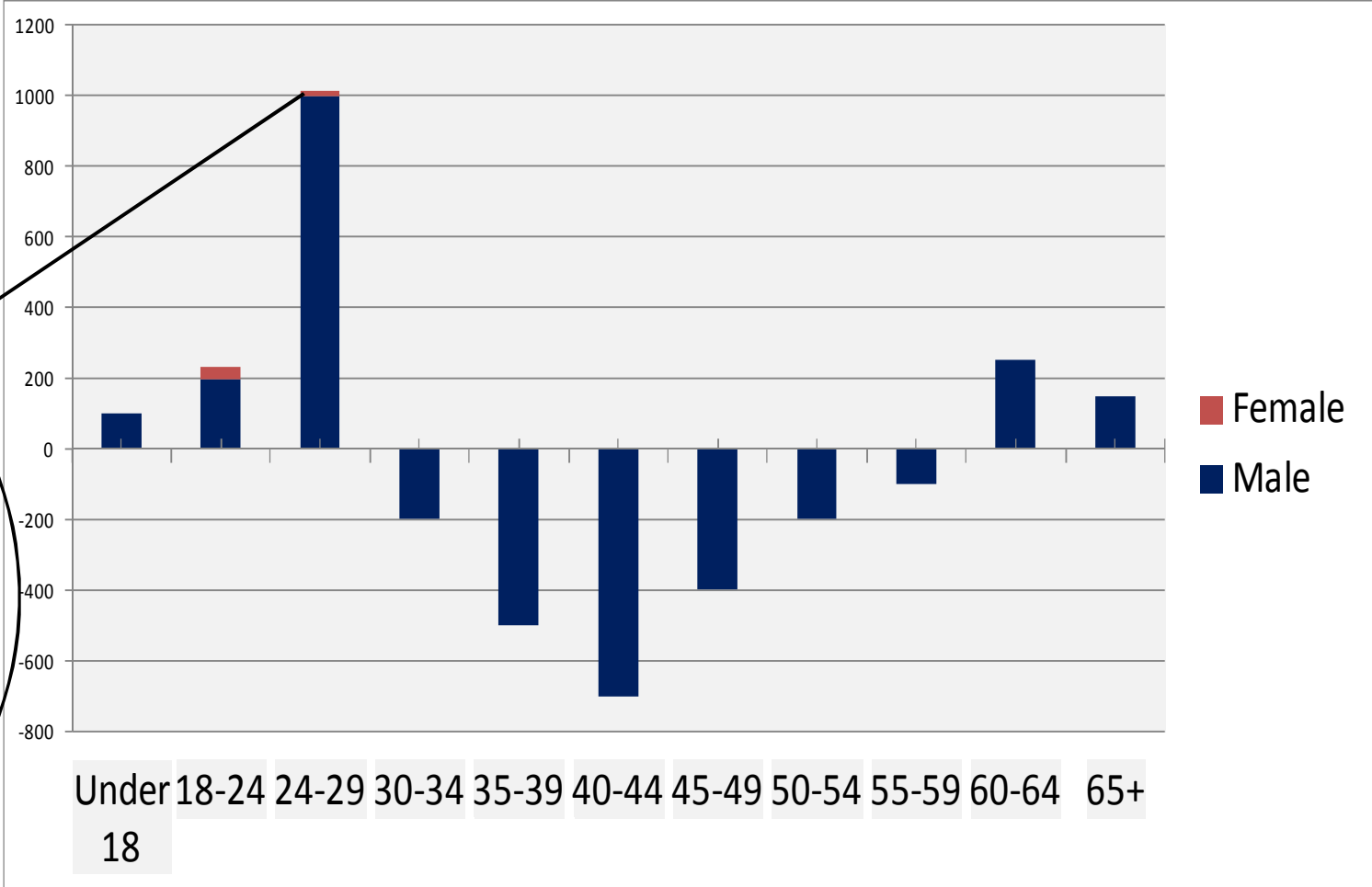
USING TRADITIONAL SKILLS & RESOURCES TO GROW CAPACITY



- Steel and Iron Manufacture
- Mining
- Power
- Nuclear Engineering
- Gas Processing
- Refining
- Ship Building
- Construction
- Agriculture
- Food Processing

UK OIL AND GAS SECTOR EMPLOYMENT TRENDS

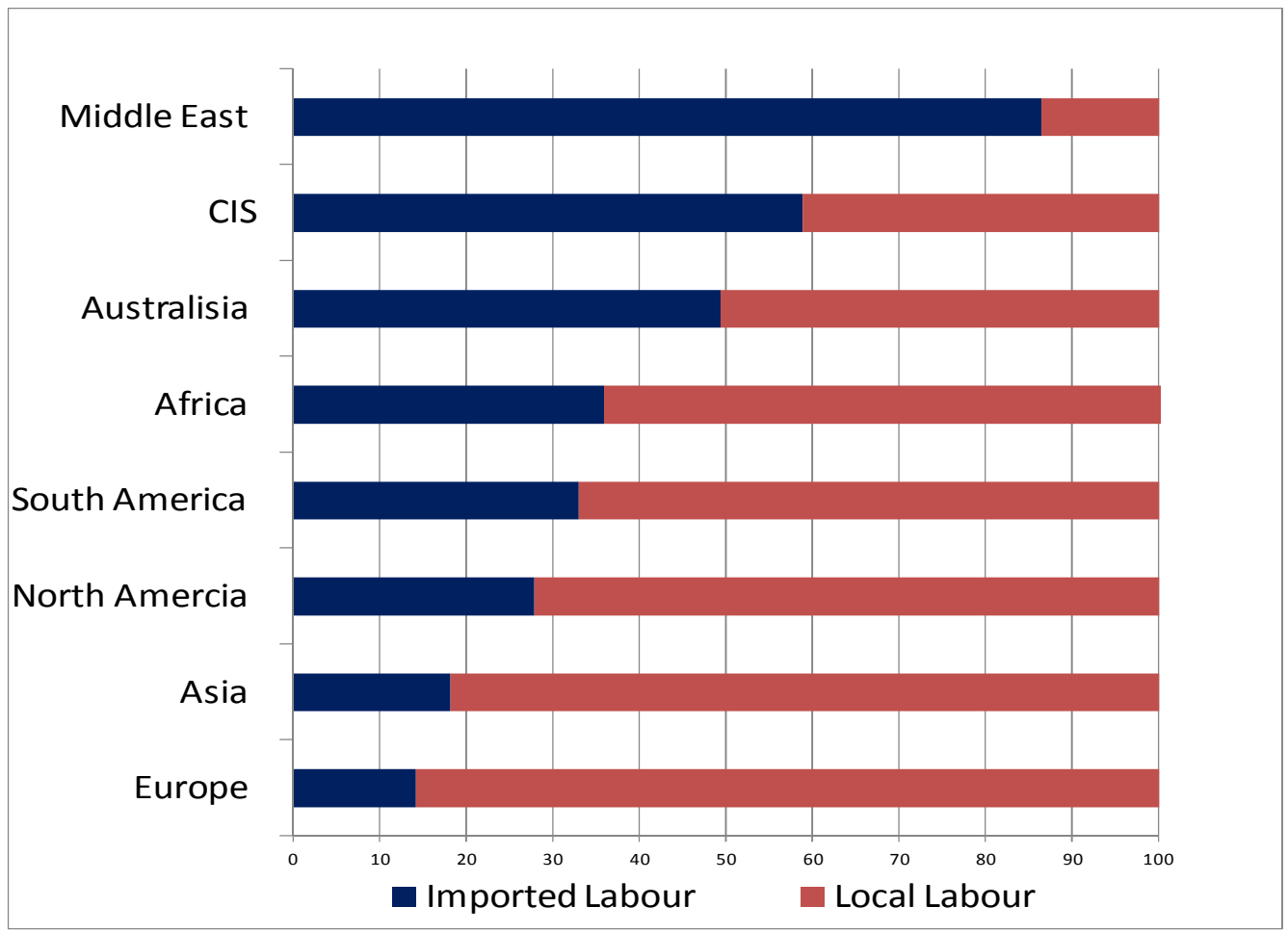
Net changes of personnel per age group 2006 compared with 2012



The improvement in personnel recruitment of under 30s can be attributed to

- targeted youth training programmes with supported places for technicians and graduates

OIL & GAS SECTOR LOCAL EMPLOYMENT



Middle East continues to be the largest importer of skilled and semi skilled labour

In the CIS the growth of major complex oil and gas developments onshore and offshore has required more international labour

Australia has the greatest increase in the use of local labour as a result of intensive training and re-training programme

There has been a decline in foreign nationals in Europe as labour rates grow in international markets

Source Hays Recruitment 2013 Oil and Gas Salary Guide

THE CHALLENGE IN MEETING SKILLS DEMAND

INTERNATIONAL LABOUR ORGANISATION

- *Global Dialogue Forum on Future Needs for Skills and Training in the Oil and Gas Industry (Geneva 12-13 December 2013)*

‘ ILO should conduct a detailed global study on skilled shortages’

‘ the training curricula needs to be set to meet new demands of the industry’

Lack of available current knowledge on skilled workers tends to drive employment toward known sources of foreign labour

‘Improving the availability of skilled workforce has to be a cooperative effort: government, plus industry, plus society’

‘...training is only part of the problem the industry needs to improve its image ...’

‘ the development of a well trained work force is a vital component of securing the competitive environment and extracting greater value for hydrocarbon and energy resources

‘Companies should provide training for all workers ..to that end governments should provide encouragement through instruments such as tax incentives ...’

‘Skills development to improve the industries safety culture are vital’

Demand

Reservoir

Area Pressure
Character Temperature

Location

Onshore Weather
Offshore Terrain

Production Facilities

Client Choices

Local Resources

Equipment & Services

Demand

Reservoir

Area Pressure
Character Temperature

Location

Onshore Weather
Offshore Terrain

Production Facilities

Local Resources

Natural Resources

Population Demographics

Industries

Education

Materials

Professions

Crafts

Equipment & Services

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Client Choices

Experiences

Uncertainties

Local Resources

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Population Demographics

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Crafts

Equipment & Services

Oilfield Fixtures

Reservoir
Area Pressure
Character Temperature

Production Facilities
Wells Oil Gas Water Power Export

Location
Onshore Weather
Offshore Terrain

Assurance

Standards

Competence

International National Local

Equipment & Services

Local Resources
Natural Resources
Industries
Materials
Professions
Education
Crafts
Population Demographics

Labour Law

National Oil Plan

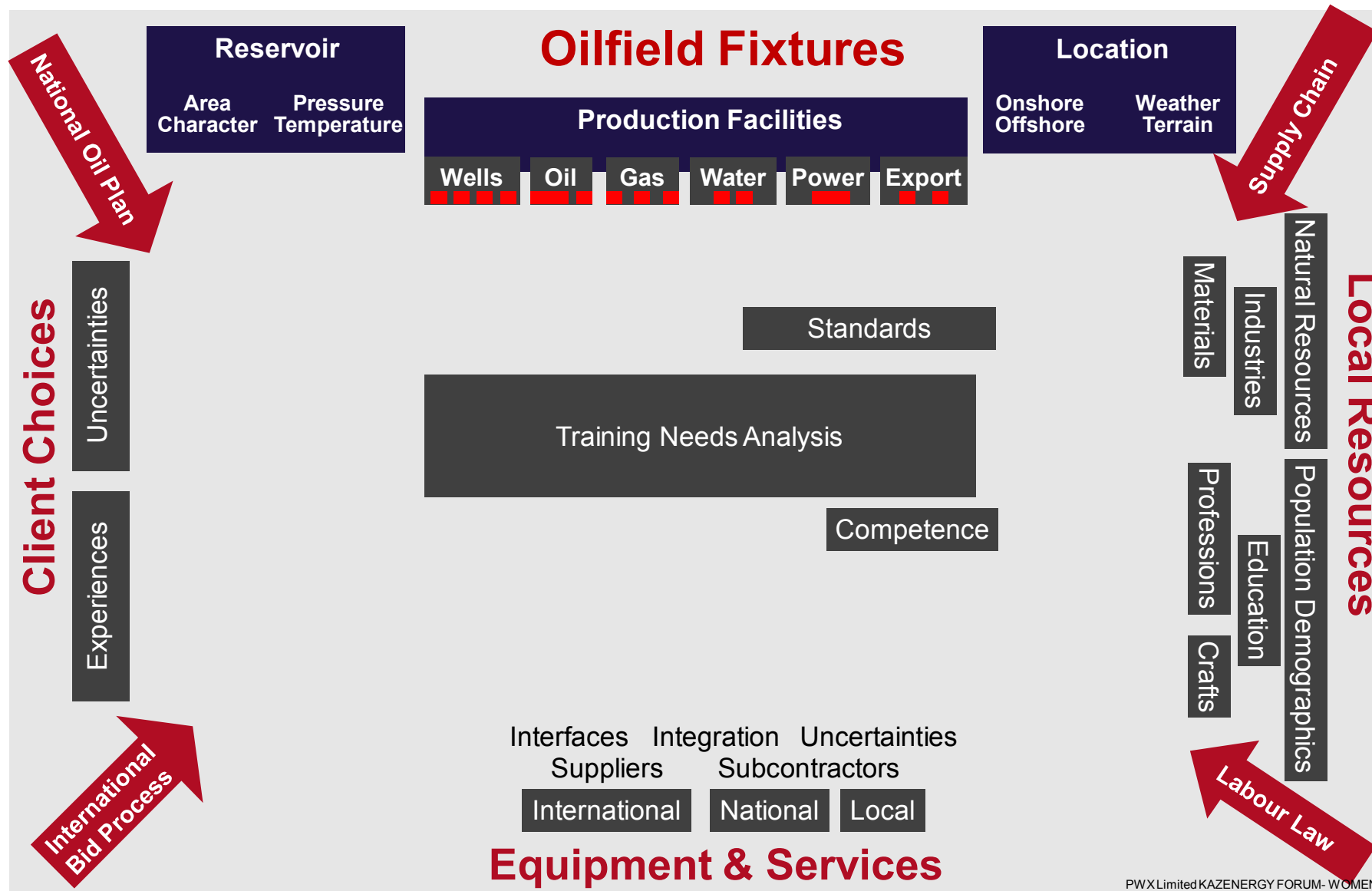
Supply Chain

Client Choices

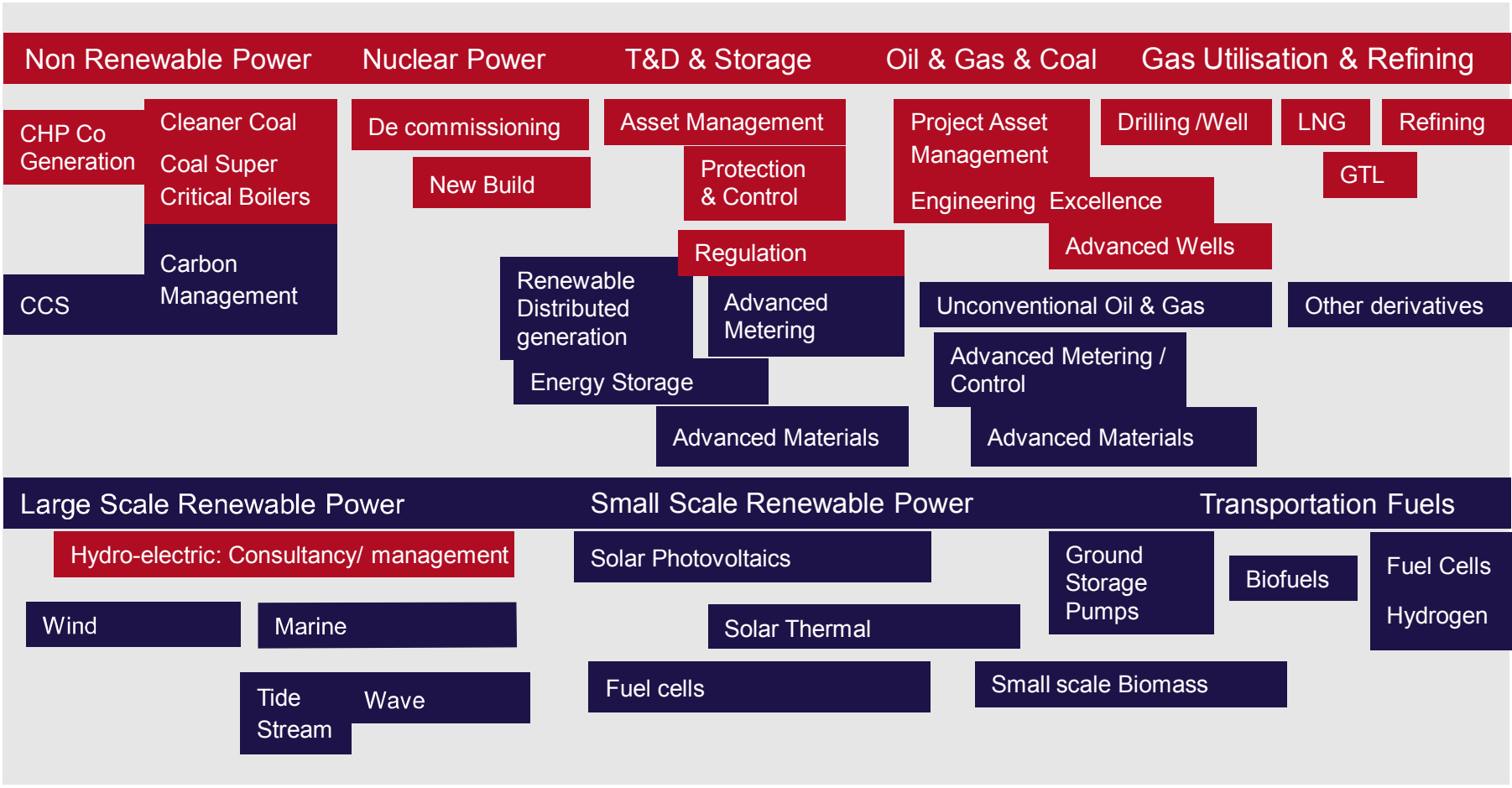
Uncertainties

Experiences

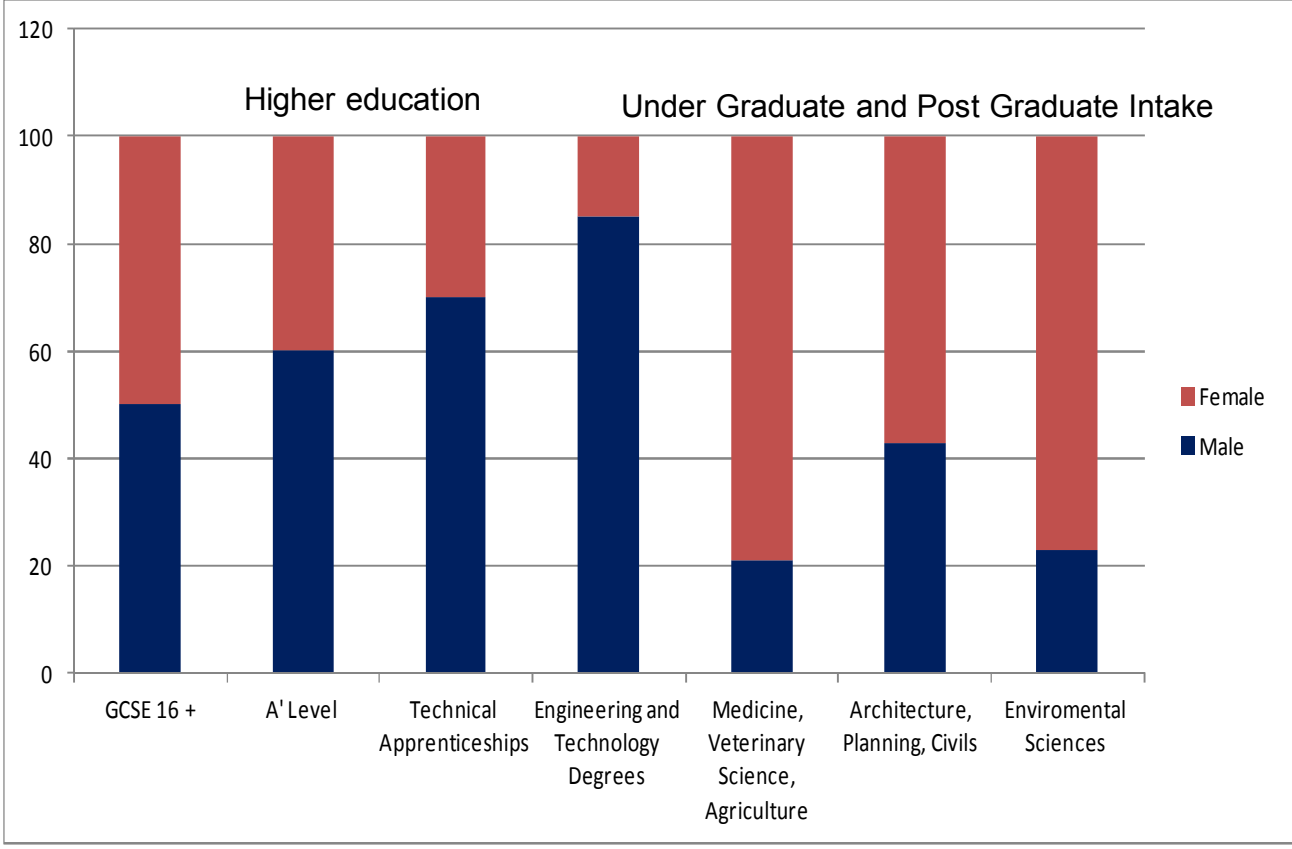
International Bid Process



ENERGY SECTOR OPPORTUNITIES



UK WOMEN'S PARTICIPATION IN SCIENCE TECHNOLOGY, ENGINEERING AND MATHEMATICS



UK statistics suggest that women with STEM aptitudes are more likely to enter careers outside of the oil and gas sector

The STEM industries employing the lowest proportion of women are:

- Mining and Quarrying (13 percent)
- Construction (11 percent)
- Oil and Gas (9.7 percent)

•Of the FTSE 100 companies in STEM sectors 13 percent of board directors are women compared with 17 percent in other sectors.

Source University of Leeds

FOR YOUR KIND CONSIDERATION

Good Quality Gap Analysis
Start locally, build to a global understanding

Cooperative Effort
Government, Industry, Educators

Improve industry perception
accessibility, sustainability



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