

POWER for the PEOPLE –

BRINGING ELECTRICITY TO CREWE

The first electric lighting in use in Crewe was to be found in the locomotive works in the 1880s and it was some years before domestic dwellings were provided with a supply. The L&NWR installed small steam driven generators of limited output as a trial and electric lighting was used on Crewe railway station. At the end of the Victorian era Crewe Corporation built a generating station on land adjacent to the Valley Brook near Edleston Road. A side street, appropriately named Electricity Street, gave access to the new works and coal, brought from Thomas Street coal yard, was delivered by horse-drawn carts, tipped down a chute at the side of the railway bridge and fed into boilers to produce steam that in turn powered the generating plant. The Valley Brook provided water for cooling purposes. The aim of the generating station was to produce electricity for 'lighting the streets of the Borough'. There was no thought to providing supplies to domestic dwellings, assuming that the householders were quite happy to continue using gas lights. A scheme to run electric trams from Crewe Railway Station to the West End of town, via Market Street, had been proposed but did not materialise. Should that scheme have been brought to fruition at a later date, the electricity generated would also have been used to power the trams. In those early days the electricity produced was 'direct current' (DC).

In the period before the First World War horse-drawn buses continued to ply several routes around the town. After the War motor buses gradually began to appear and there was no longer a need for trams - so that scheme was forgotten.

As time progressed, the locomotive works wanted to take advantage of electricity for power as well as lighting in their workshops. It was soon realised that machines could be powered by individual electric motors much more efficiently than using the old overhead line shafts, with pulleys and belts, all powered by steam engines. There was not enough power available from the Corporation's generators at Electricity Street, so a line was erected from the power station at Runcorn to a point on the outskirts of Crewe at Woolstanwood. This line, known as Line 94, was a twin circuit overhead line supported by large 'A' poles and energised at 33,000 volts. For most of its route it followed the Crewe – Liverpool railway line. At Woolstanwood a small sub-station was built and the supply went from there, still at 33kv, using underground cables laid in a trench beside the Crewe – Chester railway line to another sub-station on land across from the main entrance to the Queens Park in Victoria Avenue. This building was near to where the 'huts' were built as temporary housing during the First World War. From this sub-station the cables went under the railway line and into the Crewe Works 'Power House' where 2 large transformers converted it to 6600 volts. This was then distributed all over the railways property, including Crewe railway station and the huge marshalling yards at Basford. Various transformers reduced the voltage to 240 volts for lighting and power.

In the period 1923 to 1925 private customers in Crewe were encouraged to have their houses connected to the DC electric supply. There was just one sub-station, established by Crewe Outdoor Market, which was fed from the generators at Electricity Street using copper bus-bars in cast iron troughs buried in the footpaths. The area covered was roughly from the West End of town to the Nantwich Road. At the end of 1925 almost 3,000 homes had been connected to the system. In fact these properties, including the school in Ruskin Road, continued to be supplied with DC power until the end of the 1950s!

Prior to 1926 there were over 600 separate electricity supply undertakings, some, like Crewe, generating 'direct current'. There was no standardization of voltage or frequency and therefore it was impossible for any interconnection.

In 1926 an Act of Parliament was passed and the Central Electricity Board (CEB) was formed, resulting in the standardization of supply voltages in 1927 and also a frequency of 50 cycles per second. The Act also led to the formation of the 'National Grid' for the transmission of power across the country on overhead power lines at 132,000 volts. These 'tower lines' initially went from the North to the South, one on the Eastern side of the country and one on the Western side. The line on the Western side was built to pass through Cheshire and a sub-station was established near Crewe, again at Woolstanwood.

The North Wales Power Company was also looking to expand its area of operations and in 1926 decided to build a 'twin circuit' overhead line to link up their network in Wales to the area of South Cheshire. This was 'Line 51' and again it operated at 33,000 volts and ran from Corwen to Wrexham, over the River Dee and across rural Cheshire to Crewe. This line is still standing on the same small steel towers that were erected in 1926/27 and the author's father, then aged 21, was employed as a steel erector by the company from Liverpool, winners of the contract to construct the line. There was considerable difficulty obtaining permission to build the line in the fields around Worleston, due to landowners objecting to having the towers on their fields. The resultant 'zig-zag' of the line was still there until recently and the delay caused by these difficulties eventually forced the company who built the line into bankruptcy. The idea of Line 51 was to bring the cheaply produced 'hydro electricity' from the Welsh power stations into Cheshire but, in reality, the line always carried power INTO Wales as there was never enough for their own needs, let alone spare power to export to Cheshire. The collieries in the Wrexham area were large consumers of electricity and relied upon Line 51 for their supply, the power coming from the connection to the Grid at Woolstanwood.

Line 51 was initially operated as a 'twin circuit' line, one circuit suspended on either side of the tower, the theory being that if one circuit failed, supply could be maintained on the other circuit. In practice this proved rather dangerous as Linesmen searching for the fault, often in the dark of night, were in danger of climbing up the live side of a tower, possibly with disastrous consequences. By the 1960s, for safety reasons, the line was operated as a single circuit. Although the original small steel towers erected in 1926 have survived, there is a scheme in progress to replace them with wooden poles, the cost of painting the 85 year old towers being prohibitive.

The foregoing explains why Woolstanwood was to become the 'hub' of electricity distribution in the South Cheshire area and in particular, Crewe. With the 33kv line from Runcorn, Line 51 to Wales and a connection to the 132kv Grid, Woolstanwood became, from the point of view of electricity supply, a very important place. The electricity transmitted by the National Grid was 'alternating current' (AC) as this can be transformed 'up' to high voltage for long distance transmission and then, relatively easily, transformed 'down' to a lower voltage suitable for commercial and domestic use.

In the late 1920s and early 30s the North Wales Power Co. quickly set about building overhead lines to distribute power, initially at 3,300 volts, to the towns and villages that surrounded Crewe. They wanted to capture the market by getting their lines into areas without a supply before any other company moved in. Wistaston, Willaston, Nantwich and Shavington were connected followed by lines to Warmingham, Elworth and Sandbach.

In those days the wires on the 3.3kv network were supported in a 'delta' formation and some original poles still in service can be seen from the A500 Nantwich by-pass, between the A534 Crewe Road and the A530 Middlewich Road. These wooden poles must be about 80 years old and still in serviceable condition! In later years the conductors were carried on a much simpler 'flat' cross-arm, a method that is standard practise today.

Very soon Crewe was surrounded by an overhead network supplying power at 3300 volts to rural sub-stations that transformed the supply down to 415 or 230 volts for industrial or domestic use. This supply was later up-rated to 11,000 volts as the demand for power grew. There was no interconnection with the network within the Borough of Crewe, as when their network expanded to take in the extremities of the town, it operated at 6600 volts.

As a result of the CEB delivering power at 132kv to Woolstanwood and the generators at the Corporations works at Electricity Street being unable to cope with the demand for supply within the growing town, new cables were laid in the ground at the side of the Chester railway line, crossing the Valley Brook on a gantry (still in use today) and entered the Electricity Street depot. The power was delivered at 33kv and transformed down to 6.6kv to supply the 'new' Crewe Town high voltage network, which in turn fed the many sub-stations all over Crewe. Some of these were distinctive 'iron kiosks', the forerunners of the now familiar small 'brick' sub-stations. These sub-stations contain high voltage switchgear to control the incoming supply, an oil cooled transformer to change the voltage to 240/415volts and a fuse panel fitted with 400amp fuses to protect the cables taking the electric supply under the footpaths and into homes and commercial premises.

There was no interconnection between the North Wales Power Co. lines surrounding the outskirts of Crewe with the network within the Borough, as they operated at different voltages.

In 1947 the electricity supply industry was Nationalised and local distribution networks were placed in the hands of 'Area Electricity Boards'. As its name implies, the Merseyside and North Wales Electricity Board covered these parts of the Country in addition to much of Cheshire, including Crewe. During the 1950s demand for electricity grew as households bought television sets, refrigerators, washing machines and cookers in ever increasing numbers. The 6.6 kv network was up-rated and fed at 11kv to allow more power to pass along the same cables. This move also enabled interconnection with the North Wales Power Co network (also Nationalised and under Manweb control) to be inter-connected if required.

The town centre area, still fed by DC from the steam generators at Electricity Street, was using more power and had to be supplemented by installing some mercury arc rectifiers, at Electricity Street, which were fed from the grid and turned the AC electricity into DC. These rather frightening devices consisted of large glass spheres containing pools of mercury, the electricity flashing across inside like streaks of lightning. All this came to an end about 1960 when the Electricity Street generators were finally shut down and all properties were supplied with AC electricity. Many small DC motors had to be replaced, at the Boards expense, since they would not work on the new AC supply.