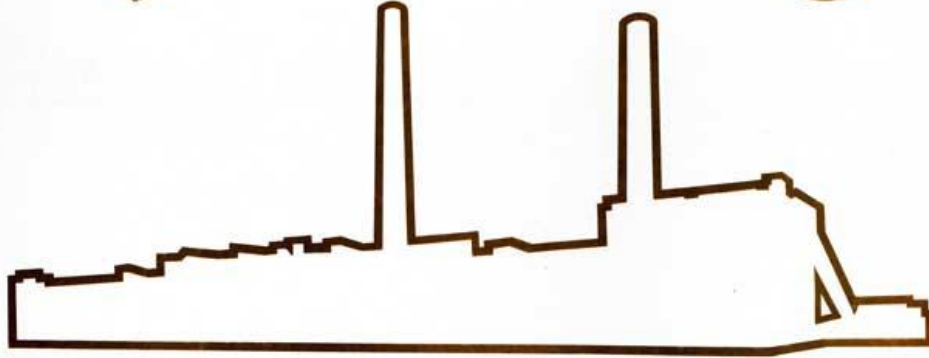


Fifty years of service



## Nottingham Power Station

### Introduction

NOTTINGHAM power station is 50 years old and still going strong.

The fact that it is still generating electricity is a tribute to the wisdom and foresight of the city's leaders in their choice of site so long ago.

Built on the banks of the River Trent at North Wilford it has always had adequate supplies of cooling water. Good railway links with the nearby Nottinghamshire and Derbyshire coalfields have ensured the necessary fuel supplies.

The purchase of some 80 acres of land for the station was an ambitious move way back in the 1920s when stations were small. But it has been amply justified since.

Unlike many town-based stations, Nottingham has had room to expand as the demand for its electricity has increased.

Original capacity of the station was 30MW. It is now capable of producing 308MW.

Developed by Nottingham Corporation to supply an area of 47 square miles, it is now part of the Central Electricity Generating Board's national network of stations which, through the national grid system, distributes electricity all over the country.

## Before North Wilford

NOTTINGHAM Corporation realised the future importance of electricity in the late 1800s.

An electricity committee was set up under the chairmanship of Alderman Sir John Turney. The first generating station in the city opened in Talbot Street in 1894, under the powers of a Provisional Order granted in 1890.

Two further stations were opened in 1902, one at St Ann's Well Road and one at the refuse destructor Eastcroft Depot.

Plant at these early stations consisted of non-condensing Willans engines driving Siemens direct current dynamos, generating at 400 volts.

Later, two turbo-alternator sets with cooling towers were added at the St Ann's Well Road station. These machines were wound for a three-phase supply at 6,600 volts.

By 1914 the Corporation committee realised that the existing plant was uneconomical and the station sites so near the city centre were unsuitable for modern requirements.

Careful consideration was given to the provision of a station of up-to-date design but the 1914-18

war caused the project to be postponed.

It was not until September 17, 1920, following the first public enquiry by the newly-established Electricity Commissioners, that sanction was obtained for the building of a new power station on the North Wilford site.

From the first it was envisaged that the new station would supply not only the city of Nottingham, but also the surrounding area which had become known as the East Midlands District.

The Corporation, advised by consulting engineers and their city electrical engineer, Mr H.Talbot, then bought the 80 acres of land on the bank of the River Trent where the greatly extended power station still stands.

The foundation stone was laid on June 14, 1923 by Alderman E.Huntsman, the then chairman of the Electricity Committee.

In the meantime, because the demand for electricity had outstripped the supply, and because there were delays in building the new station, two 2,000kW turbo alternators and two water tube boilers were installed in a temporary building on the North Wilford site.

## Opening day

THE OPENING of the present power station on September 17, 1925, was a red letter day for the City of Nottingham.

A report in the local newspaper *The Trader and Citizen* says: ".....the occasion was commemorated with suitable civic ceremony, and its outstanding significance attracted a large array of experts in the electrical world and representatives of public authorities in the East Midlands, whilst the Electricity Commissioners put upon the city's latest enterprise the seal of their approval through the presence of Sir John Snell, Chairman of the Commissioners."

The station had cost the city around £700,000 and had a generating capacity of 30,000kW.

The area of supply was some 47 square miles including, in addition to the city, the urban districts of West Bridgford, Carlton, Arnold and Hucknall, the parishes of Bestwood Park, Bilborough, Clifton-cum-Glaption, Colwick, South Gamston, Gedling, Ruddington, Stoke Bardolph, South Wilford and Wollaton, in the rural district of Basford, and the parishes of Edwalton, Holm Pierrepoint, and Radcliffe-on-Trent in the rural district of Bingham.

There were several hundred guests to see Alderman Huntsman perform the opening ceremony

by turning a wheel to start No.1 turbine.

In the Mayor's party at the ceremony and the celebration lunch afterwards were members of the Electricity Committee and their wives, as well as other aldermen and councillors with their wives.

Among the distinguished guests were Sir John Turney (first chairman of the Electricity Committee from 1894 to 1917); Mr R.W.Swain, who succeeded Sir John from 1917 to 1919; Professor A.W.Kirkaldy (chairman of the Nottingham Chamber of Commerce); Alderman W.Walker (chairman of the Manchester Electricity Committee); Col H.Mellish (vice-chairman of the Notts County Council); Sir Ernest Jardine (chairman of the Trent Navigation Co.) and the chairmen and officials of a large number of local authorities.

In proposing the toast to the Mayor and Corporation of Nottingham, Alderman Walker, referring to previous occasions when this toast must have been proposed, said: "I doubt whether any of those events can have had a greater effect upon the industry and lives of the inhabitants than will the event we are celebrating today. Electricity is entering more and more into the life of every individual forming the community."

## The new station

THE NEW STATION building, designed by the city architect Mr T. Wallis Gordon to allow for extension to accommodate an ultimate capacity of 200,000kW if necessary, was largely a steel frame structure. It had brick walls and Derbyshire stone dressings.

The original turbine room, measuring 112ft long by 75ft wide, is still in use, having been extended several times to make room for new plant.

It had a railway bay and a 50ft long space for unloading. A 75-ton electric crane spanned the turbine room and railway bay.

The three BTH turbo-alternators, each of 10,000kW capacity, and one auxiliary turbo-alternator-generator of 1,000kW are still available for use, although due for retirement next year.

The boiler house, 150ft long by 85ft wide, was built at right angles to the turbine house. It was designed for two rows of four boilers with a centre firing gangway.

There were initially six 55,000lb/hr Stirling boilers.

There was one chimney for each pair of boilers, each chimney being 90ft above the firing floor and 96ft from ground level.

In addition to the turbine room and boiler house there was a workshop 100ft by 60ft, stores, laboratory, offices and mess rooms.

A river wall was built with inlet and outlet channels for condensing water.

Railway access to the then L.M. & S. main line was built, together with two lines of sidings to a row of coal receiving hoppers.

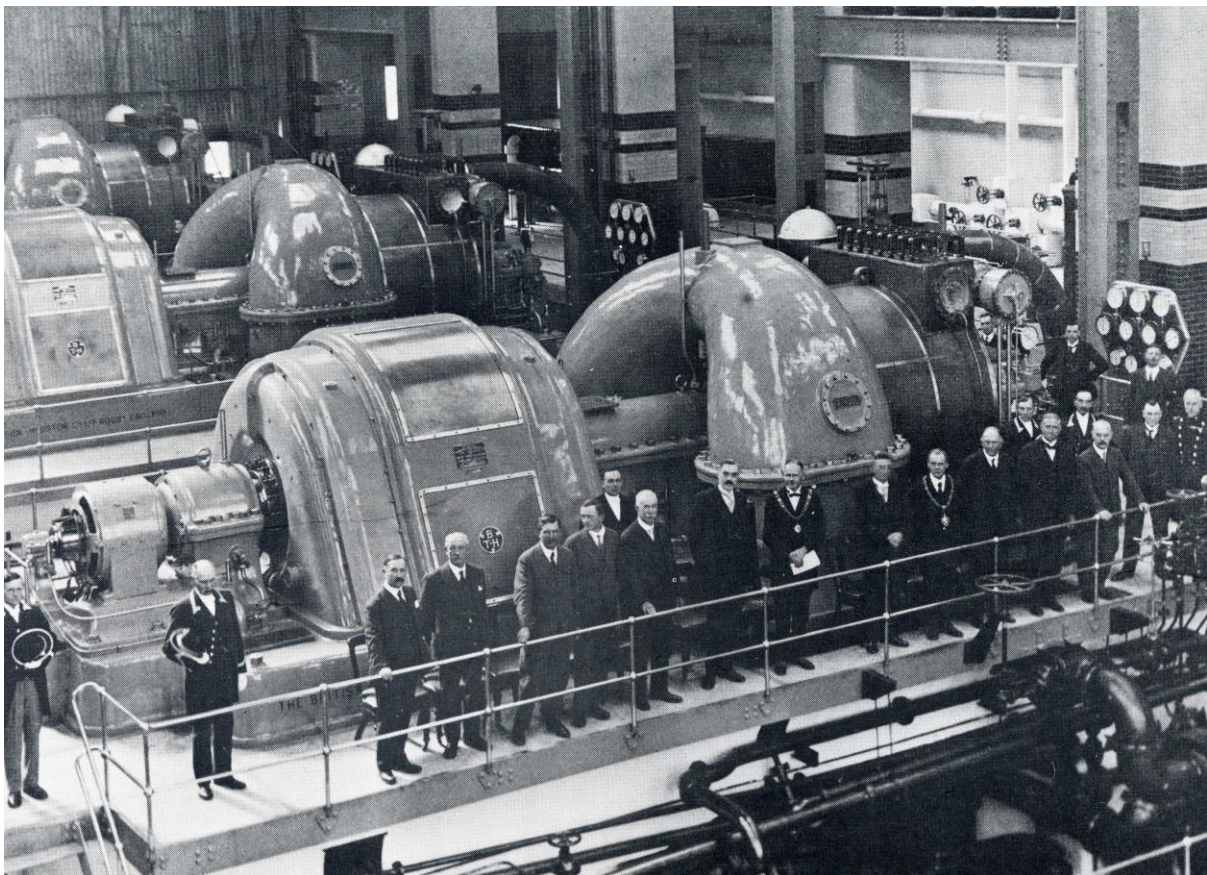
There were four receiving hoppers for each boiler house section, each hopper holding about 40 tons of coal.

The transmission system, including new sub-station, was designed by the city electrical engineer, Mr. H. Talbot.

Power was transmitted from the station at 11,000 volts by underground cables to the Talbot Street and St Ann's Well Road stations and to 17 new substations.

Rotary converters were used to deal with the direct current supplied to a large part of the city centre.

Special coupling transformers were erected at Talbot Street and St Ann's Well Road to connect the 11,000 volt supply to the 6,600 volt A.C. system already in existence.



## Alderman Huntsman...



Alderman Edmund Huntsman  
chairman Electricity Committee

PROPOSING the toast to the Mayor and Corporation of Nottingham at the celebration lunch in 1925, Alderman Walker said: "I also have to thank Nottingham — if I may say so, and I am delighted to say it — for the life and the great benefit of the services of Alderman Huntsman on the National Joint Council and the National Joint Board of the Electricity Supply Industry.

"That work has greatly benefited from his wide experience and his clear judgement.....," he said.

Alderman Huntsman, who became Nottingham's first lord mayor in 1927–28, was chairman of the city's electricity committee from 1919 to 1938. But this was not his only service to the rapidly developing industry in the inter-war years.

He was chairman of the British Electrical Development Association; chairman of the East Midlands Advisory Board, on which various generating authorities co-operated; and member of the Council of the Incorporated Municipal Electrical Association.

And, according to the Nottingham Guardian Journal: ".....he played a vital part in the negotiations leading to the setting up of the Central Electricity Board."

## ..... and electricity

But his forward thinking was not confined to the managerial side of the industry.

Miss Cantrill, his secretary from 1911 to 1936, said: "He was always for the workmen. He thought they should have three weeks paid holiday in the year and he would have closed his office on a Saturday if he could."

The Guardian Journal again: "It was his pride and boast that he was the only man to be supported by both employers and employed on the local Whitley Council.

"Early in 1926 Mr Huntsman was chosen as the only employer representative to sit on the 'Tribunal' which, after a week's discussions, settled a serious dispute in the industry in London."

He was first elected to Nottingham Council in 1911 and was elected an alderman in 1915. He remained on the council until November 1938.

In addition to his chairmanship of the Electricity Committee he served on the General Purposes, Education, Finance, Parliamentary, Allotments, New Town Hall, Trent Navigation and Coal Conservation committees.

A solicitor by profession, he first came to

Nottingham from his native South Lincolnshire in 1897. Following his final law examinations he was awarded the John Mackrell Prize and later secured high honours in an exposition on public international law.

He was director of the Law Department of Nottingham University College for ten years and Lecturer on Mercantile Law to the Institute of Chartered Accountants.

For seventeen years he was chairman of the Council to the University College.

Among his other activities he was chairman of the old Nottingham Glee Club, president of the One-Man Business Association, vice-president of the Lincolnshire Society and a member of the Rotary Club.

Other members of the Electricity Committee when Nottingham power station was opened were: Councillor W.E.Walker (vice-chairman); the Mayor (Councillor James Clarkson); Alderman Thomas Ward J.P.; Councillors S.Barsby and F.Mitchell who were still on the committee in 1936 when the station was extended for the third time; Councillors W.Binch; Wm.Crane; J.Farr; J.H.Freckingham; W.Hooley; G.H.James J.P.; L.R.A.Nevins; A.Parkes; and W.W.Weldon.

## Increasing demand

THE ELECTRICITY Committee foresaw the growth in demand for electrical power and planned their new station to allow for this.

They have been amply justified. Since that momentous day in 1925 there have been five major extensions at North Wilford.

In 1928, with the original turbo-alternators modified to generate a further 7,500kW, Sir Andrew Duncan, chairman of the Central Electricity Board, started a further BTH set of 20,000kW capacity.

Two more boilers had been added, the turbine room and switchgear house had been extended allowing space for a second 20,000kW set, and additional switchgear had been installed.

By October 22, 1936, when Alderman Huntsman formally started a further generating set of 30,000kW, Nottingham was contributing power to the national grid – in the previous year 44 million units in addition to 147½ million for the city and its neighbours.

For the first time there was pulverised fuel firing of the boilers, high steam pressure and temperature.

There was a complete new system of ash and dust removing plant, and electrostatic precipitators were installed on the roof.

Further extensions were halted by the 1939–45 war but the station made a noble contribution to war production by running overloaded for hour after hour. On one memorable occasion 96,000kW was generated over a half-hour period, 7,500kW above rating.

In 1943 the government reviewed the likely post-war demand and directed Nottingham to plan further extensions.

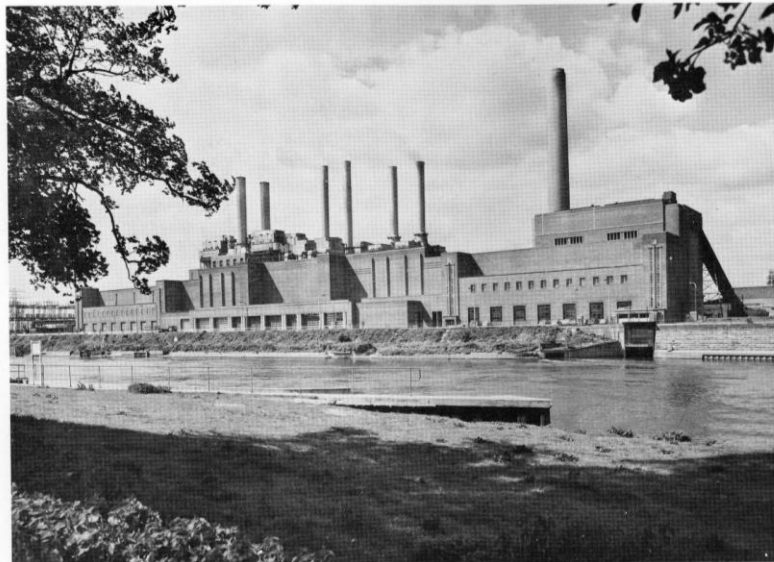
Work started on these in 1944 and on March 18, 1948 the chairman of the British Electricity Authority, the Rt.Hon.Lord Citrine, formally started two 30,000kW sets.

A new boiler house and control room had been built, the turbine room and switchgear house had been extended yet again, and four more boilers had been installed.

The installation of two more turbo-alternators of 52,000kW each had already started. These were commissioned the following year.

Two years later the original 1925 boiler house was demolished to make room for yet more extensions.

In 1957 the last coal-fired steam-driven generating unit of 60,000kW was commissioned, bringing total capacity to 308MW.



Nottingham power station in the 1960s

## Clean air

ALTHOUGH 1957 saw the last installation of new generating plant Nottingham did not rest on its laurels.

In 1964 Midlands Power reported: ".....starting from the river and going right through the station in an efficiency drive, the station has worked wonders over the past few years.

"The number of units produced has gone up yet the amount of coal burned has been cut."

Towards the end of 1963 extensive modifications were started to reduce chimney emissions. These were to comply with the requirements of the Clean Air Act.

The CEBG spent £1,500,000 on new plant and modifications.

Modern precipitators were built at the back of the station, the existing ones being removed from the roof.

A new 450ft reinforced concrete chimney was built, enabling six old steel ones to be demolished.

These moves not only improved the efficiency of dust and fume dispersal, thus making a significant

contribution to an improved environment, but also gave the station a cleaner silhouette.

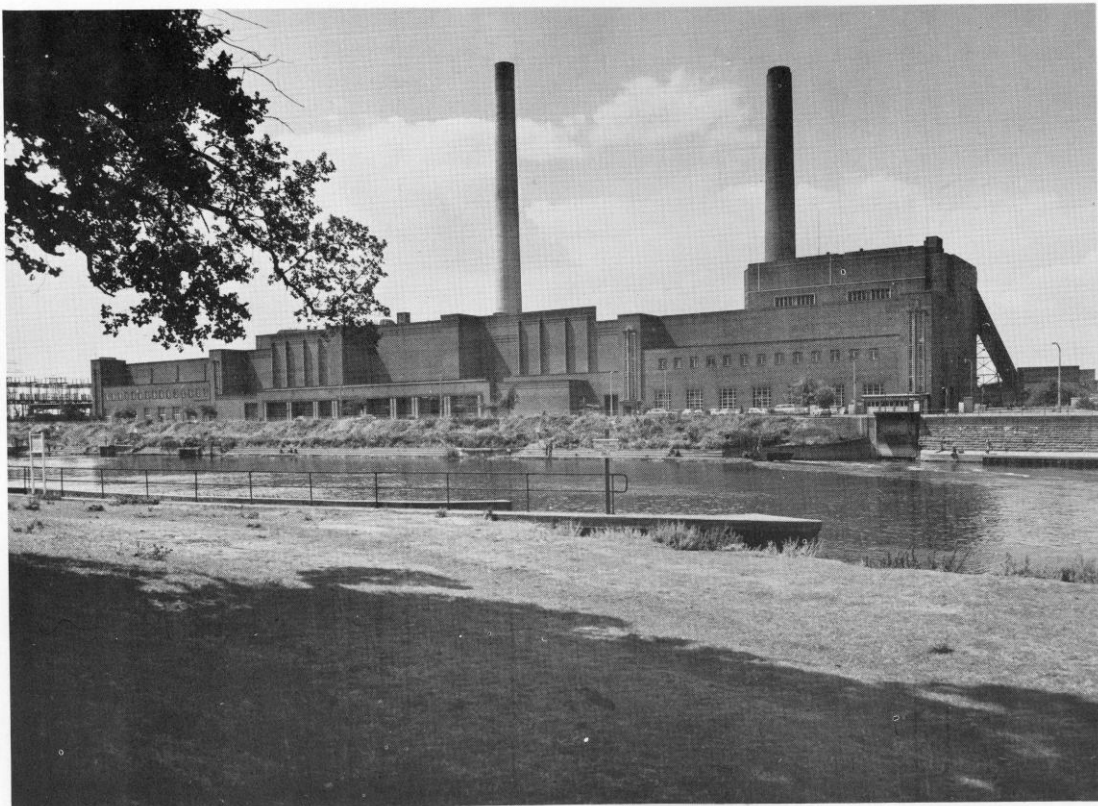
The new chimney, which discharges the flue gases well up into the atmosphere where they can be safely dispersed, was a notable first for the UK construction industry.

For the first time in the UK a sliding shutter system was used. This enables continuous pouring of the concrete and cut the building time from 150 days to 34.

To mark the achievement there was a topping-off ceremony in which East Midlands Division assistant regional director O.S.Woods and station superintendent F.W.Nadin, travelled to the top of the chimney to pour in the last concrete.

Afterwards parties of employees were taken up the central hoist to the top.

The work was completed in 1968.



The new look power station after clean air

# And the future....

A FIFTIETH anniversary is a time to look forward as well as backward and, as this brief review shows, Nottingham has always been forward looking.

But the next step in Nottingham power station's long life will probably be very different from previous ones. The site is among those listed by the CEGB for possible development with peak-load gas turbine plant.

This could be built if future growth in electricity demand makes it necessary.

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