CHAPTER 1

EASTLINK PROPOSAL

Background

1.1 Although the potential benefits of interconnecting New South Wales and Queensland electricity grids had been discussed for several decades, it was not until December 1993 that the State Governments of NSW and Queensland, along with the Commonwealth Government, signed a Memorandum of Understanding to proceed with interconnection. This had been preceded by an agreement in principle, at the Adelaide Premier's Conference of 1991, to work towards the establishment of a national electricity grid, and a 1993 Council of Australian Government (COAG) agreement to the establishment of an interstate transmission network and a competitive national electricity market.

General Concept

1.2 The Eastlink proposal would connect the Queensland electricity grid with that of the south eastern states via a high voltage dual transmission line from Springdale near Gatton in Queensland, to Armidale in northern NSW (Figure 1.1). The line would be a 330kV double circuit steel tower transmission line having a length of about 380-40Okm, depending on the final route selected, and capable of carrying 50Ornw in either direction.

Project Rationale

1.3 Projections indicate that Qpeensland will require around 280 megawatts (mw) of new capacity in 1998 and between 200 and 30Omw each year thereafter to meet projected growth rates. NSW currently has surplus generating capacity and forecasts suggest that it will.not require additional capacity until about 2003. Connecting Queensland to the south-eastern grid would allow other states, and in particular NSW, to bid competitively to supply Queensland's future requirements.

1.4 Queensland's energy strategy for the period 1998-2006 is contained in its April 1995 Energy Policy Statement, a document based on the Government's Future Supply Consultative Electricity Task Force report of September 1994. The strategy includes: 'demand-side management, renewable energy, refurbishing and recommissioning power stations which had been closed and inter-State connection with NSW, as well as more conventional options for new generating capacity.

1.5 To allow Queensland to include interconnection among its options for extra supply in 1998, it is necessary to carry out initial feasibility studies for Eastlink now. These preparatory studies include completion of engineering and operational studies, the identification of a transmission line route and acquisition of property easements for the line.

Benefits of Interconnection

1.6 Connection of Queensland to the already connected electricity grids of southern Australia is an important element in the establishment of a competitive national electricity market. The specific benefits expected to be gained from interconnection through Eastlink are that:

- it will offer operational efficiencies as it will allow lower cost power generation in one system to replace higher cost generation in others;
- it will allow the deferral of new power station construction through increased reserve sharing across four states; and
- it will lead to greater efficiencies by increasing competition between power generators through trading in electricity between states (power interchange).

The Authorities

1.7 When the Memorandum of Understanding was signed in December 1993 the two state power authorities involved in Eastlink were Pacific Power (NSW) and the Queensland Electricity Commission (QEC). Since that time, both authorities have undergone major restructuring to separate the functions of electricity generation from transmission.

1.8 On 1 January 1995, the Queensland Electricity Transmission Corporation (QETC) was formed to assume responsibility for the bulk electricity transmission functions of the former QEC. It trades under the business name of *Powerlink* and is a subsidiary corporation of the newly formed Queensland Transmission and Supply Corporation (QTSC) which also has responsibility for all the former regional distribution Boards (now also Corporations). The general functions of the former QEC are now undertaken by *Austa Electric,* the trading name of the Queensland generating corporation. All corporations are Queensland Government owned and *Powerlink* has responsibility for Eastlink.

1.9 On 1 February 1995, the NSW Electricity Transmission Authority was formed as a separate NSW Government Statutory Authority to assume responsibility for the bulk electricity transmission functions of Pacific Power, with the

latter continuing to discharge all the remaining functions associated with electricity generation. The transmission authority operates under the business name *Transgrid* and has responsibility for Eastlink .

Commonwealth Involvement

1.10 The Commonwealth strongly supports the extension of electricity transmission links between the states on the basis of increasing the level of competitiveness among power authorities.

1.11 Under the 1993 Memorandum of Understanding, the Commonwealth agreed to pay one third of the cost of the work undertaken bly NSW and Queensland to assess technical feasibility, route selection and environmental impact up to a maximum of $7 million, with no more than $3.5 million going to each state. The contributions of the Commonwealth will be limited to $1 million in 1993/94 and $3 million in 1994/95 and 1995/96.

Technical Specifications

1.12 The transmission line proposed is to be a 330 000 volt (330kV) single transmission, high voltage alternating current line carrying two circuits with a firm transfer capacity in either direction of 50Ornw. The line must be capable of carrying 50Omw when one of its circuits is temporarily out of service for maintenance, or due to a fault. Connection points must meet several essential technical criteria and site selection has been narrowed down to one site in NSW (an existing high voltage substation near Armidale) and a green-field site in Queensland (a future high voltage substation at Springdale near Gatton). The transmission line would be similar to other 330kV lines around Australia, suspended from towers approximately 40-45 meters high and 400-450 metres apart in flat to undulating country. Other designs are being investigated for visually sensitive areas. The line would be able to transmit up to 50Omw of power between the two states.

1.13 The works required for Eastlink are:

- one double circuit 330kV transmission line between Armidale and Springdale;
- substation works at the existing Armidale 330kV substation;
- construction of Springdale 330kV Substation by QETC;
- minor substation works at a number of other sites in Queensland and NSW; and
- the construction of a double circuit 275kV transmission line between Springdale and Blackwall in Queensland. (This line, and some other small substation works would have been constructed at some later time anyway, so only advancement costs are attributed to Eastlink.

Costs

1.14 The present cost estimate for Eastlink is about $300 million. This includes all survey and engineering costs, installation costs of the line and substations at Armidale and Springdale, casement acquisition and compensation costs, an appropriate level of contingency cost and interest incurred during construction of the project.s

1.15 Operation and maintenance costs associated with Eastlink have been included in the evaluation and are estimated at nil for the first two years after establishment of the interconnection and conservatively at 1% of the c 1 cost per annum from the third year onwards.

Route Selection Process

Three different terms are used in describing the line taken by Eastlink:

Corridor: A general area or broad of land in which a transmission route may be located. The width of the corridor depends on land constraints. It may be as narrow as several hundred metres in critical areas or as wide as 10 kilometres in other areas.
Easement: A strip of land wide enough to construct, operate and maintain the transmission line. Easements required for Eastlink will generally be about 60 metres wide but may increase to 110 metres in some areas.
Route: The specific alignment on which a transmission line is built.

1.17 The process used to determine the ultimate path of the transmission line will have six stages:

- the identification of preliminary corridor concepts;
- the refinement of those concepts, with the aid of the community, into viable corridor options;
- the presentation to the community, for formal comment, of those corridors in a Corridor Selection Report;
- an evaluation of all community comment and environmental and other studies leading to the selection of a preferred corridor;
- the production and presentation of environmental impact assessment documents for the proposed transmission line within the preferred corridor in accordance with state legislation;
- the selection of a final route within the preferred corridor on the basis of the environmental impact assessment and community submissions, technical considerations and following consultations with property owners.

1.18 As shown in Figure 1. 1, two major corridors (Eastern and Western) with a series of link options (Western

Alternative, Central Corridor, Link 1, Link 2 and Link 3) were initially identified. Prior to the selection of a preferred corridor, the power authorities stated: 'At this stage, the Eastlink team has no preferred option and all corridors are being treated equally. The preferred corridor will be selected on an assessment of the relative impact of each of the corridors; the community submissions and the technical requirement for the line.

Figure 1.1 - Corridor an link options for Eastlilnk (Map available in hard copy report)

Western Corridor Selected

1.19 After extensive consideration of submissions to the selection process and after an assessment of the relative impact of each of the corridor options, notice was given in February 1995 that the Western Corridor (Corridor A in the Selection Process Report) had been chosen for refinement of an exact route. The project team is currently contacting landowners along the preferred corridor to have further discussions aimed at identifying an alignment of the transmission line so as to minimise impact. During the course of the environmental impact statement the corridor will be refined to an casement.

Easement Acquisition

1.20 When a transmission line is constructed across a property, the electricity authority does not normally purchase the affected land but acquires an casement. This allows the authority to maintain and operate the line while most normal farming and grazing activities remain unrestricted. Guidelines are provided which outline activities which are allowed, those which are restricted, and those which are prohibited along casements.

1.21 Ownership of the casement remains with the property owner but, by acquiring the right of casement, the authority is able to use the defined area for a specific purpose. In exchange, the property owner is entitled to compensation based on the impact of the casement, as it effects the market value of the property. However, neighbouring property owners, who may be affected by the visual impact of the line, are not eligible for any compensation.

1.22 The route acquisition process differs in each state: in Queensland the target date for approval of the line route is October 1995 following which line casements will be acquired; in NSW the target date for determination of the Environmental Impact Statement is June 1996, following which line casements will be acquired.

Work Program and Commissioning

1.23 According to the *Powerlink* Submission ' the proposed timetable for Eastlink is:

•Preliminary Environmental Impact Study - for public comment	February 1996
•Environmental Impact Study Complete	August 1996
•Field Construction Commences	April 1997
•Commissioning	December 1998

Role of the Committee

1.24 Although the Commonwealth has actively promoted and supported the concept of an integrated south-eastern electricity grid through interconnection, the Commonwealth's role in the specific matter of the Eastlink transmission line is only one of providing a contribution towards the funding of feasibility studies.

1.25 This Committee is similarly limited in its jurisdiction and thus limited in the recommendations it can make. It is not within the Committee's power to prevent or place a moratorium on the construction of Eastlink. That is a matter that can be decided only by the two states involved, NSW and Queensland.

1.26 However, having received a considerable amount of evidence from the communities affected by the proposal, and having conducted lengthy inspections and discussions with people in those regions, the Committee believes that it has a responsibility to report on the process leading to the selection of the western corridor. A large part of this report details many of the concerns that were raised in evidence about the location of the line, the consultation process, the social impact and local economic impact and the potential health effects. In this regard, the main role of the Committee has been to provide an opportunity for these and other matters to be fully disclosed.