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Ref: STP1R1:JL08

Date: 11 December 2008

Far North Framework
Planning SA
GPO Box 1815
ADELAIDE SA 5001

Re: Far North Regional Land Use Framework

Enclosed is my submission to the Far North Regional Land Use Framework strategy.

I have made a submission because I am concerned that the methodology of looking at each region in isolation overlooks the links and synergies between regions. Major infrastructure such as water, power, roads, rail and ports are examples of where an isolated regional approach may not be ideal because, when the bigger picture is taken into consideration, the links and advantages are clearly evident.

There are many synergies between the Far North Region and the western or Eyre Peninsula region. They are both remote, sparsely populated and lack the necessary infrastructure needed to take advantage of the current mining exploration that is occurring in both areas. Both have been largely ignored until the wealth of the Gawler Craton, which underlies both regions, with its world class mineral deposits was fully recognised and valued. Infrastructure such as power and water requires a broader approach not just a regional look. The Far North Region and Eyre Peninsula both have an abundance of potential green power sources and 'new' water options.

A true vision for growth and development must consider both regions together to expedite necessary infrastructure required to assist mining companies fulfil potential. This will enhance opportunities for small communities and enable them to prosper.

Yours sincerely,

A handwritten signature in black ink that reads "Liz Penfold". The signature is written in a cursive, flowing style.

Mrs. Liz Penfold MP
Member for Flinders

Submission to the Far North Regional Land Use Framework

From Mrs Liz Penfold MP Member for Flinders

The Core Objectives of Ecologically Sustainable Development as stated in the draft for consultation are:

- **to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations**
- **to provide for equity within and between generations**
- **to protect biological diversity and maintain essential ecological processes and life-support systems**

The regional goals

The north of South Australia 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**.

The region produces 70% of the mining output. With aero-magnetic surveys and other modern techniques showing what mineralisation is contained under the land surface, the region can expand to take account of significantly more mineral exports - but not without the essential infrastructure. New mines are currently intending to send their minerals north through Darwin instead of the benefits going back into South Australia as they should be. Very little value adding to the minerals is being undertaken, which is losing more money and jobs for the State.

Mining royalties last financial year in South Australia **were only \$165 million**, a fraction of the **\$3.6 billion in Queensland** and similar amount received in Western Australia.

Vision – A framework for the Far North

An ‘integrated spatial vision for the growth and development of the Far North Region’ should not ignore the importance of developing the whole of the Gawler Craton, as this ‘vision’ has done. A truly ‘integrated spatial vision’ would ensure that the infrastructure framework for the Far North Region would also incorporate and take into consideration the infrastructure needs of the Eyre Peninsula region, which the Gawler Craton also underlies.

My submission will concentrate on:

Objective 1: Recognise and protect the region's environmental assets

Objective 2: Ensure efficient use of water and energy

Objective 6: Protect and build on the region's strategic infrastructure assets

Objective 8: Safeguard mineral, oil and gas resources and support further exploration, extraction and processing

Objective 13: Foster sustainable alternative energy and water supply industries

Objective 14: Support aquaculture and fishing industries at Port Augusta

These objectives will help to meet many of the SA Strategic Plan targets as outlined under these objectives in the vision for the Far North.

The goals

- **Increased economic standard of living for Australians**

Thousands of jobs and billions of dollars of mining royalties, taxes, fees and charges will be gained by State and Federal Governments if the infrastructure is built in or near the region. The small Australian mining exploration companies cannot afford to put in the infrastructure necessary to start production and overseas companies don't expect to, as in most countries such infrastructure is provided by governments.

- **Environmental sustainability and reduced greenhouse gas emissions**

A power ring line or circuit must be built to link all the sources of power in the region to the Australian electricity grid to stabilise the state's power supply and provide green energy for mining developments. BHP's Olympic Dam development alone requires about 400MW of power which must be provided from green energy sources or it will attract huge cost penalties. The ring main can use existing corridors except for the link from mines near Coober Pedy down to Wudinna sub-station via the Kingoonya/Glendambo road.

1) Wind energy of initially 400MW can 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. This would supplement the wind farms already there.

2) Wave power is being trialled at Elliston on the west coast.

3) Solar technology is already being used extensively in the region and would already have been providing the power for desalination plants at Ceduna and Port Augusta if the difficulties of dealing with SA Water could have been overcome.

4) Hot rock technology is being developed in the region with sites near Olympic Dam.

5) Clean coal is being developed in the Arckaringa Basin between Coober Pedy and Oodnadatta (Advertiser 20 November 2008).

Water can be taken north from desalination plants near Streaky Bay or Ceduna along the Kingoonya/Glendambo road.

Water provided by wind and solar powered sea water desalination plants built near Ceduna and Streaky Bay can replace the water currently being taken from overdrawn underground water basins and from the River Murray. However SA Water will not allow access to the pipelines nor will it purchase the desalinated water from private providers, despite the obvious need for new water to be provided as a matter of urgency. The kaolin project near Streaky Bay will require 3 gegalitres of water which can be provided by a private enterprise desalination plant with the cooperation of the government and SA Water. The kaolin and other mining projects will not go ahead if new water is not facilitated by the government.

SA Water and the Department of the Environment are currently scuttling our mining industry.

- **Better social outcomes, quality of life, and reduced social disadvantage in our cities and our regions**

By utilising our natural resources of minerals, wind and solar energy from the northern region of the State we will have a cleaner environment, plentiful water, more funds to provide better services and more people gainfully employed in our regional areas leading to better mental and physical health for the people who live there and a much less city centric state.

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, social equity and quality of life in the State's cities and regions will be enhanced with the development of major cities providing many of the services that will be needed.

Coordinating Infrastructure and Service Provision

Despite containing much of the massive Gawler Craton the northern part of South Australia, a huge area, is unable to be developed to its full potential until the necessary infrastructure is put in place. This huge mineralisation with world class mineral deposits previously hidden under limestone and sand is now being recognised and its minerals are in strong demand by countries around the world.

However this part of the Gawler Craton cannot be efficiently and cost-effectively developed without taking into account the rest of the Gawler Craton region. Combining the infrastructure requirements of the Northern Region and Eyre Peninsula Region at strategic points will provide essential efficiencies of scale.

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 in the Gawler Craton. **That is 80.57% expended within this geological province alone.** It would follow that infrastructure planning should encompass the whole of the Gawler Craton and not look at the northern section and the southern section separately.

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

- a power ring main forming a circuit from Port Augusta power stations to Roxby Downs to Coober Pedy down to Wudinna via the Kingoonya/Glendambo road and across to Cleve, Cowell and Whyalla and then back to Port Augusta. The ring main would allow intakes of power from existing and new wind turbines, hot rocks, wave turbines, solar panels and gasified coal and off takes to communities and mines along the route.
- the upgrade of the Port of Thevenard to load the now world standard Cape Bulker ships, via deepening of the harbour and a suitable loading system, and/or a 20 metre deep port possibly near Streaky Bay.
- the upgrade of the Wirrulla to Kingoonya/Glendambo road for people and mining equipment coming from Western Australia and Eyre Peninsula to the Far North Region. It will also provide the route for green power and the desalinated water required by the northern towns and mines (tourists will be a significant added bonus).
- a standard gauge rail connection from Kingoonya to western Eyre Peninsula ports capable of taking Cape Bulker size ships for exporting of minerals from the northern mining developments (if a more direct route to link directly into the off take to Darwin at Tarcoola is not feasible). At present these minerals are to be exported through Darwin which is a costly long distance exercise, requiring expensive bypasses and results in NT not SA obtaining the export royalties.
- desalination plants using 'green' energy at Ceduna, Streaky Bay, Elliston and Port Lincoln, where they are open to the Southern Ocean currents and the water can easily be put into the existing Eyre Peninsula SA Water pipes and a new extended pipeline system to the northern towns and mines for distribution.
- desalination plant at Port Augusta where a solar gas mechanical vapour compression desalination system with Cheetham Salt taking the waste back on land (similar to the one proposed west of Ceduna), as proposed by Acquasol, would be suitable. Not at Port Bonython at the top of the Spencer Gulf with the saline discharge going back into the top of the gulf and its inherent problems.
Port Bonython is a totally inappropriate location where dodge tides stop water movement for days and a full flushing of the gulf only occurs every few years. Any discharge will place the marine environment, including the giant cuttlefish, prawn and tourism industries, at great risk.
- upgrade of the Ceduna airport to cater for increased commercial and charter flights to enable mining companies and officials greater access to the region and mine sites. The upgrade and maintenance of the northern air strips for community, mining and emergency usage is also essential.
- Fast inexpensive satellite broadband coverage to provide the necessary communication to enable health, education and business development to prosper in this remote area.
- Unification of television coverage across the State to ensure that communities in the Far North and Upper Eyre Peninsula are informed of what is happening in their local area and State, not Queensland. Currently both regions have split television coverage – half is serviced by Imparja television which is broadcast from Alice Springs and Central 7 from Queensland and the other half receive Central GTS/BKN or Southern Cross Ten broadcast from Port Pirie, which is much more relevant.

The impacts of these problems on the people and businesses in the North

The northern part 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 a government organisation, 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.

These problems have come about because Adelaide is many kilometres away. Because it is so remote the region has been neglected except for pastoral interests and the defence industry. Now that aero magnetic surveys and other modern techniques have penetrated the thick overlying sediments and revealed what the Gawler Craton mineralisation contains the attention of city people has been gained but they have no idea what needs to be done.

Combined with price and availability of the minerals, sufficient interest has now been shown to warrant the building of significant infrastructure by the government.

How these problems might 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, the gasification of the coal, the desalination plants, ports, railways and numerous mines. However without the underlying interconnecting infrastructure for the crucial power, water, export ports, and road or rail transport, it will be a long time before the mines will be able to progress.

Coordination of timing with guarantees for approvals and possibly loans would help. Infrastructure projects are often dependent on one another. If one is held up for possibly years waiting for approval other dependent projects may risk bankruptcy and/or may not start.

Billions of dollars of export income and thousands of jobs will continue to be forfeited if the necessary infrastructure is not put in place or at least facilitated by the government who are the long term beneficiaries.

The Ring Main

A power ring main or circuit 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 Olympic Dam expansion, which will require 400MW of additional power, plus processing plants and desalination plants also requiring power.

Currently the very old single 132 KV line, which 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 could 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, it 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, hot rock and gasified coal power.

An international company with the necessary expertise is currently undertaking a feasibility study of the ring main project. They are constructing one in Rumania at present.

New Ports

It is increasingly obvious that modern multi-use ports on the west coast of Eyre Peninsula and on the east coast, north of Port Lincoln and south of Port Neill, are 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.

An Indian company is obtaining quotes for a floating port but will need encouragement to go ahead, particularly in the current world economic climate.

The mining exploration 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.

If the Port of Thevenard is not suitably upgraded a new port nearby will be needed to service Eyre Peninsula and the area west to the Western Australian border. Thevenard currently handles a greater tonnage of product than Port Lincoln including grain, salt and gypsum. However it needs to be deepened to cater for bigger ships including those needed for the Iluka mineral sands that are about to be mined. A loading system may also be required to accommodate the Cape Bulker size iron ore ships. Existing exports of grain, salt and gypsum would also be under threat without an upgrade at Thevenard.

Port Bonython at the top of the Spencer Gulf near Whyalla is poorly located in an area that is very environmentally vulnerable. The long term environmental risk to the gulf should not be swept aside for expediency's sake. It also requires significant financial commitment to build a several kilometre long jetty so that the bigger ships can be loaded. The Whyalla Port requires barging and is to be fully utilised by One Steel who is refusing access to other companies. It will not be able to cater for Eyre Peninsula's export requirements as it is remote from the almost 700 km of narrow gauge rail system that services the region.

A Public Private Partnership, government or private enterprise could build new ports on a green field sites in conjunction with 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 good planning.

Road links

New national transport fatigue rules, relating to rest stops for drivers must be facilitated. Sealed road train parking stops, three lanes wide with toilet facilities and wide entrances on both sides of all highways at appropriate distances are needed to enable drivers to comply with the new regulations. In my submission to the “Auslink Perth-Adelaide Corridor Strategy” in 2006 I referred to the lack of suitable roadside rest areas and impending mining requirements.

The Strategy only referred to the inputs to mining operations and townships but did not mention how the outputs would be transported. A new bridge or alternative bridge is required at Port Augusta. The current capacity of the bridge is limited and in view of the congestion and conflict associated with mixed traffic an alternate bridge or a new bridge possibly each carrying one way traffic would be the best option.

For further information I refer you to my submission to the ‘Auslink Perth-Adelaide Corridor Strategy’ at www.lizpenfold.com under submissions.

Wirrulla to Kingoonya/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. These users are all impacting heavily on the local community who have to rescue them when they get into trouble and put up with the wear and tear on roads not built for regular or heavy traffic. Already there have been deaths on the road. Once in place it will be the natural route for the desalinated water, power line and possibly a rail line to open up the north of the State.

Railway Upgrade

The railway to Darwin is up for sale. When the sale is finalised it would be strategic for the State Government to look at the possibility of linking it with a port on the west coast near Ceduna possibly via the Kingoonya road route. The mining companies are sending their minerals to Darwin at the expense of South Australia and paying for numerous passing lanes for the trains along the way. This money should be assisting a better shorter link into South Australia and not being spent in the Northern Territory. (The first passing lane has already been constructed just outside Darwin.)

The current private owners of the Eyre Peninsula railway Genesee Wyoming could sell the railway line and or become part of the new port projects. 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 at this existing city port.

The railway line would 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.

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 (over 400 kms), that it is costing thousands of dollars to replace private 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 the lack of available water in the region. The processing of kaolin and a pellet plant will also need significant water, estimated to be around 9 gicalitres per year.

A Reverse Osmosis desalination system at Streaky Bay is being proposed that would take the pressure off the local overdrawn 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. It would have 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 has 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 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.

Reasons for the change:

Given the quantity of valuable minerals in the Gawler Craton and the mineral sands located in the north-west the need to provide infrastructure to facilitate them is very obvious.

Some of the mining ventures on Eyre Peninsula alone expected over the next few years which will need a deep sea port outlet, suitable power and increased water supplies 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.)
- Minatour's kaolin deposit near Streaky Bay, which is of very high quality with 9 million tonne, plus 220 million tonne inferred, 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 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 going to the company's West Australian plant for treatment at significant added cost and that with adequate power and water could be done in South Australia providing income and jobs here instead.
- Adelaide Resources has mineral sands, uranium and iron ore deposits on Eyre Peninsula. Their testing at Warramboos indicates a significant strike length of magnetite bearing iron ore of exceptional chemical quality and substantial tonnage.

Cairn Hill, Hawksnest, Peculiar Knob iron ore deposits and many others are requiring infrastructure in the North of the state. PIRSA will know the current status of these mines.

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 lack of 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 for the massive future developments.

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 and coordinated by State, Federal and Local Governments with possibly Infrastructure Australia providing the lead role.

Coordination is required to ensure that unnecessary expense and wastage does not occur as highlighted by the fact that three underpasses are being built under the Stuart Highway (at over \$1 million each) by three different mining companies within a few kilometres of each other. These underpasses are only single lane and do not allow trucks to go in both directions without waiting and some danger. Adding \$100,000's to the cost, the Department has also required companies to build bituminised bypass roads for the few months while the underpasses are being built that will be ripped up once they are completed. A heavy surface on a cross road would to me seem to have been a much cheaper and safer option.

Some incentives for investors now, guarantees for transmission and or underwriting costs or funding provided, will have a return on investment in the billions of dollars within a few years to state and federal governments.

Consideration of these projects to provide for the future development and prosperity of the northern 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.

They will help to fulfil all of the six objectives of South Australia's Strategic Plan of growing prosperity, attaining sustainability, expanding opportunity, fostering creativity and innovation, improving well being and building communities in a region that needs these more than any other.

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Member for Flinders

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11 December 2008