

## Bridport Industrial History – Electrical Generation and Supply

By **Richard Sims**

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It was during the late 19th Century that the electrical supply industry really began to develop. While supplies had been set up in London earlier, it was in 1886 that the West Country gained its first undertaking when Henry Massingham switched on a seven arc lamp installation in Taunton. It was to be 44 years before Bridport was to inaugurate its own supply.

### **Early Municipal Proposals**

In 1889 the Town Council received notice from the Electric Construction and Maintenance Company Limited concerning the intention to supply electricity to the area. In 1903 the Southern District Electricity Board notified the Council of their intention to supply Bridport with electricity. A third potential scheme was put to the Town Council from Messrs J. A. and W. S. Purves of Exeter in 1903. However the Council asked Messrs Lacey, Sellars and Lee of London to produce a report on the advisability of a municipal supply. The report questioned the ability of the Council to sell enough electricity to make the scheme pay. Consequently no further action was taken.

### **Individual Domestic and Business Schemes**

In 1907 the first electrical street lighting was seen in the town when the Council set up arc lamps of 200 candle power under the colonnade of the Town Hall. A few months earlier, in May, the Redwood Brothers lit their shop front in East Street also using arc lamps. In 1913 saw W. S. Edwards selling a 30hp suction gas engine and Downe dynamo,

indicating that some of the local manufacturers were using electrical power, for either lighting and/or machinery.

However the intervention of the First World War ended all further development. In February 1919, the Gas Company informed S. R. Edwards that they were not interested in supplying electricity to the town. In September the Lyme Regis Electricity Company informed Alderman Patten that they would entertain supplying Bridport after their current agreement ended.

### **The Evolution of the Municipal Scheme**

In February 1923, the Bridport Gas Company asked Sir Charles Bright and Partners of London to prepare a report on an electrical supply for Bridport. The report, although received in February, was not read for three months. It acknowledged the advantages of supplying electricity, but thought that Bridport could support such a scheme at present. Bright was clearly more enthusiastic as he wrote to the Gas Company in August proposing an electrical supply in tandem with gas. The board declined the offer, not realising their mistake until a couple of years later.

In July 1923 the Council refused an offer from The Lighting, Power and Finance Corporation to light the town by electricity. The Council did the same to a similar proposal received from Cecil Cooper and Company Limited.

In May next year the Council received a proposal from Mr John Royce of St. Albans who wanted to supply the area bounded by Bridport, Chard and Ilminster, using a power station in Bridport. A meeting was held at Crewkerne where all but Devon opposed the scheme. However Royce continued with his proposal to cover Dorset, Somerset and Hampshire at a cost of £200,000 to £300,000. This failed to raise the finance. The scheme was resurrected the next year, again failing.

However, this alerted the Council to the likelihood of an electrical supply for the town. In January 1926, G. Nicholson, the electrical engineer for Weymouth, prepared a report on a municipal electrical supply. Further information was revealed about the 1925 proposal in which the Council had several meetings with the Electrical Supply Company, which was to provide Bridport with electricity in return for a 42 year contract.

Advised by Nicholson against accepting this, the Council engaged a Consulting Engineer, Thomas Hood of Bristol, to advise them whether to support the scheme or to undertake the supply themselves. He advised them to set up their own electrical supply, which was agreed at their February meeting. Hood advised using a d.c. three wire 440/220v supply. The design assumed a 350kW supply, initially two 75kw oil engines but with planned extension for two 100kW engines later. The distribution was to be underground in the town and by overhead power lines in the rural areas. The initial estimates suggested that it would provide £530 profit in its first year of operation, with estimates of expenditure were £2,466 against an income of £2,996.

With support from the town's manufacturers, the scheme had been significantly modified and enlarged by the time the special order was laid before Parliament in May. The revised estimates show that the expected supply was to be 490,000 units in the first year rising to 875,000 by year three. Of the nine sites examined for the power station, Fullbrooks was chosen because of the supply of adequate

cooling water and proximity of the main industrial users. The revised costs were to be £23,710.

It was decided to install two 220kW engines and one 60/70kW engine. One of the larger engines would be working eight hours per day, 300 days per year. The smaller engine would work on Sundays and during low demand periods. The other 220kW engine would be in reserve. Revised estimates of profitability were also provided, these would be £265 in year one rising to £2,815 in year three.

By August it had been decided to enlarge the scheme by including an extra five rural parishes to the west of Bridport. Belatedly the Gas Company offered to supply the power station with gas for its engines, which the Council refused.

All of this was potentially affected by the Electricity (Supply) Act of 1926 which set up the Central Electricity Board to produce a National Grid Transmission system for the country. The Local Enquiry was held on the 23rd and 24th of February 1927, during which more details of the scheme emerged, which took into account the large potential demand of industry. All the major manufacturers were prepared to take a supply, even though most of them had their own d.c. supplies, and were expected to take 448,000 of the expected supply of 489,000 units in the first year. The Gas Company took issue with this indicating that the estimated supply per head was some four times that seen elsewhere.

They also pointed out that they would have to be running at 45% capacity in the third year, a much higher figure than elsewhere. Rather than using d.c., it was now planned to produce a three phase 50Hz a.c. supply at 440v, with 230v between neutral and any other wire.

The Electricity Order became operative in July 1928. In January 1928 the Wessex Electricity Company announced a £1.5million scheme for the south west, including all of Somerset and Dorset together with parts of Devon, Cornwall, Wiltshire and

Gloucestershire. It was to include arrangements to take over the Bridport scheme. Little seems to have happened as nothing else is heard of this company.

The provision of cables and lighting was awarded to Stanley Cooper and Company of Bournemouth in May 1929, at price of £8,060, including the conversion of 60 gas lights and the provision of 121 high overhead lights. Harry Castle had been appointed as the Borough's Electrical Engineer; he had been the assistant engineer and manager at Basingstoke. Although the Council had set up its Electric Department in Downe Street by November the Electric Department had taken over 43 East Street for its offices and showroom. The Council was advertising for potential customers to be connected, offering an assisted wiring scheme later that year; a fixed weekly charge would include the installation of the necessary wiring.

The steel-framed power station, which was built by Abbot and Son for £3,592, was designed to allow for future expansion. The north wall was constructed of removable steel stanchions covered with corrugated iron sheeting. The offices and workshops surrounding the central generating area were of a single storey. Cooling water, which was taken from the nearby River Brit, was pumped into a 8,000 gallon reinforced concrete tank over the roof of the repair shop and pump room. From here it circulated through the engines and the heating coils in the oil storage tank, which allowed the easier flow of the oil to the engines. The alternators, switchgear and electrical equipment were provided by the Harland Engineering Company of Manchester and Alloa. The alternators generated three phase current at 3.3kV, 50Hz. The main switchboard and main substation were designed to work at 6.6kV to allow for future developments.

Since the power station was close to housing the exhaust from the engines, which ran for 24 hours a day, was passed through a metal chamber into a brick pit before being released into the atmosphere. In November 1928 the Council decided on Ruston and Hornsby

engines but would decide the size and number of engines later, although current thinking was for a medium size engine of around 300 kW. The following November two Ruston and Hornsby engines, one of 275kW electrical output and the other of 87.5kW were being installed. They were started for the first time on the 15th of December 1929. On the 17th the H. T. cables were tested by Messrs W. T. Henley's Telegraph Works. By now some 50 premises were connected and were asked to take as much power as possible during the testing hours of 08.00 - 22.00. After two days of testing the supply was permanently connected. The official opening took place in January 1930 when Mrs Philip Colfox, the wife of the local MP used a silver spanner to start one of the generating sets.

### **Supply to the Town**

Initially two H.T. 3-core cables ran in parallel to the Town Hall's 100kW transformer substation, which was series wound for voltages of 6600/3300 - 400/230. From here the premises were fed by five 4-core 0.1 inch underground cables forming a ring main in the town centre. From the ring main ran 4-core 0.06 inch cables to the outskirts from which they were taken to the customers by overhead poles with the vertical conductors. A second substation was placed in West Bay Road and was of 50kW capacity feeding two sections of overhead cable. A third substation, of 100kW capacity, was planned for West Street to feed the main manufacturers factories.

### **Early Developments**

The engines had been just switched on when a £6 million scheme for the south west grid was announced. However the lead time of 10 years was considered too long for the town to wait.

February 1930 saw the first extension of the system when the supply to St. Andrew's Road was switched on. Total current use was 143,707 units, above the estimate of 141,000, but well below the 489,000 predicted in the planning stage. However, during November, they were experiencing demands of 100kW most days, peaking at 171kW on the 28th.

This resulted in the Council looking at the longer term provision. A new 220kW set was purchased from Crossley. The installation of the engine needed a thirty foot extension of the power station, built by local builder T. D. Fowler. The engine was started up on the 11th of November 1931.

In 1931 the department made a profit of £210. By July 77% of the 152 public lamps had been converted to electricity and orders were placed for three new ones and for conversion of six more. The supply was extended to Pymore in April and the numbers of customers continued to grow, reaching 469 in December and increase of 81% over the year, supplying them with 324,704 units, an increase of 125%. The beginning of 1932 saw the extension to Bradpole, which was followed by running the wires to Walditch. Some strengthening of the supply was also considered necessary with the extension of the supply to West Bay. The Town Hall transformer was replaced by a new 200kW version. The old one was taken to West Bay for reuse. The street lighting was improved with eight all night lamps, 148 lit from November to May and the remainder from October.

The year to March 1932 had seen a profit of £250. It was decided to take a loan of £4,535 to allow the electrical supply to be extended to Beaminster. This was switched on in July, coming in under budget at £3,883. The continued growth meant that both large engines were needed from 11.00 to 13.00, the peak demand being 255kW. One portent of the future was seen in May when it was announced that Dorset was to be joined to the National Grid. The £2.18million scheme would see a line of 60 foot pylons running from Axminster by way of Dottery, Loders, Winterbourne Abbas and Dorchester to Bournemouth, with a transmission station at Winterbourne Abbas, linking Dorchester and Weymouth with a 33kV line.

By the end 1932 there were 748 consumers, up 60%; while current consumed was 567,788, up 75%. In December the Council was again discussing the approaching

National Grid, deciding that they would look at the relative costs of provision when the time came. The financial success continued with a profit of £435 being made in the year to March 1933, the accumulated profits had wiped out the £612 deficit made in the initial year.

The Gas Company was feeling the pinch as it made a debenture issue to wipe out the overdraft it was carrying. By July the electrical supply had been taken to Burton Bradstock. At the end of 1933 there were 1,072 consumers (+42%), using 836,042 units (+47%). Once again, peak demand was threatening to outstrip supply, especially with planned extensions to Chideock, Morcombelake and Walditch, the latter completing a ring supply to the village. There were also now 167 public lamps. As a result the Council looked to see how they could meet the future demand, especially with Weymouth soon connecting to the National Grid.

Discussions were also taking place concerning the National Grid, with The Wessex Electrical Company quoting for a bulk supply, with the Council looking at a new 400-450kW engine. In April it was decided to install an English Electric 430kW engine, costing £4,305. The opportunity was also taken to upgrade the town supply by converting it from the 3.3kV originally installed to 6.6kV, like the supply to the outlying villages. The transformers for this conversion came from the Hackbridge Electrical Construction Company. The engine was installed and tested in October with the changeover in supply to the higher voltage being completed over three nights. It had come none too soon for a peak supply of 438kW was reached at the end of the month.

The extension of the supply to Chideock in October brought the length of cable, both HT and LT, to 40 miles. The financial condition of the Electricity Department continued to improve with a profit of £1,803 being made in the year to March 1934. They had already paid off £5,600 of the loan. This healthy

position allowed yet another cut in the tariff charged to customers.



**Harry Castle outside Fullbrook Generating Station 1976, then a main substation.**

One sad note was struck in September when Harry Castle's health finally gave way after four years of hard work. In December H. H. Hartley was appointed as the Assistant Engineer. 1935 saw the continued expansion of the system with a new 150kW substation at North Mills to serve Hounsell's factory and North Allington. Requests for extensions to the supply were received from Loders and Powerstock Parish councils; it was also planned to supply Charmouth in 1936.

A surplus of £993 was announced, even with cost of upgrading the supply to 6.6kV, allowing a further reduction in the tariff charges. The use of electricity in the year to March 1935 was 1,305,549 units, some 98,549 units above the estimate, supplying 1,514 customers. This continued success was putting increased pressure on the supply of electricity, even though a new engine had been provided in October. For just one month later the peak power supply was 660kw, needing the use of all three large engines. The Council decided to make a fresh approach to the National Grid, either that, or buy yet another engine.

### **The Coming of the National Grid Supply**

After some months, discussions with the Electrical Commissioners, the Council was advised that the power station could supply the peak load demand from November to February, but it would be cheaper to take the

supply for the rest of the year from the Grid. It was decided to go ahead with the link to the Grid, a new 600kW engine would be almost as expensive as the cost of this link. The Council asked for tenders for a 33kV line from the transmission station at Winterbourne Abbas. In April 1936 the tender of Riley and Neale of Winchester to provide a double line with 5,000kW on each line, for £11,587 was accepted. By March the annual supply had reached 1,866,155 units (+43%) with 1848 customers (+22%).

In October the new South Street showroom was built by local builder W. J. Cooper. At the end of October Charmouth was connected to the Bridport supply at an estimated cost of £2,660. The extension, from Bradpole to Loders, was completed in February 1937, the link to the Grid was completed in the same month with testing taking place on the 18th and the town taking power from the 25th of February. 1938 saw a number of extensions, the line to West Milton, Powerstock and Nettlecombe was switched on in July. The completion of the Beaminster ring via Stoke Abbott was completed in December. Work was then started on the completion of a ring from Uploders to Burton Bradstock, with a fringing extension to Askerswell.

The Year up to March 1939 saw the use of 3,408,272 units (+22%) by 3,186 customers (+16%). Trade and industry accounted for 603 customers. 1,454 or 65% of urban premises were connected as were 1,732 or 55% of rural premises. Of the remainder 91% were capable of being supplied by the existing network. The sound position of the Electricity department was shown in figures issued in December 1939. At 3,045,301 units consumed this was up 600,000 units on the year. Income was £22,914 compared to £20,002 the previous year. With expenditure at £12,433 the gross profit was £10,481, up £1,000 on the year. This gave a cumulative "profit" of £7,562 since its inception.

### **World War II**

The onset of WWII meant the end of capital extensions for its duration. However consumption continued to increase with

3,933,464 units used in the year to March 1940, net income increased to £10,917. However the increase in raw material prices saw the cost of electricity increase for the first time since 1929. The supply was strengthened in 1941 with four 300kW transformers being installed during the year.

In July it was announced that Lyme Regis, whose current d.c. local supply provision had been severely reduced owing to a mechanical failure of one of its sets, wanted to take a bulk supply from Bridport. This would be rectified at Lyme's power station to fit in with that town's supply. The H.T. line to Ryall was complete by December 1942, with contractors laying cables towards Lyme. It was expected that the supply would be complete in January 1943.

Street lighting was affected by the war, with the banning of all street lighting within 10 miles of the coast. So for the first time since 1832 the night streets were dark, lighting was not fully restored until July 1945.

### **Symondsbury Electric Lighting Company**

The Symondsbury Electric Lighting Company was set up c1925 by Philip Colfox MP, shortly after moving into Symondsbury Manor. A paraffin engine, set up in a brick shed in the garden of Shutes Farmhouse, was linked to a dynamo which produced current at 110v DC; fifty-five 2v batteries provided the back-up. All the Symondsbury Estate houses were supplied, each having a coin meter and the money was collected by Philip Colfox personally.

The Company requested, in May 1942, that the village be supplied by an extension of the Bridport operation as it was closing down; presumably from a combination of reduced fuel availability and other wartime factors.

### **Post War Improvements**

The first improvement to be made was the laying of a new distribution cable in the town during the summer of 1946 together with a 3,000kW Metrovick transformer. At the same time it was decided that the town would take a supply from the National Grid in the summer,

but would use their own plant from October to March as usual. The following year saw a national fuel crisis with the electricity supply cut between 09.00 - 12.00 and 14.00 - 16.00 during February, although the use of the local power station reduced their effect within the supply area.

### **Nationalisation**

The Electricity Act of 1947 required that Bridport's electricity concern be absorbed by the South Western Electricity Board. The transfer was initiated in March 1948. In 1951 Puncknowle received its electricity supply, first requested in 1938 but delayed by the war.

The local power station was still being used to supplement the Grid and was not threatened by this investment. How much it was used is uncertain as is the date when it was finally switched off. It does not feature in a 1959 list of power stations although it was still listed in 1957, suggesting a 1958 date as its last time of use. After closure the plant was removed, but the site was still used as the main substation for Bridport and the building was converted into use as a store. This was continued until the opening of the larger depot at Crewkerne.

Currently the sub-station continues to provide Bridport's electrical needs. However the building is now used by Nicholson's Bell Hangers. In recent years the showroom in South Street has been closed and is now used by an estate agent.

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