

Electrifying Newcastle's Railway

By S. J. Miller



Early Days

Following the opening of electrification to the Sydney suburbs of Sutherland, Bankstown, Liverpool, Parramatta, Hornsby and the North Shore line during the 1920s, plans were developed to electrify the country main lines to the Central Coast, the Blue Mountains and the Southern Highlands. A squabble erupted between the Blue Mountains and Newcastle residents as to which region would receive electric trains first. Priority was given to the strategic Main Northern Line. Subsequently, electrification from Hornsby to Newcastle was announced in the Railway Annual Report of 1933.

Premier Bertram Stevens had personally inspected hydroelectricity in action in Sweden and proposed the implementation of a similar scheme for NSW. This led to the commissioning of the consultancy firm, Rendel, Palmer and Tritton to investigate the development of a large electricity supply network to be energised by a combination of hydroelectricity and coal-fired electricity. The Report concluded that the project was feasible, prompting the Premier to make an announcement, which took place in January 1937. Unfortunately, the declaration of war against the Axis Powers in 1939 was going to require additional resources including manpower leading to the shelving of the project for the duration for the Second World War.

£23,000,000 Hydro Scheme For N.S.W.

SNOWY RIVER WATERS TO ELECTRIFY RAILWAYS

NEW South Wales will soon enjoy cheap electric power from hydro-electric sources, if the recommendation of overseas experts is followed.

£23,000,000 electrification

1000 feet between Biddi Point and Biddi Point, on the Snowy River.

THE Snowy River scheme provides for an output of 250,000 kilowatts.

The power would be transmitted to Sydney by two 250-volt transmission lines to be tapped at Goulburn.

Separate supplies will be given to Dalgety and Cooma.

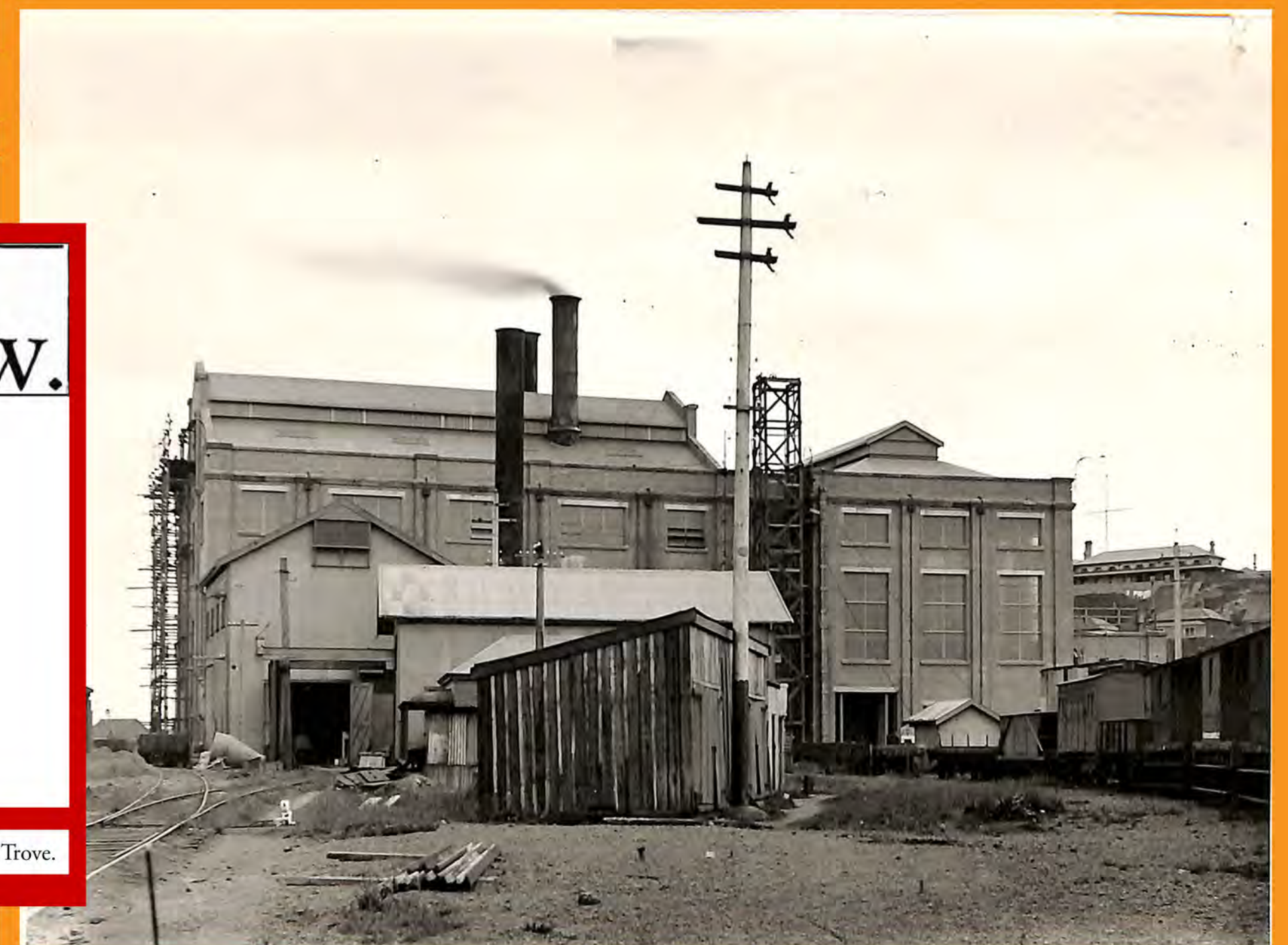
The consulting engineers say a Central Electricity Authority is essential to supervise the scheme.

The Central Authority would generate, transmit, and sell electricity in bulk, but not in retail, leaving individual distribution to local existing organisations.

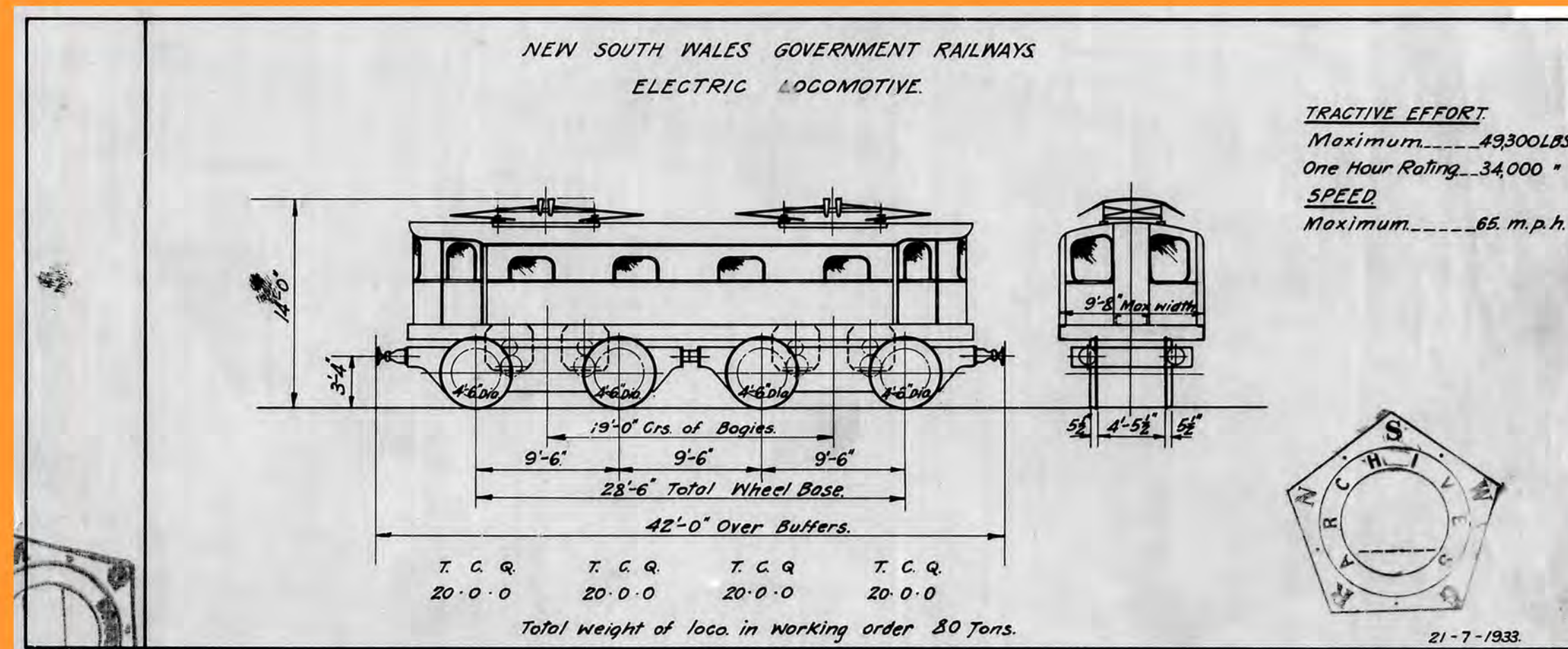
It should be given statutory powers to take over the electricity supply system at present administered by three State departments.

It should also negotiate with

Daily Telegraph (Sydney), Friday 24 June 1938, p 6. Courtesy of NLA's Trove.



Early photo of Zaara Street Power Station, practically complete, [1919]. This station was part of the original 1937 NSW network plan. Courtesy of NSW State Archives.



This 80-ton electric locomotive was proposed in 1933 as part of the original NSW electrification project. If this project progressed as planned, many of the great steam locomotives such as the 38 Class Pacifics and the 60 Class Garratts would not have materialised. Courtesy of NSW State Archives.

Post - War Development

1949 - 1960

The subject of electrification resurfaced again in 1949 when the Joint Coal Board announced that coal production in the western coalfields would dramatically increase during the next decade. Electrification of the Blue Mountains Line was essential to meet the expected growth in coal transportation. Due to the increased traffic from western coalfields, the planned electrification to Lithgow was extended to Wallerawang where a new yard and locomotive depot was proposed.

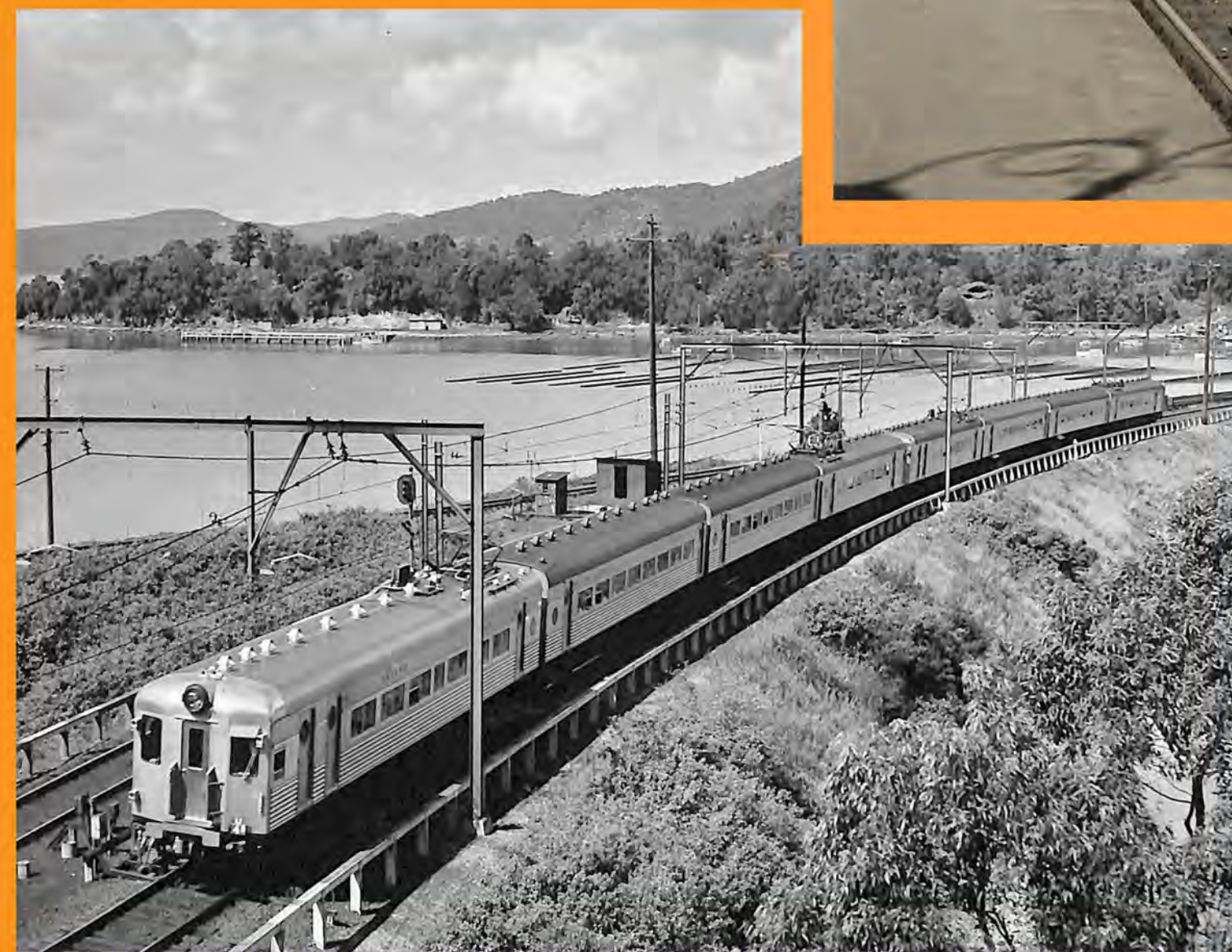
A variety of circumstances emerged in the 1950s that threatened to delay plans for electrification indefinitely. Firstly, diesel locomotives were being produced in North America on a massive scale, which eliminated the need for large scale electrification. Secondly, the Suez Crisis during the early 1950s led to a global recession. In 1956 the State Government commissioned the consultancy firm, Ebasco Services, to provide a review into the State's transport network. The report concluded that electrification of the Blue Mountains Line should proceed. However, the project truncated to Lithgow because the growth in coal traffic failed to reach expectations. Electrification opened to Lithgow on 22 June 1957.

The surplus equipment that was destined to be installed between Lithgow and Wallerawang was transferred to the Central Coast to electrify between Hornsby and Gosford. Subsequently, electrification beyond Gosford and Newcastle was delayed indefinitely.

Top right: Electric locomotive 4609 in charge of the Up Newcastle Express passing Redfern Station approaching its journey end at Central. Though, Flyer working was commonly associated with the famous 38 Class Steam Locomotives, electric power supplanted steam traction on this premier service between Sydney and Gosford from 1960. Courtesy of NSW State Archives.

Bottom right: The 4623 races a Blue Mountains commuter service through Seven Hills enroute to Sydney shortly after the opening of electrification to Lithgow in 1957. Courtesy of NSW State Archives.

Bottom left: A single-deck Interurban train at Hawkesbury River during the early years of electrification between Sydney and Gosford. Courtesy of NSW State Archives.



Electrification to Gosford

Jan 1960



The NSW Premier (left) Bob Heffron and Railway Commissioner, Neil McCusker (middle) and the train driver (right), inspect the official first electric train for the inaugural opening of electrification to Gosford at Sydney Terminal Railway Station 23 January 1960. Courtesy of NSW State Archives.



Coinciding with the construction of electrification, the State Railway ordered forty 46 Class, 3780 horsepower electric locomotives to haul goods and express passenger services, which arrived in Australia beginning in 1956.

Eighty single-deck Interurban carriages were built by Commonwealth Engineering in Sydney with electrical systems supplied by Metropolitan Vickers of England, to provide commuter services to Lithgow and Gosford. These trains featured stainless steel bodies, first and second class seating, heaters, lavatories, iced water fountains, regenerative braking and electro-pneumatic braking.

Electrification was declared open to Gosford on 23 January 1960 by the NSW Premier R. J. Heffron, in the presence of thousands of spectators.

Middle Top: Officials riding the Gosford to Sydney train at the opening. Courtesy of NSW State Archives.

Middle Bottom: The official first electric train for the opening of electrification to Gosford stands in Gosford yard on 23 January 1960. Courtesy of NSW State Archives.

Power to Move Mountains



These 46 Class electric locomotives can draw on 1500 Volts DC of power to produce up to 3780 horsepower and were believed to be the most powerful locomotives in the British Empire at the time. During the steam era, this 8-kilometre, 1 in 40 (2½) gradient near Brooklyn used to reduce steam trains to walking pace, which provided the impetus for the electrification to Gosford in 1960. In comparison, these 46 class were relatively unchallenged by this tortuous route and charged up the hill with power to spare. Electric locomotives in NSW were designed with regenerative braking, which was used to maintain the trains speed while descending the grade. This feature essentially converts the locomotive's electric motors into generators that feed power back into the overhead wiring to provide power trains travelling in the opposite direction to climb the grade.

Image: The 4633/4619 hauling a Sydney-bound goods train on Cowan Bank near Hawkesbury River, [1970]. Photo by A. R. Astle.

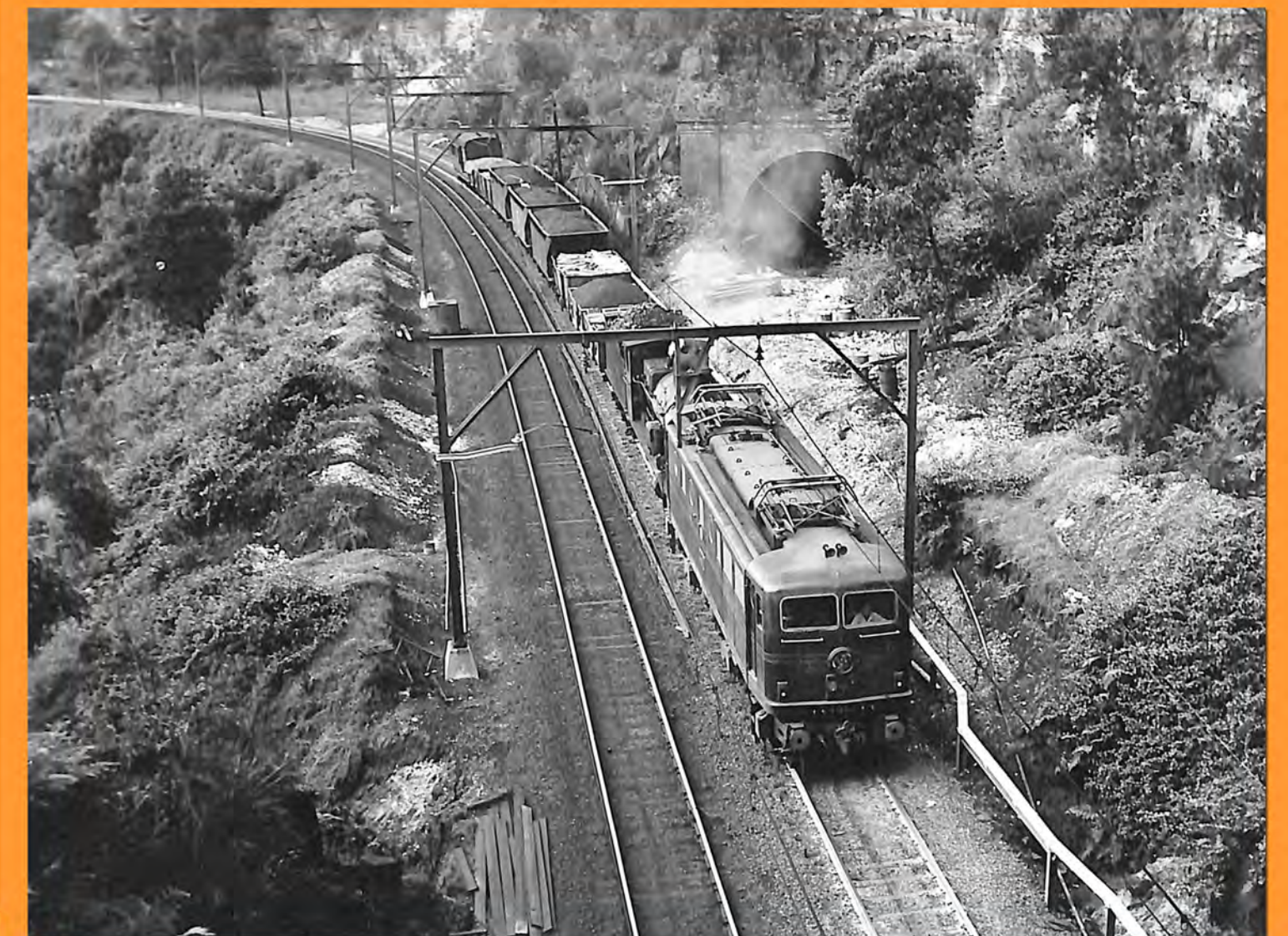
Central Coast Trains

1960 - 1970s



The single-deck Interurban trains were built in the late 1950s to provide commuter services from Sydney to Lithgow and Gosford. During the later years of their lives, they were used for services between Sydney and Newcastle. An immediate effect of electrification was its impact on patronage from the Central Coast, leading to the introduction of double-deck Interurban trains.

Top right: A two-carriage set undergoing trials at Hawkesbury River in the late 1960s. These trains were believed by some to be the best trains ever to operate in NSW. Top left: An eight-car set departing Woy Woy en route to Gosford in 1960. Bottom right: Electric locomotive 4614 assisting a 53 Class steam locomotive on a short goods train on Cowan Bank near Brooklyn, NSW, [1959]. All courtesy of NSW State Archives.



Vision Realised

1979 - 1984

Throughout the 1960s, goods trains and locomotive-hauled passenger trains were mainly hauled by electric locomotives between Sydney to Gosford. The electrification to Gosford led to increased train use and the introduction of a fleet of new double-deck interurban trains in 1970. These trains earned the nickname “Blue Geese”, due to their unique blue livery.

In May 1976, NSW Premier Neville Wran promised to improve the State's transport and electricity infrastructure significantly. His government electrified the railway from Gosford to Newcastle, during the first 12 months in office. Corresponding with his commitment to electrify the railways to Newcastle and Port Kembla included an additional order for double-deck Interurban Cars. These trains were similar to the original 1970 cars, but they featured tinted windows and a public address system.

Electrification between Gosford and Newcastle was opened by Neville Wran on 3 June 1984. Interurban electric trains were now the primary carriers for passenger services between Sydney and Newcastle. In 1989, the final series of double-deck Interurban sets entered service, enabling the withdrawal of all locomotive-hauled passenger services between Sydney and Newcastle.

Top left: A second series double-deck Interurban train undergoing trials at Gosford on 28 October 1977. These trains dominated passenger services on the Central Coast, Blue Mountains and Illawarra for the next three decades. Courtesy NSW State Archives.

Top right: The coming of electrification to Newcastle was promoted with large billboard posters along the route such as this one at Adamstown. The slogan, “It's quicker, quieter and more comfortable”, heralded the improvements to rail services on the Central Coast line during the 1980s, 25 October 1980. Courtesy of Ed Tonks.

Bottom left: A double-deck Interurban set races north near Thornleigh bound for Gosford in the late 1970s. Courtesy of NSW State Archives.



Above: Diesel-electric locomotive 4808 with workers on top of a wiring train, installing electrics at Newcastle Station on 14 November 1983. Courtesy of Ed Tonks.

35 Years Electric

1984 - present



Top left: An 8-Car OSCAR stands at the now closed Civic Station, October 2014. By S. J. Miller.

Bottom left: A 4-Car double-deck Interurban (V4) arriving at old Wickham Station. This location is now the site of the present Newcastle Interchange, 10/10/2014. By S. J. Miller.

Top right: A 4-Car double-deck Interurban Set (V6) approaching Hawkesbury River Station at Brooklyn on the Central Coast, 19/08/1995. By S. J. Miller.

In 1986, the State government placed an order for 450 Tangara carriages to provide commuter services throughout Sydney. In 1993, 80 of them were modified to operate to Wyong, Springwood and Dapto during peak periods. These Tangara sets entered services during the mid-1990s, enabling withdrawal of the single-deck Interurban sets.

In December 2006, the first OSCAR (Outer-Suburban Car) trains entered service. They were designed to provide outer-suburban travel to Wyong, Springwood and Kiama to replace the modified Tangara trains. These trains enabled the withdrawal of the original 1970-series and most of the 1977-series double-deck Interurban cars. All OSCAR trains were in service by 2012. Subsequently, their service area was extended to Newcastle, and they replaced all double-deck Interurban stock on the Illawarra Line.

In 2012 a decision was made to suspend all services operating into Newcastle Station. The line was truncated on 25 December 2014. The alternative, an interchange at Wickham, opened on 15 October 2017. Currently, there are new double-deck electric trains under construction in South Korea to replace the aging InterCity fleet trains.

It is unknown what the future will hold for the Hunter Rail services. Despite considerable interest in high-speed rail, including a plan for an inter-capital service linking Brisbane-Sydney-Canberra and Melbourne, there have been no serious attempts to develop this technology in Australia. In a world with increasing interest in renewable energy, it is highly likely that electrification will play a role in the transport solution for the Hunter Region into the future.



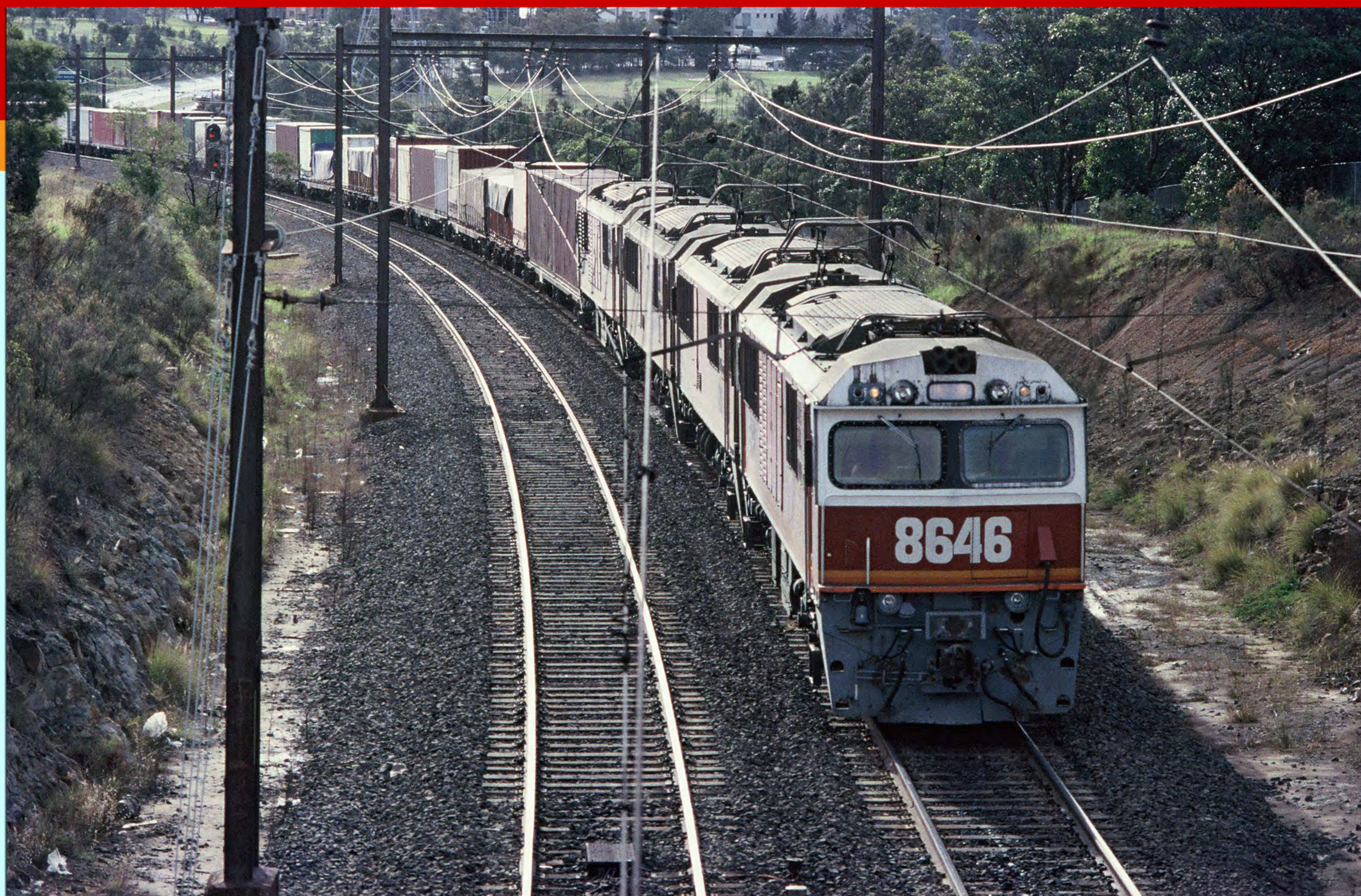
A Lithgow-bound Interurban V-set passing the sandstone arches of the Zig Zag Railway near Lithgow. Photo by S. J. Miller.



A direct relationship exists between public transport, electricity generation and energy policy. The commitment to electrification from Gosford to Newcastle corresponded with the construction of Eraring Power Station, near Lake Macquarie. This facility features four turbo-alternators that are rated at 720-megawatts and provides a quarter of NSW's energy requirements. Image: An Interurban Set (V17) tops Hawkmount and passes Eraring Station en route to Newcastle, late 2009. Photo by S. J. Miller.



An 8-Car double-deck Interurban arriving at Hamilton from Sydney on 10 October 2014. Photo by S. J. Miller.



Top: An 8646 along with three sister engines hauling an up superfreight near Rookwood as they approach the journey's end at the Trackfast freight centre, Chullora in the early 1990s. Photo by S. J. Miller.
Bottom: Unique electric locomotive 8650 at the Enfield Maintenance Centre in Sydney, shortly after its commissioning in 1986. Courtesy of NSW State Archives.