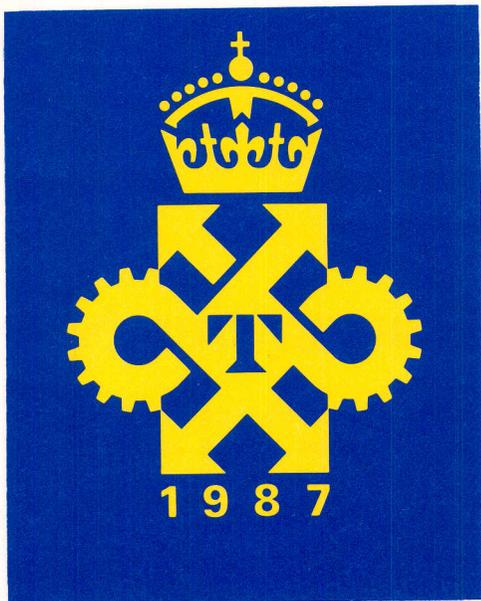


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## BBC Engineering awarded fourth Queen's Award



BBC Engineering and the Electricity Council have been jointly awarded the Queen's Award for Technological Achievement for Radio Teleswitching. This, the fourth award to BBC Engineering, is for pioneering work with the BBC's low-frequency transmitters which send coded signals to electricity time-switches. By adding data signals to the BBC's low frequency broadcasts, without affecting the audible signals, load switches and meters on electricity consumers' premises can be remotely controlled. This enables off-peak storage systems to operate without the disadvantages of electro-mechanical time-switches and flexible tariff rates to be developed. Consumers benefit from the opportunity to take advantage of favourable tariffs, while savings of up to £80 million a year are expected in the cost of electricity generation.

Using low-frequency transmitters at Droitwich, Burghead and Westerglen, the system superimposes a data signal by phase-modulating the rf carrier. Because

of the narrow-band nature of the data-signals, the Radio Teleswitching system can be used in the areas such as basements or steel framed buildings where the field strength from the transmitters is too low for normal reception. Thus the low-frequency transmitters are ideal for this type of service.

The data signals are received and decoded by Radio Teleswitching receivers installed in consumers' premises, where they initiate the switching of tariff controlled appliances such as storage or water heaters as required. This allows the Electricity Supply Industry more flexibility to smooth peak demands and hence helps avoid the need for excess generating capacity.

The data signals originate from a message assembler located at Broadcasting House in London. Information from the Central Electricity Generating Board (CEGB) is used to key data onto one channel of the message assembler, and the resultant waveform is sent to the transmitters. The data waveform is a 25 bits/s bi-phase signal that phase-modulates the 200 KHz transmitter carrier by  $\pm 22.5^\circ$ . The absence of dc in the modulating waveform maintains the overall accuracy of the transmitter frequency, which is derived from a rubidium frequency-standard. The remaining data channels on the message assembler are currently not used.

The Radio Teleswitching system was developed by engineers from Research Department, in co-operation with the Electricity Council. It has been fully available to Area Electricity Boards since 1985. Earlier evaluation tests confirm that the system does not cause interference to the Radio 4 (UK) or World Service programmes normally carried by the low-frequency transmitters.

