Utility Tree & Vegetation Management in Britain: Latest Perspectives

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Since the privatization of the electric utilities in Britain in 1989 there has been much change in the sector. The original 14 independent Regional Electricity Companies (RECs) in Britain are now under the control of seven distribution network operators (DNOs), but the old REC service territories are still intact and managed as 'Licence Areas'. For example E.ON UK is a DNO that acquired the former Midlands Electricity Board (MEB) and East Midlands Electricity (EME) and runs both as Central Networks (CN); however, it reports to the Regulatory Authority (Ofgem) as two 'License Areas', CN East & CN West. The current breakdown of which DNOs control which licence areas is shown in figure 1.

Following full privatization in the mid 1990s and the inevitable spate of takeovers and buyouts, before reaching the current situation, there was a lot of insecurity among staff within the RECs as companies downsized, outsourced, reorganized and changed their cultures from those of state owned organizations to those of commercial companies. People left the companies, some to early retirement, and others to voluntary redundancy while others found employment within the private contractors that supplied many of the functions that had been supplied internally to the DNOs on an outsourced basis.

Before and up to privatization tree and vegetation management had typically been undertaken by 'in-house' line crews, but since privatisation it has largely been outsourced. Even though tree cutting was originally done by line crews, few if any of the old RECs employed professional arborists or foresters as staff, and management was typically undertaken by Line Engineers. Budgets for tree cutting were comparatively small and much of the work was reactive or associated with refurbishment work rather than proactive management of clearance cycles, although there was a small amount of cycle clearance work.

Drivers for Change in the UK

Following full privatization and the period of commercial change of takeovers and buyouts, budgets for tree cutting were small and much of the work was reactive. The concept of managed cycles of tree clearance was not established. This culture of small tree cutting budgets, reactive work and no cycles of clearance resulted in the inevitable, i.e. a major storm caused serious power outages across the UK in 2002 and most of the outages were found to have been caused by trees and vegetation.

In 2002 the Regulatory Authority had replaced the Electricity Supply Regulations (ESR) 1998 with the Electricity Safety Quality & Continuity Regulations (ESQCR 2002). The ESQCR 2002 placed significant legal obligations on all DNOs to maintain pre-defined minimum safety

clearance distances between trees and overhead lines, with emphasis on both safety and continuity of supply, whereas the ESR's emphasis was on safety.

The storm of October 2002 and the related large number of service interruptions and customers without power for days in some locations; prompted a major investigation on the part of Ofgem into the root cause of the outages. It was found that trees were the principal reason for the outages and Ofgem concluded that DNOs had either not managed trees and vegetation properly or not managed them to an acceptable standard. Ofgem published a consultation document on the options for ways to ensure improvement and compliance with the ESQCR. The consultation document cited not only the UK 2002 storm, but also the blackout in the north eastern United States & Canada in 2003 and a similar blackout in southern Germany and northern Italy in the same year, both of which were caused by trees.

Changes Implemented since 2002

Ofgem decided that the appropriate option to ensure proper vegetation management and compliance with ESQCR was to amend the regulations to strengthen them and to place further unambiguous obligations on DNOs. In 2006 the ESQC Regulations were amended and are referred to as the ESQC(A)R 2006. The inclusion of Regulation 20A effectively extended the existing legal obligation to maintain minimum clearances not only for safety reasons but also to ensure continuity of supply (i.e. no tree related faults).

Regulation 20A states that, *"A generator or distributor <u>shall</u>, so far as is reasonably practicable, ensure that there is no interference with or interruption of supply caused by an insufficient clearance between any of his overhead lines and a tree."*

As part of the changes, The Department for Energy & Climate Change (DECC) strengthened the requirement to follow the industry tree clearance standard, i.e. the Electricity Networks Association (ENA) Technical Specification (TS) 43-8[1]. This is reflected in the ESQC(A)R 2006 guidance document which states that *"……..duty holders <u>will</u> operate progressive vegetation control programmes in accordance with…ENA TS 43-8."*

In summary, the two main changes that are required for DNOs to demonstrate compliance with the ESQC(A)R 2006 are:

All overhead lines must have sufficient tree clearances maintained to ENA TS 43-8 as a minimum standard (already an existing requirement for safety, enforceable for supply continuity) from 31 January 2009, which effectively means 'no tree related outages'.

Progressive resilience clearance (storm hardening) on the HV and EHV overhead line networks will be undertaken on critical lines (strategic overhead line routes) as prioritised by ENA Engineering Technical Report (ETR) 132[2] from 31 Jan 2009 onwards.

These are not optional for DNOs; they are Statutory Obligations, i.e. legally binding and enforceable with substantial penalties for failure to comply.

Change Outcomes

Utilities in the UK are subject to working within 'Regulatory Periods' of five years. The regulatory period that followed the implementation of the 2002 ESQC Regulations was the fourth since privatization and covered the period 2004 to 2009 inclusive and the amendments to the regulations occurred roughly half way through that period. The DNOs were aware of the Ofgem review following the 2002 storm and the probable outcomes for tree and vegetation management. Therefore, in setting budgets for the fourth regulatory period they allocated higher budgets to tree and vegetation management and a number started to plan and implement regular clearance cycles. Not all were able to achieve cycles of cutting because of reorganizations, but the principles were established and tree cutting started in earnest.

The result of the increased spending in all DNOs and across all license areas in England, Scotland, Wales and Northern Ireland was an increase in the size and number of utility arboriculture contractors and a thriving network of sub-contractors.

The obligation to be totally compliant with ESQC(A)R 2006 by January 31, 2009 and the additional obligation of making the network resilient under abnormal weather conditions (storm hardening) effectively mid way through the fourth regulatory period meant that the DNOs had not budgeted for these additional obligations. Consequently, Ofgem allowed the regulatory budget to be re-opened and accepted bids from the DNOs for additional funding.

We are now less than a year away from the fifth regulatory period and Ofgem has received bids from the DNOs for the next five years worth of funding, i.e. 2010 to 2015 inclusive. Initial bids have been made and Ofgem is negotiating with the DNOs. The basic unit of cost for comparisons between DNOs and Licence Areas is the cost per span per voltage and there is considerable variation between DNOs as to how this unit is interpreted. The debate will continue through 2009 with Ofgem making its final awards decisions towards the end of the year. One thing is sure however, and that is that the spending on tree and vegetation management will increase for the fifth regulatory period.

A major outcome of these changes is that the utility arboriculture sector is set to thrive as an investment from the DNOs increases. This is obviously good news for the suppliers, i.e. the cutting and surveying contractors and their equipment suppliers. It is also good news for the

Arboriculture Industry in general. In the UK a representative trade organization called the Utility Arboriculture Group (UAG) has been formed within the umbrella of the Arboricultural Association (AA) and has become the *de facto* representative organisation for the utility sector.

The Future is Bright

It is likely that the Utility Arboriculture Sector will expand, grow and strengthen within the UK. The resources needed to ensure that all DNOs achieve compliance with ESQC(A)R 2006 are large and prospects or employment are good. The contracting and sub-contracting sector will have as much work as it can handle, and the industry is set to thrive in the coming five to ten years.

[1] Electricity Networks Association (ENA) Technical Specification (TS) 43-8 *"Overhead Line Clearances"*

[2] Electricity Networks Association (ENA) Engineering Technical Report (ETR) 132 *"Vegetation management near electric overhead lines for the purpose of improving network performance under abnormal weather conditions"*