A Guide to Access Control for the Utilities Sector

What is access control?

Access control provides the ability to control, monitor and restrict the movement of people, assets or vehicles, in, out and around a building or site.

Access control is essential for all businesses to protect people and assets and has the added benefit of being expanded from controlling, for example, a single entrance door, to a large integrated security network. There is also huge potential in terms of integrating HR and other systems, such as Time and Attendance, Visitor Management, Automatic Number Plate Recognition (ANPR), Fire, Intruder and CCTV, which can cut costs and streamline administration costs.

What security risks does the utility sector face and how can these be countered by access control?

Utility companies have never been more vulnerable than in today's climate, where threats to security include terrorism, natural disaster, theft and internal crime. The protection of key facilities such as water treatment works, power plants, remote sites and network infrastructure (particularly electricity substations) is also high on the political agenda.

Large cities are an obvious target for terrorism, but smaller communities are not immune. In response to the threat of terrorism, the government has taken specific actions to ensure the safety and preparedness of the nation's water supply by enacting laws, developing guidelines and providing financial assistance to tighten security across the government and the private sector.

Security businesses must establish long lasting partnerships with the key players in the Utilities sector in a bid to offer solutions with longevity. Due to the nature of many of the remote sites in this sector, companies are looking for robust solutions, security systems offering physical security as well as flexibility in terms of access control. Remote locations have to be secure, yet accessible 24 hours a day. Maintenance visits are irregular and often conducted by different staff. Keys constantly change hands, increasing the security risk and potentially resulting in theft, vandalism or even terrorist attack.

The Utilities sector is characterised by its large number of remote locations but also multi-site offices and production facilities that are used by a variety of people on a daily basis. In some cases, facilities managers or security managers are based on site, but a physical security presence is not necessarily the norm. This makes the definition of user groups, security zones, access authorisation profiles and a suitable access control system a necessity. Whether owner-occupied with long-term requirements or sales offices rented on a short-term basis, office spaces need a flexible access control system, where users can be given right of entry depending on their job role and areas that they need to access.

In many new-build developments, architects look for hardware that blends into the design of the building. Meanwhile, occupants look for effective security measures that are easy to operate and cost effective.

BSIA access control manufacturers and integrators offer flexible concepts based on intelligent, electronic access control systems which, in this sector, are often combined with a mechanical master-key system and revolving security doors or turnstiles that provide excellent thermal insulation and regulate the throughput of employees into main reception areas.

Access control products and services available to the sector

Generally, access control systems comprise of three parts:

1. The physical barrier – to physically restrict access to a building or location via such methods as:
    - Doors; secured by either a magnetic or strike lock or can be revolving or sliding
    - Turnstiles and speedgates; designed to limit access to one person for one card presented.

2. The identification device – There are a number of different technologies used to identify users of an access control system, such as:
    - A proximity card and reader using RFID – cards can either work at a short read range or a long read range
    - A smart card and reader
    - A swipe card and reader
    - PIN pads
    - Biometric (fingerprint, iris scanning, face recognition).

3. The door controller and software – The door controller and software are at the heart of the system and are used to decide who can gain access through which access point at what time of the day. These can vary dependent on the size of the system and how many readers or sites you are trying to control from one point. Some of the options include:
    - A standalone door controller linked to a single door with no software
    - A number of door controllers all linked together to a single PC to control one site
    - A number of sites all interlinked together over a wide network area.

Examples of typical product offering to the utilities sector are:

- Hardwired access control for control rooms
- Security doors with biometric verification
- Cable-free access control for remote sites
- Easy-to-programme electronic locks
- Time-recording terminals for mobile staff
- Push button locks & Keypads that need no key
- High security, mechanical master keyed cylinders and padlocks.

What added benefits can access control systems bring?

Time and attendance

With both staff and visitors entering and leaving the premises, badge/token technology can be used to record employee hours and monitor visitor movement within a specific site. If appropriate, these can be processed against working hours, applicable for both temporary and permanent staff, which can work in real time to feed transactions through to the company's payroll. Time and attendance systems also accurately help keep employers on the right side of the European Working Time regulations and manage holidays and absences effectively. Fast, accurate and easy-to-use, these systems are suitable for businesses employing just a few people, right up to large multinational companies.

Automatic Number Plate Recognition

To monitor the movement of vehicles on site, CCTV-style cameras and computer software can be used to identify number plates of vehicles. Some systems can also store photographs of the driver and vehicle for subsequent analysis. This sophisticated software allows critical information to be passed to the police to assist in the pursuit, identification and capture of offenders should an incident occur. Visual proof of parking offences with the corresponding time and date information is provided as evidence and to avoid disputes. Using a Driver and Vehicle Licensing Agency (DVLA) link, monitors are then able to identify the owner of a vehicle and process the offence automatically.

Fire roll call

Fire roll call software will automatically generate a report in the event of a fire or other emergency containing crucial information in relation to who is within the building and their movements around the site. This software operates via the access control smart card or fob that an employee uses to gain access/exit to a building. In the event of an emergency, the fire roll call software alerts occupants to the emergency whilst simultaneously activating the report at a safe pre-determined remote point.

Please note that in order for the fire roll call software to effectively carry out its function, employees and visitors must always present their card or badge. The use of smart card or RFID controlled turnstiles can help in this situation.

Integrated security systems

Sites can benefit from a fully integrated access control system with CCTV, intruder alarm, fire detection and building management systems. One way to attain this is by adopting the use of Internet Protocol (IP) technology, which allows these systems to 'talk' to each other to maximise their effectiveness.

What key considerations should be taken into account when considering access control?

The outcome of an initial risk assessment for each site will determine the level of security you require and in turn influence your choice of access control system to be used. BSIA access control members and professional security consultancies can assist with this.

BSIA members are subject to rigorous checks before they are admitted into membership, meaning you are selecting quality companies to achieve peace of mind. Below are just some of the reasons why you could benefit from using the services of a BSIA member:

- Independently inspected to the quality standard ISO 9001 with a UKAS accredited inspectorate

- Compliant with relevant British and European Standards and codes of practice
- Financially sound
- Professional
- Staff vetting conducted (where appropriate)
- Technically proficient
- Committed to quality training and development
- Up-to-date with the latest developments in British and European policy and legislation.

Case studies

1. E.ON coal importing facility relies on BSIA company for smart card security and time & attendance

The Norec Limited Liverpool Bulk Terminal dock at Bootle is a coal importing facility and supplies the various power stations of the energy giant E.ON. Norec stores and distributes the coal via road and rail, and runs and performs maintenance on the Merseyside site on behalf of E.ON.

Jimmy Finch, Deputy Supervisor and Engineering Planner, explains the requirements the Terminal had for a reliable smart card attendance and security regime: "As this is an E.ON site, we do get the occasional threats from people, such as protestors. People are visiting us all week, and we needed a secure access and time and attendance system that would match our special requirements."

After checking various products available on the market, the depot chose a BSIA member company to provide a smart card time and attendance and access control system, which also incorporates a fire roll call monitoring facility, where the dock's employees use contactless smart cards to clock in and out, or to book jobs and absences.

Jimmy continues: "With the smart cards, our employees are the only ones allowed on site. They can gain access and then use the clocking system." He goes on to explain how the access control system triggers the opening and closing of the site's security gate. "They had no problem in connecting the new gate to the access system – the guy sorted it out and it was up and running within three days," he remarked. Jimmy particularly likes the fact that the control of the safety gates is automatic. "Now, no-one can get on site without using a card to go through the gates, so the system works very well as far as security is concerned."

Another feature of the system is the way in which the fire roll call print-outs are now produced both in the gatehouse and in the workshop. Jimmy explained that this was an important feature of the system as E.On has a lot of sub-contractors arriving and leaving site. The fire roll call works by automatically printing out a report in case of an emergency or drill, and staff on site can be safely accounted for since their smart cards – which are used to exit the premises when evacuating – register their presence on the report. Jimmy pointed out that the fire roll call system was "essential" for health and safety purposes.

Describing the process of adding new employees or contractors to the system, Jimmy said "It is quite simple to add new people and allocate new cards - we've had no problems with that."

When asked if he would recommend the BSIA member company to other energy companies or companies with special security requirements, Jimmy replied, "I would have no problems recommending them as the system is working well and suits our needs for security, time monitoring and fire roll call." Summing up his experience of the BSIA member's product, he concluded "It has been working great!"

2. EDF powers up using BSIA

EDF are major generators of electricity within the UK using both traditional power stations and wind generation. The two power stations at Cottam and West Burton are both 2,000MW coal-fired power stations with a combined production capacity of up to 10% of the UK market. The total area of the sites extends over 800 acres, on the west bank of the River Trent. They are manned 24 hours a day, 365 days a year.

In 2000, the then Business Services Manager, Bob Kilford, wanted to install an automatic employee and contractor emergency roll call reporting system. He also wanted the same system to perform employee time recording for the 1,000 plus staff. It was essential this system met the requirements of the European Working Time directive.

Bob reviewed systems and equipment from three companies and chose a BSIA company because of the flexibility and ease-of-use of smart cards and software. "The quick set-up allowed an easy and fast way to account for all members of permanent staff, contractors and visitors." he said.

In December 2002, an installation at a Cottam power station comprised smart card visitor management, time & attendance and access control including automatic door monitoring and fire roll call monitoring. Further physical access control comprising two turnstiles, a sliding gate and 5 traffic barriers were added in October 2003. The integrated security system now covers the entire site and comprises hundreds of pieces of hardware and the latest security software.

At West Burton a similar system was installed in November 2002. This site is now incorporated within the same integrated security system that covers the Cottam and West Burton.

There were no major problems with the installation of either the software or the hardware.

Six members of staff were originally trained in the use of the Integrated Security System. "Training was excellent covering from installation to all aspects of the software." explained Keith Cuckson, the current Business Services Manager.

"We use the system to its full capability, linking to cardholders' personnel records from the Personnel system to ensure that those wanting to gain access to the site have relevant and up-to-date health & safety and training courses." said Keith.

What Keith likes most about the system is the ease-of-use to set up new employee profiles, working patterns and configuring the system to his site structure. "It is easy for employees to use; our environment is quite dirty and the smart cards have proven reliable and robust." explained Keith.

EDF also uses the BSIA member's personnel software. "The good thing about the system is the report generator as it allows us to generate our own customised reports." they said.

The utilities company praised the efficiency and professionalism of the BSIA member's staff, and the efficiency of the helpdesk installed. The company also said they would continue to expand the system with additional clocks and smart card readers controlling access to areas around their sites.

"The main benefit is the ease of seeing who is on site and where they are." reported Keith, who also said he "would readily recommend the BSIA company to other businesses."

In conclusion, Keith said: "The system has been working well here for 5 years; the hardware and software stands up really well. The BSIA company who installed the system offer good quality with a reliable service and we have very few problems with the system."

3. Thames Water introduces integrated access control system

A member of the BSIA's Access Control Section that design and manufacture security entrance control systems (turnstiles and speedgates), recently completed an installation for Thames Water, having been proposed by a UK based national systems integrator providing high-end systems.

The installation integrated high-end speedgates and contactless smart-card readers in the foyer, along with cashless payment canteen systems to create a seamless experience for staff and visitors. The installation is designed to reinforce the use of staff access control cards without restricting access to authorised users. The system's cards allow access to the building via the turnstiles and to zones relevant to the card holder, as well as carrying funds for purchasing food and beverages in the restaurant and vending facilities along with a 'follow me' printing solution.

Phil Allen, from the BSIA's member company, commented. "Our long term relationship with the systems integration company meant we were jointly able to propose the most appropriate integrated solution. The model we provided complements and completes the overall foyer design. Security in the perfect package."

"The benefits of the completed system are many." explained Tony Brenchley of Thames Water. "The turnstiles offer an aesthetically pleasing, yet secure solution to entrance control in the foyer whilst the single card solution for the various systems in the office is seamless and very convenient to use."

The additional benefits of the completed integration are extra low power consumption, a reduction in security supervision, reduced cash handling plus reporting and monitoring abilities far beyond previous systems' capabilities. As the theme of the Business Park is based around its green credentials, the speedgates with their extra low power consumption of less than 50 Watts per pedestal seemed the obvious choice.

Is there any legislation I should be aware of?

The Disability Discrimination Act was amended in 2005 and has significant impact not only in terms of the design of new systems, but also means that many systems may need to be upgraded to ensure compliance.

The BSIA has created a guide to help design access control systems following the introduction of the revisions which can be downloaded from www.bsia.co.uk/publications

Other legislation to be considered in relation to the utilities sector is:

National minimum care standards
Health and Safety at Work Act
Occupiers Liability Act
Management of Health and Safety at Work Regulations

Where can I go for further information?

For more information on the work of the BSIA Access and Asset Protection Section, visit **www.bsia.co.uk/sections/access-asset-protection**

To find an access control provider in your area, visit **www.bsia.co.uk/find-a-security-company**