



Innovate.
Optimise.
Transform.
Secure.

Digitally enabling the energy transition in Britain

CGI

The strategic decisions that you make today are critical to delivering a decarbonised and sustainable energy system by 2035.

To navigate the journey ahead, you need a technology integration partner that is trusted to do difficult things well.

Facing a uniquely British energy challenge



When it comes to decarbonising Britain's energy system, being the most unbundled and consistently competitive market in the world is just the beginning of the challenge. You also face these four important hurdles:

- 1 The shift to intermittent, inflexible renewable sources of generation fundamentally changes the dynamics of the energy system. Real-time visibility is increasingly essential to optimising the network and integrating green energy economically into the system while maintaining secure and resilient supply.
- 2 The proliferation of intelligent devices, and the convergence of Operational Technology (OT) with Information Technologies (IT) leave traditional OT security solutions vulnerable.
- 3 In an increasingly hostile world, with enhanced threat actor capabilities, there is a real need to secure critical infrastructure systems against cyber threats. This has been given sharper focus by recent events and the need to align to regulatory requirements and approvals in the form of the Network & Information Systems Regulations 2018 (NIS-R) and the associated Cyber Assessment Framework (CAF).
- 4 The relationship between energy security and the cost of energy has been brought into sharp relief by global events.

Under pressure on so many fronts, choosing the right digital technology partner will help you overcome these challenges and deliver for your customers.

It's time to innovate, optimise, transform and secure your business for a decarbonised energy system.

Innovate

Innovation is the foundation of all progress towards an energy system fit to overcome challenges, both today and into the future.

CGI and the digital innovation journey from DNO to DSO

CGI joined the DNO learning journey early. Focusing on data management and integration, we are now evolving the DNO data and systems landscape to meet future business-as-usual requirements. As stepping stones to the future, the Low Carbon London, FALCON, TRANSITION and SMITN innovation projects all highlight a need for new solutions.

Key emerging themes from a digital perspective include the need for data management, integration and a consistent single view of the network, coupled with advanced analytics, operational decision support and an active asset management approach to optimisation.

Partnering innovation and enabling Business as Usual (BaU)

In addition to partnering on multiple innovation projects, we also have experience of transitioning innovation into BaU. Drawing on our broad industry experience, our innovative solutions closely reflect live operational requirements, which makes their transition into BaU smoother.

Optimise

Optimisation of current network operations is essential to protect the energy supply to homes, businesses and critical social infrastructure, such as hospitals and transport systems. Optimisation uses near real-time visibility across the network to create the foundation for a rapid energy transition.

Here are some of the solutions we provide to help you achieve this:

Industrial Internet of Things (IIoT)

As networks move to operate as systems to handle the electrification of heat and transport, optimising operations requires near real-time visibility of what is happening at a much more granular level. This means many more sensors and smart devices, generating new sets of data, not all of which are suitable or necessary for SCADA connection.

Our holistic approach to data management includes support for wide area IIoT data collection that:

- manages diverse legacy interfaces to devices, requiring dedicated IIoT gateways
- seamlessly integrates edge computing, where communications to monitor deployed applications are an intrinsic part of enterprise data integration.

Integrated Network Model (INM)

Our INM draws data from existing operational systems in ways that improve data accuracy, completeness and timeliness. It generates a reconciled version of the network master data, creating a single view of the electricity network.

This forms the foundation of an integrated DSO systems architecture, designed to facilitate the transition towards the operation of the distribution system.

As new, smart systems are added to support DSO capabilities, the INM acts as an innovation accelerator. It makes integration of new systems smooth, cost-effective and more rapid when compared with traditional approaches that require significant effort in reconciling data across a multitude of systems.

The INM also provides a mechanism to continually improve the quality of data that needs sharing. Internally, this means that business decisions are made with greater confidence and better data sets are available across the organisation. Externally, it safeguards the company's reputation, as energy data becomes increasingly open.

DPlan

DPlan, from our partner AmberTREE, is a next generation network planning tool proven to model innovative smart grids techniques on a number of Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) projects in the UK.

It bridges the gap between legacy planning tools and the planning requirements of an infrastructure that enables a smart, flexible electricity system. Drawing on core data, such as that in INM, DPlan enables utilities to rapidly and easily model planning scenarios and generate accurate costs and detailed work specifications.

DPlan enables different smart grid interventions and the integration of low-carbon technologies to be modelled and evaluated, informing decision taking. It helps to optimise network investments, mitigate constraints and provide customer connections and reinforcements in the most cost-effective and efficient way. Basing planning decisions on a single, master set of data via the INM enhances the productivity of planning teams and delivers consistent, reliable analysis and visualisations.

DPlan provides a robust and easy-to-use tool for all planning needs, from investment planners to connections users, from EHV (Extra High Voltage) down to LV (Low Voltage).

Transform

As the energy transition accelerates, it will create valuable opportunities to transform business operations and models. Building on the foundation provided by optimised processes, we can help you to transform through the development and implementation of a data-driven, digital roadmap.

From strategy to reality

Our Digitalisation Strategy Framework focuses on aligning investment in intelligent assets and new data systems with the ability to generate value from the data available. We work with you to identify, quantify and prioritise tactical (quick wins) and strategic (long-term) initiatives that maximise value in a data-driven and consumer-centric, operationally excellent environment.

Data strategy in action

In practice, our Digitalisation Strategy Framework will make data work hard for your energy operation. After a thorough assessment, we work in collaboration with your domain leaders to develop or adapt solutions to create the capabilities you need to deliver a safe and reliable energy supply.

CGI OpenGrid360

Our OpenGrid360 architectural framework supports utility infrastructure and system operators' end-to-end operations. It enables our utility networks clients to implement the new capabilities required to operate as a Distribution System Operator (DSO); breaking down data silos and enabling data to be securely shared across OT and IT domains. It also allows you to plan and actively operate distribution assets to support the optimal use of distributed energy resources across the system.



Secure

Successful optimisation and transformation need connectivity, but this widens the attack surface and, without the right security, leaves your operations vulnerable. As the threat landscape becomes more complex, organisations won't survive without appropriate security controls to prevent operational disruption, protect assets and maintain safety.

Key security challenges

Due to its ability to optimise and transform operations, IT/OT convergence is gathering pace. But as you upgrade - unpatched legacy systems, siloed data and a relaxed approach to device authentication can create backdoors for threats. This attack surface widens when you add in the increased connectivity of cloud-based systems, intelligent devices, 5G networks and remote working.

The responsibility for protecting an energy business sits firmly with its board. NIS-R's legal measures boost security expectations for network and information systems for essential services, including energy, under the Authority's remit¹. It requires operators of essential services to manage risks effectively, take preventative measures to minimise the impact of incidents and to follow guidance from the Authority and the National Cyber Security Centre (NCSC). Being cyber-resilient is now an obligation, not a choice.

Security solutions

To protect your energy business, our initial assessment identifies potential risks and includes business continuity, security maturity, compliance, network

status, risk assessments and evaluations of mitigation preparations. To fulfil legal and regulatory obligations throughout your energy transition, we can implement proportional security controls guided by industry and global standards, flexing in response to changes to your business and the evolving threat profile.

In line with NIS-R, we have invested in a security maturity assessment approach based on the NCSC Cyber Assurance Framework (CAF) and have integrated its standards into our corporate security risk tool, allowing us to conduct CAF related assessments as an entry item and for enduring maintenance. This includes encouraging organisational cyber awareness, as well as introducing protective segmentation within your network and identity and access management.

From our UK Security Operations Centres (SOCs), we can conduct 24x365 monitoring of your IT and OT systems, networks, devices and environment. From Security Information Event Management (SIEM) to AI, we establish systems that defend assets and enhance cyber-resilience. Our NCSC CHECK approved penetration testing team is one of the UK's largest and has explicit experience in OT testing.

Our services include:

IT and OT Managed Security Services

- Threat intelligence
- Use case development
- Detection and response management
- Vulnerability and patch management
- Access management
- 24x7 Onshore UK Security Operations Centre (SOC)
- Security Analyst as a Service – 'Eyes on Glass'
- SOC as a Service - Security platforms powered by Microsoft and Fortinet partnerships
 - Microsoft Sentinel
 - Microsoft Defender for IoT
 - FortiSIEM

IT and OT Security Engineering Services

- Architecture, design and implementation
- Network and configuration management
- Logical and physical security testing
- Penetration testing

IT and OT Strategic Security Services

- Security strategy development
- Governance risk and compliance, using our CAF aligned tooling
- Asset management
- Training and awareness
- Incident simulation and tabletop exercises





Why CGI?

Energy and utilities heritage

We have a strong heritage in the British energy and utilities sector. We have delivered high quality services and products tailored to the British market for over 30 years. Today, we continue to be trusted by utilities to deliver critical infrastructure enabling digital services.

British led service delivery

We deliver expertise at the local level – our local teams combine innovative technology solutions and a deep understanding of the sector and regulatory environment in which you operate. Through basing our teams alongside our clients we create a culture of accountability that drives outstanding local support and expertise, building value in the communities we serve.

Local knowledge and global strength

Our local teams collaborate with our global community, drawing on our long-standing expertise in OT and security. This enables our teams to bring and leverage insights from other territories and sectors for your benefit, as well as delivering access to our worldwide network of industry innovation centres.

Get in touch to find out how we can help your organisation innovate, optimise, transform and secure your energy operations.

About CGI

Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world, helping clients achieve their goals, including becoming customer-centric digital enterprises.

CGI is a pioneer of innovative technology in the utilities sector. With over 6,000 utilities consultants around the globe, we bring decades of experience in the electricity and downstream natural gas sectors. We work collaboratively with our clients to create and deliver solutions to their most complex business challenges, partnering for the long term to enable them to succeed in their chosen markets.

In the UK, CGI has been a leading information technology partner on a number of innovation projects, making us the partner of choice to enable the DNO to DSO transition and deliver Britain's smart, flexible and sustainable energy future.

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