

**TELECOMMUNICATION ASSOCIATION  
OF THE UK WATER INDUSTRY  
- TAUWI -**

RESPONSE TO OFCOM'S CONSULTATION

On

**Spectrum Management Strategy**

**Ofcom's approach to and priorities for spectrum management over the next ten years**

***INTRODUCTION***

This response is provided by the **Telecommunications Association of the UK Water Industry (TAUWI)** on behalf of its members:

Anglian Water Services Ltd	Severn Trent Water Ltd
Black Sluice Internal Drainage Board	South East Water Ltd
Sembcorp Bournemouth Water	South Staffordshire Water
Bristol Water plc	South West Water Services Ltd
Cambridge Water plc	Southern Water plc
Dee Valley Water plc	States of Jersey Transport and Technical Services Department
Natural Resources Wales	Sutton & East Surrey Water plc
Environment Agency	Thames Water Utilities Ltd
Essex & Suffolk Water	United Utilities Water plc
Hartlepool Water	Veolia Water Central
Lindsey Marsh Drainage Board	Veolia Water East Ltd
Welsh Water	Veolia Water South East Ltd
Northern Ireland Water Ltd	Wessex Water Services Ltd
Northumbrian Water Ltd	Yorkshire Water Services Ltd
Scottish Water	

Atkins Ltd act as the main point of contact for TAUWI members and represent their interests on a range of matters, including responding to strategic consultation documents on their behalf.

This response has been circulated for review to each of the 29 member organisations that form TAUWI and therefore negates the need for submissions from individual water companies.

The Association was formed in April 2004 and replaces the Telecommunications Advisory Committee (TAC) which for the previous 14 years had acted as the focus for the UK Water Industry in relation to fixed and mobile communications and scanning telemetry from a technical and regulatory aspect. The scope of TAUWI has

been extended to capitalise on new opportunities resulting from emerging technologies and regulatory changes. At the same time, more emphasis is being placed on strategic issues in relation to other sectors of an organisation's operation, such as IT Systems, General Communications Infrastructure and business requirements. TAUWI is chaired by Mr Roger Howell of Thames Water Utilities Ltd.

## **Responses**

**Question 1: Have we captured all the major trends that are likely to impact spectrum use over the next ten years in this section and the separate Appendix on sectoral developments? Are there other market, technology or international developments that could lead to significant changes in spectrum demand and supply over the next 10 years?**

The Water Industry is a major user of Industrial Control & Remote Monitoring Systems and employs a wide range of communications technologies to support their mission critical operations. All aspects of water management, including the recovery, treatment and distribution of water, the control and monitoring of water quality and operation of flood defence systems utilise Telemetry to ensure compliance with statutory requirements as well as reducing maintenance and operational costs.

In the UK, public water services are monitored and controlled by government appointed regulators who set legally-binding standards and report each year on progress. Regulation is focused in four main areas: finance & economics; environmental impact; drinking water quality; and health and safety. In England & Wales, this is carried out by Ofwat, in Scotland, by the Water Industry Commission for Scotland and in Northern Ireland, by the Utility Regulator's Water Directorate. The Environment Agency is directly responsible to Government Ministers for all aspects of their performance and are accountable to Parliament through the Ministers.

Increasing Environmental regulatory requirements increase the need for accurate, reliable and timely information. In this respect, the industry is witnessing a move away from "dial up" circuit switched communications such as PSTN and GSM CSD to "always on" technologies such as ADSL, GPRS & Self provided licensed UHF Scanning Telemetry Systems. In addition, the continuing trend towards greater granularity of distribution and process data will require an increase in the number of points to be monitored and controlled. This will result in increasing volumes of telemetry data. Over the next 10 years, it is expected that the number of points is likely to increase by more than 10 fold. The industry is also witnessing an increasing need to provide greater levels of security monitoring at Critical National Infrastructure sites. As a consequence, remote CCTV is becoming more widespread and together with higher bandwidth applications such as remote access to corporate networks, the need for technologies and spectrum that can support these higher bandwidth applications is increasing.

The Water Industry has a long history of relying on self – provided radio networks to support the operation of Critical National Infrastructure. There are a number of reasons for this. For many, there is a need to communicate with assets in remote rural areas where these alternative technologies are not available and guaranteed levels of

service are essential, subsequently, the industry is seeing increasing use of UHF Scanning Telemetry to remotely monitor & control its assets. As well as adding to their existing schemes, a number of companies are investing in the replacement of their existing analogue telemetry radio system with digital equipment which provides far greater functionality such as remote radio monitoring and support of industry standard interfaces and protocols. The Water Industry have been assigned 24 national, 12.5KHz UHF Channels by Ofcom and the systems are designed and assigned licenses in accordance with OfW 49 by Atkins Ltd, who act as spectrum manager for the Water Industry. The minimum radio equipment and antenna standards required to operate in the UK Scanning Telemetry band are specified in RIR 2037 & VNS2111. The UK Radio Interface Requirement covers those equipment and antenna options that maximise the spectrum utilisation, while promoting enterprise, innovation and competition. The industry currently has an installed base of over 10,000 sites communicating via UHF licensed Scanning Telemetry. In the last year, the industry has been working with a telemetry radio manufacturer to carry out field trials using Band1 spectrum. The main uses include the provision of telemetry links to locations where excess radio path loss prohibits the use of standard UHF telemetry and as a means of providing resilience to an existing link. Following successful trials, a number of water companies have now installed permanent links carrying operational traffic.

The telemetry systems so far described have been wide area, regional systems consisting of master system and associated outstations. At a local level, many applications need to send a limited amount of data between distributed industrial equipment as cost effectively and efficiently as possible. To this end, the industry also makes significant use of Telemetry & Telecontrol equipment operating in the UHF 863 – 870 MHz and the UHF 458.50 to 458.95MHz licence exempt band.

In addition to telemetry systems, the industry also makes considerable use of on-site back to back licensed UHF handportable & repeater systems. These are all licensed separately by individual water companies.

**Question 2: Do you have any comments on this summary of our approach to spectrum management and on the principles discussed in Annex 5?**

TAUWI is in broad agreement with Ofcom's approach to spectrum management and would agree in particular with the view that the wider social benefit of services provided by spectrum use needs to be taken into account when considering the optimal use and allocation of spectrum.

**Question 3: Do you think we have adopted the right approach to analysing future trends and developments that could raise the need for future regulatory action?**

TAUWI would agree that Ofcom has adopted a uniform and structured approach to analysing the future trends in the 12 broad sectors identified.

**Question 4: What are your views on the results of our analysis of future developments summarised in this section and discussed in greater detail in the Appendix to this consultation?**

In consideration of the analysis of Ofcom's preliminary assessment of future developments in the Utility Sector summarised in Section 5 and discussed in greater detail in Section 8 of the Appendix, it is apparent that the current use and future plans of the energy sector has been influential in the production of this assessment.

We trust that the information contained in this response will help inform Ofcom of the Water Industries current and future requirements for communication systems, spectrum use and reliance on radiocommunications thus ensuring the continued support by Ofcom of the Water Industries operations with minimal business risk. Representatives from TAUWI would be pleased to meet with Ofcom to discuss this in greater detail if this would be of any assistance.

**Question 5: Do you agree that a consideration of mobile and wireless data demands should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?**

TAUWI agrees that a consideration of mobile and wireless data demands should feature as a priority area in Ofcom's work programme for the next ten years. The Water Industry utilises a wide range of radio communication technologies in support of their operations and was an early adopter of 2G GSM CSD as a means of communicating relatively small amounts of data from non critical sites or providing a secondary resilient form of communication to a critical site. As discussed earlier, the operational requirement to have more "real-time" access to remote data has seen the move from circuit switched to "always-on" 2.5G GPRS technology. The need to support increasing volumes of data and new M2M applications will require a substantial increase in the data bandwidth capabilities of these public mobile networks. In this regard the rollout of 4G at 2.1GHz, and the coverage obligations imposed on the 800MHz recently awarded spectrum, together with infrastructure agreements should assist in providing TAUWI members with an upgrade path for those who choose to utilise this form of communications. The industry is also looking at the benefits of employing wireless technology in an industrial automation environment and using WiFi as the primary means of local network connectivity.

**Question 6: Do you agree that the future of PMSE spectrum access should feature as a priority area in our work programme for the next ten years. Have we captured all the major issues that we should consider within this area?**

We are not in a position to comment on this question other than to state that plans should be made to move away from the use of spectrum already licensed to the utilities.

**Question 7: Do you agree that the implementation of our 700MHz strategy and the longer term future of DTT should feature as a priority area in our work programme for the next ten years. Have we captured all the major issues that we should consider within this area?**

TAUWI is in broad agreement with Ofcom's implementation strategy for the 700MHz band. We understand that the mobile service definition covers a range of applications including mobile broadband, as well as other mobile systems used for applications such as business radio or public protection and disaster relief. In our response to Ofcom's consultation on Securing Long Term benefits from scarce spectrum resources – a strategy for UHF bands IV & V we were in general support of Ofcom's proposal of allocating 700MHz spectrum to mobile broadband use as it has the potential to improve the future availability of high capacity broadband, especially in remote rural areas. The proposed change in the use of the 700MHz band provides an opportunity for Ofcom to consider the societal benefit by reserving some spectrum for use by the Utilities in order to support the deployment of new applications, ensuring the industry continues to meet both operational needs and future statutory requirements.

**Question 8: Do you agree that a consideration of competing demands for spectrum at 450-470MHz should feature as a priority area in our work programme for the next ten years. Have we captured all the major issues that we should consider within this area?**

TAUWI is in broad agreement that consideration of competing demands for spectrum in the 450-470MHz band should feature as a priority area in its work programme for the next ten years. As previously discussed, as well as licensed systems, the industry makes significant use of Licence Exempt UHF Telemetry & Telecontrol equipment operating between 458.5 & 458.95MHz as per IR2030/2/6.

The industry has made and continues to make considerable investment in SCADA and Telemetry Systems and as previously discussed the supporting communications infrastructure essential for its operations. The Water Industry operates to a 5 year investment cycle and a long-term, low risk approach is taken when investing in these critical systems. With an operating life of at least 10-15years, it is essential that the industry can be confident of the continuing availability of the spectrum on which these systems depend.

**Question 9: Do you agree that spectrum sharing should feature as a priority area in our work programme for the next ten years. Have we captured all the major issues that we should consider within this area?**

TAUWI is in broad agreement with Ofcom in identifying, where operationally appropriate, opportunities for spectrum sharing. A number of TAUWI members have successfully deployed broadband wireless point to point links operating in the loosely licensed 5.8GHz Band C which is shared with Radar and Fixed Satellite systems.

**Question 10: Do you agree that in future we should consider whether and how to play a greater role in supporting improvements to the performance of RF transmitters and receivers? What are your views on the potential future role for regulation in this area?**

TAUWI is in broad agreement that Ofcom should consider playing a greater role in supporting improvements in performance of RF transmitters and receivers. We consider that the benefits include the potential to maximise frequency re-use while promoting good engineering design practice.

**Question 11: Are there other issues or potential future challenges that you consider should feature as a priority in our work programme for the next ten years? Please provide evidence in support of your views wherever possible.**

With new digital modulation techniques being used in a growing percentage of new and replacement systems, the ability for differing technologies to co-exist in the same spectrum and the considerations that need to be taken into account, if any, when planning these systems e.g. changes in geographical interference, in-band and out-of-band emissions .

**Question 12: Do you consider tracking these metrics could be a useful way to help monitor the effects that our spectrum management strategy has on the nature of spectrum access and how this changes over time? Are there any other indicators that we should be seeking to track for these purposes?**

TAUWI agrees that tracking these metrics would provide valuable information on how the spectrum use is changing over time and confirm whether or not the spectrum strategy is having the desired effect in key areas.

**Question 13: Do you consider that targeted spectrum utilisation measurements could be useful in informing future spectrum management initiatives? What type**

**of specific uses or bands could be the subject of future measurement studies and why? Please provide evidence in support of your views wherever possible**

TAUWI considers that targeted spectrum utilisation measurements would be a useful way of identifying spectrum occupancy and assist with future spectrum management initiatives however we would question whether that this may be at odds with Ofcoms technology neutral approach to spectrum use.