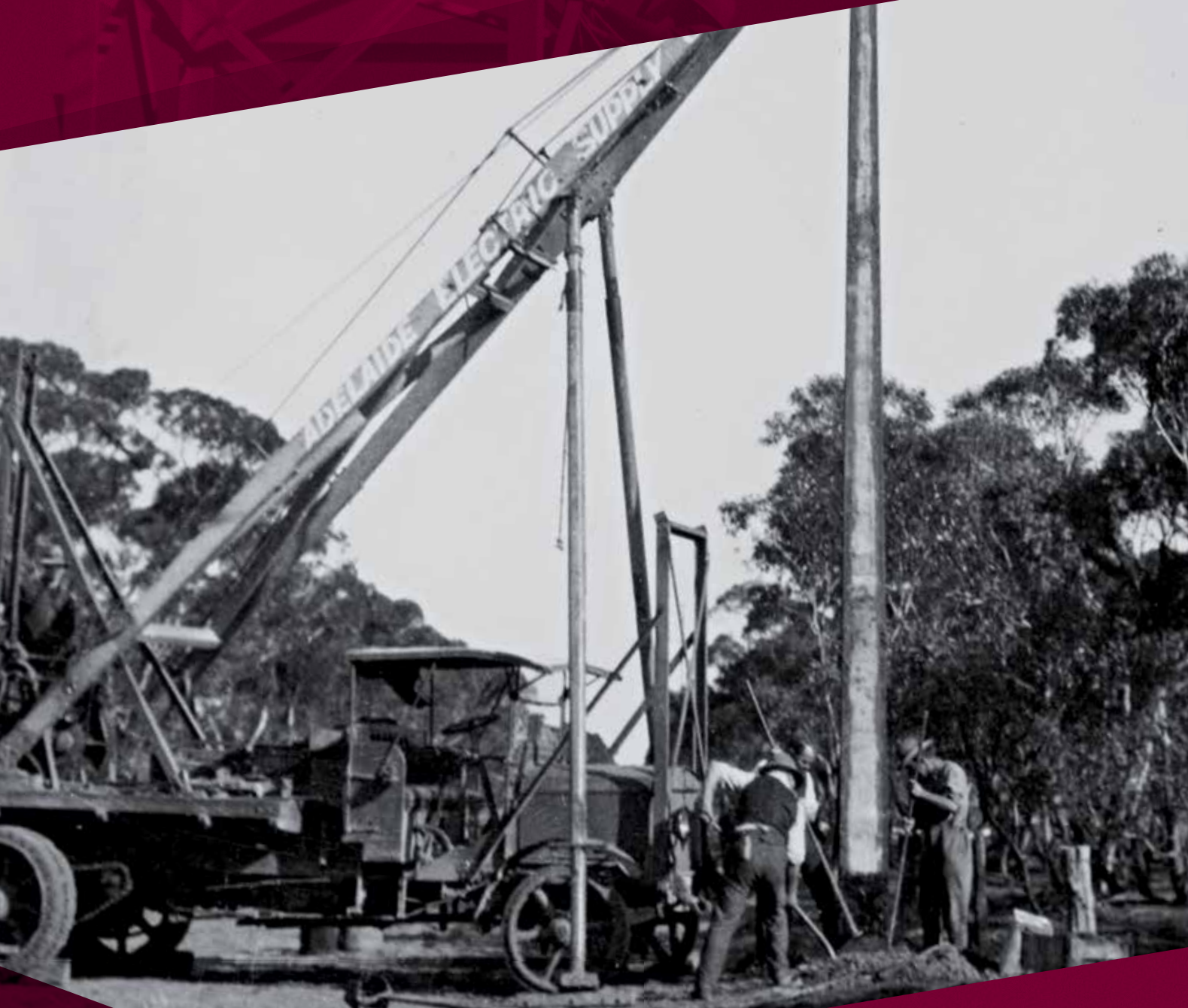


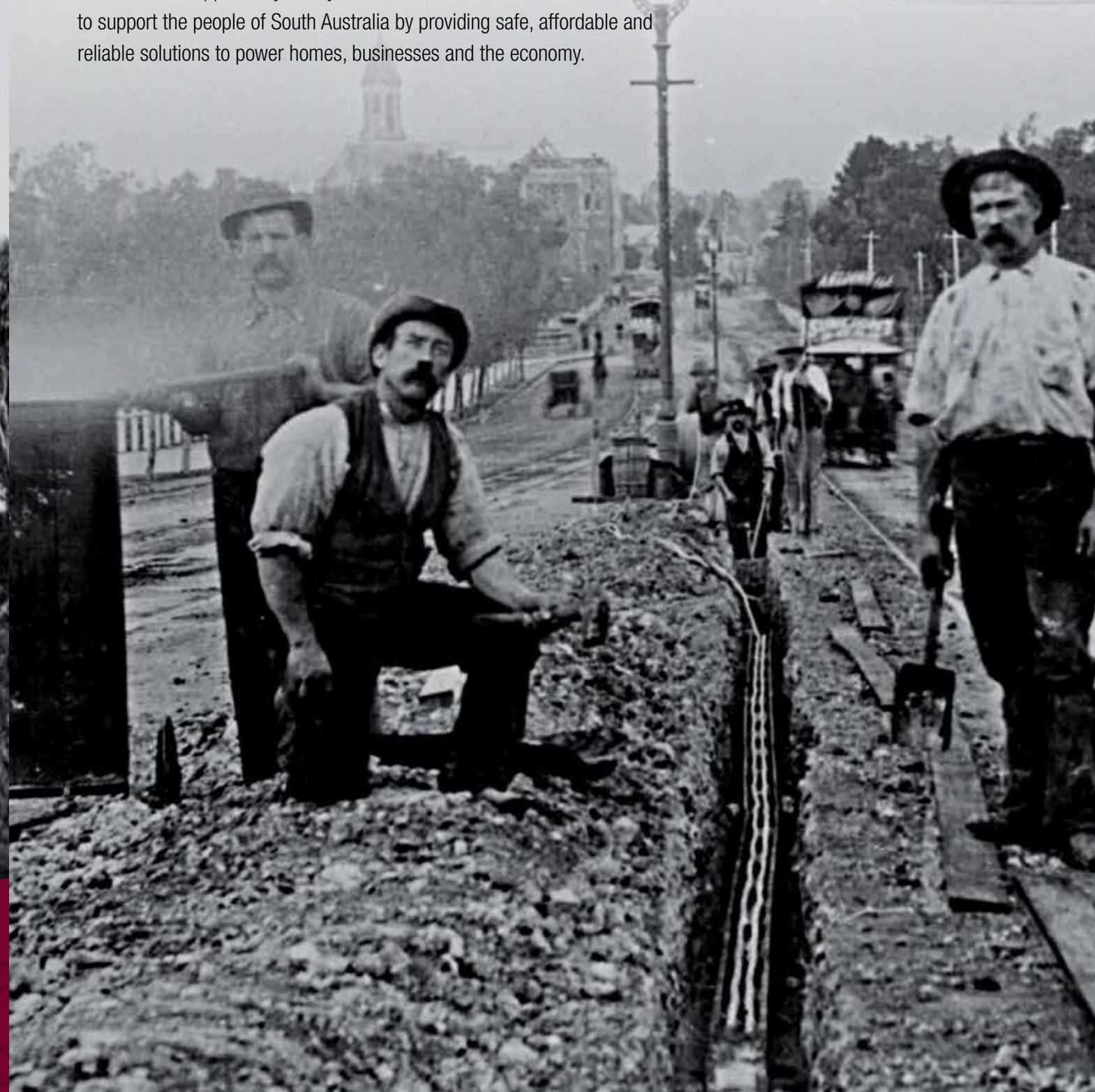
# Our Heritage

The story of electricity supply and transmission in South Australia



## Developing South Australia

From its very inception, the electricity supply network in South Australia has been helping our State develop and grow. In its early days, the advent of electricity supply rapidly improved the quality of life of South Australians and as the State matured, the transmission network's increasing reach opened up new industries and opportunity. Today, our modern transmission network continues to support the people of South Australia by providing safe, affordable and reliable solutions to power homes, businesses and the economy.



## The No. 1 Converter Station



The building that hosts ElectraNet's corporate headquarters in East Terrace was built in 1908 and originally used as an electrical converter station for Adelaide's Municipal Tramways Trust.



Architects English and Soward designed the building, and many others in Adelaide's East End, in a Romanesque Revival style, characterised by the high arched windows.

The converter station originally housed five 500 kW transformers which provided 600 V of power to Adelaide's new electric tramcars.

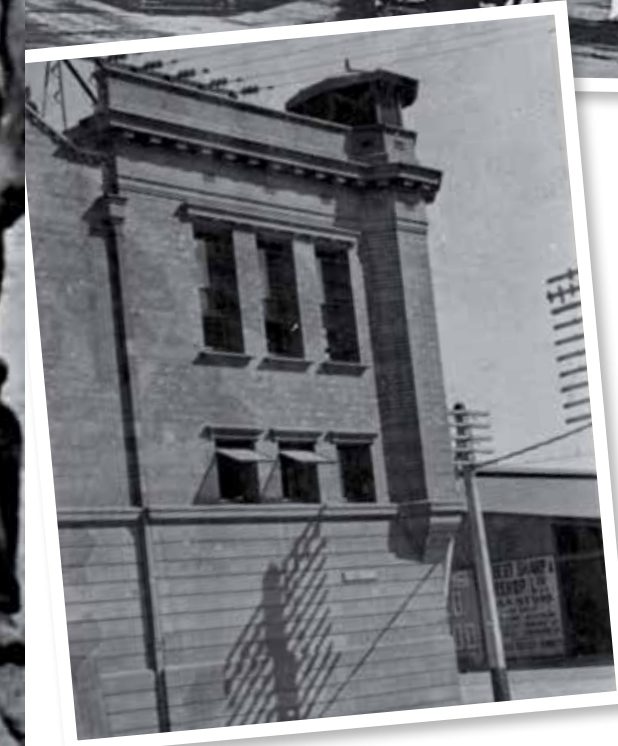
The official opening of the first electric tramcar route to Kensington was on 9 March 1909 with other lines progressively energised when a new power station at Port Adelaide was completed two years later. From the mid-1950s the electric trams powered by the converter station were replaced with diesel buses and the converter station was closed in 1956.

The building was purchased by E.T.S.A. in 1963 and used as a storage facility before being partially converted to office space in 1984. The building has since been further renovated by ElectraNet to provide modern office accommodation, while preserving much of its original character.

**Top image:** The No. 1 Converter Station site was chosen to capitalise on the Adelaide Electric Supply Company's nearby Grenfell Street powerhouse.

**Centre image:** Before the introduction of electric traction engine trams the Municipal Tramways Trust had 163 horse-drawn trams running on 53 miles of track.

**Bottom image:** The façade of the expanded Grenfell Street powerhouse is also still in place and occupied by Tandanya, the National Aboriginal Cultural Institute.





# The Pathway of Power

**1885**

**OCTOBER** J.W.H. Hullet became the first person to light a private residence, through what was described as a hydro-electric plant, at his home in Port Augusta. Hullet's dining room is shown here, lit by electricity at 11.00pm.



**1898**

The South Australian Electric Light and Motive Power Company built a small temporary powerhouse in a stable at the corner of St Vincent and Lipson Streets in Port Adelaide. It housed three Galloway boilers and two 25 kW and two 50 kW Alley and McLellan high speed/single action/non-condensing steam engines, which were joined with Johnson and Phillips Direct Current (DC) generators to produce electricity. The powerhouse moved to this purpose built location on Nile Street in June 1899.



**1899**

**31 JULY** F.W.H. Wheadon arrived in Adelaide from England, to take up leadership of the South Australian Electric Light and Motive Power Company, as its Chief Engineer. He is credited with dramatically improving the fledgling company's operations and supply reliability, and laying the ground work for the State's electricity network.

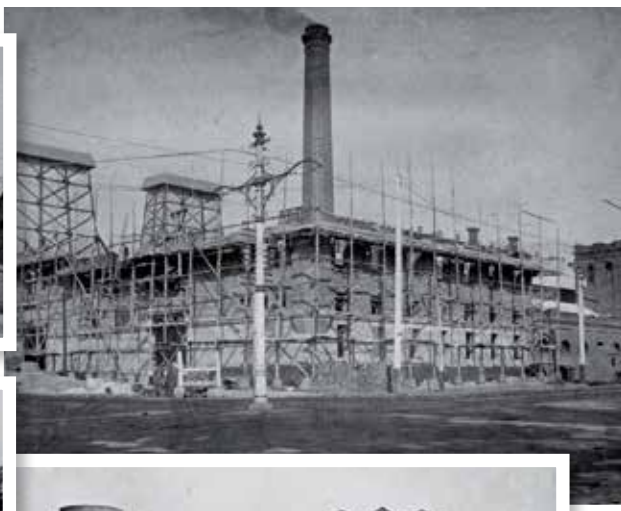
**SEPTEMBER** The London-based English Brush Electrical Engineering Company Ltd purchased the South Australian Electric Light and Motive Power Company. The company soon secured an agreement with the City of Adelaide to supply electricity for lighting on King William Street and the connection of private customers.

**1902**

North Adelaide became the first suburban area to receive electricity, connected through underground supply lines.

**1905**

The South Australian Electric Light and Motive Power Company was incorporated and renamed the Adelaide Electric Supply Company Ltd (AESCo).



**1910s**

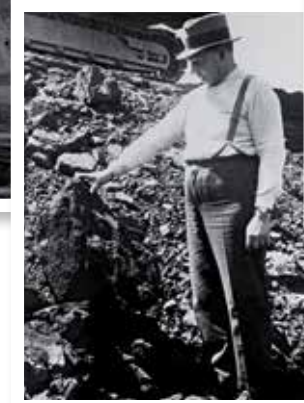
Electricity supply was extended to the suburbs of Norwood, Unley, Hindmarsh and Thebarton by 2200 V cables.

**1901**

**19 NOVEMBER** A new powerhouse was built at the intersection of Grenfell Street and East Terrace. Driven by coal fired boilers and steam generators, it distributed power from a DC generating plant with a capacity of 400 kW through a network of newly installed underground and overhead cables.

**1917**

Demand for electricity saw the generating capacity of the Grenfell Street powerhouse increased to 12,000 kW.



**1924**

**SEPTEMBER** Construction commenced on a new transmission line into the Barossa Valley and on to Balaklava, marking the first extension of the transmission network beyond the metropolitan area.

**1939**

**SEPTEMBER** By the time the Second World War broke out, transmission lines extended into the farmlands of South Australia and delivered electricity to industrial sites like BHP's quarries at Rapid Bay on the Fleurieu Peninsula. The following year, as demands of the war began to impact on the community, new substations, lines and transformer stations were constructed to feed electricity to local munitions factories and important war-effort supply stores.

**1952-1962**

In the ten years between 1952 and 1962, 596 kms of 275 kV transmission line, 1,285 kms of 132 kV transmission line and 625 kms of 66 kV sub-transmission line was completed.



**1943**

**AUGUST** A 66 kV line to Morgan was completed to power the new Morgan-Whyalla water supply pipeline project. The electricity enabled water to be extracted from the Murray River and pumped over to the Eyre Peninsula, enabling large industry to be established with an assured water supply.

**1946**

**1 SEPTEMBER** The Electricity Trust of South Australia (ETSA) was created by the South Australian Government through an Act of Parliament which nationalised AESCo, taking control of its assets and staff. Premier Thomas Playford (shown here at the Leigh Creek coalfields) reasoned that the availability of an adequate, reliable and centrally planned electricity supply was key to the growth of South Australian industry and agriculture. Playford quickly began implementing plans to develop new power stations at Port Augusta and the Leigh Creek coal fields, to remove the State's reliance on interstate coal.

**1954**

**23 JULY** After six years of construction, Port Augusta 'A' power station began operating, with Port Augusta 'B' coming online another six years after that. Together they are known as the Playford power station.

**1955**

**18 APRIL** The Power Line Carrier (PLC) communications system was first used to relay a conversation between staff at Northfield and Port Augusta.

The communications system, which includes the tower shown being craned into place on ElectraNet's building, enabled the remote operation and monitoring of the transmission network. ElectraNet has the largest private telecommunications network in the State.

**1977**

**11 FEBRUARY** With the advent of domestic electronic appliances, South Australia experienced its first 'peak load'. At 1.30 pm, demand reached 1,150 MW as people switched on air conditioners to cope with the 38 degree centigrade heat.

**1984**

An underground fluid-filled 275 kV cable was installed between the Magill and East Terrace substations, including alongside this section of Bartels Road, to address the growing electricity demand of the city.



**1985**

**9 JANUARY** The Northern Power Station was commissioned to supply additional base load power. The 275 kV transmission system between Adelaide and Port Augusta was also reinforced to support the growing demand for power within the metropolitan region.

**1986**

**14 JULY** An agreement to connect the transmission networks of South Australia and Victoria was signed. Construction work commenced one year later and on 30 March 1990, the interconnector was officially opened by South Australian Premier, John Bannon (centre). The interconnector comprised a 500 kV to 275 kV substation at Heywood in Victoria, and 275 kV lines from Heywood to the South East substation in South Australia.



**2005**

**29 APRIL** Cathedral Rocks became the first wind farm connected to the transmission network. ElectraNet is the largest connector of wind generation in Australia. South Australia has half of the nation's installed wind power capacity and the second largest wind-to-load ratio in the world.



**2011**

**31 JANUARY** South Australia's demand for energy peaked at 3,413 MW, as the temperature climbed to 43 degrees centigrade in Adelaide.

**2016**

The South Australia - Victoria Interconnector is upgraded to increase capacity in both directions by 40%. The upgrade involves the installation of a third transformer at Heywood in Victoria and a new series compensation site at Black Range in South Australia. This is the first time series compensation will be used in the South Australian transmission network, and only the second time in Australia.



**2011**

**16 DECEMBER** High-voltage supply to the Adelaide CBD was bolstered with the energisation of a new 275 kV underground cable extending from Torrens Island substation to a new site, City West, at Keswick Terminal. Delivery of the two 188 tonne transformers to the new City West substation each required five prime movers with a range of police escorts, to safely deliver the load from Queensland to South Australia. The trips each took over two weeks, covered a distance of 2,122 kms and set a record as the heaviest loads ever to have been transported on South Australian roads.

