



WHAT IF? WHAT NEXT?

# **SPECULATIONS ON HISTORY'S FUTURES**

## **SESSION 2A**

### **ROUTES TO THE PAST**

**Critical, Cultural or Commercial: Intersections  
Between Architectural History and Heritage**

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# **THE ARCHIVE OF POWER: DRAWINGS AND WANGI POWER STATION**

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*The power station at Wangi Wangi, located on the edge of Lake Macquarie in New South Wales, is one of the largest and most ambitious pieces of architectural infrastructure in Australia's post-war history and marks a key shift in approaches to both power production and industrialisation. Built across a decade of construction at the culmination of the Second World War, the power station was the result of a drawn archive of over 8000 architectural drawings, which meticulously document every element and fragment of the building: its siting, its detailing, the machinery and its eventual operation and connection with the state's electrical grid. The intensive and technical nature of the project, which required over 1000 workers to complete, dramatically transformed the landscape of both Wangi, NSW and the nation.*

*In 1985, Wangi Power Station was decommissioned, in part due to the completion of nearby Eraring Power Station, which offered significantly greater productivity and efficiency than the older plant. In the period since its closure, Wangi Power Station has become a site of ongoing dereliction and decay. In the 1990s, most of the station's machinery was documented and removed and the shell of the building was progressively layered with a tapestry of graffiti and vandalism, which has continued up to today. These twin archives—the “constructive” and the “deconstructive” one—record two very different, but related cycles of industrialization: in the first, a mass mobilization of infrastructure, labour and technical innovation in the post-war period; and, in the second, cycles of social change, subculture and infrastructural obsolescence. Across these cycles, the imposing brick structure of the power station itself has faithfully recorded the delicate subcultures of its suburb and wider region, as well as signifying the economic cycles of capitalism which first catalysed and then ultimately condemned the building's existence. As Achille Mbembe has argued, any archive is always both an epistemological and an architectural enterprise, in which the preservation and construction of knowledge about the past remains inextricable from the spatiality of its presentation. The discussion pursued in this paper therefore attends to Wangi Power Station as an archive that can reveal specific insights into a much broader architectural history of post-war New South Wales, as well as a more general history of Australian industrialization.*

## Introduction

Wangi Power Station (originally known as Lake Macquarie Power Station) is one of the most ambitious, unique and architecturally significant examples of industrial infrastructure from twentieth-century Australia. Planning for the power station began in the mid 1940s, and it was operational by 1958. Where subsequent thermal plants for the production of electricity were characterized by lightweight, adaptable and skeletal structures,<sup>1</sup> Wangi Power Station was constructed of heavy brick, leading to a profile that still dominates the backdrop to the small and peaceful coastal townships of Arcadiavale and Wangi Wangi, on the shores of nearby Lake Macquarie.

Few industrial projects in Australia's history have had the same level of architectural ambition, or one-directional political support as Wangi Power Station.<sup>2</sup> Designed by C. H. Smith & Johnson Architects, Wangi is a state-heritage listed item, regarded as significant primarily due to the aesthetic distinctiveness of its expressionist architecture and the creativity of its technical innovations, as well as its status as the "show piece" of post-war power generation in the state of New South Wales.<sup>3</sup> In strictly architectural terms, Wangi Power Station marks a shifting paradigm in the design of power stations, embodying the last in the English tradition of heavy, masonry shell constructions, and the first in a new era of transport-based energy infrastructure which would reshape electricity distribution for the second half of the century.

When the ten-year process of construction began in 1949, a large area of bushland was cleared and replaced with a transient township of tents for the more than 1000, primarily Italian, migrant workers who were required in order to construct the project. After more than a decade, the imposing structure emerged from the natural landscape as an industrial monolith set against the sleepy and idyllic setting of brick-and-tile Australian suburbia. The inauguration ceremony of Wangi Power Station was attended by both the NSW Premier and the Australian Prime Minister, as well as other notable figures, including William Dobell, whose house and studio sat just a few hundred metres from the site.<sup>4</sup>

One of Wangi Power Station's primary distinctions, however, is the fact that it was the first power station in Australia to be constructed directly on a coal seam, effectively welding the mining and energy histories of the Hunter region and—as will be discussed further below—connecting both of these to the new forms of domesticity that were emerging throughout New South Wales at this time. At its peak, Wangi Power Station supplied one-third of the state's electricity, much of which was consumed by the new appliances that characterised the so-called "all-electric home".<sup>5</sup> Simultaneously, Wangi also became a crucial site in the 35-Hour Week Campaign: the most significant post-war labour dispute in the state, reflecting the low socio-economic, heavily working class identity of the suburbs and surrounding communities.<sup>6</sup> In these ways, a history of Wangi Power Station sheds light on the relationship between architecture, resources and energy production in Australia, in turn revealing substantial overlaps with today's national discussions surrounding energy generation, supply, infrastructure and security.<sup>7</sup>

## The Politics of Infrastructure

As the first power station in Australia to be situated in proximity to the coal seams that fuelled it, as opposed to within the metropolitan community that would draw from it, the construction of Wangi coincided with a vast program of innovative infrastructural development throughout post-war New South Wales. This included the intended electrification of the state's railway system, the introduction of high-voltage transmission lines, as well as the construction of large infrastructure projects, including the Snowy Mountains Scheme and the Warragamba Dam, among others.<sup>8</sup> Taken together, these infrastructures formed a matrix of functions and connections that facilitated a more reliable and further-reaching supply of electricity, whether to sprawling sub- and ex-urban households, or to parts of regional New South Wales.

As Andrew Barry has suggested, infrastructural matrices of this kind can also be conceptualised as "technological zones" in which production—in this case of electricity—is spatialised across

trans-local connections. In keeping with Barry's observations, Wangi Power Station can be viewed as an important component in a technological zone that connected a multitude of sites: from subterranean coal seams, to rail yards, to electricity easements, to suburban kitchens and urban workplaces. In this way, Wangi was also a political instrument, designed to consolidate the state's production of energy to a growing market of consumers at a time when the Labor government's capacity to address the state's ailing power supply had become a highly politicised issue.<sup>9</sup>

Exceeding Wangi's role within the electoral politics of post-war New South Wales, however, was arguably the project's contribution to the more substantial, less immediate politics of the state's modernisation. This was a politics that drew on infrastructural development, such as electricity production, in order to secure the productivity and reliability of the New South Wales population within a modern industrial economy. With the increasing electrification of suburban households, which, in the 1960s, were replete with new forms of electric refrigeration, lighting, cleaning, cooking and other electrified domestic labour-saving devices, electricity supply had become fundamental to the political economy of the state as a whole. Load-shedding and blackouts were therefore not merely pragmatic measures or technological failures, but they now threatened the new forms of domestic life that the much-touted all-electric home had inaugurated over the previous decades. Housewives, for example, complained that irregular blackouts meant preparing meals at a reliable time became effectively impossible, which in turn disturbed important domestic routines.<sup>10</sup> Such disruptions flowed-on into productivity at work and participation in family life – an argument also made by industry advocates and employer representatives.<sup>11</sup>

This is to say that Wangi Power Station, in addition to the architectural merit and technical sophistication that are emphasised in its state heritage listing, was also inextricable from the social, economic and political history of post-war New South Wales. As one of four coal-fired power stations lining the shores of Lake Macquarie and Lake Munmorah, Wangi continues to provide a physical reminder of the dramatic expansion of the electrical grid in Australia after the Second World War, as well as of the changing nature of housing and everyday life precipitated by the emerging suburbs.<sup>12</sup>

The remainder of this paper extends the present discussion by addressing two specific aspects of the documentation of Wangi Power Station: firstly, the "constructive" archive of hand-drawn construction drawings that record the machinery and its fabrication in meticulous detail; and, secondly, through the accumulated "deconstructive" archive of graffiti that has layered the building's shell since its decommissioning. Both archives document the building's status as a relic of post-war sub-cultural dereliction, and the expanded historical framework of post-industrialisation. The layers of social and industrial history that are embodied in the neglected structure will be revealed through an investigation of the drawn archive as a historical record, with an acknowledgement of the broader historical role of drawing archives, and architectural drawing specifically, in the post-war period.

### **Architectural Drawing and the Archive**

There has been a recent resurgence in the scholarship and historicisation of drawing<sup>13</sup> and, specifically, in the scholarship of architectural drawing.<sup>14</sup> While a lot of this scholarship has been focussed on historical paradigms<sup>15</sup>, especially those of the neo-avant-garde, there has also been a reappraisal of the role of drawing within architectural culture generally, as well as the role of exhibitions and archives.<sup>16</sup> As Achille Mbembe has proposed, "the status and the power of the archive derive from [the] entanglement of building and documents."<sup>17</sup> In the context of architectural historiography, scholarship of this kind has served to increase awareness around the relationship between the spatiality of the archive as a site of knowledge production and the physical architecture itself that the archive documents.

Central to this scholarly shift is a recent work by Jordan Kaufmann. Kaufmann's work locates this trend in the 1970s when the architectural drawing emerged as a specific mode of historical

information that, beyond the specific construction of a building, began to speak to a broader social and cultural context within which such drawings were produced. As Kauffman writes,

“... through a confluence of factors in the 1970s and 1980s, architectural drawings emerged from this marginal role and came to be perceived as autonomous objects. This led to a complete rethinking of architecture. Its conventional definition as bricks and mortar was questioned, as the relevance of architectural drawings gained traction in discourses about the meaning of the architectural. At an extreme, some believed that buildings were merely representations of the drawings, and that architecture was embodied in the drawings themselves.”<sup>18</sup>

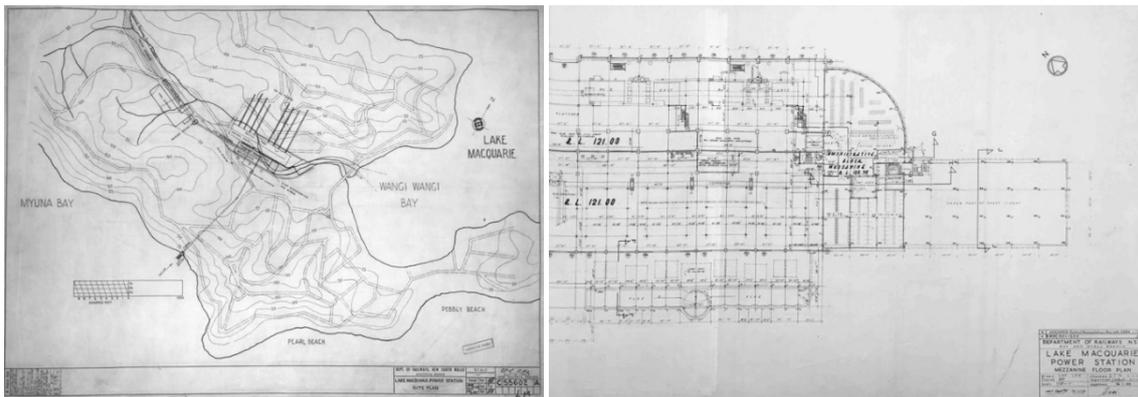
A key moment for Kaufmann was the 1977 MOMA exhibition, entitled *Two Hundred Years of American Architectural Drawing*, which exhibited architecture solely through drawings of buildings, effectively constructing a canon of architectural drawings, as opposed to seminal buildings.<sup>19</sup> While there was an increased scholarship around drawing in this period, and a dramatic expansion of the role of drawing as a creative product, rather than a process, it tended to focus on the more graphic and publishable modes of architectural representation, rather than the more prosaic and pragmatic forms of architectural documentation, which went largely unnoticed. There was, however, the emergence of a typology of architectural gallery and drawing archive that emerged from this period, particularly in North America and, in the following decade, across Europe. This was less noticeable in the Australian context, although a number of drawing collections emerged, primarily linked to university libraries (Melbourne University Architecture, Building and Planning Library; University of Sydney SciTech Library; the Fryer Library, linked to University of Queensland and the Architecture Museum at the University of South Australia), state archives and libraries (in particular NSW and Victoria which have extensive collections), museums (the Powerhouse in Sydney, for instance) or private collections. What is noticeable is a similar trend towards architectural drawing as a product that exists autonomously from building in broader architectural practice, particularly in the Melbourne context, but equally significantly in Brisbane, Sydney, and Perth.

The historicisation of architectural drawing dates largely from this period, where there is a noticeable shift in awareness around the value of architectural documentation as a social and architectural artefact as well as, in the case of Tafuri and others, as a political object.<sup>20</sup> This was both at a broader level of architectural culture and criticism, but also at a curatorial and archival level. It was in 1980 that the International Council on Archives first acknowledged architectural plans as a specific category of archival knowledge requiring specific care and consideration – an acknowledgment that coincided with the replacement or disuse of aging industrial sites globally.<sup>21</sup> In many cases, the drawings produced of demolished industrial architecture comprise an important remnant which, when paired with archival photos and oral histories, provide important architectural information to the historian and scholar. Moreover, the archive not only documents a representational version of the realised building, but also contains evidence of the processual, contingent and negotiated nature of architectural design and construction.

### **The Constructive Archive**

As has been argued recently, historians of Australian architecture have tended to neglect “industrial sites and architectures, due to the inadequacy of our research methods and historiographical preferences.”<sup>22</sup> These observations extend to Wangi Power Station, which remains largely undocumented in the historical record other than on the basis of its technical innovations and stylistic commitments. The specific role of technical drawing in industrial architecture has been the subject of some scholarship though, and is prefigured, for instance, in Giedion’s *Mechanisation Takes Command*,<sup>23</sup> which uses emotionless patent drawings to illustrate his argument about dehumanisation through industrialisation. Notably, the subtext claims a “contribution to anonymous history” which further acknowledges the role of both drawing and the archive, in recording the less celebrated or transient moments of industrialisation.

This historiographic reception notwithstanding, the survival of the drawn archive of original drawings from Wangi Power Station was largely accidental and now provides a rich historical resource of more than 8000 documents. These drawings capture the major stages of construction in meticulous detail, starting with significant earthworks and tunnelling; the construction of an artery train line to connect Wangi with existing coal infrastructure; the development of an interwoven system of hydraulic pumping, which drew water from two separate sides of Lake Macquarie; and extensive land clearing to accommodate the sprawling temporary village of migrant workers. While these stages of construction are faithfully recorded in the photographic archives of the Electricity Commission, including a range of aerial and site-based photographs taken at key stages, the architectural drawings themselves are distinguished by their clarity and the decisiveness through which the building's footprint was marked out at a geographic scale, almost irrespective of contour or context.



**Figure 1.** (L) Site Plan from the Wangi Archive, dated 1947.

**Figure 2.** (R) Floor plan of the admin building and junction with A Station, dated 1950. Source: UoN Cultural Collections.

The construction of the plant itself was undertaken in two distinct stages. The “A Station” was constructed initially, followed by the “B Station” – the two being separated from one another by the control room. The sectional drawing of the power station reveals a raised working level where most of the machinery was housed, as well as two large and continuous spatial volumes—the turbine hall and the boiler house—which extended nearly three-hundred metres along the east-west axis of the train line. Construction drawings were approved by the Chief Civil Engineer and collectively document the complex and interdisciplinary layering of responsibilities between the architect and the broader infrastructural agenda that the architecture was designed to facilitate.

The entire archival collection documenting the design, construction and operation of Wangi Power Station is housed at the University of Newcastle in an array of stacked plan cabinets, extending twelve bays in width, with over twenty drawers per bay. Each drawing is individually numbered in keeping with the original coding system used by the government and has been kept in the order in which it was first archived by the Electricity Commission, following the completion of construction. One primary characteristic of the Wangi Power Station archive and its storage is therefore the inherent lack of organisation in keeping with traditional architectural file management systems, leading to an abundance of disconnected information across diverse scales, as well as repeated replication of documents across the different drawers in which the archive is currently housed.

Another notable characteristic is the necessarily obsessive focus on mechanical detail in the drawings, and the very particular and precise documentation for fabrication – not just of machinery, but also of its housing. What is significant about the extent of this collection is the range and style of technical drawings (Figs 3 and 4); the large divergence of scale, from the micro design of details and fittings, to massive earthworks and infrastructural networks; and the

fragmentation of the building into a seemingly infinite number of parts and mechanical junctions, all meticulously drawn, documented and cross-referenced. Although the mode of storage and preservation of these drawings no longer reflects the comprehensive and precious nature of what the drawings describe, it would be possible to rationalise the collection in keeping with the building's construction, as opposed to the vagaries of the drawing's processing and administration by the Electricity Commission. Furthermore, the removal of the vast majority of Wangi Power Station's operating machinery in the 1990s means that, in some cases, this collection is the only extant record of the technology housed in the building, which once produced a significant proportion of the state's electricity supply. A final noteworthy characteristic of Wangi Power Station's constructive archive is the fact that numerous heritage reports have documented the eventual destination of key components of the plant's operating machinery. This effectively means that the drawing collection could in fact be connected with the geographical destination of the former machinery, providing a record of both the origin and ultimate resting place of this significant technology.

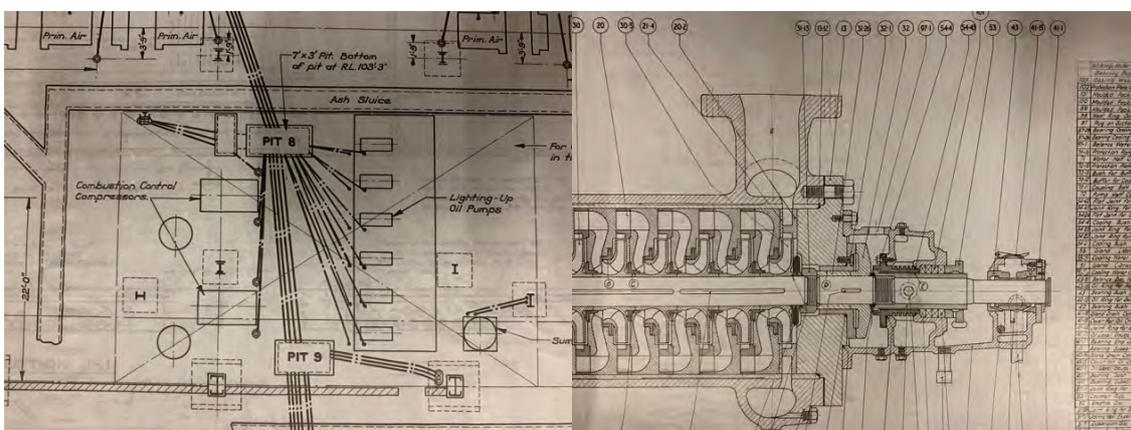


Figure 3. (L) Detail of Pit Layout from the Wangi Archive.

Figure 4. (R) Mechanical Detail from the Wangi Archive. Source: UoN Cultural Collections.

The value of Wangi Power Station's constructive archive is that, despite its unwieldy size and extents, it is the only faithful record of the building in its original, unencumbered state. Having been drawn with precision and conviction, the archive also hypothetically enables the future fabrication of any element of the building, at any point in time, either physically or digitally. The archive thus provides an important resource and insight into the culture of architectural and industrial production in this significant moment in the modernisation of power production and transmission in New South Wales and Australia.

In addition to the emergence of architectural drawing as a primary focus within 1970s international architectural culture, as described by Kauffman above, the collection of materials documenting the design, construction and operation of Wangi Power Station also embodies a particular historical moment in which the architectural drawing was understood to function as more than a mere instructional document for fabrication. The archive of Wangi Power Station treats architectural drawings as elements in a broader legal framework of institutional knowledge and property that needed to be protected and preserved. In this way, the archive also serves as a record of the state's shifting approach to electricity procurement and governance: having been initiated by NSW Government Railways, the construction of Wangi Power Station was ultimately referred to the Electricity Commission, resulting in a shift in the objectives of the project itself, as well as the documentation subsequently required. In this way, the constructive archive of Wangi Power Station attests to the bureaucratic arrangements and rearrangements that characterised post-war energy production in New South Wales and Australia more broadly.

### The Deconstructive Archive

If the archive of architectural drawings of Wangi yields a range of institutional and architectural information about the intentions and aspirations that were being constructed at Wangi in the 1950s, then the living archive of the building documents, equally faithfully, the social cycles of obsolescence and disuse in what constitutes a living landscape of counter-culture. When Eraring power station became operational in 1985, offering significantly greater capacity than the aging technology at Wangi, the latter immediately fell into disuse. This was quickly followed by the sale of all salvageable parts, furniture and equipment. Following the completion of a heritage study in 1990 the site was eventually sold to private owners in the early 1990s. In the interim, Wangi Power Station has experienced widespread deterioration and acts of vandalism, and is now in a perilous state of preservation. The building exists as a post-industrial ruin, reflecting the economic cycles of the Hunter region more broadly, at the same time as it reflects social histories of sub-cultural appropriation, from graffiti and dereliction, to youth refuge to cultural popularization, and then subsequent aestheticization and appropriation as an aging, but forbidden tourist drawcard.

This aestheticisation of decay is largely inseparable from global processes of post-industrialisation, and the emergence of street art and associated sub-cultures as a respected media of aesthetic production. In the 1970s, Rosalind Krauss described the emergence of a trend in which artistic production was directed away from the institutional gallery and into an expanded field of site-based sculptural work.<sup>24</sup> Krauss argued that this redirection tended to blur distinctions between art, architecture and landscape, while still remaining largely within accepted modes of artistic production, criticism and consumption. This cycle had begun a decade earlier with conceptual art, but in both cases still tended to prioritise a gentrified and educated model of creative production. The emergence and rapid dissemination of street art in the late 1970s, further pushed this cultural process away from accepted norms of art and into a much broader field of cultural production, which identified less with the traditional structures of art production and reception, instead embracing a residual and subliminal layering of content within the everyday world. This has also frequently been paired with processes of post-industrialisation, and cities such as Riga, Tallin, Berlin and Detroit have all paired aging and obsolescent industrial infrastructure with formal and semi-formal street art cultures.

The emergence and effective popularisation of street art in the 1980s, specifically in the United States through the hip hop culture which became central to a lot of Hollywood representations of counter-cultural movements, became mainstream in Australia throughout the 1980s and the backdrop to an emerging youth culture that was particularly resilient in post-industrial or mining communities outside of the major cities. The dereliction of Wangi Power Station coincided with this process and it now acts as a record of over three decades of layered spray-paint from a vast diaspora of youth subculture.



**Figure 5.** (L) Graffiti, Wangi (2020).

**Figure 6.** (R) Graffiti, Wangi (2020).

The building is therefore both the canvas and the archive for this history (Figure 5; Figure 6). With the evolution of terrestrial laser scanning and drone photogrammetry, new digital technologies have emerged that enable a much more faithful and highly precise record of these drawn surfaces and their relationship to the architecture. Just like the constructive archive discussed above, the graffiti that has been collected at Wangi is indiscriminate in terms of quality, application and location and often interspersed across timeframes. The subversive nature of these “drawings” also makes them impossible to date, although there are moments where specific historical or political moments have been inscribed.

The most recent adaptation of this cultural cycle of post-industrialisation has been the aestheticisation and representation of this archive as a localised form of cultural production, effectively translating the cultural cycles of American and European counter-culture into a form of local, place-based appropriation. The filming of the Newcastle 500 Supercar television advertisement in 2016, for example, in front of a backdrop of graffiti at Wangi, was one instance of the aestheticisation and localisation of the deconstructive archive. More significant, perhaps, was the 2019 series of *Home and Away*, which was filmed at Wangi over a three week period, where each frame is characterised by the layering of graffiti and dereliction in the background. In both cases, there is an appropriation of counter-culture as popular culture. If Wangi Power Station, as a building, can be understood as an archive of these drawings, then the architecture also records cultural and social shifts in production alongside the drawings themselves.

## Conclusion

As a result of its endurance, both as a building and as a record of historical social change, Wangi has the unique capacity to act as an archive of both the start and end of the industrialisation processes through an extensive body of drawing that has accumulated across its history. Despite the clearly divergent natures and audiences for these drawings, as well as the unique archival processes that are required, there is a subversive approach to history in this accumulated knowledge that recognises the role of drawing as an autonomous document of the social history of architecture. This is in line with a number of other aesthetic and cultural trends across its timeframe, and opens on to new ways of conceptualising drawing that are beyond just representation and engage directly with the social, political and spatial realities of architecture, and its broader cultural reception and dissemination.

Wangi Power Station exists at the intersection of numerous historical processes. As the thematic subsections introduced in this paper have attempted to demonstrate, these processes are made legible on the basis of an expanded understanding of the archive and its extents: from the collection of over eight-thousand drawings currently housed at the University of Newcastle, through to the fabric of the building itself and the lived histories of the workers who assisted in the building’s construction. As the present discussion has foregrounded, this expanded archive reveals an economic and social history of power generation in New South Wales in which industrial architecture was designed to facilitate technological zones of production, from coal seam to suburban household, and from the regions to the city. Wangi marks a significant shift in the paradigm of coal-fired power, having been designed and constructed at the site of coal extraction, as opposed to in an urban context. The building also sits at a particular junction of change between the dual ambitions for rapid industrialisation and modernisation of 1950s New South Wales, and their ultimate contraction and renegotiation decades later. As Australia continues to transition from its twentieth-century heavy-industrial economy towards a greater reliance on renewable energy, much of the infrastructure that was fundamental to the development of the nation in real terms has already been lost to privatisation, neglect and demolition; often before it could be adequately captured for posterity. This is despite the fact that developments such as Wangi Power Station are inextricable from the social, economic, technological, geographic and political processes that have shaped contemporary conditions.

## Endnotes

- <sup>1</sup> M. Fetscher, *The Power Makers: the Evolution of the Coal-Fired Power Station in New South Wales*. (Mayfield East: UoN Cultural Collections, 2018).
- <sup>2</sup> Gordon Anderson, *Fifty Years of Electricity Supply* (Sydney: Sydney County Council, 1955).
- <sup>3</sup> New South Wales Office for Environment and Heritage (2018), "Wangi Power Station Complex," last modified May 11, 2018, <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageltemDetails.aspx?ID=5014146>; see also: C and M. J Doring, *Wangi Power Station heritage study 1949 to 1986: an account of the construction, commissioning and operation of Wangi Power Station at Wangi Wangi, on Lake Macquarie, New South Wales, together with an assessment of its heritage significance and recommendations concerning the responsibilities of its owner under the New South Wales Heritage Act, 1977* (Whitlands, Vic.: Electricity Commission of NSW, 1990).
- <sup>4</sup> For more on the relationship to Dobell and Wangi Power Station, see: Scott Bevan, *Bill: The Life of William Dobell* (Sydney: Simon and Schuster, 2014); Elizabeth Donaldson, Robert Donaldson, *William Dobell: His Life, Art and Home* (Newcastle: Viscopy, 2011).
- <sup>5</sup> C and M. J Doring (firm), *Wangi Power Station heritage study 1949 to 1986: an account of the construction, commissioning and operation of Wangi Power Station at Wangi Wangi, on Lake Macquarie, New South Wales, together with an assessment of its heritage significance and recommendations concerning the responsibilities of its owner under the New South Wales Heritage Act, 1977* (Whitlands, Vic.: Electricity Commission of NSW, 1990).
- <sup>6</sup> Mark Peel and Christina Twomey, *A History of Australia* (New York: Pallgrave Macmillan, 2011); Peter Spearritt, *Sydney's Century: A History* (Sydney: UNSW Press, 2000). See also, M. H. Ellis, *A Saga of Coal: The Newcastle Wallsend Coal Company's Centenary Volume* (Sydney: Angus & Robertson, 1959).
- <sup>7</sup> See: Brian Larkin, "The Politics and Poetics of Infrastructure." *Annual Review of Anthropology* 42 (2013): 327-343.
- <sup>8</sup> Lenore Coltheart, *Significant Sites: History and Public Works in New South Wales* (Sydney: Hale & Iremonger, 1989); George Wilkenfield and Peter Spearritt, *Electrifying Sydney: 100 Years of Energy Australia* (Sydney: EnergyAustralia, 2004); George Wilkenfield, "The Electrification of the Sydney Energy System, 1881-1986" (PhD dissertation, Macquarie University, 1989); Stuart Macintyre, *Australia's Boldest Experiment: War and Reconstruction in the 1940s* (Sydney: New South Publishing, 2015); Beverley Kingston, *A History of New South Wales* (Cambridge: Cambridge University Press, 2006).
- <sup>9</sup> Ken Thornton, "'Political Immorality' or an Engineering Solution: Resolving the Electricity Crisis in Post-war New South Wales," *History Australia* 17, 1 (2020): 152-171. See also: Ken Thornton, "The Electricity Commission of New South Wales and its Place in the Rise of a Centralised Coordination of Bulk Electricity Generation and Transmission, 1888-2003" (PhD dissertation, University of Newcastle, 2015).
- <sup>10</sup> "Housewives Prefer Roster System to Blackout Plague," *Canberra Times*, 10 July, 1952, 3, cited in Thornton, *Political Immorality*, 165.
- <sup>11</sup> Thornton, "Political Immorality", 165.
- <sup>12</sup> George Wilkenfield and Peter Spearritt. *Electrifying Sydney: 100 Years of Energy Australia* (Sydney: EnergyAustralia, 2004). See also, M Fetscher, *The Power Makers: the history of the Central Coast and Hunter Valley Power Generating Stations*. (Mayfield East: UoN Auchmuty, 2001)
- <sup>13</sup> See, for instance: Katharine Stout, *Contemporary Drawing: From the 1960s to Now* (London: Tate Publishing, 2014); Isabel Seligman (ed.), *Pushing Paper: Contemporary drawing from 1970 to now* (London: Thames and Hudson, 2019).
- <sup>14</sup> Jordan Kauffman, *Drawing on Architecture: The Object of Lines, 1970-1990* (Cambridge, MA: The MIT Press, 2018); Paul Lewis, Marc Tsurumaki and David J. Lewis, *Manual of Section* (New York: Princeton Architectural Press, 2016).
- <sup>15</sup> Seminal and foundational histories from the millenium include: Robin Evans, *Translations from Drawing to Building and Other Essays* (London: Architectural Association, 1997); Massimo Scolari, *Oblique Drawing* (Cambridge, MA: The MIT Press, 2012); Karsten Harries, *Infinity and Perspective* (Cambridge, MA: The MIT Press, 2001); Laura Allen and Luke Caspar Pearson (ed.), *Drawing Futures: Speculations in Contemporary Drawing for Art and Architecture* (London: UCL Press, 2016).
- <sup>16</sup> See, for instance: Jeffrey Kipnis, *Perfect Acts of Architecture* (New York: Museum of Modern Art, 2001).
- <sup>17</sup> Achille Mbembe, "The Power of the Archive and its Limits," in Carolyn Hamilton, V.S. Harris and Michele Pickover, eds., *Refiguring the Archive* (Amsterdam: Springer Netherlands, 2002), 19.
- <sup>18</sup> Kauffman, *Drawing on Architecture*, 1.
- <sup>19</sup> Ada Louis Huxtable reviewing this exhibition asked "why the subject [of architectural drawing] has always had a kind of second class status. See: Kauffman, *Drawing on Architecture*, 25.
- <sup>20</sup> Tafuri argued against the withdrawal towards paper architecture, as complicit with a surrendering to the commercial forces of capitalism. This was an influential argument in the early 1980s. See: Manfredo Tafuri,

Sphere and the Labyrinth: Avant-Gardes and Architecture from Piranesi to the 1970s (Cambridge, Mass: The MIT Press, 1990) [orig. 1980]. Fellow marxist Frederick Jameson described Tafuri's position as "the bleakest of all, and implacably negative". See; Frederick Jameson, *Postmodernism Or, the Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991), 60.

<sup>21</sup> For the most recent guidelines and scholarship around caring for architectural archives see: International Council on Archives, *A Guide to the Archival Care of Architectural Records: 19<sup>th</sup>-20<sup>th</sup> Centuries* (Paris: ICA, 2000).

<sup>22</sup> Anoma Pieris and Mirjana Lozanovska, "Introduction: Industry and Architecture," *Fabrications* 29, no. 2 (2019), 3.

<sup>23</sup> Siegfried Giedion, *Mechanization Takes Command: a contribution to anonymous history* (New York: Norton, 1969), 2.

<sup>24</sup> Rosalind Krauss, "Sculpture in the Expanded Field", *October* 8 (Spring 1979): 30-44.