



Liz Penfold MP

MEMBER FOR FLINDERS

Suite 16, 60 Tasman Terrace

PO Box 1798

PORT LINCOLN 5606

flinders.portlincoln@parliament.sa.gov.au

www.lizpenfold.com

Phone: (08) 8683 0722

Fax: (08) 8682 5912

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Submission to Infrastructure Australia Identifying nationally significant infrastructure requirements in the west of South Australia

3. Issues for Discussion

3.1 What are the features and goals of Australian infrastructure?

The western half of South Australia (Eyre Peninsula) has a lack of physical infrastructure without which this huge region will not fulfil its potential to assist Australia meet its economic, social and environmental goals. 80% of the mineral exploration in South Australia in 2006-07 was undertaken in the Gawler Craton mineralisation which underlies much of the area – see attached map.

However mining royalties last financial year in South Australia were only \$165 million, a fraction of the \$3.6 billion in Queensland and \$3.4 billion received in Western Australia.

The region already produces 40 per cent of the state's grain, 65 per cent of the state's seafood and more tourism than any other region within South Australia; and now, with aero-magnetic surveys and other modern techniques showing the extent of mineralisation contained in the Gawler Craton, the region can expand to include nationally significant mineral exports that will rival Queensland and Western Australia - but not without the essential infrastructure.

Meeting the goals

- Increased economic standard of living for Australians particularly those living in very remote areas.
- With essential infrastructure built in the region, billions of dollars of mining royalties will be gained.

- Environmental sustainability and reduced greenhouse gas emissions. Initially 400MW of wind energy will be built with more to come on the west coast of Eyre Peninsula which is recognised as one of the best sites in the world.
- Wind and solar powered desalination plants will be built to replace more than 20 gigalitres of water currently being taken from overdrawn underground water basins and from the River Murray.
- Better social outcomes, quality of life, and reduced social disadvantage in our cities and our regions.

By utilising the abundant natural resources - minerals, wind and solar energy from the western region of the State - we will have a cleaner environment, plentiful water, more funds to provide better services and more people gainfully employed in regional areas. The 'dirty coal' power station at Port Augusta will no longer be needed to fulfil Roxby Downs increasing power requirements.

The strategic priorities as outlined will be a natural outcome of reaching the goals. Productive capacity, productivity, economic capability and global competitive advantages will all be significantly enhanced. Greenhouse gas emissions will be reduced and social equity and quality of life in the State's cities and regions will be enhanced.

3.2 What are the Problems

The Gawler Craton covers a massive area in the western half of South Australia and contains world class minerals, now recognised and in strong demand by countries around the world but unable to be developed until the necessary infrastructure is put in place.

The Eyre Regional Development Board Annual Report 2007-2008 stated that expenditure by companies on mineral exploration in South Australia during 2006-2007 was \$188.9m, with \$152.2m (80.57%) expended within the geological province of the Gawler Craton alone.

The priorities to develop the significant potential of this very underdeveloped region are:

- a power ring main,
- a 20 metre deep water port near Port Neill,
- the upgrade of the Port of Thevenard,
- the upgrade and extension of the 680 kilometres of narrow gauge railway and connection to the Australian rail system,
- desalination plants at Ceduna, Streaky Bay, Elliston, Port Lincoln, Port Augusta,
- the construction of the Wirrulla to Glendambo road will provide the route for power and water (and eventually a rail connection), for the northern mining

developments to Eyre Peninsula ports capable of taking Cape Bulker size ships for exports,

- the upgrade of the Port Lincoln airport (which is the busiest airport outside of Adelaide but unable to take jets) and the Ceduna airport.

3.3 What are the impacts of these problems?

The western half of the State of South Australia has very little development with few jobs and very few people. The rich resources that could alleviate these problems remain largely untapped. There is massive unemployment particularly in the aboriginal populations leading to poor education and health outcomes.

Despite an enormous amount of mineral exploration, very few mines are coming into production. Companies who are ready to start to export are working in isolation with one another and unless pulled together by an organisation such as Infrastructure Australia, with the clout and knowledge to do so, companies will continue to struggle on, taking many years (if ever) to become profitable mining businesses employing lots of people and paying large royalties to the state.

3.4 How did these problems come about?

Adelaide, the capital city is some 600-700 kilometres away. The region has been predominantly sheep and grain farming, fishing, aquaculture and some tourism until aero magnetic surveys and other modern techniques showed what the Gawler Craton mineralisation contained. World demand combined with price and availability of minerals has now created significant interest.

3.5 How might these problems be addressed?

There are proponents already willing and able to undertake the construction of the ring main, the 400MW wind farm, the hot rocks, solar/gas power supplies, desalination plants and numerous mines. However without essential power, water, export ports and road or rail transport infrastructure, it will be a long time before these projects will be able to progress. Billions of dollars of export income and thousands of jobs will continue to be forfeited if the necessary infrastructure is not put in place.

The Ring Main

A power ring main is required to stabilise South Australia's power supply and enable the input of more than 400MW of wind energy and significant MW of hot rock power into the grid. This significant green energy source will enable off takes particularly by northern mining companies including BHP's Roxby Downs expansion which will require 400MW of additional power, plus processing plants and desalination plants.

Currently the very old 132 KV line without a return, that services the Eyre Peninsula, cannot even take all the power from the 70 MW Mount Millar wind farm located near

Cowell on the Eyre Peninsula in case it collapses and takes out Adelaide's power. The existing power supply from the Flinders coal fired power station at Port Augusta is no longer acceptable technology and the possible introduction of a carbon tax will make this power source unviable in the future.

By linking the power transmission in a ring, any breakage to the line will not take out the whole state's power supply, will enable intakes and off takes around its whole perimeter and ensure safe connection into Australia's main power grid of significant quantities of "green" wind, solar and hot rock energy.

An international company with the necessary expertise is currently undertaking a feasibility study of this project.

New Port

Infrastructure in Port Lincoln is under pressure, just coping with grain trucks and the expansion of the city. Residents of the city have expressed strong objections to safety, transport and environmental issues raised by the proposed export of thousands of tonnes of minerals from the town's wharf.

It is increasingly obvious that a modern multi use port on the east coast of Eyre Peninsula, north of Port Lincoln and south of Port Neill, is needed to provide for the future imports and exports of Eyre Peninsula and the west of South Australia, arising from the commercialisation of the extensive and varied Gawler Craton mineralisation that covers the region. The current mining debate is highlighting just how inadequate the present road, rail, port and even the air infrastructure is for the future development of this region and for the economic, social and environmental advancement of the state.

The Port Lincoln port, operated by Flinders Ports, is under utilised. It is rumoured to be only 15% usage and declining. However it will never be able to be fully utilised, despite having reasonably deep water and rail access, because of its central location within the city. Road access to the port is poor as it is provided via busy central business routes.

There is an opportunity to plan a staged redevelopment of the city of Port Lincoln as a new port is developed. The present wharf precinct could gradually be sold off to provide for fishing, tourism and housing with funds reinvested by the beneficiaries into the new green field port at a new site possibly with Flinders Ports being part of the project.

Murray Point, the former BHP site south of Port Lincoln that has been proposed as a possible solution for the export of minerals, requires double handling with barges. It is currently designated for future expansion of the city, which remains the best use of this site in my opinion.

Port Bonython at the top of the Spencer Gulf near Whyalla is poorly located in an area that is very environmentally vulnerable. The Whyalla Port is fully utilised by One Steel who is refusing access to other companies and requires barging.

A Public Private Partnership, government or private enterprise could build a new port on a green field site in conjunction with an extended and upgraded railway, improved road network and possibly slurry pipelines, to provide for mineral and grain exports and any imports as required. Value adding before exporting our commodities should be undertaken where possible, and the inclusion of an iron ore pellet plant incorporated in the initial port plans, would be strategic.

Reasons for the change:

Given the quantity of minerals on Eyre Peninsula and the potential growth of Port Lincoln, the present wharf is never going to be a long term solution for the export of minerals. Grain trucks are already a problem on the Lincoln Highway due to increased local and visitor traffic with several kilometres of the highway not able to be widened. A proposed alternative road route is getting more and more expensive as land is subdivided and built on.

A mining company paid for Port Lincoln Mayor Peter Davis and a group of local people to look at the port facilities and infrastructure at Esperance in Western Australia. Mayor Davis has written a report advising that he will not support using Port Lincoln for the exports of minerals. This report reflects the thinking of the participants and the majority of the city's residents. The fishing industry has also come out strongly against exporting minerals from the city's wharf.

The fishing industry doesn't have enough room for future expansion however there would be more flexibility if the wharf became available with grain exports gradually relocating to a new port. The recreational jetty (No.1 berth at the wharf) would also remain available for tourists and recreational fishers where access is presently under threat. Cruise ships are expected to visit the city in the near future and could be easily catered for in the wharf/city precinct with plenty of room for facilities. The same would apply to yachts that could be facilitated and given much easier access to the Yacht Club and the centre of the city. Private marina berths off the wharf area could be sold generating additional funding, as well as creating the kind of ambience that I believe would enhance our city similar to that currently enjoyed by Hobart.

The grain market has been deregulated and a new grain marketing group formed under the auspices of Free Eyre. They will not necessarily be using the existing silos, but large bags to hold and segregate their grain and will need more space at the wharf. Many of the cement silos are getting old and I understand that some may eventually need to be pulled down as has already happened in Western Australia (where some have also been converted to high rise housing developments).

I understand that ABB Grain owns the grain silos, sheds and gantries at the Port Lincoln wharf. However to export minerals from either the main wharf, the BHP, or the fuel wharf (if the fuel is taken elsewhere), will require extensive new 'mineral specific' infrastructure and more space. It would make sense for ABB Grain to be part of a new port project and to build dual purpose new dust proof gantries in a port catering for bulk fertilisers, grain and minerals in an environmentally responsible manner.

Modern fertiliser unloading equipment and sheds and eventually even new fuel unloading and tanks located at a new port with the old ones removed from the city centre would free up more space and provide modern accessible services for communities in a much safer location. As a new dedicated fuel wharf would probably have to be built, this may not happen for some time but should be planned for now. The existing fuel wharf could eventually be repaired and made available for tourism and recreational use, which would be much more compatible with its residential location.

Currently Centrex Metals Limited is only the first, of many mining companies, that want to export from Port Lincoln. Accordingly the problem must be fixed now to gain the benefits for our region and the State, of having a robust and productive mining industry while retaining and possibly improving Port Lincoln's ambience. It would be judicious if existing grain and fertiliser companies' activities were also encompassed.

There has been and continues to be, a range of problems with the exporting of grain from the wharf. Grain dust for asthma sufferers has long been a problem. Anecdotally the numbers of people suffering from asthma is increasing and some, I am aware of, actually leave the town. The native galahs I am told were not originally found in Port Lincoln but followed the grain down here, have bred prolifically, are offensively noisy and ruin trees. Pigeons, also attracted by grain, have bred up and make a mess in the city.

Some of the mining ventures on Eyre Peninsula expected over the next few years which will also need a deep sea port outlet are:

- The Centrex hematite iron ore reserve at Wilgerup near Lock is 10 million tonne reserve at \$90 to \$95/tonne and they are confident of increasing the Wilgerup reserves once mining started. Starting 2011'12.
- Centrex also have magnetite iron ore deposits on Eyre Peninsula with, identified exploration targets exceeding two billion tonnes of magnetite iron ore in the Southern and South Central tenements, with another major deposit near Cowell.
- Lincoln Minerals has hematite and magnetite iron ore at Gum Flat and has an exploration target of more than 250 million tonnes of ore at the project, which is about 20km from Port Lincoln.

- Adelaide Resource's iron ore project, 175 km north of Port Lincoln, contains extensive magnetite anomalies with a cumulative strike length in excess of 50km. They have launched a new company Iron Road to handle it.
- North of Kimba at the Wilcherry Hill is the Ironclad Mining Company's iron ore deposit. The Wilcherry deposits contain coarse crystalline magnetite and low silica contents which enable low cost and efficient production of concentrates containing over 70% iron with very low impurity levels.
- In addition not far away is the Menninnie Dam site where there is said to be a crew currently working 24 hours a day exploring for zinc, lead and copper with the potential also for iron ore. (The Kimba to Buckleboo railway line that links through to Ungarra is currently closed but would not be far from these deposits.)

Port Lincoln Airport

This is the busiest regional airport in South Australia with 150,000 passengers annually, and is owned and operated by the District Council of Lower Eyre Peninsula with a district population of 4,402. The City of Port Lincoln with a population of 14,500 is the closest major city to the airport (approx 15 kms).

A flight from Port Lincoln to Adelaide takes approximately 35 minutes across Spencer Gulf, compared with the seven hour (675kms) around the top of the Gulf. The bus journey to Adelaide takes up to 13 hours one way (excluding unexpected delays). Virgin Blue has expressed an interest in introducing a regional jet service to Port Lincoln as part of their recently announced EJet Program. The introduction of a regular jet service and the accompanying passenger and baggage screening requirements means that additional space would be needed. The District Council of Lower Eyre Peninsula is investigating possible options, including a new terminal.

Council has indicated they have a broad strategy to enable this to happen and are planning to upgrade most of the airside facilities including the taxiway, apron and lighting this financial year. They have also set aside funding for concept plans for a terminal upgrade and have recently finalised a business plan for the airport to plan for future operations and development.

However, the benefits of a jet service is something the small District Council will have to consider carefully because the capital expenditure and recurring maintenance costs on a new upgraded terminal (with associated security requirements) is significant.

Thevenard Port

If the Port of Thevenard is not upgraded, then the new port south of Port Neill would become the only major port to service the whole of Eyre Peninsula and area west to the Western Australian border. Minerals from the north west would need to be transported a considerable distance for export. Thevenard currently handles a greater

tonnage of product than Port Lincoln, namely grain, salt and gypsum. Additional exports now in the process of development include:

- Minatour's kaolin deposit near Streaky Bay, which is of very high quality with 9 million tonne plus 220 million tonne inferred, and is selling for \$US500/tonne when calcined. Starting 2008/9. The company intends to build a treatment plant on Eyre Peninsula based on outcomes of a feasibility study.
- Iluka Resources has indicated massive deposits of high grade mineral sands from their Jacinth-Ambrosia project will be exported from a port near Ceduna. They are on schedule to commence mining in 2010 with full production of 300,000 tonnes per year of zircon in 2011. Product is going to the company's West Australian plant for treatment that with planning, could be done on site.
- Adelaide Resources has mineral sands, uranium and iron ore deposits on Eyre Peninsula. Their testing at Warramboe indicates a significant strike length of magnetite bearing iron ore of exceptional chemical quality and substantial tonnage.

Existing exports of grain, salt and gypsum would also be under threat without an upgrade to cater for larger ships.

Railway Upgrade

The current private owners of the Eyre Peninsula railway Genesee Wyoming could sell the railway line or become part of the new port project. However the current narrow gauge railway line is not the most suitable for haulage of iron ore and needs upgrading. For that reason it is currently being proposed that B Double trucks would bring minerals into Port Lincoln adding considerably to existing and future road traffic problems.

A new railway line should have provision for upgrading to standard gauge and be redirected along a new section, approximately 30 kilometres, from Ungarra to the new port to take all freight, including grain and minerals. The railway land in Port Lincoln could then revert back to Colonel Light's original plan and become parklands. Any excess land could be sold. The main CDB street, Liverpool Street could be extended through to Kirton Point and Porter Bay providing easy access to the marina. The Government could use proceeds to assist with the upgrade and extension of the rail to the new port.

The rail that presently runs through the middle of the town could go and the ambience and views would return as the large silos and the green gantries are eventually demolished.

Desalination plants at Ceduna, Streaky Bay, Elliston, Port Lincoln and Port Augusta.
Water continues to be one of the biggest issues throughout the nation.

A desalination solar thermal mechanical vapour compression plant was to have been built by Lloyd Energy at Ceduna. It would have replaced water being taken from the over drawn underground water basins south of Port Lincoln and pumped to Ceduna. Water in Ceduna is so mineralised when it gets there (approximately 400 kms), that it is costing thousands of dollars to replace piping and water filters in the region.

Access to SA Water pipes must be enabled for desalinated water to be utilised throughout the region. Quantities of potable water are needed urgently to enable mineral sands to be processed locally. Presently they are to be shipped to Western Australia for processing due to lack of water available in the region.

A Reverse Osmosis desalination system at Streaky Bay is being proposed that would take the pressure off the local, overdrawn, underground Robinson basin. This is currently being 'topped up' with water being pumped from the basins south of Port Lincoln. The world class kaolin deposit mining contract may fall over because of the lack of water unless a suitable supply is provided in the near future that would also enable the processing of kaolin locally.

A proposed wind powered desalination plant could be constructed near Elliston with the water pumped into the existing pipe system at the Polda pumping station to be used across the region as soon as the wind turbines are constructed and approval gained from SA Water.

The proposed wind powered desalination plant at Port Lincoln has not been facilitated but would have provided new water into the existing pipeline system that services the Eyre Peninsula and negated the \$48.5 million dollar pipeline that was built instead by SA Water bringing 1.4 gig litres of water 800 kilometres from the over stretched River Murray system.

At Port Augusta, Acquasol have a proposed solar gas mechanical vapour compression desalination and power plant that could provide all the water needed by the Spencer Gulf Cities and take them off the River Murray Water.

These desalination plants can all be put in place by private enterprise who have been so far been thwarted in a number of cases by the State Government owned monopoly SA Water but need to be factored into Infrastructure Australia to enable the projects to be part of the bigger picture.

The Wirrulla to Glendambo Road.

This road should be the responsibility of State and Federal Government to fund. It is becoming increasingly busy with traffic from the many outback mining activities and hundreds of tourists. Tragically there have been deaths on this road and increasing use is impacting on the local community who are called to assist when there is trouble. The wear and tear on this road is significant as it was not built for the volume of traffic that is utilising this transport corridor.

3.6 Given the situation, what should be done first?

I believe the power ring main is the most important component. While some issues are being addressed, the projects are not being viewed as a whole, thereby lacking planning and funding to solve the problem of the stability of the grid and the need to put vast quantities of available green energy into it. Planning needs to include the retirement of old 'dirty' power stations while providing sufficient power required for the massive developments that will need it, e.g. Roxby Downs expansion.

Most of the infrastructure will be able to be provided by private enterprise possibly as Public Private Partnerships but will definitely need to be facilitated by government's State, Federal and Local with Infrastructure Australia providing the coordination and some funding.

Some funding provided now will have a return on investment in the billions of dollars within a few years.

Further information is available from the Eyre Regional Development Board. www.erdb.org.au. A copy of Mayor Davis' report is also available upon request.

Consideration of these projects to provide for the future development and prosperity of the western part of South Australia would be appreciated. It is the role of governments to facilitate significant projects as no one company should have the responsibility to provide the initial infrastructure that will in the long term benefit many, including the State and Federal Governments in royalties, taxes and economic activity.

Yours sincerely,



Mrs. Liz Penfold MP
Member for Flinders