Data Centres Programme Achievements 2016

techUK is proud to represent UK data centre operators and offers a comprehensive and influential programme. Our aim is to ensure that the UK is a place where the sector can flourish. We intervene on regulation, we mitigate impacts and we raise awareness. To date, we have changed UK law and negotiated a tax concession worth over £200M for operators, we have reduced regulatory burdens, identified and mitigated business risks, established a community of interest and shared technical knowledge. We have educated the sector about policy and we have educated policy makers about the sector.

What have we been up to in 2016?

During 2016 we alerted members to new regulatory threats, we resisted policy developments that could be damaging to the sector and we negotiated with government to reduce the impact of existing measures that are particularly problematic. We advised operators on little-known legal obligations like IED and simplified compliance on EU ETS and CCA. We provided input to a range of consultations including Treasury's review of business energy taxes, CCA targets and buyout, Phase IV of EU ETS, the Medium Combustion Plant Directive, the Energy Technology List, burdensome regulation and smart energy. We briefed members on GDPR, Safe Harbor and the US-EU Privacy Shield, on resilience and energy security. We promoted best practice tools like the EU Code of conduct and supported standards development. We considered broader issues like EU representation and discussed policy priorities with our European counterparts and sector energy use with the European Commission.

Following the Referendum our usual preoccupations were eclipsed by the urgent need to make sense of our new circumstances and deal with the implications of Brexit for data centre operators, their customers and the supply chain. We had to be crystal clear about what we needed from government in terms of negotiation priorities and broader forms of support. We produced statements, ministerial letters and a substantial thought leadership report. This dominated activity over the summer, which meant that important work on skills development, on problematic legislation like ESOS and ETS, on tackling energy costs and on understanding the future energy impacts of the sector were delayed. We did manage to submit a delayed report to DEFRA on sector resilience to severe weather by the year end.

Activities included meetings, briefing sessions and technical workshops with government and agencies. We held speaking platforms at a number of industry events. We published a range of material including policy responses, industry positions, briefings and guidance notes, plus our regular policy updates. At the same time we continued the usual business of negotiating with government and regulators, answering questions from members and stakeholders, supplying data and information about the sector and generally keeping all the plates spinning. Most of our outputs from 2016 are captured in the pages below.

Looking ahead to 2017

In addition to our regular dialogue and ad hoc policy activity our 2017 priorities are likely to include:

- Informing the Brexit negotiations and ensuring that the sector's interests are adequately represented
- Mapping the latest research on the way that sector energy use is evolving
- Reporting on the sector's performance against the second CCA target milestone
- Producing bespoke apprenticeship standards and promoting the sector as a career destination
- Developing explanatory briefings on technical and market characteristics of the sector
- Exploring the role of the data centre within the smart city
- Promoting the UK as a location of choice for data centre operators and investors
- Lobbying government to mitigate non commodity energy costs and other barriers to growth
- Monitoring the impacts of GDPR on demand for data centre services
- Understanding how hyperscale operators are driving market evolution
- Helping the sector prepare for physical risks

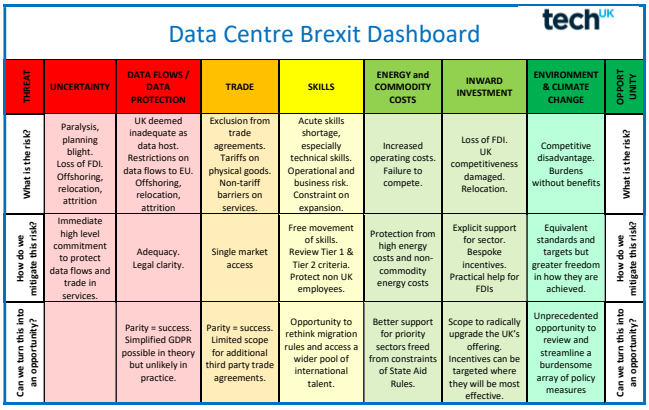
Contact emma.fryer@techuk.org or visit: www.techuk.org/focus/programmes/data-centres

Data Centres Programme Activity 2016 by topic

BREXIT

The Referendum decision signals changes in the political and business landscape and presents a number of challenges for the data centre sector. It was essential to understand the implications, both risks and opportunities, and outline the policy actions we needed from government.

- We produced an interim Brexit position: Post Referendum Policy Priorities for Data Centres.
- We wrote a formal letter to the Digital Economy Minister on data flows, which was well-received.
- We ran a Risk Radar session on 14th September jointly with our Cloud and Big Data programme where. we presented the implications of Brexit for cloud service providers and data centre operators.
- We produced a thought leadership paper "Silver Linings: The Implications of Brexit for the UK Data Centre Sector".
- We have been engaged in dialogue with multiple departments to help them understand the potential impact of Brexit on the sector and contributed to Select Committee Inquiries on Brexit.
- We responded to the BEIS inquiry on priorities for Brexit negotiations on energy.
- The Council is represented on techUK's high level Brexit Advisory Panel.



Data Centre Brexit Dashboard

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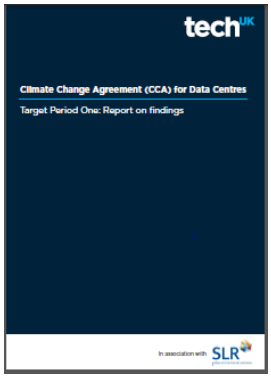
THREAT	UNCERTAINTY	DATA FLOWS / DATA PROTECTION	TRADE	SKILLS	ENERGY and COMMODITY COSTS	INWARD INVESTMENT	ENVIRONMENT & CLIMATE CHANGE	OPPORTUNITY
What is the risk?	Paralysis, planning blight. Loss of FDI. Offshoring, relocation, attrition	UK deemed inadequate as data host. Restrictions on data flows to EU. Offshoring, relocation, attrition	Exclusion from trade agreements. Tariffs on physical goods. Non-tariff barriers on services.	Acute skills shortage, especially technical skills. Operational and business risk. Constraint on expansion.	Increased operating costs. Failure to compete.	Loss of FDI. UK competitiveness damaged. Relocation.	Competitive disadvantage. Burdens without benefits	What is the risk?
How do we mitigate this risk?	Immediate high level commitment to protect data flows and trade in services.	Adequacy. Legal clarity.	Single market access	Free movement of skills. Review Tier 1 & Tier 2 criteria. Protect non UK employees.	Protection from high energy costs and non-commodity energy costs	Explicit support for sector. Bespoke incentives. Practical help for FDIs	Equivalent standards and targets but greater freedom in how they are achieved.	How do we mitigate this risk?
Can we turn this into an opportunity?		Parity = success. Simplified GDPR possible in theory but unlikely in practice.	Parity = success. Limited scope for additional third party trade agreements.	Opportunity to rethink migration rules and access a wider pool of international talent.	Better support for priority sectors freed from constraints of State Aid Rules.	Scope to radically upgrade the UK's offering. Incentives can be targeted where they will be most effective.	Unprecedented opportunity to review and streamline a burdensome array of policy measures	Can we turn this into an opportunity?

Climate Change Agreement (CCA)

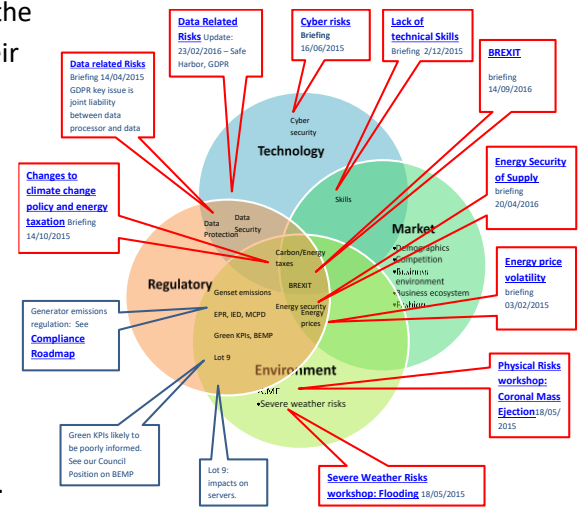
The CCA is worth over £30m a year to the sector and we are protective of the scheme, which is mitigating energy costs, improving efficiency and providing invaluable data. All climate change legislation has been under review and while we needed the complex landscape to be simplified we wanted to retain the CCA.

- We successfully lobbied Treasury to retain the CCA and even succeeded in an increase to the CCL discount. Even better, the CRC is set to go. We also submitted evidence to the Environment and Climate Change Select Committee and produced an Opinion on the Budget announcement
- We published our report on the sector's progress against its first target.
- We successfully persuaded BEIS to defer target renegotiations until there is better data.
- We increased the number of CCA participants to over 130 sites
- We successfully negotiated a streamlined compliance route to account for fuel use in generators (See EU ETS)



Data Protection, Data Flows, GDPR

The free flow of data, data adequacy and data security underpin the digital economy and are critical concerns for data centres and their customers. We work through our policy team within techUK on this dialogue because these issues are not restricted to data centres but concern the wider digital technology sector, so the activity below represents only a small fraction of the techUK engagement here.



- We ran a Risk Radar session on data related risks, specifically developments on GDPR and Safe Harbor/EU-US Privacy Shield on 23rd February
- We wrote to Matt Hancock, Digital Economy Minister on 21st July on the importance of data flows to the sector.
- We featured GDPR and data flows in our formal Brexit report.

Energy: costs, security, consumption and carbon emissions

Energy costs, especially commodity costs, and security of supply are primary concerns of the UK sector and this is an ongoing priority for the data centre programme. We are also engaged in an exercise to develop our understanding of the sector's energy use and associated carbon emissions. This work was interrupted by the Referendum but will be resumed in 2017.

- We organised a Breakfast Workshop in Brussels with Commission stakeholders, industry, government and academia to discuss the energy impacts of digital living "the Cloud is a Data Centre", as part of EU Sustainable Energy Week.
- We produced A Council Communication on the Energy Impacts of Digital Policies
- We produced an opinion piece on the difficulties of aggregating sector energy use – The Donald Rumsfeld Guide to sector energy use.
- We continued dialogue with BEIS on the energy intensive status of the sector and attended an Energy Intensive Industries workshop on 9th May. Our objective is to ensure that government's focus is not ring fenced to limited sectors and will extend to protecting future growth.
- We produced a briefing note on energy security of supply following the Risk Radar session on 20th April.
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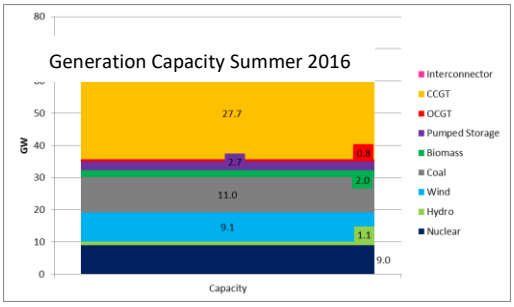
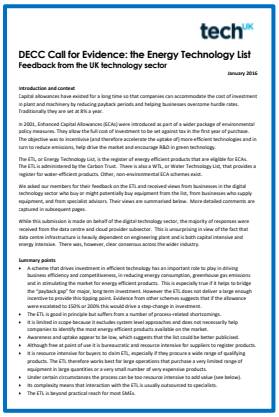


Energy Technology List (ETL)

The Energy Technology List is a register of energy efficient products that qualify for enhanced capital allowances. Data centre infrastructure is capital and energy intensive but the potential benefits of ETL are not all realised. As part of a wider review, Government consulted on the ETL and we proposed a less burdensome administration process and a higher tax rebate to incentivise long term investments.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DECC Call for Evidence: the Energy Technology List
Feedback from the UK technology sector

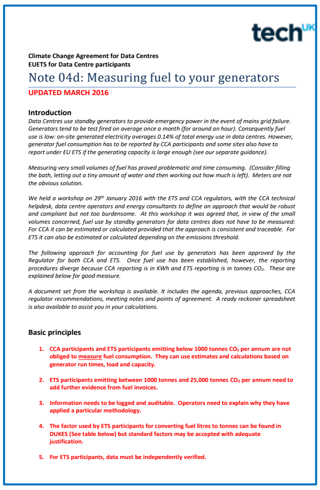
January 2016

- We responded to DECC's call for evidence on the effectiveness of the Energy Technology List (ETL), attended stakeholder workshops and submitted our input on the 29th January. We took the position that the list was good in principle but was bureaucratic in operation and was insufficient incentive for major long term investments. The ETL scheme has been retained.

EU Emissions Trading Scheme - EU ETS (Generator Woes)

Data centres are not the intended target of EU ETS but are captured due to their standby generating capacity. EU ETS compliance costs are disproportionate and the policy delivers no benefits when applied to data centres. We have been mitigating the impacts of phase III, including penalties, and lobbying for improvements in Phase IV.

- We alerted the sector to their obligations and we liaised closely with the Environment Agency to smooth the compliance process for operators.
- We successfully helped mitigate penalties for operators caught unawares by ETS Phase III. They were reduced by about 95%.
- We organised a technical workshop on 29th January with the Environment Agency to address compliance burdens and successfully negotiated a streamlined route to account for fuel use.
- We produced a guidance note and ready reckoner to explain this simplified approach (see also CCA)
- We produced a Council position on EU ETS to explain why the policy was dysfunctional
- We lobbied for reform on ETS Phase IV to DECC and made submissions under the Red Tape Challenge, the Energy and Climate Change Select Committee Inquiry on burdensome carbon legislation, (building on our earlier Cabinet Office input) and made direct representations to DG CLIMA via DIGITALEUROPE
- We alerted other European NTAs and gave them collateral to lobby at member state level.
- We ran a Low Emitters Workshop with DECC and the Mineral Products Association on simplifying Phase IV of ET for low emitters. This gave DECC the arguments to take forward at EU level.



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Climate Change Agreement for Data Centres
EUETS for Data Centre participants

Note 04d: Measuring fuel to your generators

UPDATED MARCH 2016

Introduction

Data Centres use standby generators to provide emergency power in the event of mains grid failure. Generators tend to be test fired on average once a month (for around an hour). Consequently fuel use is low: on-site generated electricity averages 0.14% of total energy use in data centres. However, generator fuel consumption has to be reported by CCA participants and some sites also have to report under EU ETS if the generating capacity is large enough (see our separate guidance).

Measuring very small volumes of fuel has proved problematic and time consuming. (Consider filling the bath, letting out a tiny amount of water and then working out how much is left). Meters are not the obvious solution.

We held a workshop on 29th January 2016 with the ETS and CCA regulators, with the CCA technical helpdesk, data centre operators and energy consultants to define an approach that would be robust and compliant but not too burdensome. At this workshop it was agreed that, in view of the small volumes concerned, fuel use by standby generators for data centres does not have to be measured: For CCA it can be estimated or calculated provided that the approach is consistent and traceable. For ETS it can also be estimated or calculated depending on the emissions threshold.

The following approach for accounting for fuel use by generators has been approved by the Regulator for both CCA and ETS. Once fuel use has been established, however, the reporting procedures diverge because CCA reporting is in KWh and ETS reporting is in tonnes CO_2. These are explained below for good measure.

A document set from the workshop is available. It includes the agenda, previous approaches, CCA regulator recommendations, meeting notes and points of agreement. A ready reckoner spreadsheet is also available to assist you in your calculations.

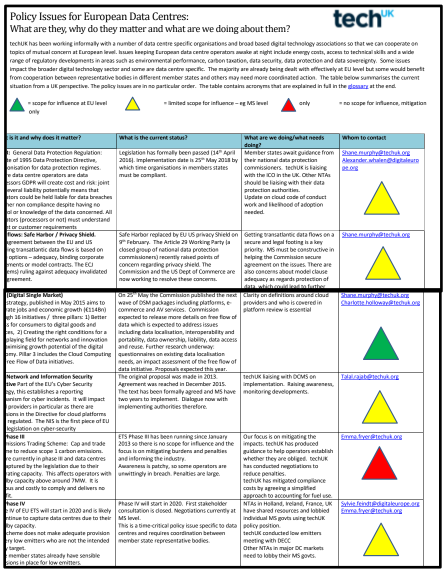
Basic principles

1. **CCA participants and ETS participants emitting below 1000 tonnes CO_2 per annum are not obliged to measure fuel consumption. They can use estimates and calculations based on generator run times, load and capacity.**
2. **ETS participants emitting between 1000 tonnes and 25,000 tonnes CO_2 per annum need to add further evidence from fuel invoices.**
3. **Information needs to be logged and auditable. Operators need to explain why they have applied a particular methodology.**
4. **The factor used by ETS participants for converting fuel litres to tonnes can be found in DUKES (See table below) but standard factors may be accepted with adequate justification.**
5. **For ETS participants, data must be independently verified.**

EU Representation

The sector has been considering how best to represent itself at EU level. Our preferred approach is to address each policy issue through engagement with individual institutions with relevant responsibility. However, we worked with other bodies to review our EU policy priorities and establish whether and where we needed to escalate activity and/or call in reinforcements.

- We ran an industry Round Table on 15th June in Brussels to discuss EU policy priorities for the sector.
- We produced a summary of policy priorities for European data centre operators.
- We produced a Council Communication on EU Representation.
- We fostered informal links with representative bodies including DDA, CESIT, BITKOM, DIGITALEUROPE, ECO and Host in Ireland, among others.



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Policy Issues for European Data Centres:
What are they, why do they matter and what are we doing about them?

techUK has been working informally with a number of data centre specific organisations and broad based digital technology associations so that we can cooperate on topics of mutual concern at European level. Issues keeping European data centre operators awake at night include energy costs, access to technical skills and a wide range of regulatory developments in areas such as environmental performance, carbon taxation, data security, data protection and data sovereignty. Some issues impact the broader digital technology sector and some are data centre specific. The majority are already being dealt with effectively at EU level but some would benefit from cooperation between representative bodies in different member states and others may need more coordinated action. The table below summarises the current situation from a UK perspective. The policy issues are in no particular order. The table contains acronyms that are explained in full in the glossary at the end.

= scope for influence at EU level only   = limited scope for influence – eg MS level only   = no scope for influence, mitigation

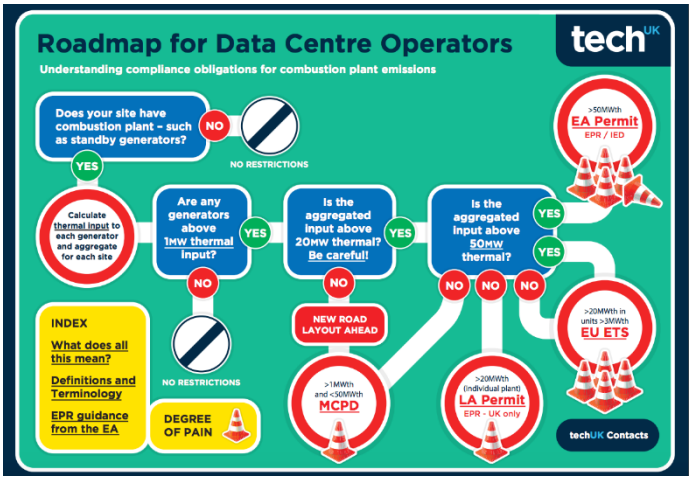
…is it and why does it matter?	What is the current status?	What are we doing/what needs doing?	Whom to contact
R: General Data Protection Regulation: …te of 1995 Data Protection Directive, …onisation for data protection regimes. …e data centre operators are data …ssors GDPR will create cost and risk: joint …everal liability potentially means that …ators could be held liable for data breaches …her non compliance despite having no …ol or knowledge of the data concerned. All …ators (processors or not) must understand …t or customer requirements	Legislation has formally been passed (14th April 2016). Implementation date is 25th May 2018 by which time organisations in members states must be compliant.	Member states await guidance from their national data protection commissioners. techUK is liaising with the ICO in the UK. Other NTAs should be liaising with their data protection authorities. Update on cloud code of conduct work and likelihood of adoption needed.	Shane.murphy@techuk.org Alexander.whalen@digitaleurope.org
…flows: Safe Harbor / Privacy Shield. …greement between the EU and US …ing transatlantic data flows is based on … options – adequacy, binding corporate …ments or model contracts. The ECJ …ems) ruling against adequacy invalidated …greement.	Safe Harbor replaced by EU US privacy Shield on 9th February. The Article 29 Working Party (a closed group of national data protection commissioners) recently raised points of concern regarding privacy shield. The Commission and the US Dept of Commerce are now working to resolve these concerns.	Getting transatlantic data flows on a secure and legal footing is a key priority. MS must be constructive in helping the Commission secure agreement on the issues. There are also concerns about model clause adequacy as regards protection of data, which could lead to further	Shane.murphy@techuk.org
(Digital Single Market) …strategy, published in May 2015 aims to …ate jobs and economic growth (€114Bn) …gh 16 initiatives / three pillars: 1) Better …s for consumers to digital goods and …ces, 2) Creating the right conditions for a …playing field for networks and innovation …aximising growth potential of the digital …omy. Pillar 3 includes the Cloud Computing …ree Flow of Data initiatives.	On 25th May the Commission published the next wave of DSM packages including platforms, e-commerce and AV services. Commission expected to release more details on free flow of data which is expected to address issues including data localisation, interoperability and portability, data ownership, liability, data access and reuse. Further research underway: questionnaires on existing data localisation needs, an impact assessment of the free flow of data initiative. Proposals expected this year.	Clarity on definitions around cloud providers and who is covered in platform review is essential	Shane.murphy@techuk.org Charlotte.holloway@techuk.org
Network and Information Security …tive Part of the EU's Cyber Security …egy, this establishes a reporting …anism for cyber incidents. It will impact … providers in particular as there are …sions in the Directive for cloud platforms … regulated. The NIS is the first piece of EU legislation on cyber-security	The original proposal was made in 2013. Agreement was reached in December 2015. The text has been formally agreed and MS have two years to implement. Dialogue now with implementing authorities therefore.	techUK liaising with DCMS on implementation. Raising awareness, monitoring developments.	Talal.rajab@techuk.org
…hase III …missions Trading Scheme: Cap and trade …me to reduce scope 1 carbon emissions. …re currently in phase III and data centres …aptured by the legislation due to their …rating capacity. This affects operators with …by capacity above around 7MW. It is …ous and costly to comply and delivers no …fit.	ETS Phase III has been running since January 2013 so there is no scope for influence and the focus is on mitigating burdens and penalties and informing the industry. Awareness is patchy, so some operators are unwittingly in breach. Penalties are large.	Our focus is on mitigating the impacts. techUK has produced guidance to help operators establish whether they are obliged. techUK has conducted negotiations to reduce penalties. techUK has mitigated compliance costs by agreeing a simplified approach to accounting for fuel use.	Emma.fryer@techuk.org
…hase IV …e IV of EU ETS will start in 2020 and is likely …ntinue to capture data centres due to their …by capacity. …cheme does not make adequate provision …ery low emitters who are not the intended … target. … member states already have sensible …sions in place for low emitters.	Phase IV will start in 2020. First stakeholder consultation is closed. Negotiations currently at MS level. This is a time-critical policy issue specific to data centres and requires coordination between member state representative bodies.	NTAs in Holland, Ireland, France, UK have shared resources and lobbied individual MS govts using techUK policy position. techUK conducted low emitters meeting with DECC Other NTAs in major DC markets need to lobby their MS govts.	Sylvie.feindt@digitaleurope.org Emma.fryer@techuk.org

IED/ EPR and MCPD (More Generator Woes)

EU ETS is not the only legislation that captures operators due to their standby generator capacity. Sites of 15MW and over may be caught by little-known regulations (IED) and new regulations are coming in that will cover all generators above about 0.3MW. This, the Medium Combustion Plant Directive - MCPD, includes additional requirements for diesel generators and is particularly problematic for anyone engaged in demand side response or triad avoidance.

- We ran another Technical Workshop with the EA on 6th May to understand EPR obligations in detail and explore scope for streamlining compliance and developing Best Available Techniques (BAT).

- We produced a Compliance Roadmap, AKA "Cones of Pain" to explain generator emissions legislation.
- We developed a guidance note on IED / EPR obligations (IED IN or OUT) to help companies assess whether they are obliged or not. Our technical helpdesk, run by SLR consulting, produced Stairway to Heaven, a step by step guide to IED compliance to explain the process.
- We produced a Council position highlighting Demand Side Reduction (DSR) policy contradictions
- We attended DEFRA workshops on MCPD (Medium Combustion Plant Directive) on 6th May and lobbied for the retention of exemptions for emergency standby plant and for a more intelligent approach to DSR. We discussed transposition proposals with DEFRA on 16th December and reported back.



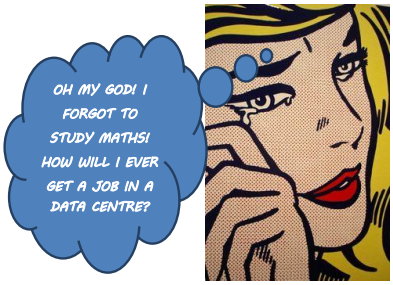
Severe weather risks (climate change adaptation)

Data centres are exceptionally risk averse and compete on the basis of their resilience. DEFRA has asked the sector to report on its preparedness for risks associated with changes in climate, especially flooding.

- We participate in the Infrastructure Operators Adaptation Forum (IOAF) run by the EA.
- We have produced a provisional report on the sector's readiness for climate change risks for submission to DEFRA. The full report was published formally in January 2017. In the interim a draft abstract and executive summary was available.
- We will review and implement the recommendations of this report in 2017.

Skills: Addressing skills gaps and driving professionalism

Data centre operators often struggle to find the technical skills they need and there is also a longer term shortage of young people choosing technical subjects at all stages of education. While techUK has a wider skills programme our activity focuses on trying to close these skills gaps and on recognising the capabilities of the technical staff in our data centres.



- 100 candidates have now taken up our route to apply for professional registration (through IET)
- We produced an informal note explaining why data centres present good career opportunities and how students can avoid limiting their options.
- We have broadened the remit of our professionalism group (see below).

Standards, best practice and guidance

Many standards apply to data centres and our objective has been to support existing standards and dissuade bodies like the Commission from creating new standards when good ones already exist.

- Our Technical Committee members attended workshops with JRC on the development of Best Environmental Management Practices (BEMP) for data centres and have ensured that these approaches refer to and are consistent with existing standards.
- We produced a Council Communication on policy process issues identified in the BEMP activity.
- We represented the sector on TCT/07, the BSI steering committee for many standards applicable to data centres, including the CENELEC 50600 series, and will continue to do so.
- We supported the activity of the EU Code of Conduct for data centres and the transposition of its best practices into a CENELEC Technical Report, now approaching its second iteration.

UK Competitiveness

It is essential that the UK remains an attractive location for data centre operators to invest and grow, especially after Brexit. The UK cannot be complacent and must act to ensure that we are competitive in areas like energy costs, taxation, data regulation and planning and this will be one of our main programme priorities for 2017.

- We stepped up our dialogue with UKTI (now part of the Department for International Trade)
- We urged govt to upgrade the UK's offering to inward investors and UK operators in our Brexit report
- We produced an opinion assessing London as a location of choice for data centres – Ours Goes Up to 11

Governance, specialist groups and community of interest

Governance: techUK Data Centres Council: The UK Council of Data Centre Operators provides strategic direction for the programme. A list of members, terms of reference and recent communications are all available online. The Council held its regular meetings on 23rd February, 20th April, 21st June, 14th September and 7th December to set priorities, agree actions, review progress and develop forward strategy. An emergency meeting was held on 7th July following the Referendum. Council members represented the sector to potential inward investors and government, briefed MPs and discussed cooperation with European bodies.

Technical Committee: This group advises Council on technical matters but its remit has recently broadened. It now provides an informal source of technical and market information to government and other stakeholders at the pre-consultation stage, to ensure that policy making is informed. During 2017 the Committee will develop a number of technical briefings. The Technical Committee meets twice a year but handles most enquiries electronically.

Professionalism Steering Committee: This group was originally established to smooth the path to professional registration for technical staff working data centres. Now this project is up and running we continue to work closely with the IET (Institution of Engineering and Technology). Our next objectives are to start addressing long and short term technical skills shortages, to develop a bespoke apprenticeship standard and to improve professional representation.

Data Centres Group: Most of our data centre activity is conducted through our Data Centres Group, the programme's core community of interest. From time to time we set up ad hoc sub-groups to deal with specific topics. More information can be found on our website:
http://www.techuk.org/focus/programmes/data-centres

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Emma Fryer, January 2017