HERITAGE COUNCIL OF WESTERN AUSTRALIA

REGISTER OF HERITAGE PLACES

ASSESSMENT DOCUMENTATION

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

The criteria adopted by the Heritage Council in September 1991 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.2 Constructing capital city economies
- 4.2 Supplying urban services
- 5.2 Organising workers and workplaces

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 110 Resource exploitation and depletion
- 309 Technology and technological change
- 404 Community services and utilities

11.1 AESTHETIC VALUE

East Perth Power Station is a good example of a complex of utilitarian industrial structures, featuring distinctive interior spatial quality in the station turbine rooms and some Art Deco detailing. (Criterion 1.1)

The former office and test room is enhanced by the garden development on the east side, which is an integral component in the design and, together with various garden beds along the boundaries on Summers Street, the river frontage and in the vicinity of Tamar Street, contributes to the public amenity of the complex. (Criterion 1.2)

East Perth Power Station is a distinctive regional landmark viewed from the river and the Graham Farmer Freeway, creating an eastern entry statement to the city of Perth and, notwithstanding its current derelict condition, contributes to the cultural landscape of the East Perth river frontage. (Criterion 1.3)

11.2 HISTORIC VALUE

From 1916-1951, *East Perth Power Station* was the only power station generating electricity for public consumers in the Perth metropolitan area, the first large scale electricity system in the State, and after 1951 played an important role in the development of the south-west interconnected electricity system, operating until 1981. (Criterion 2.1)

East Perth Power Station, through its large-scale provision of electricity, facilitated industrial development in Western Australia up to 1951 and was an

important influence in raising living standards in the metropolitan area and the south-west of the State throughout this period. (Criterion 2.1)

A significant cause for the construction of *East Perth Power Station* was the pressing need to provide electricity for the electric tramway network serving Perth, as was the case in most major Australian cities, with the difference that in Perth the major electricity supply was established by the State government rather than a private tramway company. (Criterion 2.2)

The power station marks the entry of the State government into the field of public electricity generation and supply, which made it the first State government in Australia to undertake responsibility for a public electricity utility. (Criterion 2.2)

As a large coal-fired thermal power station, *East Perth Power Station* was an important influence on the development of the State's coal industry, based at Collie. (Criterion 2.2)

From the time of its construction, *East Perth Power Station* was the centre of a long-running debate about the standard frequency adopted for the State's electricity supply, which was initially set at 40 cycles, and converted from 1951 to 1960 to 50 cycles. This was a massive undertaking, without parallel in Australia, involving the entire metropolitan community and the modification of industrial, commercial and domestic plant and equipment then in use. (Criterion 2.2)

East Perth Power Station provided electricity for the Perth metropolitan area supply designed by Charles Merz, Senior Partner, of Merz and McLellan, who was a pioneer in the field of electric power engineering with a world-wide reputation. (Criterion 2.3)

East Perth Power Station was one of a number of State government enterprises and public utilities established under the 1911-1916 government of John Scaddan MLA, Premier and Colonial Treasurer, including State Shipping Service, Workers' Homes Board, Government Tramways, State Implement Works, Boya Government Quarry, and various government abattoirs, sawmills, hotels and brickworks. (Criterion 2.3)

The first stage of 'A' Station is important for technological innovation displayed in the constructional system of the building. At various stages in the expansion of the power station, the plant installed was up-to-date and advanced for the time. In the 1930s expansion, the use of pulverized coal was innovative and an early example of its use. (Criterion 2.4)

11.3 SCIENTIFIC VALUE

The power station complex has potential to be used as a teaching site as a reasonable amount of the power station complex remains intact it is capable of effective interpretation. (Criterion 3.1)

The collection of turbo-alternator sets (generator sets) which span a period of forty years (including the No 3 set that was located at the Energy Museum, Fremantle until 2009) represent the development of power generation technology over a significant period when progressively larger units were being developed, and is an important reference site because it is located 'under the one roof'. (Criterion 3.2)

The frequency changer, which allowed *East Perth Power Station* to generate electricity at 40 and 50 cycles simultaneously, demonstrates a response to the gradual change of power frequencies that is unique in Australia and rare in a world context. (Criterion 3.2)

11.4 SOCIAL VALUE

East Perth Power Station is important to the community of Western Australia as a major public utility that contributed to the development of power generation in the State, improving the lifestyle and standard of living of the community in general. (Criterion 4.1)

East Perth Power Station contributes to the sense of place of the numerically significant workforce employed there during its construction and its 65-year operational life. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12.1 RARITY

East Perth Power Station is one of only two known large-scale pre-World War One thermal power stations in Australia to retain plant and equipment. (Criterion 5.1)

East Perth Power Station is one of few known examples in the world of a large thermal power station, constructed prior to the end of World War One, retaining its plant and equipment in situ. (Criterion 5.1)

East Perth Power Station is rare as a single facility retaining several generations of generators, spanning almost forty years, and is likely to contain the most comprehensive in situ collection of steam turbine generating units in the country. (Criterion 5.1)

The frequency changer set is unique in Australia, and rare in a world context. (Criterion 5.1)

East Perth Power Station was the only government operated electricity utility supplying the Perth metropolitan area during the first half of the 20th century, and the largest power generating facility in the State until the completion of *South Fremantle Power Station* in 1951. (Criterion 5.2)

East Perth Power Station is one of a diminishing number of industrial sites remaining on the Swan River foreshore, and its location and use of the river in the power generation process is representative of a tradition which is no longer generally approved or practised. The place also provides historical evidence of the former East Perth industrial district. (Criteria 5.2)

12.2 REPRESENTATIVENESS

East Perth Power Station demonstrates the process of power generation, particularly in the first half of the 20th century. The power station buildings are typical of industrial buildings in general and power station buildings in particular in the period when they were built. The plant and equipment was generally current technology of a high standard at the time of installation. (Criteria 6.1 & 6.2)

12.3 CONDITION

The power station ceased operations in 1981 and degenerated into a dilapidated state until 2003. The boiler house was in a derelict condition; the

structure had serious defects in the steel frame and in the reinforced concrete roof slabs. Much of the plant and equipment suffered graffiti, rust and breakage of external parts, and the structure as a whole suffered from vandalism and general exposure. Other buildings of significance including the turbine room, former office and test room, and the frequency changer building were generally in better condition and capable of restoration. Between 2004 and 2006, the State Government undertook a series of site clean-up and building stabilisation works. As a result, the Power Station building will likely remain stable in the near future with minimal further works.

12.4 INTEGRITY

Much of the plant and equipment is no longer able to be restored to working condition, although it is capable of restoration for the purpose of interpretation.

In 2010, an inspection of the site and buildings identified that there were very few instances of further degradation of the building.

A further inspection and comparative analysis was carried out in 2015 and identified that the overall structural stability of the building is expected to remain sound under its present condition, except for the partially demolished A Station Boiler House which would require further investigations.

It is concluded the building has remained stable for the past 34 years and will likely to remain stable in the near future with minimal further works.

12.5 AUTHENTICITY

The building fabric and the plant and equipment have a high level of authenticity, notwithstanding the refurbishment of the 'A' and 'B' station buildings in the 1950s when concrete wall cladding was replaced and the decorative mouldings were removed.

Since the 1994 heritage assessment, a number of buildings and elements have been removed, including: Mess and Change Rooms, General Store, Tube Store, Fitters' Instrument Shop, Blacksmith's Shop No. 3, Oil Store, New Electrical Workshop, and Welding Shop. Most of these elements were identified in the 1993 Conservation Plan as being of little significance.

Plant and equipment removed since 1994 include Control Room and Annexe Equipment, some Boiler House switchgear, Coal handling and firing floor plant formerly in C Station Boiler House, and the Power System Control Centre Equipment formerly housed in the Power System Control Building. The latter was housed at the Energy Museum until 2009.

Between 2005-2008, a number of buildings have been removed, including the Canteen/Metallurgical Lab, the Circuit Protection Shop & Fuels Lab, Coal Sample Storage, Treated Water Tanks, Demineralising Water Treatment Plant, Power System Control Centre Building, Blacksmith's Shop No. 1 and Store, and the Time-Keeper's Office & Clock (also known as the Gate House).

A Station Boiler House has been partially demolished and all but one coal hopper removed. The steel angle trusses of A Station Boiler House have been retained to allow for reconstruction of the building.

The majority of plant and equipment in the Turbine Hall, especially at the lower level, remains unchanged.

13. SUPPORTING INFORMATION

The supporting evidence is based on the 1994 assessment documentation for this place, which was in turn based on the information presented in Bodycoat, R. and Richards, O. 'East Perth Power Station: Conservation Plan', Vol. 1 (for the East Perth Redevelopment Authority and SECWA, Perth, 1993).

For a more detailed and more recent account of the evidence, refer to Research Institute for Cultural Heritage 'Government Heritage Property Disposal Report: East Perth Power Station', (for Western Power Corporation, January 2001).

Amendments and/or additions have been made by HCWA staff and the Register Committee.

13.1 DOCUMENTARY EVIDENCE

The following documentary evidence has been compiled from the 1993 Conservation Plan which provides a full account with references of the documentary evidence available at that time. Additional documentary evidence added by Heritage Council officers has been referenced with footnotes.

The following text, where italicised, has been directly quoted from Bodycoat, R. and Richards, O. 'East Perth Power Station: Conservation Plan', Vol. 1 (for the East Perth Redevelopment Authority and SECWA, Perth, 1993), pp. 5-11.

The land on which East Perth Power Station is situated was acquired by the Government in March 1912, when 27 acres (11 ha) were resumed for the purpose of additions and improvements to the Eastern Railway. Prior to the government's purchase there had been a succession of owners; Alfred Hawes Stone and his family from (1830-1886); Perth bank manager Robert Edmund Alfred Wilkinson (1886-1893); and widow Emily Smith of Parramatta, NSW (1893-1912). The 2 acre (0.8 ha) portion of the adjoining Location 2, resumed at the same time as Location 3, was part of a residential subdivision which included a row of modest cottages fronting onto Tamar Street, two of which were located on the future power station site.[1]

The East Perth site met the basic requirements for the location of a large centralised power station in the metropolitan area, in that it could be readily serviced by rail for delivery of local coal from Collie (and imported coal from NSW), it was close to an economical supply of cooling water for the condensing plant, and it was centrally located within the distribution area, which initially extended from Midland Junction to Fremantle. In addition the government owned the land, whether it was resumed with the power station in mind is not clear, as the transaction had been concluded some time before recommendations had been made for the power station or *the tramways company* had been purchased. The *power station was to occupy only the eastern half of the total area resumed, which overall extended from the river to East Parade (formerly Jewell Street).*[2]

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1 Bodycoat, R. and Richards, O. 'East Perth Power Station: Conservation Plan', Vol. 1 (for the East Perth Redevelopment Authority and SECWA, Perth, 1993), p. 12

2 Bodycoat & Richards, *op cit.*, p. 13

In May 1912, the State government led by the newly elected Labor Premier John Scaddan reached an agreement with Perth Electric Tramways Limited for the purchase of the company's assets and business. The acquisition of Perth's privately operated tramway system, which came at a time when the Scaddan Government was embarking on a program of State 'socialism' and the establishment of a number of State owned enterprises, was ratified later in the year in the Tramways Purchase Act, 1912. In the same year the Perth City Council purchased another private enterprise, the Perth Gas Company, which supplied both gas and electricity within the city area. Fremantle Council and some smaller local authorities also operated public electricity supply utilities and in the case of Fremantle also tramway services. While the Perth City Council and the government had acted independently, the joint requirements of the utilities they had acquired and the desire to increase the scale of both operations, led to the establishment of East Perth Power Station and to the Government undertaking the supply of electricity throughout the whole of the metropolitan area. At the time it was the first State government to undertake responsibility for a public electricity utility.[3] In addition, the Scaddan government bought or established a number of other services, including State Shipping Service, Workers' Homes Board, Government Tramways, State Implement Works, Boya Government Quarry, and various government abattoirs, sawmills, hotels and brickworks.[4]

Having acquired run-down and inadequate plant and infrastructure, the Government and the Council were faced with the immediate need to build new power stations to continue the running of their enterprises. Both had plans for expansion, while the Government, in addition to supplying its tramways and railway workshops at Midland Junction, had given some consideration to the electrification of the suburban railways and the line between Perth and Northam. A further consideration was the desire to encourage the development of new industries, to create employment and overcome the dependency on the eastern states that resulted from Western Australia's small manufacturing sector.[5]

All of these plans *required the availability of a cheap electricity supply. The advice received by the Government from the British power engineering consultants Merz and McLellan was to scrap the small scale systems then in existence and replace them with a centrally located power station of sufficient size to allow the production of electricity at an economical rate. The requirements of the Government were insufficient to warrant a power station of such a size, as were those of the Perth City Council. The solution lay in the amalgamation of their joint interests, and agreement was reached whereby the Government undertook responsibility for the supply of bulk electricity to the council, who would then retail to its own customers, with the council having exclusive rights to sales to the public and other local authorities within a five-mile radius of the GPO. Under these arrangements the Western Australian Government Electricity Supply was established, functioning initially*

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3 *ibid.*, p. 5

4 Harman, F, "Supplying Power to an Expanding Network", in *Powering Perth: A History of the East Perth Power Station*, L Layman (ed.), Black Swan Press, 2011, p. 236; "Workers' Homes Act", *Kalgoorlie Western Argus*, 20 February 1912, p. 37; "State Implement Works", *Sunday Times*, 8 September 1912, p. 8; "The Budget", *The West Australian*, 18 October 1912, p. 8

5 Bodycoat & Richards, *op cit.*, p. 5

within the umbrella of the Department of Government Railways and Tramways, and from the early 1920s, the Government Railways, Tramways and Electricity Supply.[6]

The Government undertook to build the power station and an underground ring main in the city area, through which the high tension bulk current would be supplied to four new sub-stations to be provided by the Council.[7]

Construction of *East Perth Power Station* began in 1913, and was completed in 1916. The station was built at an estimated cost of £320 000, with the city-wide system costing approximately £538 000. Power generation began on 3 December 1916 with a single 4 MW generator. By April 1917 two further 4 MW generators had been installed, and by 1929 the station was operating with 5 generators, a total 32 MW capacity and an estimated capital value of £1 million.[8] This expansion in generating power required additional support structures, which included two jetties (built in 1917 and the 1920s) that pumped water from the Swan River into the station to cool the steam and condense it back into re-usable water. The warmed river water was pumped back out at a location downstream that became a favoured swimming spot.[9]

As well as supplying the tramways, railway workshops and other government instrumentalities, and the bulk sales to the Perth and Fremantle councils, the Government engaged in retail sales direct to consumers not covered by the municipal agreements. In the 1920s and 1930s it expanded the distribution system throughout the metropolitan area and beyond, eastward into the hills' districts and south of Armadale.[10]

With one supply system there came a degree of standardisation, where this had not previously existed. The Perth system, designed by Merz and McLellan, utilised the latest technology and technical expertise and was comparable with contemporary developments elsewhere in Australia and overseas. One important difference was the adoption of 40 cycle (40 Hz) frequency. At the time frequencies in use around the world ranged from 25 to 100 cycles depending on whether the main use was for motive power or lighting. For general use the 40 cycle frequency was a compromise which Merz and McLellan had found was satisfactory elsewhere.[11]

Demand continued to increase, and by the 1930s it was clear that another, larger, generator would be required to supplement the capacity of *East Perth Power Station.* A lack of government funds due to the depression years threatened the station's ability to improve its machinery to meet the rate of increasing demand for electricity. Plans to sell off the power station to raise

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6 *ibid.*, pp. 5-6

7 *ibid.*, p. 6

8 Edmonds, Leigh, Cathedrals of power: a short history of the power-generating infrastructure in Western Australia 1912-1999, Nedlands, W.A, University of Western Australia Press, 2000, pp.18-20.

9 Fox, C, "Work", in *Powering Perth: A History of the East Perth Power Station*, L Layman (ed.), Black Swan Press, 2011, p. 114; Christensen, J & Hartley, R, "Environmental Impacts", in in *Powering Perth: A History of the East Perth Power Station*, L Layman (ed.), Black Swan Press, 2011, p. 254; Bodycoat & Richards, *op cit.*, p. 17

10 Bodycoat & Richards, *op cit.*, p. 7

11 Bodycoat & Richards, *op cit.*, p. 7

the money needed to upgrade the generators were aired, but did not proceed.[12]

In 1935, sufficient funds were allocated to begin the construction of the new 25 MW generator. The size of the new plant was such that a new building was required. B Station was constructed to house the new generator, and to supplement A Station, which continued to operate with all the earlier generators in one turbine room. Unlike the earlier station, which was almost entirely designed and imported from Britain, B Station was designed in Perth by William H. Taylor, with only the largest equipment, such as the generator and boiler, being imported from Britain.[13]

B Station was opened in December 1938 with two simultaneous opening ceremonies, one at *East Perth Power Station,* and the other at Australia House in London. The Undersecretary for Dominion Affairs, the Duke of Devonshire, officially opened the new plant by radio from London. The new generator was significantly more efficient than the A Station generators. By the end of 1939 it was generating 84% of the power from *East Perth Power Station,* which within another year rose to 88%, with A Station used only as a back-up and standby station.[14] One of the innovations in the operation of this station was the use of pulverised coal from Collie, which had been developed in the early 1930s, which was more energy efficient than the coal previously used.[15]

The heavy reliance on a single generator began to cause problems, especially in the post-World War Two period, as the machinery could not be turned off for repairs. Staff at *East Perth Power Station* reportedly slept beside the generator to ensure it did not fail. Throughout the late 1940s, powercuts were the norm in Perth, with suburbs blacked out on a rotation basis, trams used only at peak times, and businesses asked to turn off unnecessary lights. The extreme power shortages during this period slowed the development of electrical goods in the State, with electricity suppliers deliberately stalling the introduction of new products, and the population reluctant to purchase appliances they were unable to have reliable use of.[16]

Planning for a new power station had begun as early as 1943, but construction did not begin at South Fremantle until 1946. The urgency of getting a second power station online was highlighted when, in June 1947, the first 4 MW generator at East Perth spectacularly disintegrated, flinging debris through walls and up to half a mile from the station. Post war shortages slowed construction at Fremantle, necessitating some creative solutions to the lack of materials. It took 6 years to obtain the necessary pipes and valves for the new station, and cement for the walls was in such short supply that it was padded out with fly-ash, a waste product from *East Perth Power Station.* South Fremantle Power Station was officially opened in June 1951.[17]

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12 Edmonds, *op cit.*, p. 22

13 *ibid.*, p. 22

14 *ibid.,* pp.22-23

15 "Electric Supply", *The West Australian*, 30 August 1939, p. 10

16 Edmonds, *op cit.*, pp.25-27

17 *ibid.*, pp.25 & 34

When the decision was made to build a new power station at South Fremantle with a greater capacity than that of East Perth, the question of continuing with 40 cycle frequency came under scrutiny. By the early 1940s it was non-standard in Australia as well as overseas. In England, and on the east coast of Australia, the standard was 50 cycles, in the USA 60 cycles.[18]

Advice to the government was strongly in favour of adopting the 50 cycle frequency although as with the initial decision agreement was not universal, particularly as the cost of converting all existing electrical equipment and appliances to operate on the higher frequency entailed a huge cost well beyond the resources of the State. A frequency changer unit was installed at East Perth to allow the two stations to operate in conjunction in supplying the metropolitan area. A special building (B16) to house the frequency changer, designed in the same mode as the power station at South Fremantle, was constructed on the north side of the main building at East Perth, the work being carried out simultaneously with that at South Fremantle. This frequency changer unit is a distinctive feature of East Perth Power Station and is unique in Australia.[19] The frequency changer functioned to allow *East Perth Power Station* to generate electricity at 40 and 50 cycles simultaneously, allowing for the progressive change-over of individual suburbs from 40 to 50 cycles.[20] Excess workers from the *East Perth Power Station* were absorbed into a public frequency exchange programme that saw groups of men travel the city and suburbs changing the frequency of customer's machinery.[21]

The various arrangements for selling and supplying electricity to businesses and local municipalities continued until the end of World War Two when in 1946 the State Electricity Commission of Western Australia came into being, taking over responsibility for the government's electricity undertakings. The Commission purchased the City of Perth Electricity and Gas Department as a going concern in December 1948, the Fremantle Municipal Tramways and Electric Lighting Board in June 1952, and Claremont, South Perth and Subiaco undertakings in the same year, eventually assuming control of the various independent small operations in country regions, to develop the integrated state-wide system that exists today.

All metropolitan supplies were generated at *East Perth Power Station* until 1951, when the power station at South Fremantle came on line. The last expansion at East Perth was in 1955 when the No 7 30 MW generating unit was installed and the coal handling plant was modernised. The installation of this generator required the removal of the first two 4 MW generators from A Station, and some of the old boilers, to fit the new equipment into the buildings.[22] *With the development of the south-west grid and the establishment of power stations at Bunbury, Kwinana and Muja and the take-over and expansion of Collie power station, the importance of East Perth in the system progressively declined. It remained an important contributor in the*

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18 Bodycoat & Richards, *op cit.*, p. 7

19 *ibid.*, pp. 9-10

20 Edmonds, *op cit.*, p. 28

21 Fox, C, "Work", in *Powering Perth: A History of the East Perth Power Station*, L Layman (ed.), Black Swan Press, 2011, p. 119; "Change-over to 50-cycle power", *The West Australian*, 5 December 1951, p. 8

22 Edmonds, *op cit.*, p. 39

system until the late 1960s after which its main use was for standby and peak load winter conditions.[23]

Domestic use of electricity boomed from the 1950s. When conversion of electrical appliances from 40 to 50 cycles began in 1950, only 50% of homes required any conversion work. (Lighting and radios did not need to be converted.) By 1956, three years before the conversion was completed, 94% of homes needed work, indicating the steep increase in the use of domestic electrical appliances during this period.[24]

From the 1950s on, the East Perth station progressively assumed the function of a centralised equipment service centre for the Commission's state-wide operations which necessitated the expansion of workshop facilities. As well as the maintenance and repair services another aspect of the station's so-called 'export' work was the sale of steam, transported by underground mains, to Royal Perth Hospital and the SEC gas works in Trafalgar Road. In 1973 the Power System Control Centre (B38) was commissioned, replacing the former control centre located in 'B' station. The system control centre was another of the centralised functions located at East Perth, regulating power generation at the various power stations in the interconnected system and directing the transmission of power through the south-west grid.[25]

The new power stations predominantly used oil-burning generators. When the political situation in the Middle East in the early 1970s sparked international oil price hikes, it became uneconomical for power supply to the Southwest of the State to depend so heavily on burning oil. In 1974 the almost non-operational coal-burning plants at East Perth, South Fremantle and Bunbury were pressed back into full-time service to reduce the electricity grid's dependence on oil. Increased awareness of environmental concerns meant that the thick black smoke and ash fallout from the coal burning stations was no longer acceptable, and measures were taken, including the installation of precipitators, so that by 1977 the stations were meeting emission standards.[26]

The generation of power ceased at East Perth Power Station on 24 December 1981, bringing to an end sixty five years of continuous operation.[27] The 1938 generator, which had operated for 43 years, continued to the end. The third of the 1917 4 MW generators, the earliest remaining at the station, was removed to the Fremantle energy museum 'World of Energy' where it was housed until 2009.[28] Generators from c.1922, 1928, 1938 and 1956 remain in situ.

Other functions maintained at the East Perth site during the 1980s that were phased out during the early 1990s included the system control centre, which left almost all buildings unoccupied and in a deteriorating condition. *Numerous smaller ancillary structures have been removed as well as*

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23 Bodycoat & Richards, *op cit.*, p. 10

24 Annual Report of the State Electricity Commission Western Australia for the year ended 1956, p.19, in *ibid.* p. 31

25 Bodycoat & Richards, *op cit.*, p. 10

26 Edmonds *op.cit.*, pp.75-76

27 *ibid.*, p. 10

28 Edmonds *op.cit.*, p. 89

quantities of equipment and the distinctive chimneys. A program to eliminate all asbestos insulation associated with the plant and equipment has resulted in the removal of most of the boiler house plant and piping associated with the generating plant.[29]

The station site remained a part of Western Power's operations until 2004 and is an integrated component in the state grid through the 66 kV and 132 kV switchyards.

For a full discussion of the documentary evidence from 1993 to 2000, refer to Research Institute for Cultural Heritage 'Government Heritage Property Disposal Report: East Perth Power Station', (for Western Power Corporation, January 2001), pp.6-7

East Perth Power Station was entered in the State Register on an interim basis in November 1994. In July 2000 there was a restructuring of state government assets and Western Power was privatized, with *East Perth Power* Station remaining in Western Power's ownership.

.In 2003 the state government approved plans to progress with acquisition of the site, and in 2004, the former East Perth Redevelopment Authority, now the Metropolitan Redevelopment Authority (MRA), under the instructions of the State Government, undertook preliminary works to ensure the site was safe, in preparation for building stabilisation works. This included clean-up of broken glass, pigeon droppings and other debris from the interior of buildings; removal of loose glass and concrete; and the demolition of some minor buildings of no heritage significance.

Repair and conservation work has been carried out by the MRA on the remaining buildings, including stabilisation works, repainting, the replacement of windows or roofing material, as well as the remediation of contaminated soil at the adjacent lot 100 and assessment and management of lot 601 (the Power Station site)

Stabilisation works commenced in November 2004 and were completed in March 2006. These works included the removal of asbestos roofs and replacement with new sheeting; demolition of ancillary structures / outbuildings; repair of concrete walls; and the repair and reglazing of windows.

Due to some uncertainty over the tenure of the interim listing in light of the ownership transfers, a Conservation Order was placed over the site in December 2008.

In September 2014 the Western Australian Government announced its intention to sell the *East Perth Power Station* site,[30] and the MRA, on behalf of the State, released an Expression of Interest (EOI) to the market in early 2015.

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29 Bodycoat & Richards, *op cit.*, p. 11

30 "Government land sales to raise revenue" *Government of Western Australia Media Statements*, accessed 3 February 2015, http://www.mediastatements.wa.gov.au/pages/StatementDetails.aspx?listName=StatementsBarnett&StatId=8647

13.2 PHYSICAL EVIDENCE

The following text, where italicised, has been directly quoted from Bodycoat, R. and Richards, O. 'East Perth Power Station: Conservation Plan', Vol. 1 (for the East Perth Redevelopment Authority and SECWA, Perth, 1993), pp. 14-24.

The power station at East Perth has been described as 'three power stations in one'; 'A', 'B', and 'C' stations established over a forty year period from World War One to the mid-1950s. 'A' station commenced generation in 1916, and was expanded in 1922 and 1928; 'B' station was commissioned in 1938 and 'C' station in 1956.[31]

Each stage reflected new developments in the field with more advanced plant and equipment and progressively larger generating units being installed. 'A' station with five generating units had a total capacity of 32 MW; 'B' and 'C' stations with one generating unit each had a capacity of 25 MW and 30 MW respectively. Some plant and equipment from each of the three stages of development remains in the buildings, although the degree of intactness is variable, with almost nothing remaining in the boiler house and a large proportion of generating plant still in place in the turbine room. The collection of plant and equipment which remains represents a sequence of technological development which is in situ and has therefore an enhanced heritage value.[32]

From an architectural viewpoint the power station could be more accurately described as two power stations in one, as it is essentially two buildings of distinct architectural styling abutting one another. The first building housing 'A' station, designed prior to World War One and extended in the mid-1920s using the same construction; and 'B' station designed c.1934 with Art Deco decorative features (B1).[33]

A levelled area where the main development was to occur was established at approximately 2.7m above water level. For the initial development some 1300 round jarrah piles were driven into the ground to a depth of 10m with a greater concentration of piles in the areas where heavy loads were to occur. The piles were then capped with a reinforced concrete foundation on which the main building was constructed. The same method was used for extensions to the building carried out in the mid-1920s and mid-1930s. In excess of 2000 piles were used in all. The piling work and foundation raft were undertaken by the Railways Department using local expertise and manpower, in readiness for the British contractors who were responsible for the construction of the building and installation of plant.[34]

There was no new building as such associated with 'C' station, which was accommodated within the original building, with some modifications to the structure and removal of plant and equipment, including some of the oldest boilers and generating sets, which were then obsolete. The free standing frequency changer building (B16), designed in the 1940s, is similar to the 1930s structure in general form and detailing but without the Art Deco

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31 Bodycoat & Richards, *op cit.*, p. 20

32 *ibid.*, p. 20

33 *ibid.*, p. 20

34 *ibid.*, p. 14

decoration. The buildings likewise demonstrate a developmental sequence of architectural design and building construction, which can be seen in juxtaposition. The size and expansion of the power station, represented in the physical fabric, is also a measure of the scale and growth of the metropolitan area particularly in the inter-war period.[35]

As well as the central power station building which contained the boiler house, turbine room, switch house and pump house, there were various ancillary buildings associated with each stage.[36]

These buildings were added to, modified, and used for different functions as the station expanded, to prolong their life and in response to new technological developments. In the period following World War Two many additional workshop buildings and other ancillary structures were constructed, however some from the earliest period of development remained in use throughout the working life of the power station and still exist on the site.[37]

Drawings exist showing the development of the power station site and the buildings and other features associated with each stage.

The power station buildings were essentially functional, their purpose being to house plant and equipment which had specific spatial and operational requirements. The form and organisation of the buildings generally reflected these requirements and were an expression, albeit unconscious, of the functions they housed. Architectural considerations, while not neglected, were not the primary concern. The plant and buildings, and their organisation on the site, were an integrated system and have their greatest meaning as such.[38]

When new, the 'A', 'B' and 'C' stations were modern, up-to-date operations, comparing favourably in efficiency with power stations of a similar and sometimes greater size overseas. Most of the plant and equipment was manufactured in Britain, although initial contracts for switch gear had been let with the German firm, Allegemeine Elektricitats Gesellschaft (A.E.G.) and the alternators in the original generating sets were made by the Swiss firm Brown Boveri. The dominance of British contractors, brought about in part by the advent of the First World War, was evident in all stages of the power station development. In 1916 when the first stage of the power station was nearing completion it was reputed to have been one of the largest in Australia.[39]

In general, the buildings were unpretentious, straightforward, economical and stylistically of their time. 'A' station building was designed to allow for extensions and its north elevation was never more than a temporary solution, with wall cladding of corrugated iron sheets. The main elevation on the south, which paradoxically faced the railway line and the undeveloped portion of the site, incorporated classical details which were a feature of late 19th and early 20th century public buildings in Australia and elsewhere. The 'B' station building, which abutted 'A' station on the north, was designed c.1934, with an

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35 *ibid.*, p. 21
36 *ibid.*, p. 21
37 *ibid.*, p. 21
38 *ibid.*, p. 21
39 *ibid.*, p. 22

unrelated constructional system and the Art Deco detailing of the 1920s and 1930s 'B' station is in effect the public face of the power station seen from the entrance on Summers Street and is probably the image which is best known. Both stages were designed to reflect the status of the power station as an important, up-to-date government utility, built with the aim of advancing the development of the state, and enhancing its image as a progressive economy.[40]

The 'A' station building was designed in England either by the engineering consultants, Merz and McLellan or the contractor Babcock and Wilcox, who supplied and constructed the steelwork for the buildings and boilers. Working drawings bear the names of both firms. The mid-1920s extensions were built using the same constructional system and by the same overseas contractors. Most of the building materials were imported including Portland cement, which was not produced locally until the early 1920s. The 1930s buildings may have been designed in Perth although this is not absolutely clear.[41]

Construction drawings for steel frame windows and sashes, and for the reinforced concrete building structure were prepared by the Structural Engineering Co of WA Ltd of Welshpool.[42]

Drawings for the plant produced by the London contractors International Combustion Ltd also show details of the building design. Department files which could clarify the issue, have not been located and it is thought may no longer exist.[43]

The two jetties which extended into the river a distance of approximately 45m were associated with the circulating water system. No. 1 jetty nearest the railway line, was constructed as part of the initial building works. No. 2 jetty was constructed in the early 1920s in association with the first extension of the station when the No.4 generator set was installed. Water was pumped from the river at the intakes located at the jetty heads, passing through the primary band screens to remove debris, jelly fish and other matter, before being circulated through the condensing plant within the power station building where it cooled steam in the condensers. Heated water was then conveyed across the site and discharged back into the river at a point further downstream near to the Bunbury railway bridge.[44]

The jetty heads were surrounded by wire fencing for protection from debris such as floating logs brought down stream during flood conditions. There was also heavy algae growth caused by the sewerage settling ponds on Burswood Island in the early years of the station's operation and in an attempt to combat the fouling of the screens a barrier fence was constructed in front of the jetties along the length of the power station site.[45]

When the foreshore area was reclaimed in the 1950s the jetties were truncated and became less prominent features on the river edge. No.1 jetty

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40 *ibid.*, p. 22
41 *ibid.*, p. 22
42 *ibid.*, p. 23
43 *ibid.*, p. 24
44 *ibid.*, p. 17
45 *ibid.*, p. 17

no longer exists. The No. 2 jetty head, but none of the equipment, remains and is now used as a public facility associated with the riverside recreational open space.[46]

For a discussion of the physical evidence as at January 2001, refer to Research Institute for Cultural Heritage 'Government Heritage Property Disposal Report: East Perth Power Station', (for Western Power Corporation, January 2001), pp.8-24 & 26.

Since the 1994 heritage assessment and until stabilisation works in 2003 by the MRA, the place deteriorated, and most of the plant and equipment suffered graffiti, rust and breakage of external parts, and the structure as a whole suffered from vandalism and general exposure.

Since the 1994 heritage assessment, a number of buildings and elements were removed, Most of these elements were identified in the 1993 Conservation Plan as being of little significance, however, the removal may diminish the potential for the site as a whole to provide a coherent interpretation of the operation of the power station.

Plant and equipment removed betwen1994 and 2004 includes the Mess and Change Rooms, General Store; Tube Store; Fitters' Instrument Shop; Blacksmith's Shop No. 3; Oil Store; New Electrical Workshop and Welding Shop; Control Room and Annexe Equipment, some Boiler House switchgear, Coal handling and firing floor plant formerly in C Station Boiler House, and the Power System Control Centre Equipment formerly housed in the Power System Control Building. The latter was housed at the Energy Museum until 2009.

A Station Boiler House was demolished and all but one coal hopper removed. The steel angle trusses of A Station Boiler House have been retained to allow for reconstruction of the building.

Other buildings demolished include the Coal Sample Storage, Treated Water Tanks, Demineralising Water Treatment Plant, Power System Control Centre Building, Time-Keeper's Office & Clock, Canteen/Metallurgical Lab, Circuit Protection Shop & Fuels Lab, Blacksmith's Shop No. 1 and Store.[47]

The majority of plant and equipment in the Turbine Hall, especially at the lower level, remains unchanged.

13.3 COMPARATIVE INFORMATION

For a discussion of comparative information, see Bodycoat, R. and Richards, O. 'East Perth Power Station: Conservation Plan', Vol. 1 (for the East Perth Redevelopment Authority and SECWA, Perth, 1993), pp.102-104.

In general, power stations replace old machinery when they upgrade to newer technologies. The retention at *East Perth Power Station* of several generations of power generators, spanning almost forty years, in one facility is therefore believed to be rare in Australia and possibly the world.

Western Australia

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46 *ibid.*, p. 17

47 Western Australian Land Information Authority (Landgate) 2015, Aerial image Mosaic Perth 2004 (accessed 3 February 2015)

East Perth Power Station is one of only two power stations in the State which express a strong architectural character in the buildings, achieved through the use of masonry walls with large areas of glazing, the other being at South Fremantle (P3381, RHP 28 October 1997). Both were designed directly in response to a brief requiring them to be prominent, impressive buildings whose visual presence demonstrated the importance of electric power and the industrial process of power generation, and were intended to set the standard for subsequent power generating installations. Subsequent power stations (Collie, Bunbury, Muja and Kwinana) were constructed as framed buildings clad in lightweight materials with limited glazed walling.

Australia

A search of the Australian Heritage Places Inventory[48] identified a number thermal power stations or substations constructed prior to World War Two. The earliest of these is the former Richmond Power Station in Melbourne, Victoria, constructed in 1891 by the New Australian Electric Lighting and Traction Company, which was operated privately until 1930 and then by the Victorian State Energy Commission until its decommissioning in 1976. Other extant thermal power stations from the turn of the twentieth century are:

- Ultimo Power Station (fmr), Pyrmont, NSW, constructed in 1899 to generate power for Sydney's electric tram network, which was for many years the largest and most important power station in New South Wales, one of the largest in Australia into the 1940s, and the first (in 1905) to use turbine-driven alternators. All plant and equipment was stripped from the buildings following the station's closure in 1964, and the place is now part of Sydney's Powerhouse Museum;
- Tandanya, in central Adelaide, constructed 1901 for the Electric Lighting and Traction Company and taken over by Adelaide Electric Supply Company from 1912-13;
- Mining Museum (fmr), The Rocks, Sydney, built in 1902 as a power station but extended and converted from 1908 to be a museum and chemical laboratory;
- Bendigo Tram Depot, Victoria, which includes a 1902-03 power station constructed for the Electric Supply Company of Victoria; and,
- Deep Leads Electric Commission Power House, Baringhup, Victoria, constructed in 1903 for a mining company to work the pumps and machinery for local lead and gold mines.

As far as can be determined from Australian Heritage Places Inventory, none of these power stations retains its plant and equipment.

Thermal power stations constructed around the same time as *East Perth Power Station* are:

- White Bay Power Station, Leichhardt Municipality, NSW, constructed 1912-13 by the Department of Railways to supplement Ultimo Power Station in supplying Sydney's tramways, and operated from 1917 until 1984. White Bay Power Station is listed as containing 'an unparalleled

48 http://www.heritage.gov.au/ahpi/index.html, 29 March 2004.

collection of frequency changers, rotary converters and transformers which were associated with its original railway function', and demonstrates the complete process of coal fired thermal power generation and supply. Remaining plant and equipment includes coal handling, ash handling, boilers and feed water, circulating cooling water, turbines and generators, and electrical switchgear. The turbine hall features an operating power generation system, including headers, gauges, condensers, feed water pumps and turbo alternators.[49] Although equipment has been removed in three of the four bays of the main hall in order to deal with asbestos, one complete series of working demonstrating the full process remains intact.[50]

- Cockatoo Island Power House, Leichhardt Municipality, NSW, constructed 1918 to service the Commonwealth Dockyard, which closed in 1992. Cockatoo Island Power House is a finely designed Federation Romanesque building, constructed of brick with an original tile roof later replaced with corrugated asbestos cement, and retaining its landmark brick smokestack. It is a smaller power station than *East Perth Power Station,* and did not supply electricity to public consumers. The Australian Heritage Inventory Database listing for the place notes it as having 'the most extensive and rare collection of early Australian electrical, hydraulic power and pumping equipment in the country'. The surviving equipment at Cockatoo Island is unusual in that it is a DC power plant, feasible because the dockyards area it supplied was physically proximate to the power house, and is believed to be the largest and possibly longest-serving DC power plant in Australia;

- Kingston Power Station, ACT, constructed from 1911 to 1915 as the first permanent building in the new city of Canberra. Kingston Power House is a concrete structure designed in 1911 by John Smith Murdoch, Chief Architect of the Department of Works and Railways. It is a small-scale power station that was superceded in 1929 by the availability of cheap power from the Burrinjuck Hydroelectric Scheme. The station was used to supplement supply in 1936-42 and 1948-57. All boilers, generating and switching equipment has since been removed;

- Peterborough Power Station, South Australia, constructed in 1913 and operating until the late 1980s/early 1990s. Peterborough Power Station retains the engines that previously drove the generators, but the generators themselves have been removed. The place is used by the local council as its works depot.[51] It is presumed that the power station was connected with the significant railway history of Peterborough, although no information has been located to confirm its history. Peterborough now has a population of approximately 2500, suggesting the place is likely to be a small power station; and,

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49 Australian Heritage Places Inventory, http://www.heritage.gov.au/cgi-bin/ahpi/record.pl?RNE19512, 29 March 2004 and 25 May 2004

50 Bruce Baskerville of NSW Heritage Office, phone conversation with Clare Schulz, 1 April 2004.

51 Colin Davies of Peterborough Local Council, phone conversation with Clare Schulz, 31 March 2004.

- Longreach Power House (fmr), Queensland, constructed in 1921 for Edward & Martin, which supplied electricity for Longreach until 1985, when the area was connected to the State electricity grid.

The information presented for Longreach Power House lists it as including '*ten engine sets and three gas producers'.*[52] The place now functions as the Longreach Powerhouse Museum, and is promoted as having '*the most complete preserved rural generating unit in Australia'.*[53] It contains gas, diesel and duel fuel engines, and at peak was a 3 MW station serving a 200km radius, making it significantly smaller than *East Perth Power Station*. The intact workings date from 1948 to 1985.[54]

International[55]

There are no power stations listed on the UNESCO World Heritage Sites list. The only comparable place on this list is *Wouda Steam Pumping Station*, in the Netherlands, a 1920 industrial plant that remains in use in 2004. On-line tourist information for *Maritime Greenwich,* a World Heritage site in outer London, refers to the 1906 thermal power station in Greenwich, but it is not clear whether it is included in the Registered area. This power station on the Thames River was originally coal-fired and supplied electricity for London's tramway system. While it no longer burns coal, the station remains operational as a back-up supply for the London Underground. Original coal-fired generators were replaced in 1922 with steam turbines, and again in the 1960s with gas turbine generators.[56]

Other well-known former power stations in London, Battersea and Bankside (now Tate Modern Galleries), were built much later than *East Perth Power Station,* (1933 and 1947, respectively), and no longer retain plant and equipment. *Haig Colliery, Cumbria*, is a 1914-18 red brick power station, extended in 1936, attached to a coal mine. It retains significant machinery associated with the colliery, but most machinery associated with the power station has been stripped. A single steam turbine compressor engine has been retained. The English Heritage database lists a further nine extant pre-1920 power stations that have not retained plant and equipment. These include *Gloucester Electricity Works*, a c.1900 coal-fired DC power station that retains most of its original buildings, and *Electric Generating Station, Derbyshire,* which was only the fourth thermal power station in the UK to provide a commercial supply of electricity when it was constructed in 1903.[57]

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52 Australian Heritage Places Inventory, http://www.heritage.gov.au/cgi-bin/ahpi/record.pl?RNE18578, 29 March 2004.

53 Gary Deakin of Longreach Powerhouse Museum, phone conversation with Clare Schulz, 5 April 2004.

54 Ibid.

55 Note: unless otherwise stated, all websites in this section were accessed on 24 May 2004. Several hundred websites were skimmed for information, mostly those resulting from a Google search for 'heritage and (history or museum or established or tour) and [exact phrase] "power station"'. Rerunning this search using the exact phrases "power plant" and " power house" would likely reveal many more sites for consideration.

56 http://whc.unesco.org/brief.htm;http://www.thesalmons.org/lynn/world.heritage.html; http://gihs.gold.ac.uk/gihs2.html#gps

57 http://pastscape.english-heritage.org.uk/homepage/index.html 9 August 2004.
Nigel Wilkins, National Monument Records Enquiry and Research Service – Buildings, e-mail to Clare Schulz, 19 August 2004.

No extant thermal power stations retaining plant and equipment in the UK dating from before World War One were identified in an extensive Google search. The Royal Commission on the Ancient and Historical Monuments of Scotland lists numerous gasworks, a nuclear power station, and a number of sites associated with hydroelectricity, but does not appear identify any thermal power stations.[58]

In Dublin, the 1903 *Pigeon House Power Station* remains extant in Ringsend, adjacent to the modern, operational Poolbeg Power Station. Discussions in the 1990s regarding establishing a science and technology museum at the place appear to have subsided due to lack of funding. The place ceased operation as a power station in 1965 and was sold by the Electricity Supply Board (Ireland) in October 2003. It retains its smoke stacks, but does not appear to retain plant and equipment.[59]

The New Zealand Register of Historic Places includes no thermal power stations. However, *Palmerston North Electric Power Station*, which is not on the Register, is operated by the local community as a museum. It is a 1922 red brick and iron industrial building that includes two 1936 diesel generators, which remain operational. Information on the Power Station's website claims that the place is one of only two in New Zealand to retain its engines.[60] *Palmerston North Electric Power Station* was the only place identified where a stated conservation aim is to retain the plant in working order. The website for the place includes links to four other power station museums around the world, with the only thermal power station identified in this list being the Powerhouse Museum in Sydney. However, it is not known how comprehensive a list this is.

In South Africa, the first electric telegraph operated between Simonstown and Cape Town from 1860, and in 1882 Kimberley turned on electric streetlamps, the first city in Africa to do so, at a time when London still used gas streetlamps. Power generation relied primarily on small dedicated steam-powered power stations. From the turn of the twentieth century, with the expansion of mining enterprises in South Africa, moves began to centralise the power supply. The Victoria Falls and Transvall Power Company Ltd was formed in 1906 and by 1915 four large coal-fired thermal power station were operational. Of these, only *Simmerpan* remains intact in 2004, although its plant and equipment have been stripped. It is now used as offices and storages space, and is still associated with an electricity company.[61] In Cape Town, an 1882 power station building is extant at the Victoria and Alfred Waterfront, although all remaining plant and equipment was removed in 1998 to refit the place with dining and entertainment areas. It is not known if this included any machinery from 1904, when the place was fitted out as a major

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58 http://www.rcahms.gov.uk/ 1 June 2004

59 http://www.irish-architecture.com/news/2003/000254.html;http://www.iscan.ie/newsletter/volume3.htm, 1 June 2004 The place is noted in a 2003 article as being heritage listed, but could not be found on Irish heritage lists accessed

60 www.geocities.com/pnpowerstn/ (No information could be located to identify the second place.)

61 http://www.eskom.co.za/heritage/electricity_in_south_africa.htm 1 June 2004

coal-fired power station for the Cape area, known as the *Electric Light and Power Station*, or Dock Road Power Station.[62]

In 2002-03, *Chester Power Station,* an imposing Neo-Classical style 1918 former thermal station in Philadelphia PA, was stripped of all plant and equipment and had smoke stacks removed, as part of a redevelopment for office space.[63] The Historic American Buildings Survey/ Historic American Engineering Record (HABS/HAER) [64] lists around 100 other power stations. However, on the basis of the information available, the following places appear to be the only early extant large thermal power stations on this list:

- Portsmouth Naval Hospital, Central Power House, West corner, intersection of The Circle & Barton A, Portsmouth, (Independent City) County, VA (no date given, photographs suggest construction in the early twentieth century, possible as late as the 1920s).
- Pratt Street Power Plant, South of Pratt Street on Pier 4, Baltimore, (Independent City) County, MD (constructed 1900-1909, decommissioned 1973, converted to entertainment venue 1984 including removal of plant and equipment save an unspecified 'small historic exhibit'; undated report notes that the entertainment venue failed and the place had then been vacant for several years).
- Portland General Electric Company, Powerhouse Exte, 1841 Southeast Water Street, Portland, Multnomah County, OR (constructed 1929; 1988 photographs show extant plant and equipment).
- Fair Lane, Powerhouse, 4901 Evergreen Road, Dearborn, Wayne County, MI (constructed 1914).
- Edison Electric Illuminating Company, Charles L. E, Bridge Street at Fore River, Weymouth, Norfolk County, MA (constructed 1923, operational to 1970, declared a historic monument in 1976, vacant 1984 at time of report).

The information available is mostly close to twenty years old, and it is not know whether any of these places remain extant, or whether any of the plant and equipment is in situ at surviving power stations. A number of other early power stations are noted in the HABS/HAER list as having been demolished.

- In Riga, Latvia, a thermal power station at Andrejsala began a centralised electricity supply in 1905. *Andrejsala Power Station* was incorporated into the main electricity supply for Latvia in 1997.[65] The 1905 power station continued in operation until 2003. It was powered by oil and natural gas and retains 4 1935 steam boilers (operational from the late 1940s), one 1965 boiler and two 1971 boilers. A 1910

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62 http://www.capetown.gov.za/home/history.asp; http://www.southafrica.net/heritage/heritage_routes/waterfront.cfm, 1 June 2004

63 http://www.peleast.org/RR_Fall_2002/14_chester.pdf, 1 June 2004

64 http://lcweb2.loc.gov/ammem/hhquery.html 1 June 2004

65 http://www.ihp.lt/gateway/lv/lv_milestones.html ; http://www.latvenergo.lv/en/latvenergo/3_2_14.php, 1 June 2004

turning lathe is also operational in the work room. Plans are underway to convert the place into a museum.[66]

- The former Tagus Power Plant in Lisbon, Portugal, also operates as an electricity museum. The buildings were constructed in 1914, with major extensions in 1924, and the Museum of Electricity features the restored coal-fired generating equipment in situ.[67]
- *North Duisburg Landscape Park,* in the Ruhr Valley in Germany, includes a power station constructed between 1905 and1911 as part of a steelworks and foundry. No workings remain at the place, and it has been developed as a concert venue.[68]

A search of an international museums list linked to the website of the International Committee for the Conservation of the Industrial Heritage revealed no power stations functioning as museums, although links to a small number of listed science or technology museums were no longer valid. National heritage organisations through Europe, linked to the European Heritage Network, did not have searchable databases, and were often unavailable in English translations.[69]

While a comprehensive international assessment of comparative examples was beyond the scope of this assessment, it appears that *East Perth Power Station* is one of a small number of pre-1918 power stations in the world to retain plant and equipment in situ.

East Perth Power Station is rare in Australia, and possibly in the world, as a large thermal power station retaining its plant and equipment, constructed prior to the end of World War One.

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66 Sergey Petrov, Deputy of Chief of Technical Department, Riga Thermal Power Plant, e-mail to Clare Schulz, 28 May 2004.

67 http://atelier.hannover2000.mct.pt/~pr136/Port/ingMuseuElect.htm 1 June 2004

68 http://www.ruhrtriennale.de/en/?page=/en/spielstaetten/geblaesehalle/historie.html, 1 June 2004

69 http://vlmp.museophile.com/world.html;http://www.european-heritage.net/sdx/herein/european_heritage_program/presentation.xsp http://www.mnactec.com/TICCIH/herit.htm#List 1 June 2004

13.5 FURTHER RESEARCH

A thorough search of national heritage registers in other countries, especially major industrialised European countries, may identify further comparative examples.

An industrial archaeologist would need to be engaged to relocate, recover and reinstate original plant material at the place.