= Dunston Power Station =

Sometimes confused with the nearby Stella power stations .
Dunston Power Station refers to a pair of adjacent coal @-@ fired power stations in the North East of England , now demolished . They were built on the south bank of the River Tyne , in the western outskirts of Dunston in Gateshead . The two stations were built on a site which is now occupied by the MetroCentre . The first power station built on the site was known as Dunston A Power Station , and the second , which gradually replaced it between 1933 and 1950 , was known as Dunston B Power Station . The A Station was , in its time , one of the largest in the country , and as well as burning coal had early open cycle gas turbine units . The B Station was the first of a new power station design , and stood as a landmark in the Tyne for over 50 years . From the A Station 's opening in 1910 until the B Station 's demolition in 1986 , they collectively operated from the early days of electricity generation in the United Kingdom , through the industry 's nationalisation , and until a decade before its privatisation .
Dunston A had a generating capacity of 48 @.@ 85 megawatts (MW) in 1955 , and Dunston B had a generating capacity of 300 MW . Electricity from the stations powered an area covering Northumberland , County Durham , Cumberland , Yorkshire and as far north as Galashiels in Scotland .

= = Dunston A Power Station = =

= = = History = = =

With the expansion of the electric supply industry in the early 1900s , power stations were built to supply homes with electric lighting . Around Newcastle upon Tyne this led to the construction of power stations at Lemington , The Close and Carville . Two supply companies built the stations , the Newcastle @-@ upon @-@ Tyne Electric Supply Company (NESCo) to the east of Newcastle , and the Newcastle and District Electric Lighting Company (DisCo) to the west . To meet an increasing demand for electricity , NESCo commissioned Dunston Power Station (later Dunston A Power Station) on the Derwent Haugh , a large flood plain to the west of Gateshead , to balance the supply of the Newcastle area with the Carville station . Construction of the new station began in 1908 , the work undertaken by the company of Sir Robert McAlpine . They completed the construction in the short time of 20 months , and this was to be their first in a large number of power station constructions , following the decline of the railway industry . In 1910 , the station was opened and began generating electricity .

= = = Design and specification = = =

The station was of a similar design to other local power stations at Carville and Lemington , and was a large triple @-@ gabled brick building . However Dunston A was built several years after the other local stations , and so because of advances in power station design , was larger and was able to produce more electricity than the others . The station was originally equipped with two turbo @-@ alternators rated at 7 @.@ 2 megawatts (MW) , made by AEG of Germany , and two turbo alternators rated at 6 @.@ 25 MW and 13 @.@ 2 MW , made by Brown Boveri of Switzerland , for a total generating capacity of 33 @.@ 85 MW . The turbo alternators were supplied with steam from 24 coal burning Babcock & Wilcox marine water @-@ tube boilers .

= = = = Low temperature carbonisation plant = = = =

In 1925 , NESCo set up separate plant at the power station for the low temperature carbonisation treatment of coal , before being burned in boilers and the steam used for electricity generation . The treatment plant was manufactured by Babcock & Wilcox , and set up in a self @-@ contained boiler

house which contained four boilers , four retorts and pulverising mills . The building was also fitted with gas @-@ stripping and by @-@ product plants . The carbonising plant could handle up to 100 tonnes of coal per day , while its boilers produced 78 @,@ 000 lb of steam per hour . This plant was extended in 1931 .

= = = = Gas turbine plant = = = =

Between 1947 and November 1955 , the station was extended , and a 15 MW Parsons gas turbine turbo alternator was installed , bringing the capacity of the station up to 48 @.@ 85 MW . The gas was supplied by pipe line from the Norwood Coke Works , 1 @.@ 5 mi (2 @.@ 4 km) away in the Team Valley .

= = Dunston B Power Station = =

As part of a transition from the 40 Hertz (Hz) system , used by the Newcastle @-@ upon @-@ Tyne Electric Supply Company , to the 50 Hz system , used by the new UK National Grid , which took place in 1932 , a new power station was built to replace the A power station .

= = = Design and specification = = =

The new Dunston B Power Station was designed by consulting engineers Merz & McLellan . Its design was different from the design of other power stations at the time because it enclosed the machinery in a steel frame clad with glass . This was a departure from the usual power station designs , which normally enclosed the machinery in a concrete or brick wall . Dunston B is thought to be the first power station in the UK and possibly even the world to be built in this way . The station was also the first in the world to use metal clad switchgear at a voltage as high as 66 @,@ 000 V.

Construction of the new power station started in 1930 , but the Second World War delayed its full completion until 1951 . The station was opened in stages throughout its construction , as generating units were able to be put into production while the other sections were still under construction . The first units were commissioned in January 1933 .

The new station had a capacity of 300 megawatts (MW) , produced by six 50 MW generating sets . These were made by C. A. Parsons and Company and were the largest machines ever constructed under Charles Algernon Parsons ' supervision .

The station 's units were the first application of reheated steam in steam turbines in the world , an improvement which gave them a heat consumption of only 9 @,@ 280 BTU per kilowatt hour , the most efficient system in the UK . In 1939 the station was said to be " at the head of all the Power Stations in Great Britain as regards thermal efficiency . " The station remained one of Britain 's most efficient systems until the 1950s .

The stations ' buildings were around 100 ft (30 m) tall . Flue gas was discharged through six 250 ft (76 m) tall chimneys , one for each of the station 's six generating units . The station was fitted with two electrostatic precipitators in 1953 , one completed in June that year and the other in September . They were fitted to reduce smoke and pollution from the station .

= = = Operations = = =

The plant 's water system was cooled by using the nearby River Tyne , rather than using a cooling tower system . Coal for the station was supplied from various coal mines in the North Durham coalfields , and was brought to the station by train , on what was a freight only line . Since the station 's closure , this line has been upgraded for use by passenger trains and is now used as part of the Newcastle and Carlisle Railway . Once delivered to the station , coal was shunted by CEGB No. 15 " Eustace Forth " , which was built by Robert Stephenson and Hawthorns in 1942 , and No. 13 " The Barra " , which was built by Hawthorn Leslie & Company in 1928 . These two engines are now stored at Shildon Locomotion Museum and Tanfield Railway respectively .

Various ships disposed of the station 's ash waste , by carrying the fly ash down the river and dumping it in the North Sea . These vessels included " Bobby Shaftoe " , " Bessie Surtees " and " Hexhamshire Lass " , which were also used by the nearby Stella power stations ; as well as a number of tugs towing hopper barges , including " Mildred " .

= = Closure , demolition and present = =

See also MetroCentre (shopping centre)

In its time , Dunston B Power Station ranked consistently in England 's leading stations , both in terms of thermal efficiency and cost per unit of electricity . However , the station eventually became outdated , and notification of its partial closure was given in October 1975 , with some units being closed the following October . It was then only used as a stand @-@ by station , operating only at peak electrical demand times . Finally , after some units having been in operation for about 40 years , the station ceased to generate electricity on 26 October 1981 . At the time of closure , only 98 MW of the station 's capacity was in use .

The station was demolished in 1986 to make way for the MetroCentre , which became Europe 's largest shopping and leisure centre . The land on which the MetroCentre was built was bought for only £ 100 @,@ 000 , because the site was water @-@ logged and had been used for dumping ash produced by the power station . American warehouse club chain Costco have since built a store on the actual site of the power station . The power station 's large indoor sub @-@ station still stands alongside it , as the only trace of the site 's former use .

Due to the closure of Dunston power station , along with the later closures of the power stations at Stella and Blyth , the northern part of North East England has become heavily dependent upon the National Grid for electrical supply . However , in the south of the region there are still two large power stations at Hartlepool and Teesside , meaning that the south of the region does not depend upon the National Grid for electrical supply as much as the north of the region .

= = Visual and cultural impact = =

The power station 's six chimneys were a prominent local landmark , visible from along a 8 @.@ 6 @-@ mile (13 @.@ 8 km) stretch of the Tyne valley running from Bensham in Gateshead to Heddon @-@ on @-@ the @-@ Wall in Northumberland .

When in operation , the B station briefly featured in Get Carter , a 1971 crime film starring Michael Caine . Dunston B appears as part of the film 's backdrop , viewed from the now demolished Frank Street in Benwell , as the funeral cortège of the main character 's brother Frank leaves a house on the street .

The station was also a popular subject for photographers . It featured in the work of documentary and press photographer Bert Hardy , who photographed it from Benwell , using it as a backdrop whilst photographing a mother and child . It was also photographed by Welsh documentary photographer Jimmy Forsyth (photographer) as part of his Scotswood Road collection .