



**Summary of Infrastructure Situation and Issues in the
Goldfields-Esperance Region**

Submission to the House of Representatives Standing Committee on
Primary Industries and Regional Services

7 April 1999

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Summary

This paper is a brief examination by the Goldfields-Esperance Development Commission (GEDC) of the current infrastructure situation in the Goldfields-Esperance region. The region includes the City of Kalgoorlie-Boulder, and the Shires of Coolgardie, Dundas, Esperance, Laverton, Leonora, Menzies, Ngaanyatjarraku and Ravensthorpe.

The GEDC a State Government organisation responsible for the promotion of economic and social development of the Goldfields-Esperance region in Western Australia. This region is about 771,276km² in size, hosts a population of nearly 60,000 people, and contributes more than \$3 billion annually to the state's economy through industries in mining, agriculture, manufacturing and tourism.

The major infrastructure issues in the Goldfields-Esperance region are:

- ◆ The high cost of gas and electricity for the region's residential, commercial and industrial users and the impact of changes to uniform tariffs;
- ◆ The quality of energy supply in some areas is sub-standard;
- ◆ The need for an urgent upgrade of the Leonora-Esperance railway line to remain competitive and keep rail freight in the region;
- ◆ Many roads in the region need repair and upgrading to service a wide range of increasing users;
- ◆ The telecommunications infrastructure in the region is not to an acceptable standard for residents and businesses, particularly mobile phone services and access to on-line services;
- ◆ Water shortages across the region. Support is needed for project to supply fresh water from new sources; and
- ◆ The dependence of the region on resource projects to create the demand for infrastructure upgrades.

The GEDC believes that economic and social development in the region intrinsically tied with the provision of infrastructure projects and services. While the region has had healthy growth in its resource industries over the last decade, this growth may be impeded if the region's infrastructure does not develop at the same pace.

Infrastructure Situation and Issues

Aviation

There are a number of airports and airstrips located in the region. Kalgoorlie-Boulder is the main and busiest airport in the region (servicing more than 190,000 passenger movements pa) with five other airports located at Esperance, Leinster, Leonora, Laverton and Murrin Murrin. There are also minor airstrips at Norseman and at Warburton and Wingellina which are owned and managed by the local Aboriginal communities. Private airstrips also exist throughout the region in places like Coolgardie, Kambalda, Mundrabilla and on pastoral properties.

All major airports in the region, with the exception of Laverton have shown growth in passenger numbers in each of the last seven years (DT, GEDC 1999: p34). Most of this growth is driven by developments in the resources sector with “Fly-in/Fly-out” operations and new mining projects.

Duplication of Infrastructure

Major mining projects are opting to build their own airstrips rather than use public ones located close to these projects. This duplication of infrastructure may cause public airstrips to become secondary, because of lower passenger and aircraft movements, and lose priority in regard to maintenance and upgrade funding. Airstrips at Leonora, Murrin Murrin and Laverton in the North-East Goldfields is probably more than what the market can realistically sustain. As a consequence, only two of the three may be kept at a high standard.

Kalgoorlie-Boulder Airport

An increase in capacity would enable the airport to attract a higher volume of interstate air traffic. Kalgoorlie terminal facilities were recently upgraded. What is needed is improved aircraft pavements and flight services such as ILS or equivalent. The airport is also in an ideal location to become a centre for commercial pilot training.

Maintenance of Regional Airstrips

There is a need for upgrading regional airstrips at Laverton, Leinster and Leonora to an all weather standard. Further, if Leinster nickel operations are developed further, Leinster airport may have to be upgraded to handle jet aircraft. There are plans to extend and seal Leonora airstrip and to seal Leinster. Laverton (which is sealed) is also planning apron and taxiway extensions.

Energy

The Goldfields-Esperance Development Commission issued a paper in December 1998 called *Summary of Energy Situation and Issues in the Goldfields-Esperance Region*. Research for the Summary found that, while there are differences in the power situation in each locality, there are some broad issues that are relevant to all of them.

Dependence on resources projects

History shows that the region has depended on resource projects to create the demand and justify greater power generation in the region.

There is the circular problem that many resource projects will not start unless adequate power is available and power capacity will not be upgraded unless industry creates the necessary demands. For example, the major energy development planned for the Shires of Leonora and Laverton is a \$100m, 600km long natural gas pipeline from Geraldton to Anaconda Nickel Ltd's Murrin Murrin laterite nickel project (located about 60km east of Leonora). The power needs in the North-Eastern Goldfields are being driven by the private sector, not government. Likewise in Norseman, the town's power is generated by a contractor to Central Norseman Gold Corporation. In the Esperance/Ravensthorpe area the Ravensthorpe nickel mine and the O'Sullivan's power and gas project offer the best chance to upgrade electricity infrastructure.

Size of the region's population

Some shires are too small a market to make any new energy projects and expansions viable. This is particularly so in the Shires of Menzies, Dundas and Ngaanyatjaraku where there are no major resource developments planned that may lead to new energy projects. Further, over the last twelve months, six of the nine shires in the region - Coolgardie, Laverton, Leonora, Menzies, Dundas and Ravensthorpe - have had declines in population (ABS 1999: p75). There is not much of a strong consumer market to pressure for upgrades in energy infrastructure in remote locations.

Tariffs along the Goldfields Gas Transmission Pipeline

The Goldfields Gas Transmission pipeline, which is owned by a private consortium runs 1380km from Yarloop in the North West of Western Australia to Kambalda in the Goldfields. The GGT has a current capacity of around 88 terajoules of gas a day which will be increased to 164 TJ/d when 8 compressors are installed (OOE 1998: p43). Access to the pipeline is governed by the *Goldfields Gas Pipeline Agreement Act 1994*. Aside from recognising priority access rights to a portion of initial pipeline capacity by the consortium or their associate, the act provides for capacity to be available to third parties on a non-discriminatory basis at fair and reasonable tariffs.

The cost of GGT pipeline tariffs are a common concern throughout the region. A number of Kalgoorlie businesses are reluctant to enter into contracts with AlintaGas to deliver natural gas along the GGT to supply their energy needs. An example often cited is the slow progress of the Mungari Industrial Park allegedly due to the high tariffs charged by the GGT. Currently, the Legislative Council Standing Committee on Estimates and Financial Operations investigation into whether GGT tariffs are "fair and reasonable". The Committee is expected to report some time in March.

Changes to regional power tariffs

As part of changes to regional power tariffs, the Office of Energy called for expressions of interest (EOI) for the supply of electricity on a commercial basis in the Esperance region on November 28th 1998. The basis of this supply will be on contract to Western

Power, which will continue to distribute electricity to customers in the region. EOI were closed on December 21st 1998, short listed EOI applicants will be invited to participate in the tendering process in early 1999. It is expected therefore that tenders will close in the second quarter of 1999. On December 30th 1998, Western Power and the Office of Energy announced that 23 EOI applications had been received.

There is still a great deal of uncertainty of what the final outcome of the EOI will be. The desired outcome is for there to be enough raw competitive pressure on tariffs to force down costs for commercial large energy users. Western Power will still not reveal commercial users of over 300,000 kW a year in Esperance for there to be an accurate measurement on the price changes that will occur under the new tariff structure. The greatest concern is that the terms of the EOI will not force a reduction in tariffs in Esperance.

Expected changes to diesel fuel excise

While many communities are looking to lower energy prices through natural gas, the changes proposed by the Federal Government to lower diesel from 43c a litre to 18c a litre will make diesel fuelled power stations just as, if not more, competitive than those fired by natural gas.

Rail Transport

Kalgoorlie-Boulder is the important rail hub in the region as it is at the junction of the Leonora-Esperance railway and the Perth-Adelaide railway. The town is the major rail catchment area for towns and mining projects in the area.

Rail transport is of particular importance with the proposed privatisation of Westrail Freight Business. One of the major infrastructure concerns of the GEDC is that whatever privatisation option is chosen, the state of rail infrastructure in the region is not downgraded and the region benefits from lower freight rates through competition.

Leonora-Esperance Railway Line

Probably the major rail issue in the region is the condition of the Leonora-Esperance railway line.

Esperance is connected by a standard gauge rail line to Kalgoorlie. This line is used to move bulk commodities like diesel into the Goldfields and exports nickel concentrate and iron ore to Esperance Port. The rail line is a vital component of the region's strategic transport that supports the economic and regional development of the Shire of Esperance and the Goldfields Esperance Region as a whole.

The line is facing a number of critical issues. Portman Mining is evaluating using the Kwinana port instead of Esperance. Portman currently uses the line to transport iron ore from Koolyanobbing to the port for shipping. One of the main factors influencing the decision is that the railway to Kwinana is of a higher standard, which enables Portman to

move higher tonnes more efficiently than the Goldfields-Esperance line. Anaconda Nickel is also considering using the Kwinana line for its Murrin Murrin operation for similar reasons.

GEDC is concerned that Esperance could lose business because of a lower standard, and therefore uncompetitive rail line. Also, government funding through the Australian Rail Track Corporation is being allocated to improving major inter city line: regional or spur lines are being ignored. It is estimated that \$35m is needed to upgrade the Coolgardie to Esperance section of the line.

If Portman was to stop exporting iron ore along the line through Esperance, the Esperance Port Authority estimates that approximately 35 direct jobs would be lost in the town of Esperance (*Source* EPA 1998: p2). Other positions in administration and maintenance would also be lost due to the decline in use of the rail line.

Extending the line from Leonora to Leinster is estimated to cost between \$60m to \$72m (DT, GEDC 1999: p56). Based on competitive freight rates, more than 2 million tonnes of freight per annum would be required to make this a viable project, This is unlikely to occur in the foreseeable future. Extending the line to Laverton is estimated to cost \$60m, with 2mtpa of freight needed to make the project viable. The Murrin Murrin Project and Acacia Resource's Sunrise Dam Project may generate the required rail freight tonnages.

The Lake Raeside crossing in the section of the line to Leonora is prone to flooding after heavy rainfall.

Prospector Train Service

A review of the Prospector passenger rail service between Perth and Kalgoorlie-Boulder by Ove Arup and Partners found that the operation of the Prospector service is hampered by unreliability. The age of the rolling stock and high maintenance costs had frequently caused delays and have reduced passenger confidence in the service (DT, GEDC 1999: p44).

In July 1998, Westrail announced that it would purchase new rail cars for the Prospector capable of speeds up to 160 km/h at an estimated cost of \$30m. This rolling stock would reduce the journey time between Perth and Kalgoorlie-Boulder to about six hours.

However, for these rail cars to be operational, work to upgrade the standard gauge line is required, including signalling, train control and communications systems. Of particular importance is the need to re-sleeper the line between Koolyanobbing and Kalgoorlie-Boulder.

The Goldfields tourism industry is keen to see this upgrade take place.

Railway Link to the Pilbara

A railway line linking Kalgoorlie-Boulder with Newman, and connecting to Port Hedland has been discussed as a long-term project. Given the Pilbara's expected growth in iron

ore and natural gas projects, the line may become strategically important. However, research by the Department of Transport found that this project is unlikely to be viable in the next 20 years (DT, GEDC: p57).

Road Transport

There is 19,715km of road in the region, including sealed roads linking all major centres (except Wiluna and Meekatharra). Roads are critical to the region's economic development and maintenance is a priority (DT, GEDC 1999: p29). The Great Eastern Highway which links Perth to Kalgoorlie-Boulder, and the Eyre Highway which links WA to the Eastern States are part of the national highway system. Of regional significance is the Coolgardie-Esperance Highway which connects Esperance to Coolgardie and Kalgoorlie-Boulder, and the Goldfields Highway which links Kalgoorlie-Boulder to Mt Keith and Laverton.

Some of the major road projects are listed below.

Goldfields Highway (Bulong and Cawse)

Developments at Cawse and Bulong nickel projects will see the need to improve road services to these projects because of minesite freight and servicing requirements. An upgrade of the Bulong road is estimated to cost \$4.5m. To meet the freight demands of the Cawse project, an estimated \$2.5m upgrade of the Broad Arrow-Ora Banda road section of the Broad Arrow to Carbine Road will be needed.

Goldfields Highway (Lake Raeside)

Flooding is a major issue around the Lake Raeside area (10km south of Leonora on the Goldfields Highway). A "causeway style" bridge could resolve some of the problems. Reconstruction and sealing, including a new bridge and floodway is estimated to cost \$11.1m. However, the Transform WA program has earmarked funding for this upgrade in 2005, which leaves the region vulnerable to disruption caused by flooding for another six years.

Goldfields Highway (Leinster-Mt Magnet)

There are a number of road improvement projects planned for the region or under discussion. In April 1998, the State Government announced that it would upgrade and seal the road between Leinster and Mt Magnet at a cost of \$95m. Work on the Leinster-Mt Magnet road started at the end of 1998 and is scheduled to be completed in 2001-2. There has also been a \$5m sealing of the road between Agnew and Leinster.

Goldfields Highway (Mt Keith-Wiluna-Meekatharra)

Work to seal the section of the Goldfields Highway between Mt Keith and Wiluna is expected to be completed by March 2000 at a cost of \$23.15m. The project has been jointly funded by the State and Federal Governments primarily because the road was classified as a road of national importance last year. Work on the Wiluna-Meekatharra

part of the Goldfields Highway started in 1998 and is expected to be completed in 2003/4 at an estimated construction cost of \$70m.

These road upgrades will provide a more reliable road network for the mining sector and may rejuvenate the town of Wiluna. Road traffic to Geraldton and the Mid-West of the State will also be much easier.

Norseman-Hyden Road

The Norseman-Hyden Road is 262km long, intersecting with the Crossroads (Southern Cross road).

An upgrade of the Norseman-Hyden road is dependent on if mining proceeds at the Maggie Hays and Emily Ann nickel site located 134km west of Norseman. The Dundas Council has re-sheeted the road to the Shire boundary. Main Roads WA estimate that to upgrade the road to a 10m wide formed gravel standard, it will cost \$38.1m. To upgrade the road to a 7m wide sealed section, it will cost about \$56.3m.

While sealing the road is very unlikely, upgrading to a wide gravel standard could appeal to tourists which may lead to a high risk link of tourist and heavy haulage (road train) traffic on it.

The region has quite divergent opinions on the proposed upgrade. The City of Kalgoorlie-Boulder and the Shires of Coolgardie and Esperance are strongly opposed to the upgrade. They believe it will create a high leakage of traffic from Kalgoorlie-Boulder and Esperance creating a resultant loss in business for service station owners particularly in Coolgardie. The Shire of Dundas on the other hand, sees an upgrade of the road as opening up the tourist attraction of Wave Rock at Hyden a major reason why people would choose the Norseman-Hyden road over current routes. Also, the journey to Perth would be about 100km less than along the Great Eastern Highway.

The Outback Highway

The Outback Highway is a proposal to build an all weather sealed highway from Laverton to Winton in central Queensland, through the Northern Territory. The total length of the Outback Highway is estimated at 2,600km.

For this link to be completed, two major sections would need to be upgraded. These are the roads between the Stuart Highway north of Alice Springs and the sealed road network in Central Queensland at Boulia, and the Great Central Road from Kata Tjuta (the Olgas) to Laverton (BSD 1998: p2).

A staging strategy has been developed to upgrade Outback Highway in two stages, within three sections of the highway simultaneously. The three sections are;

1. Laverton to the WA/NT border
2. WA/NT border to Uluru
3. Plenty Highway section and through to Boulia in Queensland.

The first stage of upgrading these sections is to an all weather unsealed road which is estimated to cost \$117.5m. The second stage is to seal the road to a width of 6m at a cost of \$171.5m (BSD 1998: p4). The Western Australian and Queensland governments have agreed to each provide \$25m for the project. The Federal Government is considering requests to provide \$50m to help with the road's sealing.

If completed this road would provide enormous benefits to the Goldfields, and particularly the Shires of Laverton and Ngaanyatjarraku. The two stage upgrade from Laverton to the NT border is estimated to cost \$145m in total. The multiplier effect from this expenditure is estimated to be between 1.1 and 1.4 (BSD 1998: p23). Laverton would also benefit from expenditure from increased transport traffic from increased tourist and commercial traffic. This in turn would also create a need for better infrastructure services, like electricity and telecommunications, and enable remote Aboriginal communities in Ngaanyatjarraku to gain easier access to health and education.

Telecommunications

Telecommunications is critical because of the region's isolation and current inability to compete in global markets, but the infrastructure issue is complicated by an intrinsic paradox. The need for modern telecommunications to bridge the vast distances between the region's business and social communities and markets is fundamental, but the widely dispersed population does not allow the development of business cases that are sufficiently strong to attract carrier investment in remote areas.

The North-Eastern Goldfields has been largely labelled as unviable by some carriers because the current low market demand for telecommunications is, at present, incapable of generating a reasonable return on capital infrastructure costs. Exceptions are the high telecommunication s traffic areas of Leonora, Leinster and the minesite at Murrin Murrin. A comprehensive community awareness raising program has been developed to generate a level of capacity and demand that will attract telecommunications carriers into the region.

The switch to CDMA digital coverage from analogue will in effect only upgrade but not extend existing services in the region.

The progress of e-mail and internet connections in the region is also progressing slowly. The region is hampered by there being too few on-line connections that are not enabling residents and businesses the full opportunities and advantages that are offered by such technology. The setting up of telecentres in the region, initially at Norseman and Coolgardie is one way the State Government is trying to help people in remote areas access e-mail and the internet Business cases, based on minesite demand for modern communications and data transfer capabilities, are being developed with mining companies to attract service providers into the region.

Water

Most Shires in the region face a major fresh water problem. Some of the specific water problems include the high salinity levels in groundwater; the high cost of transporting water from Perth to Kalgoorlie via the Goldfields and Agricultural Water Supply pipeline; water quality; and questions over whether the Perth water basin can continue to supply the region.

The consequences of this situation has seen new residential developments being deterred because of high water prices, and severe water restrictions in the region have acted as a disincentive for people wanting to build permanent residences and create new industries.

Seawater Pipelines

The Kalgoorlie-Boulder WaterLink Project was launched in Kalgoorlie on February 23rd 1998. This project, under the oversight of The Water Corporation, aims to identify the current and future water needs in the Goldfields region and develop strategies that can be used to meet these demands. The key issues are being investigated by five separate taskforces: Strategic Plan; Urban Use; Industrial Use; Groundwater; and Supply Augmentation. The Supply Augmentation task force objectives are:

- ◆ To identify possible water supply augmentation options to satisfy future demand scenarios (in the study area) for portable and non-portable areas.
- ◆ Assess the likely volumes and timing of economic demands for these incremental water sources.

(Source WaterLink 1998: p2)

In February 1999, the Water Corporation issued its WaterLink report which identified a \$140m pipeline pumping seawater from Esperance to Kalgoorlie-Boulder as the best new water source for the Goldfields. It is estimated that this pipeline could deliver 35ML daily to the mining industry costing about \$1 per kilolitre. The Water Corporation has stated that funding of the pipeline would have to come from the private sector, with the Corporation prepared to help with the sale and distribution of the water.

An alternative project being proposed is a water pipeline pumping desalinated seawater from Esperance to Kalgoorlie. The project is being designed and developed by a local company, Goldfields Utilities Ltd directed by businessmen plans to desalinate 250 ML of seawater per day. Projected markets are: Esperance/Ravensthorpe area (35 ML/day); Norseman (5 ML/day); Kambalda (10 ML/day); Kalgoorlie (150 ML/day); and Southern Cross via a distribution network off the Goldfields and Agricultural Water Supply pipeline. The project was initially estimated to cost \$750m. A major benefit for Esperance if the project succeeded would be the possible extension of the GGT to Esperance to provide a source of energy for the project.

However, GUL has had consultations with the Australian Power and Energy Corporation Ltd which is responsible for the development of the O'Sullivan's lignite deposit (see

below). GUL has estimated that if it could secure water from the O'Sullivan's project it could save between \$300 to \$350m on the project as it would not need to build a desalination plant or a power station as well as being 120km closer to the Goldfields.

Conclusion

While there are a number of planned or potential infrastructure developments in the Goldfields-Esperance Region, there are a substantial infrastructure shortfalls. The region suffers from high cost energy; inadequate rail and road infrastructure; telecommunications infrastructure that is behind developments in the metropolitan area and other regional centres; and a generally poor water supply.

The region still has a small population that in many areas is declining and its isolation is a significant cost factor to starting infrastructure projects. Infrastructure developments in the region are often tied to resources projects: essentially, infrastructure projects are seen as an *economic component* not a *community service*. Consequently, infrastructure projects are unlikely to be started by government and the private sector unless the potential for viable return on capital expenditure can be clearly demonstrated.

Some principles that could be applied when making policy on infrastructure provision in regional areas include:

- ◆ **Manage infrastructure like a business, not a bureaucracy.** Infrastructure needs to be conceived and run as a service industry that attracts customer demand and provides an incentive for relocation and regional development;
- ◆ **Introduce competition –directly if feasible, indirectly if not.** Competition gives consumers choices and puts pressure on suppliers to be efficient and accountable to users;
- ◆ **Empower users and other stakeholders a strong voice and real responsibility.** When the market is insufficient to ensure accountability to users and other stakeholders, they should be represented in the planning and regulation of infrastructure services, and in some cases they should take major initiatives in design, operation, and financing; and
- ◆ **Government-private partnerships in financing can be effective in reducing the costs of money, and therefore service charges.**

(Source: *Waugh 1997*)

The Goldfields-Esperance Region has been a great source of economic growth and development over the last 25 years for WA and Australia as a whole. However, if infrastructure improvements do not keep pace, growth may be slowed or halted in the future. Efficient, cost effective infrastructure is the dominant factor that will attract industry, commerce and business to the region.

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Appendix A

Western Power Regional Electricity Tariffs Existing and Proposed

Customer Type	No. of Customers	Existing	New proposal
A2 Residential	14,300	Supply Charge: 23.39 c/day Energy Charge: 12.75 c/day	No change
L2 Commercial	3,180	Supply Charge: 24.91 c/day Energy Charge: 15.98 c/day	No change
	17	New step	20.00 c/kWh for consumption above 300,000 kWh per annum
		Existing step: 14c/kWh for consumption above 602,250 kWh per annum	Deleted
K2 Commercial with residence	1,335	Supply charge: 23.39 c/day Energy charge: 12.75 c/day for first 20 kWh per day. 15.98 c/kWh for consumption over 20 kWh per day.	No change No change
	4	New step	20.00 c/kWh for consumption above 300,000 kWh per annum
		Existing step: 14.42 c/kWh for consumption above 602,250 kWh per annum.	Deleted
R2 Commercial Time of use	57	Supply charge: 144 c/day Energy charge: peak – 19 c/kWh off-peak – 6 c/kWh	Abolished