

# Safety passport scheme for power generation sector construction essay



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Since the evolution of humans, people have been injured, maimed and killed during the course of their work right from carrying their work as hunters, to the modern day nuclear power plants. Implementation of health and safety practices dates back to the Hammurabi era (1780 BC), where death sentences were imposed to the builders who do not build it safer for the residents. As years passed, health and safety practices had good responses. It had many accidents, disasters and transformations to achieve a status of what health and safety practices mean to every industry now. Importance and awareness of health and safety practices among the workers are essential and also it is their right to have the information on health and safety practices. Before doing any work, one should know about the health and safety hazards in the work he does, to safeguard himself and those who work with him, he needs to be informed with the potential health and safety hazards in the environment. Health and safety practices became business and among many business models of health and safety practices, the model for informing and training an individual about the health and safety practices in the industry he/she works is Safety Passport Scheme. It is not just a business or a way for income, it became a business for the values it spread to the individuals who undergoes it. Health and safety at work is an area of management activity which, no matter how an organization perceives it, cannot be disregarded. Only professionals in health and safety can deliver the values to them. Health and safety became a subject of research where now we have even courses provided by many universities on health and safety practices. Safety Passport scheme generally is a passport for the individuals who hold it to enter the site they work for. A safety passport holder will have all the basic knowledge of the health and safety hazards

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around him and his colleagues and practices to follow in order to avoid them. A responsible manager on working site considers the safety passport as a way to have and ensure a safe environment in and around the site. Initially, safety passport schemes were developed generally which will apply to almost all industries. But as the technologies and methodologies changed drastically, specialisation and update was needed for the health and safety practices. In any sector, now only specialists are valued much. Gone are the days where people were looking for generic interests. In any field, only specialists are welcomed and recruited, specialists will have the deepest knowledge of that particular field they are involved with and they will excel in it. Though power generation sector falls under construction industry, it varies drastically from it. Technology, engineering, method of construction and erection of equipment, panels, testing and also hazards compared to the general construction industry, it has many potential hazards. In the research, I have done a market research for a Safety Passport Scheme which is specially designed for the power generation sector by the health and safety specialists for the industry. The market research is conducted for United Kingdom.

## **Report Background**

United Kingdom produces a total of 78, 293MW of energy. As a single entity, British Energy is the market leader by producing 10, 723MW of energy. Table below shows the market share of key players of power generation industry in UK.

## **Major Players**

### **MW**

British Energy

10723

RWE Npower

10115

E. ON

9988. 27

Scottish and southern energy

9176. 4

Scottish power

6404

International power

4984

EDF

4928. 4

Drax power

3945

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Centrica

3530

Magnox

1622

Premier power

1156

Others

11720. 93

Total

78293

The organizations have their own portfolio within their power production. Portfolios of power generation are decided by the fuel type they use for the production of electricity. Each fuel type has its own engineering process and construction, out of them few has similar engineering processes and construction only with minor changes, but they are regarded as same. So according to them, the categories I have decided are 1. Nuclear, 2. Hydro, 3. Combined Cycle Gas Turbine, 4. Coal/Oil/Gas, 5. Wind, 6. Others such as mine gas, poultry waste. According to the categories, the market share by fuel type is given in the table below.

## **Fuel Type**

### **MW**

Coal/Gas/Oil

39298. 3

CCGT

22091

Nuclear

10137

Hydro

4245. 4

Wind

2297. 6

Others

223. 7

Total

78293

Out of the above categories, Nuclear does not support safety passport schemes and the safety passport scheme on which I am conducting the

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market research is not applicable to hydro power generation. I have identified the major players in other fuel categories for my research.

In INDG381 the HSE (2003b) indicate that a safety passport training course should cover areas such as the hazards and risks that workers may face and how to identify them; having identified them what to do to either eliminate the hazard or control the risk; how to take steps to control the risks to themselves and others; where to find health and safety related information in connection with their job and how to follow a safe system of work. It is with this guidance in mind that the following reviews have been carried out.

#### Construction Skills Certification Scheme (CSCS)

CSCS was set up by the construction industry with the aims (amongst others) “ raising standards of health and safety to reduce risks and accidents throughout the industry” (CSCS, 2007). The members of CSCS comprise employers trade bodies and Trade Unions including Construction Confederation; Federation of Master Builders; National Specialist Contractor Council; GMB Trade Union; Transport and General Workers Union; Union of Construction, Allied Trades and Technicians, Construction Industry Council.

The holder of a CSCS card is in theory able to prove his training and by implication competence in the role he is undertaking. There are several categories of CSCS card - visitor (to a construction site) trainee, construction site operative, experienced worker, skilled worker, supervisor, experienced manager, senior manager and professionally qualified person. The structure of the card system is, for the ‘ worker’ and supervisor section of the

workforce, largely hierarchical. For example a construction site operative  
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would be expected to, either through practical experience, induction or other training and under supervision carry out basic activities such as using relevant hand tools, using PPE, organising work, reporting of accidents and handling material and components using accepted and safe methods and procedures. To receive a skilled worker card, in addition to the requirements above, the applicant must be in possession of a National Vocational Qualification (NVQ) or Scottish National Vocational Qualification (SNVQ); or have completed a a recognised trade or employer sponsored apprenticeship and completed a City and Guilds of London Institute Craft Certificate. The other standard requirement is that applicants for all cards must successfully pass a health and safety test. The basic test is of 30 minutes duration and, in addition to English is currently available in German, Lithuanian, Polish, Portuguese, Punjabi, Romanian, Russian and Welsh. There is no requirement for any pre-test training course. The basic core test contains “...either 2 or 3 questions from each of the 15 Core sections with 40 questions in total” (CITB, 2000). The core sections include accident prevention and reporting; health and welfare; manual handling; working at height; Personal Protective Equipment (PPE); emergency procedures and first aid; safe use of hazardous substances and are heavily biased towards traditional construction of the building site type. The publication CITB (2000) also covers some specialist areas these include supervisory and management; demolition; plumbing or gas; highway works; specialist working at height and lifts and escalators.

Summary – CSCS is heavily biased towards traditional construction and covers the hazards and risks involved with traditional construction work at a basic level. Only two of the specialist areas (supervisory and management



and working at height) have any real relevance to power station outage work. There is little emphasis on behavioural aspects of safety

### Engineering Services Skillcard

The Engineering Services Skillcard, created by the Heating and Ventilation Contractors Association (HVCA), is similar in concept and affiliated to the CSCS scheme it has the aim of registering "...the skills and competence of people working throughout the mechanical services sector of the building services engineering industry" (HVCA, 2009). Accreditation in health and safety is achieved by undertaking the CSCS affiliated health and safety test.

Other similar schemes affiliated to CSCS include Construction Plant Competence Scheme (CPCS); Construction Industry Scaffolder Record Scheme (CISRS); Northern Ireland Construction Skills Register ((NI)CSR); Certificate of Competence of Demolition Operatives (CCDO); Joint Industry Board Electrotechnical Certification Scheme (ECS); Plumbing & Mechanical Engineering Services scheme (PMES) and Joint Industry Board for Plumbing in Scotland and NI (SNI JIB Plumbing)

Summary - Skillcard is an extension of CSCS above with exactly the same health and safety content and requirements. The CISRS and ECS affiliated schemes may have some relevance to outage work in certain circumstances.

### Client Contractor National Safety Group (CCNSG)

" The aim of the CCNSG Safety Passport Scheme is to ensure a basic knowledge of health and safety for all site personnel to enable them, after appropriate site induction, to work on site more safely with lower risk to

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themselves and others” (CCNSG, 2009). Membership of the CCNSG includes the Construction Industry Association (CIA), the Trades Unions and the Training Providers. The Group is chaired by a member elected from the Client Group. The CCNSG Secretary is provided by the Engineering Construction Industry Training Board (ECITB), the organisation who now manages the scheme. The CCNSG safety passport is differentiated from the CSCS (and other similar card schemes) in two main areas. It is a specific accredited two day training course followed by an end test and it is claimed that it is designed for the Engineering Construction Industry rather than the Construction Industry. However it is the clients on individual sites who specify which card or cards is or are acceptable as a demonstration of competency on their sites. The CCNSG National Course includes a wide spectrum of directly safety related training including “ Safe Behaviour at Work; Safe Place of Work; Confined Space Entry; Excavations; Permit to Work Systems Safe Use of Access Equipment & Working at Heights; Site Transport; Protecting the Environment; Safe Lifting and Manual Handling; Safe Systems of Work; Asbestos; Hazardous Substances; The Lifting Equipment and Lifting Operations Regulations( LOLER); The provision and Use of Workplace Equipment Regulations (PUWER); Electricity; Isolation; Hand-Arm Vibration; Noise.”

Summary - Training for the CCNSG passport is carried out by accredited (by the ECITB) independent organisations and its quality is open to being variable. The hazards and risks covered in the training are mainly focussed on construction but more aspects of the syllabus appear to apply to power station outage work and some aspects of behavioural safety are covered

## Assuring Competence in Engineering Construction (ACE)

Closely allied to the CCNSG and also supported by the ECITB is the Assuring Competence in Engineering Construction (ACE) scheme. ACE is an industry initiative supported by all areas of engineering construction in the UK including, in addition to the ECITB, Contractors - the Engineering Construction Industry Association (ECIA), the National Joint Council (NJCECI), the ECITB and the Trade Unions. The ECITB (2009) say that the aim of ACE is to "...ensure that the competence of workers in the UK engineering construction industry is validated against National Occupational Standards in a flexible and cost effective way, with minimum disruption to ongoing productivity". Furthermore since June 2008 ACE has become affiliated to CSCS and "...a joint Assurance in Competence in Engineering Construction (ACE) and CSCS card will be available to individuals who meet the competence and health and safety awareness requirements relevant to NVQ Level 3." (ECITB, 2009b). This involves reaching a competency level in standard health and safety modules involves having a working knowledge of health and safety legislation, hazards, safety reporting, first aid procedures and procedures for reporting. Working knowledge is described as "... the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role" (ECITB, 2009c). Information from ACE (2009) indicates that the driver for the ACE scheme is that of technical competence validated by ECITB NVQ or SNVQ and this is currently available in a restricted number of engineering trade roles (e. g. welding and plating; [steel] erecting; mechanical fitting

(including maintenance); pipefitting (including Instrument); electricians and rigging)

Summary – Although the main thrust of the ACE card is raising the skill levels in engineering construction in, currently a limited number of craft areas, the health and safety modules appear to have a closer synergy with outage work than other schemes. Behavioural aspects of safety are dealt with in the relevant health and safety modules.

### Basic Electrical Safety Competence (BESC)

The BESC registration scheme is intended for anyone who carries out work either directly or indirectly on or near operational plant and equipment associated with the transmission and distribution of electricity. The scheme was developed by a task force of the Electricity Association Management Coordinating Committee (Distribution & Transmission) with the assistance of the Electricity Company Training Managers and of the Electrical Training Association. The managers of the BESC scheme, Energy & Utility Skills (EU Skills), label it as a workplace competency assessment and registration process, dealing with entering, moving around and exiting three specific work areas namely, substations, overhead lines; and underground cables. The basic safety requirements of the scheme are those relating to safe entry and exit, equipment identification, use of the correct PPE and carrying out of tasks in a safe manner. They are based on standards taken from the City & Guilds N/SVQ awards and in particular specific relevant modules from the Electricity System Technology Engineering Support and Electricity System Technology Engineering awards.

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Summary – BESC is specific specialist training and qualification directed towards electricity distribution companies and National Grid with specific reference to the hazards from working adjacent to live high voltage electricity equipment and so has limited relevance to power station outage work.

### The Safety Pass Alliance (SPA) – Renewable Energy

Sreenivasan et al (2003) portray the SPA as a UK organisation whose objective is to design and implement Safety Passport Training Schemes, delivered through accredited training providers and committed to providing a nationally recognised standard of health and safety training. SPA passports comprise a core section along with an industry sector specific section. To obtain acceptance into any additional sectors the holder of a current passport would need to attend the appropriate sector specific training session to upgrade it. Sectors with specific modules include industrial utilities, building maintenance food and drink, renewable energy, ports and shipping, quarries and pharmaceutical. The core health and safety training covers the following areas – Organising for safety (health and safety law, responsibilities and risk assessment); the workplace (Including safe behaviour, welfare, and access and egress); plant and machinery (including tools, electricity and workplace transport); health (including PPE, COSHH, musculoskeletal problems); procedures (fire and first aid) and the environment. One of additional industry specific modules is the Renewable energy which focuses on those issues of particular concern for those who work within the renewable energy. This course comprises of nine modules:

Workplace risk, Licenses permits and passes, Plant and equipment, Explosive  
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atmospheres, Environment, Electricity, Working at height, Occupational health, Personal Safety (Safety Pass Alliance, 2010).

Summary - assuming that the relevant "Renewable energy" module is undertaken this offers the prospect of a close match of relevance to outage work but it is little used within Generation currently. The only client for this is ATKINS and Atkins was involved in designing this course. Some aspects of behavioural safety are addressed in the core health and safety training module.

### The European Dimension

There have been an increasing number of non UK nationals working in the UK, figures from the Statistics Commission (2009) indicate that there were 2 million foreign nationals of working age in the UK in 2007 out of a total working age population of 27.2 million. Generation has seen increased incidences of foreign workers on sites during outages and because of this the landscape of competence assessment schemes is infinitely more complex. In addition to foreign language versions of the CCNSG safety passport, currently offered in the UK in Polish and Portuguese amongst others there are several similar passport schemes existing in other EU member states including Health and Environment Checklist Contractors (SCC) in the Netherlands, FAS Safe Pass Health and Safety Awareness in Eire and the Occupational Safety Card in Finland. Both the latter are the national equivalents of CSCS. In the review of safety passport schemes Sreenivasan et al (2003) explains that although originally intended for the petro-chemical and pharmaceutical associated industries in the Netherlands, SCC covers a

range of other industries involved in hazardous work including construction and civil works. The scheme is now widespread across Belgium, France, Germany, and Austria and can be used without restrictions in Belgium and the Netherlands. The SCC qualification has the basic elements that broadly cover the contents of the CCNSG syllabus. The SCC has recognised, however, that there is a “...wide variation and an (excessively) wide bandwidth in the exams set by the various examination bodies... [possibly due]...to the excessively vague definition of the attainment targets” (SCC, 2003). Included in this is a reference to Romiszowski’s taxonomy that discriminates between knowledge (knowing something) and skills (being able to do something). Included within the attainment targets are the requirements to cover both these aspects of competence.

Summary – The SCC process does recognise that competence in health and safety does include more than the successful completion of a training package and although one of the target industry sectors – petro-chemical – has similarities with the Generation business, there is little evidence of the particular qualification having been used to any great extent within the UK.

#### Advantages and Disadvantages of Safety Accreditation Schemes

There are advantages and disadvantages to all accreditation/passport schemes discussed by Sreenivasan et al (2003). Advantages include – the possession of a safety passport gives readily available evidence that the contractor has some form of basic health and safety training. “ A passport shows that a worker has up-to-date basic health and safety or health, safety and environment awareness training” (HSE, 2003b) what they crucially do

not do is demonstrate “ a way of knowing or identifying that a worker is competent (HSE, 2003b). Furthermore they are “... generally not designed to correct the major faults in competence or diligence that usually result in the major accidents ...” (Sreenivasan et al, 2003). A recognised widespread scheme with a standard syllabus and acceptable attainment standards does however give some modicum of standardisation across an industry or an industry sector. The possession of a passport takes the form of a credit card-sized plastic card, usually with the employee’s name, photograph and identification number. If this is accompanied by a centrally held database directly accessible by subscribers it is a straightforward way of ensuring a passport’s validity. Finally passports do provide the contract company with a demonstration and audit trail that they are providing some of the suitable and sufficient training required by health and safety legislation. One of the main disadvantages of all accreditation and passport schemes is their financial implications in terms of training cost and lost productive time. These may well be able to be absorbed by a large company as part of its training budget but may well become a burden for both SME’s and individuals who act as freelance contractors. For businesses some of the costs may be able to be off set by grants (for example from the CITB Construction Skills levy) and a demonstration that most of a company’s staff are in possession of a recognised safety accreditation may result in increased business. Additionally, although there is no empirical evidence to substantiate this, there is the possibility that there is a financial pressure on the accredited training provider to provide evidence of his ‘ worth’ and doing this by ensuring that he has an acceptable success rate in the assessment from his candidates.

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## **Aims and Objectives**

The report analyses the market for safety passport scheme for the power generation sector. The main aims of this market research are

To provide evidence based approach for the acceptance of Safety Passport Scheme designed for power sector in UK.

To capture the perceptions, opinions and aspirations of the potential target consumer market in relation to the safety passport scheme for the power sector in UK.

Objectives were to identify

Current schemes available and accepted. Which ones are most popular and why.

Report on size of potential market in UK for a power generation specific ' safety passport' scheme.

Research into whether a sector specific passport would be accepted by Power Generators and associated contractors; specifically aimed at benefits and possible demerits.

Confirm that an Institution of Occupational Safety and Health (IOSH) scheme will have widespread acceptance.

Research current pricing and if new scheme were developed what price should be set to achieve the Return on Investment.

Review on how to roll this project out sustainably, assuming that new scheme is acceptable – own resources, licensing to other providers to propose alternatives.

## **Definitions**

### **Senior Executives**

The group consists of Directors of power generation organizations, managing directors of power generation organizations, and Senior Health and Safety professionals with massive experience in Health and Safety practices.

### **Plant Managers**

The group consists of Health and Safety professionals responsible for power plants, and directors of power plants.

### **Contractors**

The group consists of Managers of the construction contractors' firms, Health and Safety directors of the firm, and Health and Safety managers.

### **For current Schemes and their popularity**

Interviewed people from IOSH, ECITB, CCNSG, SPA, UKCG, CIC, and questionnaires distributed among contractors and plant managers.

### **Potential Market in UK**

The market for safety passport scheme for power sector is the workers of the contractors who work for power generation industry.

Data obtained from Office of National Statistics (ONS), UK.

## **Acceptance of sector specific passport scheme with IOSH's accreditation – For Power Sector**

Questionnaire distributed among senior executives, plant managers and contractors.

Study of the environment by looking through variables like

Regulation,

News from power generators,

Interview with health and safety professionals who had massive experience in the field,

Political views,

News from national skills academy of power.

Economic patterns on Health and Safety spending

## **Current Pricing Schemes**

Interviewed people from SPA, CCNSG/ECITB, CSCS, etc., including training providers

## **Review on how to roll this project sustainably**

References from services marketing cases

Market research for the Safety Passport Scheme was conducted during the period when the halted constructions of new power plants due to the recession for the past two years resumed their work. Spending was stopped during the recession on construction projects. The construction industry was  
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overcoming the recession where the contribution of construction industry towards GDP of the country was increasing again. After a series of job cuts and cost cutting processes, the employment rate of construction industry had a significant increase during the period.

## **Economic Trends**

Cost-cutting programmes, internationalization, commercial principles, shareholder value and sustainability,

In all high value bids, safety is given more importance than bids of low value (Amec takes central role in £20bn nuclear programme., 2009).

## **Market Size**

Market for Safety Passport Scheme for power generation sector is the construction workers who work for the power generation industry. More than one million people are employed for the construction industry (Construction workers, 2008).

## **Industry Structure**

Spending on health and safety

Contractors fear that after years of improvements in health and safety standards, it could be undone if power generation organizations exploit the recession to drive down the construction costs. If power generation organizations force below-cost bidding, contractors could go backwards in health and safety standards. Power generation organizations could get really cheap prices but something has to give, they cannot expect contractors to

come up with rock-bottom prices and then expect fantastic safety standards (Cheap deals could hit safety, warn contractors., 2009).

Safety director of EDF said that contractors chosen to deliver EDF's new build schemes are expected to be productive, modern site committed to safety.

The statement proves that power generation organizations are committed to Health and Safety practices. The construction director at EDF also announced that he is willing to help the suppliers to improve its safety competence (Power station sites face tight surveillance., 2009).

In a statement released by UK Contractors group, they have agreed that Safety Passports cut risks in contract work (Safety passport cuts risks in contract work., 2009).

## **Market Position**

### **Key Trends**

Speaking to media on EDF's £20bn new build nuclear programme in UK, chief executive Vincent de Rivaz told that EDF is committed to safety. And it will maximise the opportunities for the UK supply chain. When issuing the civil packages to Laing O'Rourke, Costain and Carillion, De Rivaz confirmed them that EDF's commitment to safety and quality assurance is absolute. And he wanted to work with the partners who too are committed to safety. He also mentioned that the suppliers too will be expected to meet tough productivity and skills training targets (Safety first for EDF's nuclear contractors, 2009).

Institution of Occupational Safety and Health (IOSH) has claimed that nearly one out of every 10 UK businesses has slashed its health and safety budget because of recession. IOSH also found out that for most companies, health and safety is not the “ first budget on the chopping block”. Contradicting the above stated facts, IOSH found out that emphasis on the need of health and safety practices among employers and staff work more closely together to minimise risks with business leaders in particular needing to ensure that corners are not cut out during economic times (Paton, UK reduces budgets for health and safety, 2009).

## **Key Associations**

## **DRETS Analysis**

### **Demographic factors**

Population growth – growth of number of employees, increase in the number of households, better education,

### **Regulatory factors**

Political and legal factors – learnings of the government in power, shift of regulatory power

IOSH said that falling foul of tough new safety regulations could spell the end for firms already struggling with the economic downturn. It also warned that companies that play at health and safety practices, or firms that fail to provide a safe environment for staff, could face the prospect of incurring increased financial penalties. As per the new law which is effective from 16 January, maximum fine for minor breaches are from £5, 000 to £20, 000 and

also pave the way for prison sentences of up to two years for individuals found guilty of health and safety breaches (Pitcher, 2009).

## **Economic factors**

Contribution to Gross national product of the industry, changes in consumer's income, changing expenditure patterns, country's change of economic development, inflation,

Looking for balance, confident and living well, at ease, overwhelmed.

## **Technological factors**

Integration of technology with the service, impact of e-business and m-business

## **Social factors**

Prevailing values, traditions, trends in society - these tendencies are influenced by the above four factors. Individualism and rising customer expectation, the need of the groups, interest in health, time usage and energy expenditure,

## **Competitive Structure**

### **The Marketplace**

### **Market Leaders**

### **Marketing Activity**

### **SWOT Analysis**

### **Strengths**

### **Weakness**

### **Opportunities**

### **Threats**

### **The Future**

### **Influence**

In 2002 when contractors are asked to increase company reporting on health and safety performance in the annual reports, just 103 of the country's top 350 contractors have accepted the challenge. Out of them only the following five are top-10 contractors, Balfour Beatty, AMEC, Carillion, Skanska and Mowlem. HSC had asked the companies to put health and safety at the top of the agenda, but that's not the case in reality. It also found that, unless the decision makers know of the advantages to the bottom line of their organization, there will be no changes. HSC chairman Bill Callaghan also mentioned that the industry has a role to play and it is through shared experience and a change of culture that the sharing will happen (Pearman, No business case for safety stats, 2002).



## **Forecasts**

### **Sector Trends**

Civil contractors are gearing up to bid for multi-million pound frameworks as part of the £50bn nuclear power plant decommissioning programme now being rolled out across the UK. Last week, the Nuclear Decommissioning Authority (NDA) took control of the country's 20 nuclear power plan