UK Council of Data Centre Operators

Communication:
Generator Emissions: Policy Conflicts

June 2016

Introduction

Data centres depend on electricity but operators usually install standby generators to provide power supply in the event of mains power failure. Generators are combustion plant and therefore attract various forms of regulation, some targeted at reducing carbon emissions (such as EU ETS) and some targeted at preventing pollution (in the form of emissions to air, land and water), such as the IED (Industrial Emissions Directive) transposed as EPR (Environmental Permitting Regulations) in the UK. The MCPD - Medium Combustion Plant Directive (currently in transposition) also focuses on pollution and fills a gap between the EcoDesign Directive and IED by introducing minimum standards for all plant above about 0.3MW.

Despite their large capacity, data centre generators are very rarely used (other than for testing and maintenance), so actual emissions are very low. Compliance is complex and burdensome. There is scope to streamline compliance processes for IED/EPR and MCPD.   For IED/EPR a template approach could be applied to data centre operators that could significantly reduce the compliance burden (including permitting costs). For MCPD an exemption for standby generation can be applied at nation state level. However, in both cases a pragmatic solution will be harder to achieve because the objectives of these policies are at odds with those of policies aimed at improving the security of our energy supply. Data centres are captured by this contradiction, which adds cost and risk.

MCPD

The MCPD makes provision for the exemption of emergency standby plant from most requirements, though generators will still have to be registered. However, DEFRA is considering excluding diesel fired plant from this exemption. The reason for this is that in response to the Contracts for Difference, generator farms are now being established because the economics add up for investors to provide this kind of standby. These comprise multiple generators individually rated just below current thresholds for emissions compliance. The scale is such that it may affect air quality. Many observers regard this unintended consequence as the exploitation of a policy loophole that needs to be closed. DEFRA's proposal not to adopt the exemption for standby is an effort to do this. Such a move would add very significant expense for data centre operators without delivering any environmental benefits.

IED/EPR

For streamlined permitting under IED/EPR a similar problem exists. In this case the situation is complicated by Demand Side Response provision (DSR). DSR takes a number of forms (DBSR, STOR, Turn-Up, etc.). It takes advantage of embedded generating capacity to allow National Grid to manage power shortages or surpluses without having to reduce voltage or limit supply. Power stations with additional standby can bring this online and large electricity users with embedded standby generation can opt to come offline and onto backup to increase available supply. DSR makes an important contribution to the stability and security of our power supply.

IED covers emissions to land, air and water. With respect to data centres, the Regulator (the EA) is primarily concerned with air quality. The UK is close to its national permitted levels of NOx but the priority is the potential breach of local air quality thresholds with consequent impacts on human health. In view of the very high reliability of the UK electricity grid the likelihood of long outages is very low; therefore so is the attributable risk. However, generators fired to take facilities offline for DSR purposes may run for longer periods at times of peak demand (4-7pm) when they will add to other local pollution sources. For data centres in AQMAs (Air Quality Management Areas) there are further issues.   The EA therefore takes the view that sites engaged in any form of DSR (Demand Side Response) should be ineligible for streamlined permitting. They view DSR as "elective" combustion which differentiates it from emergency standby.

Council observations

techUK's Council of Data Centre Operators considered this problematic landscape and made the following observations:

In general

- The strong focus on operational resilience within the sector means that the technical characteristics of data centre emergency standby provision are unusual and should be taken into account in policy decisions.

- The tendency to differentiate elective from emergency generation is unhelpful. Some degree of elective generation is essential to ensure resilience. For instance, if there is a power outage to a data centre then the full emergency backup supply will automatically fire up. If the grid supply is fluctuating to the point where it is deemed a threat to resilience, then operators will introduce some degree of back-up power provision. Unlike the emergency response described above, this will be a carefully controlled power balancing response. This is an essential part of ensuring continuity of operation and as such part of an emergency response but the decision is qualitative.

- From an environmental perspective, policies should encourage organisations to leverage existing generating plant rather than establish new, purpose built, generator farms. This would minimise the additional embedded energy and carbon cost of manufacturing additional plant rather than making use of what is already available within the existing infrastructure.

MCPD

- A loophole, or lack of clarity in one policy should not lead to another policy being increased in scope to include organisations for which it was clearly not intended. The fault should be rectified in the planning process (where provision exists) or in amendments to the original policy (for instance to ensure that Contracts for Difference encourage <u>appropriate</u> generating capacity).

- Rather than differentiating elective from emergency generation, we would prefer a distinction relating to the direction of power generated – ie standby that delivers power to the facility to reduce the burden on the grid at times of high demand should be distinguished from power delivered into the grid to augment the generating capacity. Additionality could be an alternative way of differentiating between supply that augments grid provision and supply that reduced demand on the grid.

IED/EPR

- Compliance costs for operators are disproportionate compared to environmental benefit and the compliance process could be streamlined without compromising policy objectives.

- Operators are familiar with outage history: the occasions when their generators were fired "in anger" and for how long they were operational. This history can be made available and should be taken into account when assessing risks to air quality from a data centre facility.

- Operators will have some control over the timing of maintenance and test firing. While these activities need to be regular, operators are likely to be able to schedule them at times when air quality impacts will be minimal (e.g. at times when other sources of pollutants are low).

About the UK Council of Data Centre Operators

techUK's Data Centre Council comprises twenty individual members who represent the full spectrum of business interests and business models across the data centre sector. Members include wholesale and retail colocation providers, cloud and hosting operators and enterprise providers and range from multinationals to SMEs. Some members specialise in the provision of professional services to data centres such as lawyers, surveyors, investors and advisors, some manufacture the IT and communications hardware that occupy these facilities and others represent the data centre supply chain. The Council is a decision-making body providing strategic direction for all techUK's activity relating to data centres. Formal Terms of Reference provide governance for the group.

The Council was established in 2009 in conjunction with the British Computer Society (BCS). Its primary objective was to provide a representative voice for the sector in policy matters, particularly those relating to energy and carbon taxation. Over the last five years the Council has been responsible for delivering a number of significant outcomes for the UK data centre sector. These include negotiating a Climate Change Agreement for Data Centres, limiting the impact of the Carbon Reduction Commitment, building a qualification framework to recognise professionalism in the sector, demonstrating the economic value of the sector to Treasury and BIS and demystifying data centres to policy makers across government. The UK has the largest data centre market in Europe by a significant margin and as a result the Council also takes a close interest in EU policy developments impacting the sector.

Comprising senior decision makers, the Council is the single most influential body representing data centres in the UK.

Current members are:

Andrew Jay (Chairman)	CBRE
Rob Coupland (Vice Chairman)	Telecity
Ian Bitterlin (Chair of Technical Committee)	Critical Facilities
Derek Allen	Global Switch
Tony Allen (alternate: Billy McHallum)	Equinix
Mark Bailey	Charles Russell Speechlys
Jack Bedell-Pearce	4D
Allan Bosley (alternate: Pip Squire)	Ark
Robin Brown	Colt
Paul Cranfield (alternate: Patrick Coogan)	Digital Realty
Peter Gibson	Intel
Nicola Hayes	Andrasta
Matt Lovell	Pulsant
Gavin Murray (alternate Paul Smith)	Rackspace
John Oliver	Barclays
Dave Smith	DataCentred
Steve Strutt	IBM
Mark Trevor	Cushman & Wakefield
Mark Yearwood	CenturyLink

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For more information on Council membership, TOR, achievements and communications, see:

https://www.techuk.org/focus/programmes/data-centres/groups/data-centres-council

About techUK

techUK is the trade association representing the digital technology sector in the UK. techUK represents the companies and technologies that are defining today the world that we will live in tomorrow. The tech industry is creating jobs and growth across the UK. In 2015 the internet economy contributed 10% of the UK's GDP. 900 companies are members of techUK. Collectively they employ more than 800,000 people, about half of all tech sector jobs in the UK. These companies range from leading FTSE 100 companies to new innovative start-ups. The majority of our members are small and medium sized businesses. www.techuk.org