Catalogue of Energy Industry Classifications

Final Report

A report to EEEGR by Douglas-Westwood Limited

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Douglas-Westwood Limited,
St Andrew's House, Station Road East,
Canterbury, Kent,
CT1 2WD, UK

tel: +44 1227 780999 fax: +44 1227 780880
email: admin@dw-1.com www.dw-1.com

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1 INTRODUCTION

1.1 Background

"Offshore Oil & Gas Regional Information Gap Analysis", a study produced by Douglas-Westwood Limited (DWL) for DTI in January 2004, showed there to be a considerable variation in the amount and quality of information available on the energy industry both in the regions and indeed the UK as a whole – issues that DTI are seeking to address.

One specific problem that was identified was a lack of comparable information on companies active within the energy industry, the business sectors they specialise in and their geographic distribution. Therefore, it is difficult to determine with any accuracy the economic importance of the energy industry to regions and communities. Some level of mapping has been undertaken for the upstream oil & gas sector, however, this is primarily based around determining the number of companies located in political constituencies and does not indicate their nature and true geographic distribution.

At present, the UK Standard Industry Classification of Economic Activities (UK SIC(92)), provides a broad coverage of supply chain activity, however, in seeking to capture the full range of company capabilities serving each and every industry it lacks the level of detail to fully reflect the specific competencies of the supply chain to the energy industry.

In contrast, current energy industry directories maintain a level of detail which while useful when searching for a highly specialised product are impractical for other purposes. For example, one such directory subdivides "cables" into 58 different products and services, while "consultants" are divided by subject sub-divisions. In total, this directory has 7,000 company entries in 3,200 categories, with the majority of categories populated by just a single company (possibly caused by companies' own definition of their activities).

An example of how the information need may be met is the internet-based supply chain mapping system 'Mapergy', established by EEEGR for the East of England energy industry. This is driven by an underlying database of some 2,500 companies and enables their actual distribution by geographic location (postcode) to be clearly displayed.

In order to further develop this system, it was thought necessary to code the companies according to their activities, with for example 'project management' companies servicing the 'Oil & Gas' or 'Wind' industries being displayed as such. However, for this to happen there is a need to produce a set of keywords to classify activities of companies in the energy supply chain in a pragmatic fashion. This could begin in oil & gas and extend through to renewables and nuclear related activities.

1.2 Aims & Objectives

This study was commissioned by the East of England Energy Group (EEEGR) and completed by Douglas-Westwood Limited (DWL) in December 2004 prior to a period of further testing within DWL's ongoing work within the POWER project. The project required the creation of a "pragmatic" coding system to be applied to all companies identified, or seeking, to be working within the supply chain to the energy industry.

The framework created will act as a means of facilitating the identification of specific capabilities of companies servicing one or more sectors and enable the effective segmentation of the industry through the creation of three independent, relational datasets,

structured as a keyword listing. The listings have been based on 117 categories, supplemented by a glossary defining keywords where appropriate.

The three independent relational datasets are;

1. **Industry Sectors** – Oil & Gas, Wind, Solar, Nuclear, etc
2. **Industry Roles** – Operator, Service Provider, Support Organisation, etc
3. **Industry Classification** – Drilling & Wells, Installation & Commissioning, etc

The coding system has been supplemented by suggestions of the key industry metrics that should be recorded within supporting databases to facilitate attempts to perform a consistent and repeatable analysis of the nature and scale of activity within any supply chain to the energy industry.

1.3 Application

Having established an appropriate framework of use the catalogue of categories are currently being integrated into EEEGR's 'Mapergy' system and made available to all POWER project partners as a means of providing a common terminology in completing their country specific offshore wind supply chain studies. It is also envisaged that such a system will be complementary to work being developed to better identify skills sets against the capabilities of the industry.

In creating such a system care has been taken to deliver upon the specific project brief provided by EEEGR. However, given the depth of knowledge and experience within the energy industry, as soon as any list is prepared for use, others will seek to redefine or amend. It is therefore acknowledged that any coding or classification system will never be completely accurate or practically usable. As such, in providing the required tool we have applied Pareto's Law (80:20) as a means of ensuring the pragmatic management of the number of activities listed.

Whilst we would caution against wholesale additions, both DWL and EEEGR positively encourage good and critical feedback to improve the initial listings. Any such feedback would be tackled thus;

1. Acknowledge feedback
2. Review proposed addition against definitions
3. If definitions change add appropriate activity

1.4 The Energy Industry

Having outlined the background of, and the aims and objectives for, the Catalogue of Energy Industry Classifications, as well as discussed potential areas of application for the system it becomes necessary to establish our understanding of the definition of the energy industry. In the simplest of terms the starting point for the work is one of supply and demand;

Supply – Business and income generated by finding, exploiting and developing the means of production of energy, its conversion to generate electricity, heat and fuel and its transmission to point of use. This is the supply chain to the energy industry.

Demand – The way in which an entity uses energy to achieve its final objective (i.e. to power, heat and/or drive) and captures the ethos of good resource management and thus improves efficiency, productivity and competitiveness. This should be undertaken as best practice by all business and is a key tenant of the Energy White Paper which promotes the wise use of energy.

2 CATALOGUE OF INDUSTRY CLASSIFICATIONS

2.1 Framework of Use

117 categories have been created, comprising 11 Sectors, 10 Roles and 96 Classifications. A listing of categories, glossary of the terms used and example of the system in operation are given within the appendices to this document.

Companies are required to select (or be placed within) the **Sector** they are servicing (i.e. Oil & Gas), the **Role** they perform (i.e. Engineering) and the **Classification** which best describes their activities (i.e. Fabrication & Construction). It is accepted that the majority of companies will require a listing under several categories, varying the Sector, Role and/or Classification as appropriate.

In the instance of a Group of companies, where possible each individual company should be represented within the system (i.e. The Acteon Group – MENCK, Intermoor, Claxton Engineering, UWG Limited, 2H Offshore, WellCut and Team Energy Resources).

2.2 Implementation

Following initial testing and approval from EEEGR the categories have been applied to all companies within the East of England identified, or seeking, to be working within the supply chain to the energy industry. The success of such a process, which has covered approximately 1,500 companies, will be highly dependent upon the quality of information available on each company (as provided by EEEGR following receipt of a 'cleansed' dataset of companies). However, supplementing this preliminary analysis with a degree of interaction with the companies involved is recommended.

Having created the 'pragmatic' system required to work in conjunction with Mapergy, it is vital the technical delivery of this framework continues to facilitate a user friendly system which is both meaningful and manageable for the end user. One key area in achieving this is the Glossary, which should be made readily available to all users of the system at the point of use. In creating such a facility attention has been paid to ensuring each category in other widely used industry classification systems and directories (i.e. FPAL, Pegasus, etc) has been included within one of the keywords given. The potential for any gaps in the system, whereby an element of the supply chain may not be covered, has, to the best of our knowledge been eliminated – however feedback is encouraged should any be identified.

It is not intended that there should be any form of hierarchy between the categories, in that a company may base its entry on either the Sector it serves, the Role it performs or the specific Classification of its activities. However, when a category is chosen this may then limit the choices available in the remaining categories as only certain permutations are appropriate. For instance, if a company were to state it works solely within the Offshore Wind Sector there are only certain Classifications which are appropriate to that specific sector, and only they should be available for selection from the drop down list presented. Similarly if a company initially classifies itself as working within Drilling & Wells it should not then be able to select any Sector other than Oil & Gas.

One further consideration is the development of numerical codes to represent the keywords created, particularly with regard to the use of such a framework as a tool for quantifying the economic value of the industry, or an aspect of the industry. Such a system is widely used, with the codes used within Standard Industry Classifications and FPAL prime examples of

applications within the energy industry. The relevance of such a system will be highly dependent on the end user, however, it would be undeniably beneficial to have such a facility available and it is recommended such a capability is developed within the next phase of the system's development. As a starting point the prevailing Standard Industry and Occupational Codes are to be applied to the list of categories created within the catalogue.
Once successfully applied to the East of England, and fully integrated with Mapergy, it is intended the system be made available for use in other regions, both within the UK and further a field. This process will be initially facilitated by the use of the categories within the POWER project, while further potential to transfer the framework to other national and European Regional Development Agencies and Trade Associations is envisaged.

The means of such a transfer to other users will present certain difficulties, as the system is easily replicable, which suggests it is best done as an integral part of rolling out 'Mapergy' to other users. In practice, for such a process to be a success it may require some tailoring to the specific needs of the user.

2.3 Key Industry Metrics

A further key area in which this system offers potential value is in providing a means of addressing the variations in the level and quality of information available on the energy industry, throughout the UK and beyond. The current lack of comparable information on companies active in the industry prevents a true representation being made of the economic importance of the sector to regional and national economies. However, once fully implemented the Catalogue of Energy Industry Classifications, together with 'Mapergy', will facilitate a categorisation of the capabilities of the regional supply chain, which when combined with the recording of certain key company metrics will allow an appreciation of the industry's economic value to be gained.

Maintaining an accurate record of these key figures within supporting databases will greatly aid attempts to perform a consistent and repeatable analysis of the nature and scale of activity within the supply chain to the energy industry within a specified geographic area. However, developing such figures in a comprehensive and comparable manner requires a great deal of primary and secondary research if information of an identical definition is to be captured on the entire supply chain. As such we have differentiated between metrics which are deemed fundamental and those which while desirable will prove more difficult to capture.

The fundamental information required should focus on historic and current data relating to a combination of a company's turnover and associated employment. An understanding of a company's turnover, and particularly the proportion derived specifically from activities located in a specific geographic region, industry (or sector) and that from international markets, together with that of their international subsidiaries[1] allows a quantification of the monetary value of the sector as a whole. When complemented by an analysis of the numbers of people employed in support of regional industry related activities a true reflection of the impact of an industry on the regional economy would be given. Suggested metrics are:

Turnover (£m)

- Geographic area (%)
- Industry related (%)

[1] International Subsidiary: owned by a UK company but working outside the UK

- Exports (%)
- International Subsidiaries (£m)

Employees

- Geographic area
- Industry related

In addition it would be desirable to, where possible, maintain an accurate record of a company's;

- Capital expenditure
- Operational expenditure
- Spend on wages
- Profits
- Distribution of spend among suppliers
- Sales
- Exports by type
- R&D spend

However, it is acknowledged that that many companies would regard such information as commercially sensitive and be reluctant to supply it.

3 RECOMMENDATIONS

Having established a comprehensive listing of categories and robust framework for their use the natural next stage is its application. The supply chain to the energy industry within the East of England is believed to be comprised of over 2,000 companies, each of which will be profiled within 'Mapergy'. For the system to be effective will require an understanding of the capabilities of each of these companies, and their subsequent representation through the categories created. To date this process has entailed the following steps;

- **Cleanse Data –** verification of background information on target companies, through cleansing of underlying EEEGR dataset and further secondary research where required

- **Catagorisation of Companies – a**pplication of system to regional companies working within energy industry, matching company capabilities to categories

- **Integration with Mapergy –** develop online access to, and use of the system through, Mapergy

We recommend these activities are continued and supplemented with;

- **Further Testing –** continue ongoing testing of categories and framework of use

- **Classification Verification –** seek individual company feedback on, and agreement with, their classification (through EEEGR E-News facility)

- **Operation & Management -** create facility, managed by EEEGR, for future alterations to background information and system

- **Numerical Coding –** develop numerical codes for each keyword to aid industry reporting

- **Industry Metrics –** ongoing primary and secondary research to establish individual company entries for identified industry metrics.

Once fully operational, in conjunction with 'Mapergy', the system will provide a powerful means of profiling the specific capabilities of individual companies, and the region as a whole, throughout the supply chain to the energy industry, while also facilitating the effective segmentation of the regional industry. Its use within supply chain studies such as the POWER project will only serve to enhance its profile, and create further opportunities to transfer another example of industry best practice pioneered by EEEGR. The precise means and terms of such a transfer will be dependent upon the needs of the end user. However as the profile of the system grows EEEGR's acknowledged links to national and international regional development agencies and trade associations will create opportunities within the energy industry and beyond.

4 APPENDICES

4.1 Category Listing

Sector	Role	Classification
Bio Fuels	Consultant	Academic Institution
Biomass	Design	Accountancy, Financial, Insurance & Tax
Geothermal	Engineering	Anchors & Moorings
Hydro	Installation	Architectural / Building Materials
Hydrogen / Fuel Cell	Manufacture / Supply	Bearings & Transmissions
Nuclear	Operator	Bio Feedstock
Offshore Wind	Research & Development	Bolting, Fixing & Fasteners
Oil & Gas	Service	Buoys & Buoyancy Materials
Onshore Wind	Support Organisation	Business Development
Solar	Training & Education	Cables & Connectors
Wave & Tidal		Cases & Packaging
		Certification
		Chemicals, Oils & Paints
		Communication Systems
		Compressors
		Computing & Information Technology
		Control Systems, Topsides & Subsea
		Cooling, Heating, Ventilation & Air Conditioning
		Corrosion Protection
		Decommissioning & Abandonment
		Diving & Underwater Services
		Drilling & Wells
		Dynamic Positioning Systems
		Electrical Equipment, Materials & Services
		Electronics
		Energy Conservation
		Energy Conversion Processes
		Engines
		Environmental Assessment & Monitoring
		Exploration & Production
		Explosives
		Fabrication & Construction
		Feasibility / Front End Studies
		Foundations & Piles
		Freight, Logistics & Transportation
		Gas Turbines
		Gears & Gearboxes
		Generators
		Grid Interface
		Hazardous Area Equipment & Services
		Heaters, Heat Exchangers, Furnaces, Boilers etc.
		Hoses & Fittings
		Hydraulics & Pneumatics
		Hydroelectric Turbines
		Inspection & Testing
		Installation & Commissioning
		Instrumentation
		Insulation

Sector	Role	Classification
		Integrated Services International Trade Land & Premises Legal Legislation & Regulations Local Authority Machine Shops Maintenance, Modification & Operation Market Research Marketing Material & Product Handling Media Navigation Aids Networking & Events Non-Metal Materials (Plastics, Composites, etc.) Patent, Trademark & Copyright Personnel Photovoltaic (PV) Systems & Supplies Pipes, Pipelines & Risers Ports & Supply Bases Process Control Project Management Propulsion Systems Publications & Technical Manuals Pumps & Accessories Research & Development Reservoir Engineering Ropes (Wire & Synthetic) Rotor Blades ROVs Safety, Security & Firefighting Scour Protection Seals & Gaskets Seismic Signs Steel & Metal Materials Subsea Production & Control Supply Chain Management Support Vessels Survey & Positioning Technology Services Trade Association Training Valves & Accessories Waste Management Welding Wind Turbines & Towers Workshop & Hand Tools

4.2 Onshore & Offshore Wind Supply Chain Activities

Sector	Role	Classification
Offshore Wind Onshore Wind	Consultant Design Engineering Installation Manufacture / Supply Operator Research & Development Service Support Organisation Training & Education	Academic Institution Accountancy, Financial, Insurance & Tax Anchors & Moorings Architectural / Building Materials Bearings & Transmissions Bolting, Fixing & Fasteners Buoys & Buoyancy Materials Business Development Cables & Connectors Cases & Packaging Certification Chemicals, Oils & Paints Communication Systems Computing & Information Technology Control Systems, Topsides & Subsea Cooling, Heating, Ventilation & Air Conditioning Corrosion Protection Decommissioning & Abandonment Diving & Underwater Services Dynamic Positioning Systems Electrical Equipment, Materials & Services Electronics Energy Conservation Environmental Assessment & Monitoring Fabrication & Construction Feasibility / Front End Studies Foundations & Piles Freight, Logistics & Transportation Gears & Gearboxes Generators Grid Interface Hydraulics & Pneumatics Inspection & Testing Installation & Commissioning Instrumentation Integrated Services Land & Premises Legal Legislation & Regulations Local Authority Machine Shops Maintenance, Modification & Operation Market Research Marketing Media Navigation Aids Networking & Events Non-Metal Materials (Plastics, Composites, etc) Patent, Trademark & Copyright Personnel Ports & Supply Bases

Sector	Role	Classification
		Project Management Publications & Technical Manuals Research & Development Ropes (Wire & Synthetic) Rotor Blades Safety, Security & Firefighting Scour Protection Seals & Gaskets Signs Steel & Metal Materials Supply Chain Management Support Vessels Survey & Positioning Technology Services Trade Association Training Valves & Accessories Welding Wind Turbines & Towers Workshop & Hand tools

4.3 *Glossary*

DWL Category	DWL Definition
Sector	
Bio Fuels	Fuels produced from plant and animal sources
Biomass	Any plant-derived organic matter available on a renewable basis, including; dedicated energy crops & trees, agricultural food & feed crops, agricultural crop wastes & residues, wood wastes & residues, aquatic plants and animal wastes
Geothermal	Water or steam extracted from geothermal reservoirs used for geothermal heat pumps, water heating or electricity generation
Hydro	Use of flowing water to produce electrical energy both on a small scale (river) and large scale (dam)
Hydrogen / Fuel Cell	
Nuclear	Use energy released in the fission or fusion of atomic nuclei
Offshore Wind	The conversion of kinetic energy present in wind motion to mechanical energy for driving pumps, mills and electric power generators through offshore infrastructure
Oil & Gas	The exploration and production of global oil & gas reserves
Onshore Wind	The conversion of kinetic energy present in wind motion to mechanical energy for driving pumps, mills and electric power generators through onshore infrastructure
Solar	Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors
Wave & Tidal	Wave - Energy produced from the motion of waves generated by the motion of wind across water. Tidal - Tidal and current stream energy systems are designed to use the natural ebb and flow of tides & currents to power turbines
Role	
Consultant	Offer expert advice on a professional basis
Design	
Engineering	Concerned with the design, building, and use of engines, machines, and structures
Installation	Install equipment or structures
Manufacture / Supply	Create and supply a product
Operator	Develop and produce from an energy source
Research & Development	
Service	
Support Organisation	A public organisation supporting either a community and/or industry
Training & Education	Develop the skills and/or knowledge of individuals

DWL Category	DWL Definition
Classification	**Includes**
Academic Institution	Schools, Colleges & Universities offering training & educational courses and research facilities & expertise
Accountancy, Financial, Insurance & Tax	Providers of; Banking, Security broking, Fund management, Credit management, Financial risk analysis, Auditing, Tax compliance, Financial support, Grants and Intermediary services
Anchors & Moorings	
Architectural / Building Materials	Cement, Sand aggregates, Sanitary equipment, Textiles, etc
Bearings & Transmissions	
Bio Feedstock	Includes all feedstocks used in production of Bio fuels and energy from Biomass
Bolting, Fixing & Fasteners	
Buoys & Buoyancy Materials	
Business Development	Business advice & support, Information services, Management services, Process management systems, Strategic planning, etc
Cables & Connectors	Electrical cables, Connectors, Overhead conductors, Stranded aluminum communication cores, Cable racks & trays, Instrument & communication cables, Superconducting wire, Cable laying & burial, etc
Cases & Packaging	
Certification	Certification of; Cranes & lifting appliances, Machinery, Personnel, Pressurised equipment, Welders, Environmental management systems, Software & electronics, Information security management systems, Pressure vessels, Quality management systems and Safety management systems,
Chemicals, Oils & Paints	Primers, Coatings, Paints, Fuels, Lubricants, Mud, Additives, Abrasives, Polishes, Compounds, Adhesives, Inhibitors, Catalysts and Completion fluids,
Communication Systems	Telecommunications, Radio, Control centre communication systems, Portable satellite communications systems, Audio/Video equipment and accessories
Compressors	Centrifugal, Reciprocating, Screw/Rotary, Jet & Axial Compressors
Computing & Information Technology	Hardware, Software, Databases, CAD & CAP Services, Computer based modeling, Simulation programmes & Data and message transmitting services, Data management services, Web based services, Graphic design and Information management
Control Systems, Topsides & Subsea	Subsea stations used in offshore wind developments, Subsea xmas trees, Control systems, Topsides, Remote control & monitoring systems, SCADA, etc
Cooling, Heating, Ventilation & Air Conditioning	Air fans, Dampers, Ducting, Coalescers, Heating coils, Humidifiers, Dryers, Coolers, Condensers and Refrigeration Units,
Corrosion Protection	Corrosion monitoring systems,
Decommissioning & Abandonment	Project managing & engineering, Heavy lift & cargo vessel mobilisation, Well plugging and abandonment, Platform removal preparation, Pipeline abandonment, Conductor removal, Platform removal, Site clearance & Onshore disposal
Diving & Underwater Services	Personal and vessel diving equipment (including; Helmets, Suits, Knives, Lead belts, Bells, Compression chambers, Gas mix batteries & Turrets) and associated underwater services

DWL Category	DWL Definition
Drilling & Wells	**Equipment** - Drilling machinery, Mud equipment, Production surface equipment, Drilling tools, Retrievable production tools, Casing, Tubing, Liner, Cementing equipment, Line hanger systems, Fishing & repair tools, Drilling & mud control instruments, Production well test & monitoring instruments, Wellhead equipment, Production string components, Derricks, Drill bits, BOP, Wireline equipment, Coiled tubing tools and Downhole pressure control equipment. **Services** - Drilling rigs, Production drilling, Conductor piling, Cementing, Casing/Tubing, Mud logging, MWD/LWD, Electrical logging, Coring, Fishing/Wireline, Workover, Well testing, Well completion, Stimulation, Perforation, Gravel packing, Fracturing, Plugging & Coiled tubing services
Dynamic Positioning Systems	
Electrical Equipment, Materials & Services	Transformers, Switches, Plugs, Connectors, Rectifiers, Inverters, Converters, Circuit breakers, Junction boxes, Lamps, Lighting equipment, Cathodic protection equipment, Transits & glands, Capacitors, Earthing rods, Masts, Poles, Signaling,
Electronics	
Energy Conservation	
Energy Conversion Processes	All biomass specific conversion processes; Combustion, Thermo-chemical & Biochemical
Engines	Oil / Diesel and Air / Gas engines
Environmental Assessment & Monitoring	
Exploration & Production	
Explosives	
Fabrication & Construction	
Feasibility / Front End Studies	
Foundations & Piles	
Freight, Logistics & Transportation	Waste transport, Freight forwarding services, Cargo handling, Stevedoring, Helicopter services, Airports, Air charter services, etc
Gas Turbines	Drive, Electric, Generation, Mechanical & Power gas turbines
Gears & Gearboxes	Clutches, Couplings, etc
Generators	Power systems, Drivers, Motors, Blowers, Gas expanders & Steam turbines,
Grid Interface	
Hazardous Area Equipment & Services	
Heaters, Heat Exchangers, Furnaces, Boilers etc.	Heat transfer equipment, Shell & tube heat exchangers, Steam boilers, Stacks, Flares. Burners, Igniters, Radiators & Electric heaters
Hoses & Fittings	Flanges, Elbows, Hangers, Gaskets, Jointings, Packings & Tightenings,
Hydraulics & Pneumatics	
Hydroelectric Turbines	

DWL Category	DWL Definition
Inspection & Testing	Dimensional control / verification, Instrument testing, Laboratory testing, Non-destructive testing, Pressure testing, Surface treatment inspection, Third party measurement services and Calibration services
Installation & Commissioning	Dredging, Hook-up services, Trenching & excavation, Gravel & rock dumping, etc
Instrumentation	Flow, Level, Meteorological, Metering, Pressure, Temperature & Fire/Smoke/Gas/Heat Detection Instruments, Detectors & analysers, Instrument tubing & fittings, Junction boxes, Metering equipment & systems, Simulator systems, Alarm / control systems, Separators, Filters, Strainers, Mixers, Agitators, Blenders, Feeders, Sensors, Control Panels
Insulation	Thermal & acoustic insulation materials (cladding etc), Refractory materials, etc
Integrated Services	Some combination of; Production supervision, Reservoir development, Extended well testing, Early production services, Well management / construction services & Field development,
International Trade	
Land & Premises	Planning services, Office space, Conference facilities, Training facilities, Meeting rooms,
Legal	Solicitors, Legal advisers & Law firms
Legislation & Regulations	
Local Authority	County, Borough and District Councils
Machine Shops	
Maintenance, Modification & Operation	
Market Research	
Marketing	External communications, Image consultants, Exhibition space, Media relations, Promotional sales, Publicity campaigns,
Material & Product Handling	Cranes, Davits, Hoists, Winches, Elevators, Lifting gear, Conveyors, Feeders, Loading arms, Scaffolding & weighing equipment, Forklifts,
Media	Journals, Newspapers, Magazines and Newsletters,
Navigation Aids	Radar, Lighthouses, Beacons,
Networking & Events	Production and management of; Conferences, Exhibitions & Events
Non-Metal Materials (Plastics, Composites, etc)	Non metal; Plates, Bars, Forgings, Castings, Gratings, Bolts, Nuts
Patent, Trademark & Copyright	Intellectual property & Registered design
Personnel	Personnel supply, HR advice, Redundancy, Employment issues,
Photovoltaic (PV) Systems & Supplies	
Pipes, Pipelines & Risers	Umbilicals, Laying, Grout bags, Mattresses, Stabilisation, Tunnels, Pipeline flushing, Pipeline isolation systems, Pipe cutting & bending, Pigging, Pig launchers, External/internal inspection, Prefabricated spools, Pipe coating / protection systems, Perforating,
Ports & Supply Bases	
Process Control	
Project Management	

DWL Category	DWL Definition
Propulsion Systems	Thrusters, Aero, Land, Marine, Prime movers & Underwater propulsion systems
Publications & Technical Manuals	Technical documentation, Books & Directories,
Pumps & Accessories	Centrifugal, Rotary, Multiphase, Submersible, Reciprocating, Diaphragm, Screw & Liquid jet pumps
Research & Development	
Reservoir Engineering	Reservoir evaluation, etc
Ropes (Wire & Synthetic)	
Rotor Blades	Wind turbine blades, tidal current
ROVs	ROVs and accessories (i.e. Cage, Manipulators, Thrusters, etc)
Safety, Security & Firefighting	Risk assessment, Fire & gas protection systems, Fire/smoke/gas/heat detection instruments, Escape tools, Inert gas systems, Life boats, Intruder control, Auditing, Medical equipment & services, Emergency response, Anti-slip products, Protective clothing & workwear,
Scour Protection	
Seals & Gaskets	
Seismic	2d / 3d / 4c / 4d data acquisition, interpretation & processing, Site surveys, Well velocity surveys, Interpretation services
Signs	
Steel & Metal Materials	Steel & metal; Plates, Bars, Forgings, Castings, Gratings, Bolts, Nuts, Doors, Manholes, Hatches, Outfitting, Gangways, Rails, Rods, Solders,
Subsea Production & Control	
Supply Chain Management	Cost reduction, Performance improvement, etc
Support Vessels	Pressure vessels, Cranes, Crane barges, Heavy lift vessels, Tugs, ROV support, Diving support vessels, Barges & Accommodation vessels,
Survey & Positioning	Underwater acoustic equipment, Acoustic telemetry systems, Sonar, Chart & map production, Oceanographic services, Photogrammetry surveying, Rig positioning, Soil investigation, GIS Systems, Hydrographic site surveys, Oceanographic services, GPS, Bathymetry, Side scan sonar, Sub bottom profiling,
Technology Services	Technology transfer services
Trade Association	
Training	
Valves & Accessories	Ball, Check, Control, Diaphragm, Gate, Globe, Safety, Relief, Subsea, Solenoid, Butterfly, Needle & Plug valves, Actuators & Bursting Discs
Waste Management	Oil recovery equipment & accessories, Waste gas & water treatment / recovery equipment, Waste disposal & Drainage services
Welding	Gas and electric welding & cutting. Hot tapping
Wind Turbines & Towers	Nacelles
Workshop & Hand tools	Mechanical & electrical hand tools