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 November 1996 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 4.1.5 Developing city centres
- 4.2 Supplying urban services
- 8.10.5 Advancing knowledge in science and technology
- 8.13 Living in cities and suburbs

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 209 Technology and technological change
- 308 Commercial and service industries
- 402 Education and science
- 404 Community services and utilities
- 507 Water, power, major transport routes

11. 1 AESTHETIC VALUE*

Electricity Substation, Fremantle (fmr) (1933) is a fine example of a substantial utilitarian building constructed in the Inter-War Functionalist style. (Criterion 1.2)

The large double volume interior space of the main building displays elements of 1930s industrial architecture that are both practical, functional and aesthetically pleasing. (Criterion 1.2)

11. 2. HISTORIC VALUE

Electricity Substation, Fremantle (fmr) (1933) is associated with the story of the provision of power in Western Australia, having been originally constructed for the 'Fremantle Municipal Tramways and Electric Lighting Board' and subsequently taken over as a Substation by the State Energy Commission in 1952. (Criterion 2.2)

Following its closure as a Substation*, Electricity Substation, Fremantle (fmr)* (1933) was adapted by Western Power as an Energy Museum and then an

* For consistency, all references to architectural style are taken from Apperly, R., Irving, R., Reynolds, P. *A Pictorial Guide to Identifying Australian Architecture. Styles and Terms from 1788 to the Present,* Angus and Robertson, North Ryde, 1989.
For consistency, all references to garden and landscape types and styles are taken from Ramsay, J. *Parks, Gardens and Special Trees: A Classification and Assessment Method for the Register of the National Estate,* Australian Government Publishing Service, Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA*, unpublished report, 1997.

Energy Education Centre, which operated from 1989 until 2009, continuing the buildings' long association with the story of the provision of power in the State. (Criterion 2.2)

Electricity Substation, Fremantle (fmr) (1933) played an important part in the development of the City of Fremantle in that it enabled the expansion of the tramway system and provided for the subsequent increase in demand for electricity. (Criteria 2.2 and 2.4)

11. 3. SCIENTIFIC VALUE

Although the machinery has been entirely removed, the form, detail and layout of the place, and its history, have potential to inform an understanding of electricity production in this State. (Criterion 3.3)

11. 4. SOCIAL VALUE

Electricity Substation, Fremantle (fmr) (1933) is important to the community for its associations with the story of the provision of power in Western Australia. (Criterion 4.1)

Electricity Substation, Fremantle (fmr) (1933) is valued by the local and wider community following its adaptation to an Energy Museum and then an Energy Education Centre, which operated from 1989 until 2009. (Criterion 4.2)

Electricity Substation, Fremantle (fmr) (1933) contributes to the community's sense of place, having played an important part in the development of Fremantle and later as an educational resource in its role as an Energy Museum and an Energy Education Centre. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12. 1. RARITY

Although now redundant *Electricity Substation, Fremantle (fmr)* (1933) has rarity value as a building form that is no longer common. (Criterion 5.1)

12. 2 REPRESENTATIVENESS

Electricity Substation, Fremantle (fmr) (1933) is a good representative example of an Inter-War Functionalist style industrial building, which demonstrates the characteristics of 1930s industrial architecture being both practical, functional and with spare decoration. These physical characteristics reflect the austerity of the times. (Criterion 6.1)

12. 3 CONDITION

The structure and fabric of the buildings are in good condition. The adaptation of the place to an Energy Museum in 1989 has resulted in regular maintenance. A structural Inspection Report of the main Substation Building (1933) in 2009 found the place to be structurally sound. Only minor cracking of stucco finish to concrete elements was noted.

12. 4 INTEGRITY

The original intention of the buildings remains evident despite the removal of the plant and all equipment. The adaptation of the place to an Energy Museum has resulted in some alterations and additions to the fabric of the buildings, therefore the place has a moderate degree of integrity.

12. 5 AUTHENTICITY

The main Substation building (1933) retains its original scale, form and fabric. The original plant and all equipment have been removed in the process of the adaptation of the place to an Energy Museum. This process has also required some alterations and additions to the fabric of the buildings. Therefore the authenticity of the place is moderate.

13. SUPPORTING EVIDENCE

The documentation for this place is based on information received for a Government Heritage Property Disposal referral completed by Ronald Bodycoat for Western Power in May 2010.

The remainder of the documentation was provided in a subsequent in-house heritage assessment completed by Office of Heritage staff in January 2011, with amendments and/or additions by the Office of Heritage and the Register Committee.

13. 1 DOCUMENTARY EVIDENCE

The discovery of gold in the Kimberley, Murchison and Eastern Goldfields regions in the 1880s and 1890s had a significant impact on the development of Western Australia. Like other areas throughout the State, Fremantle was transformed as a result of the gold boom and the subsequent huge increase in population.[1] Although the majority of immigrants passed through Fremantle on their way to the goldfields, a large number stayed on, finding work on the wharves and in the factories and foundries that were being established in the outlying areas of Fremantle.

Residential development of the areas to the east, south, and north of the Fremantle townsite proceeded apace through the 1890s, and into the first decade of the twentieth century. In 1901, the population of the Municipality was 14,700, a little over half the size of Perth.[2] By this time Fremantle residents were calling for an electric lighting and tramway system comparable with that already in place in Perth.

In 1898 a proposal to install electric lighting and a tramway system in Fremantle was dropped because of the Council's concerns that the financial undertaking might be too great a burden on the small number of ratepayers. In 1903, a second proposal led the way to the establishment of the Fremantle Municipal Tramways and Electric Lighting Board, a co-operative venture between the Fremantle and East Fremantle local government authorities. In February 1905,

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1 Stannage, C. T., *The People of Perth*, Perth City Council, Perth, 1979, pp. 193 – 194.

2 Stannage, C. T. *The People of Perth: A Social History of Western Australia's Capital City* (Perth City Council, Perth, 1979) pp. 242-243.

the board signed an agreement between the two councils and Noyes Bros. for the construction of the tramway, which began immediately. [3]

Meanwhile, tenders were called for the construction of a carbarn, and a contract was awarded to Abbott & Rennie for both a carbarn and a powerhouse. The powerhouse was constructed on the westward side of Arthur's Head, and the carbarn, completed in July 1905, was built at the western end of High Street. The tramways and electric lighting system were officially opened on 30 October 1905, although only two of the four routes were operational. Eventually, the tram system was expanded to service North and East Fremantle, Melville, and Point Walter.[4]

In January 1916, the Fremantle Municipal Tramways Board signed an agreement to source their electricity from the East Perth Power Station for 25 years duration, with the option of renewal for a similar period capped at .85 pence per unit with no provisions for price adjustments or increases. In effect this meant that the government was providing power at less than the cost of production. [5] This agreement meant that large scale conversions were necessary and plans were set in place to build a new electricity substation in Queen Victoria Street. However, with the outbreak of World War One, this proposal was delayed for several years.[6]

In 1923 a new carbarn was constructed adjacent to the Electricity Sub-Station in Queen Victoria Street due to overcrowding at the High Street carbarn, which was eventually converted for use as a running shed. In 1926 new tramway workshops were constructed on Beach Street to service the Queen Victoria Street operation. During this time the popularity of the tramways grew resulting in the expansion of the tramway system and a subsequent increase in the consumption of electricity. This increased demand necessitated the construction of another new electricity substation.[7]

In 20 January 1930, after acceptance of their offer of £500, the Fremantle Municipal Tramways and Electric lighting Board acquired Fremantle Town Lot 1508, located on the corner of Parry and Quarry Streets from the Fremantle Municipal Council.[8]

In September 1931 the Board reported that a loan for the sum of £25,000 had been negotiated for the erection of a new Substation building and necessary equipment. However due to the prevailing post war economic conditions, construction plans for the new Substation were halted and the loan deferred, with £21,000 refunded to lenders until a time when the economy recovered.[9]

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3 J. de Burgh 'First Light' : *The Development of a State Government Electricity and Gas Supply in Western Australia, Part One,* p.98 (no publication date).

4 Additional information provided to the Office of Heritage by Ronald Bodycoat as a supplement to *Heritage Assessment, Electricity Sub-Station 1933,* May 2010.

5 *Conservation Plan: East Perth Power Station, Volume One,* prepared for the East Perth Redevelopment Authority and State Energy Commission of Western Australia, by Ronald Bodycoat, October 1998, p.6

6 Additional information provided to the Office of Heritage by Ronald Bodycoat as a supplement to *Heritage Assessment, Electricity Sub-Station 1933,* May 2010.

7 Ibid, R. Bodycoat, Supplementary information, May 2010.

8 National Trust of Australia (W.A) Historic Places Assessment Form for SECWA Museum Building, February 1993.

9 Ibid, National Trust.

By August 1932, however, the need for an additional source of power was so great that Allen & Nicholas were commissioned to prepare plans and specifications and tenders were called for the construction of the new Substation, with the tender awarded to C. W Melrose on 30 September that same year. [10]

Construction of *Electricity Substation, Fremantle (fmr)* was completed in 1933 but there were considerable delays with the installation of equipment until September 1934, when the Substation finally commenced operation. [11]

Following World War Two, the increase in the use of motorcars and buses impacted on the tramways, and with the demand for tramway services in decline, the Fremantle Municipal Tramways began to operate buses. The tramway continued to operate until November 1952.[12]

In 1946 the State Electricity Commission of Western Australia (SECWA) was established and took over responsibility for the government's electricity undertakings. In 1952 SECWA acquired *Electricity Substation, Fremantle (fmr)* which ceased operations as an Electricity Substation and was used as a storage facility. It is possible that the plant and equipment were also removed at this time.[13] In the same year the High Street carbarn was converted for use as a woolstores and the Queen Victoria Street carbarn became a bus depot.

In the late 1980s, Western Power put forward a proposal including architectural plans to the City of Fremantle to convert *Electricity Substation, Fremantle (fmr)* into a museum. The proposal was accepted and on 24 May 1989, the SECWA Energy Museum was officially opened by the Deputy Premier, David Parker. The Museum's role was to trace the development of electricity and gas in Western Australia through displays, exhibits and photographs and admission to the Museum was free. [14]

Due to its adaptation to a Museum, many alterations and additions were undertaken to *Electricity Substation, Fremantle (fmr).* In 1989, the main building was re-roofed in corrugated iron sheeting and the street verge paved. In December 1992, a wind turbine was erected at the site, and in 1993 a timber pergola was erected at the eastern side of the main building.

In July 1996, The SECWA Energy Museum became The Western Power World of Energy Museum, providing a hands-on education centre offering a range of curriculum-based educational programs for primary and secondary students as well as school holiday activities. With a strong focus on promoting awareness of a variety of energy and environmental issues, programs were presented by use of interactive displays and multi-media. In 2006/07 more than 12,000 students, attended the centre's programs and around 10,000 members of the public visited the centre, most during school holidays. School holiday activities included interactive shows such as 'Kids in the Kitchen' cooking workshops, and 'Science Alive' shows.[15]

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[10] Ibid, R. Bodycoat May 2010 p.8.

[11] Ibid, National Trust

[12] Ibid, Ronald Bodycoat, Supplementary information, May 2010.

[13] Ibid, Bodycoat, p.9.

[14] SECWA brochure June 1989.

[15] Department of Education, School Excursion Providers. Available www.det.wa.edu.au/schoolexcursions.

In 2008, funding issues resulted in the World of Energy Museum ceasing operations, and the entire contents of the former Museum were gifted by Western Power to the South West Development Commission (SWDC). In 2009, SWDC began investigating a proposal to relocate the World of Energy collection to the region. The collection is the largest of its kind in Western Australia and includes the *East Perth Power Station* Turbo Alternator, early diesel generators from the 1920s through to a fully functioning wind turbine generator, antique domestic appliances and interpretive materials on sustainable energy. In 2011, the collection is stored at the Bunbury Port.[16]

13. 2 PHYSICAL EVIDENCE

Electricity Substation, Fremantle (fmr) is located at 12 Parry Street, Fremantle and comprises a double volume brick Electricity Substation (1933) in the Inter-War Functionalist style, and Outbuilding with adjoining Workshop (fmr) (1939). The New Distribution Substation, which is still operation in 2011, is not included in this assessment.

Main Building (1932)

The main building comprises the former Substation (1933), a large double volume brick building in the Inter-War Functionalist style, which has undergone modifications since its original construction most recently due to its adaptation as a Museum in 1989.

Externally the upper section of the building is constructed of red face brickwork laid in Stretcher bond. The roof is high pitched and clad in corrugated galvanised steel. The main entrance on the Parry Street façade has a pediment above the main doors with the lettering S.E.C SUBSTATION 1932. An awning continuous along the Parry Street façade is supported on timber brackets, with the original front doors set back in a recess central to the façade. Lintels and beams at lower window height, and eaves to the western and eastern walls are rendered and painted cream. There are five tall windows to the upper level at the north and south gable ends and four horizontal windows to the east and west elevations. All windows are steel framed with small panes. Large double timber doors are located in the south wall.

Internally the building comprises a main hall approximately 25m x 16.5 m x 8.5 m high. Walls are of painted brick and are reinforced with projecting brick piers that match the piers supporting the mezzanine, which extends the full length of the building. The mezzanine, which has a concrete floor is approximately 5.5m wide, and is accessed by a single stairway. The east and west walls comprise a series of bays with projecting brick piers which support a steel beam upon which a mobile crane runs. The ceiling is of caneite panels with timber battens.

Outbuilding and adjoining Workshop (fmr) (1939)

The Workshop is a high volume red brick building with a corrugated galvanised steel skillion roof. The upper section of the external walls are rendered and painted cream. Steel framed windows extend the full length of the south wall at roof level. A sliding timber service door is located in the south wall, and a single door is located in the western wall together with a small steel framed window.

[16] South West development Commission, December 2009 e-Newsletter. Available www.swdc.wa.gov.au/media-centre/our-newsletter/December-2009.

Internally a mezzanine extends the full length of the northern half of the building, and is framed in timber in four bays with a timber floor. The mezzanine is accessed by a narrow timber stairway on the north wall. Internal walls are painted brick and the floor is concrete with carpet tiles. From 1989 the Workshop was adapted for use as a classroom/activities area.

The adjoining Outbuilding is a single storey red brick building with a corrugated galvanised steel skillion roof. The floor plan comprises six bays, which were originally in use as garages. The roof is at a higher level in the two southern bays. Internal walls are painted brick and are reinforced with brick piers, and the floor comprises painted brickwork. The western wall has been enclosed with glazed aluminium framed windows, with entry doors located at the southern end. Some original internal posts have been removed for Museum display purposes. The store bay at the northern end of the building is enclosed and the original door replaced with a steel roller shutter door. [17]

13. 3 COMPARATIVE INFORMATION

The following two Substations are on the State Register of Heritage Places, although they are not comparable to *Electricity Substation, Fremantle (fmr)* (1933) in terms of their smaller scale;

- 04633 *No 6 Electricity Sub Station* (fmr) East Perth (1924-1945) – comprises a single-storey red brick and fibro cement building with a corrugated fibro cement roof.
- 05424 *Electricity Sub Station, Hay Street*, Subiaco - comprises a small, one-room, red brick building with gabled roof, with several decorative features, including a pair of timber framed front doors, centrally located, with a terracotta tiled awning above. The original equipment has been removed, but it still operates as a distribution substation (in 2006) with new upgraded equipment.

Sub Stations in the Assessment program include;

- 02072 No. 2 Sub Station, Murray Street (1914) – comprises a two storey red brick former electrical substation that operated as a substation until c.2005. Has a large, arched central entry at the ground floor, four replacement windows on the upper floor as well as four new windows created when the balcony was enclosed. The building originally had picture windows at ground floor either side of the main entrance, but these have been bricked in. The interior features a wide central corridor with bays either side and a large room at the rear.
- 02233 No.3 Sub Station, West Perth (1914) – comprises a two storey former substation, now converted to apartments. Built to a standard plan as part of the early electricity distribution network, it has had changes to the exterior and interior but still retains its overall form and exhibits some original design detailing.

[17] A key source of information for the Physical Evidence section of Electricity Substation, Fremantle is *Heritage Assessment, Electricity Sub-Station 1933,* prepared by Ronald Bodycoat for Western Power, in May 2010, pp.9-16.

- 17629 No.4 Sub Station, Stuart Street, Perth (1914-1916) – comprises an imposing two storey brick substation, built to a standard plan, exhibiting a high degree of authenticity and integrity. It has retained, and still operates with its original equipment and features evidence of its original installation at 40Hz. Minor changes include infill of the circular windows to prevent access, and removal of the second storey equipment, but, unlike comparable sub-stations in the series, it has not been rendered, painted or converted to other uses.
- 17707 No.1 Sub Station, Wellington Street, Perth (1913) – comprises a standard plan former substation, part of the electricity distribution network constructed at the time of establishment of the East Power Station. A two story painted brick building with hipped roof. It shows evidence of minor modifications but still retains its overall form.

Other electricity Substations constructed in residential districts for the purpose of generating or distributing electricity to the locality, include the following places;

- Subiaco, Rokeby Road (1911) – originally constructed as offices for the local Health Board, and converted for use as a Substation in 1923, drawing power from the East Perth Power Station. This place is now the Subiaco Museum.
- Claremont, Stirling Highway (1923) – a small brick Substation constructed to generate and distribute electricity to the locality. The place is now a commercial outlet.
- Cottesloe, 496 Stirling Highway (c1930s) - now in use as a commercial showroom.

Electricity Substation, Fremantle (fmr) is a fine example of a substantial Inter-War Functionalist style building, which demonstrates the characteristics of 1930s industrial architecture, and one which has had a long association with the story of the provision of power in the State.

13. 4 KEY REFERENCES

'Electricity Sub-Station 1933, Heritage Assessment', prepared by Ronald Bodycoat for Western Power, in May 2010.

13. 5 FURTHER RESEARCH

Further research could be undertaken on the development of *Electricity Substation, Fremantle (fmr)* in relation to the various buildings and their functions as well as their original contents (such as the crane).