

4.3.2 State Renewable Energy Targets

The Draft NSW Renewable Energy Action Plan 2012 supports the national target of 20% renewable energy by 2020. In 2011 renewable generation in NSW was 7.8% which includes Snowy Hydro. The plan promotes the use of energy from renewable sources at least cost to the energy consumer and with maximum benefits to NSW. The Plan cites Bureau of Resources and Energy Economics statistics 2012 indicating that wind is presently the lowest cost renewable technology but for biogas (landfill), and that wind is predicted to be the least cost renewable source of electricity beyond 2030.

The proposed Liverpool Range Wind Farm supports the Draft NSW Renewable Energy Action Plan 2012 objective of 20% renewable energy by increasing the supply of electricity from wind, the most economical form of large-scale renewable energy.

4.4 Economic Stimulus

The Clean Energy Council commissioned Sinclair Knight Merz (SKM) to prepare a report into the investment costs and benefits of wind farms in Australia. SKM released the report '*Wind Farm Investment, Employment and Carbon Abatement in Australia*' in June 2012 which presents an updated national and state-based snapshot of wind farm investment, jobs and carbon abatement.

The model used in this report has been applied to the proposed Liverpool Range Wind Farm to estimate the potential economic stimulus. It predicts that the Liverpool Range Wind Farm will have a capital expenditure of \$1,272 million and a direct impact of \$256.6 million in the local region during the construction phase. It is expected to create up to 829 jobs in the region during the construction phase and up to 78 ongoing fulltime roles.

This economic injection would also contribute to the local economy through:

- ▶ use of local contractors (where possible) in construction of the wind farm;
- ▶ use of local services (food and accommodation, fuel, general stores etc.) during the construction period;
- ▶ ongoing use of these local services during the operation of the wind farm;
- ▶ lease payments to local landholders; and
- ▶ provision of ongoing local jobs in operating and maintaining the wind farm.

4.5 Secondary Project Benefits and Opportunities

In addition to the increase in renewable energy supply, the proposed Liverpool Range Wind Farm would provide a variety of benefits and opportunities.

4.5.1 Infrastructure

Infrastructure required for development of the wind farm would also benefit the local community. The proponent would fund the upgrading of some local roads as outlined in the Traffic and Transport report. The works that would mainly benefit the region include the modifications necessary to segments along Coolah Creek, Rotherwood and Turee Vale Roads. Other infrastructure works would include the provision of traffic signs and guide posts.

4.5.2 Tourism

Although the establishment and operation of a tourist facility is not part of this proposal, the Liverpool Range Wind Farm would provide an opportunity to increase the regional tourism industry, which currently is a main contributor to the economy. In the year ending June 2012, domestic tourism generated \$850 million in the Hunter region of NSW and \$815 million in the Central NSW region which the site also borders (DCC, 2009). While initial interest is likely to be higher than on-going interest, the wind farm could be utilised as an additional attraction to secure visitors to the local townships. This would lead to further contributions to the local service industry.

4.5.3 Social impacts

Public perception studies have shown that more realistic and positive perceptions accompany actual physical experience of wind farms. Fear of the unknown can exaggerate perceptions of visual and noise impacts particularly (Tourism NSW, 2012).

While it is certain that not all members of the community will view the proposed development of wind farms favourably, in some communities, investment in clean energy production can become a point of pride to local residents. For example, during wind farm community consultation in Berridale, NSW, many participants spoke with pride about the Snowy Hydro Scheme and the appropriateness of similar clean energy developments in their shire. The Southern and Central Tablelands region looks well placed to become a leader in the Australian wind industry. The results of the NSW DECCW Survey 2010 ((Warren et al., 2005)- refer to Section 7.1) indicate that support for renewables is high.

4.5.4 Community Enhancement Fund

Under the Part 4 planning process in NSW, contributions from a project to a community enhancement fund are voluntary.

During the consultation process for the project Epuron sought feedback on how best to establish a community fund and to identify what type of local support is required from the project.

As part of Epuron's consultation process the following position was outlined regarding the establishment of a community fund for the project:

- ▶ Epuron designs its wind farms to minimise impacts to the environment and local community.
- ▶ Each project should be assessed (by DP&E) and determined specifically on its merits (and without being influenced by any promise of community or other funding).
- ▶ Epuron strongly believes in the value of community contributions and believes that the final investor who funds the construction and operation of the project should engage with and support the local community, including through annual financial contributions to the community.
- ▶ Epuron believes that such community contributions should be:
 - applied towards local environmental, social and community initiatives led by local residents;
 - directed to initiatives raised by residents proximate to the development or likely to be impacted;
 - established at the commencement of operation and continue for the life of the development; and,
 - regularly reviewed to ensure they are providing ongoing benefits to the community.
- ▶ Epuron considers that the CCC, working with the developer and ultimate project owner, is ideally placed to help develop a community fund and its administration process.
- ▶ The project is a major infrastructure project that can only be built by a major energy utility. Epuron will not be the ultimate project owner and accordingly it is not appropriate for Epuron to determine the final details of any community fund, and nor should these be determined as part of a development application or consent process.
- ▶ Accordingly, Epuron will not propose any specific amount payable to a community fund as part of its development application. However, it will commit to an ongoing consultation process to determine an appropriate basis for the establishment of a community fund.
- ▶ The EA's Statement of Commitments will set out the Community Fund details

Accordingly a community enhancement fund has not been proposed for the project, however, the proponent will continue consultation on a possible format for a community enhancement program, as well as suggesting useful projects for the local area, so as to maximise the benefit of the project to the wider community.

The statement of commitments proposed by Epuron will require that the proponent:

- ▶ At least 6 months prior to the commencement of operations, call a meeting of the Community Consultation Committee and consult with Council(s) with respect to establishment of the community fund;
- ▶ Prior to the commencement of operation of the project, establish that community fund as required and publically announce the administration processes and current funding commitments of the fund; and,
- ▶ Regularly make publicly available the details of the fund including its administration processes, funds made available, funding commitments and outcomes.

4.6 Suitability of the Project

A comprehensive assessment of the proposed project has recognised that the development is suitable on a local level in terms of existing and future land use impacts. The following sections outline where this EA discusses the suitability of the project and the reasons behind the justification.

4.6.1 Strategic Land Use

The proposed wind farm site and the adjacent land parcels are zoned as land use 1(a) Rural Agriculture, RU1, RU3, and E1 & E3. This land has been set aside by the local councils for agricultural purposes, and the land is currently used for commercial agriculture (primarily sheep and cattle grazing) and rural residences.

While in operation the proposed wind farm would not impact on the day-to-day farming activities currently being carried out by the existing landowners. The turbine footprint and access tracks would occupy only a very small percentage (typically around 2%-3%) of the landowners' overall property and through strategic planning and consultation infrastructure would not occupy highly productive farming land. Normal farming operations may be affected during the construction phase, primarily due to increased construction traffic and activity on site. The magnitude of these construction impacts is such that it is not expected to cause material economic loss to the landowners ongoing agricultural use of the land and is temporary in nature.

The large separation between the placement of turbines allows the proposal to co-exist with the predominantly agricultural land use of the project site, with only the very small portions of land to be occupied by turbine infrastructure and access roads being removed from agricultural production. In design terms, wind turbines typically need to be separated widely across (approx. 600m) and along (approx. 300m) the prevailing wind direction to allow the turbines to function and follow the wind, and to allow the wind speed to recover sufficiently to power the succeeding row of turbines downwind. The project is also not expected to alienate land for residential purposes and information received from the local Councils showed there are currently no approvals for new dwellings in the immediate vicinity of the project. The siting of proposed turbines has taken into consideration potential impacts including areas of environmental, ecological and heritage sensitivity which have been minimised or avoided wherever possible. The layout of proposed turbines has also been designed to minimise the potential noise and visual impacts on the local community particularly neighbouring dwellings located within 2km of a proposed turbine.

When considering the existing and future land uses, the proposed site is suitable for a wind farm. All local councils have strategically identified the site and its surrounds as being important agricultural land and there is no future intention to modify this zoning. The wind farm would coexist with the existing farming operations without any major disturbances to productivity but would make the land more economically viable for future agriculture and grazing.

The proposed wind farm will not have any negative impacts on land of high agricultural value, rural residential development, building entitlements or subdivision potential. The agricultural land on the project site is not classified as land of significant scenic or visual value, forestry, or conservation areas. There may be a limited impact to the Durrigere State Conservation Area depending on the ultimate powerline route selected, and this is addressed in section 3.4. Minor impacts to Crown Land are acceptable and have been organised in consultation with NSW Trade & Investment. Impacts on Crown Land have been thoroughly addressed in Section 3.11.

4.6.2 Grid Connection

An assessment into the capacity and security of the existing transmission network was conducted to determine the feasibility of the site and the impact that the project could have on the network. Connection strategies for proposed projects in the area have been assessed using publicly available information and best estimates where this information is not available.

The likely timing for construction of the other proposed projects in the area and the status of their grid connection process is unknown. Technical studies required as part of the connection process will ensure that there will be no material impact on the security or performance of the electricity network from other proposed wind farms connecting in the vicinity of the Liverpool Range Wind Farm.

A grid connection enquiry has been lodged with the Network operator, TransGrid. Epuron has also had several meetings with Sean Buggy of Transgrid in 2012 in relation to the electrical connection of the project, and Epuron has begun the Connection Investigation and Negotiation Agreement (CINA) with Transgrid. These meetings and processes will ensure that the site is suitable to connect to the proposed grid connection location.

4.7 Strategic Justification Summary

This section set out the justification for the project in the context of its local and regional setting. It provides an overview of the energy supply/demand context and in particular the need for additional electricity supply in NSW. The key factors justifying the need for the project in the current market conditions includes;

- ▶ Electricity consumption continues to grow, and the additional demand must be met by either increased fossil fuel generation or an increase in generation from renewable sources such as wind power.
- ▶ The use of renewable energy, such as wind, to provide additional capacity for electricity generation in NSW supports state and federal government policy objectives. These policy objectives are primarily set to combat climate change impacts through a reduction in greenhouse gases.
- ▶ In full operation, the project would generate more than 2,725 GWh of electricity per year - sufficient for the average consumption of around 340,600 homes.
- ▶ The project would reduce greenhouse gas emissions by approximately 2,634,800 tonnes of carbon dioxide equivalent (CO₂e) per annum⁵ or the equivalent of 717,000 cars removed from the roads
- ▶ The project would contribute to the State and Federal Governments' target of providing 20% of consumed energy from renewable sources by 2020.
- ▶ The project would contribute to the NSW Government's target of reducing greenhouse gas emissions by 60% by the year 2050.

The section also outlined the suitability of the project site in terms of location, scale, wind energy potential and compatibility with existing land uses. The key factors justifying development of the project at this location are;

- ▶ The areas excellent wind resource which has been proven feasible for the development and long term operation of a wind energy facility.
- ▶ The relatively sparse density of residences within the vicinity of the project site.
- ▶ Suitable proximity to an existing high voltage electricity grid network for connection.
- ▶ Acceptable environmental impacts, as demonstrated by the specialist technical studies and investigations.
- ▶ General community support for the project in the region from the community and local government.
- ▶ create local employment opportunities and inject funds of up to \$1,272 million into the Australian economy.
- ▶ Creation of potential secondary benefits and opportunities for improvements in infrastructure, tourism and the establishment of a a community enhancement fund.
- ▶ The project site is well suited to development in regards to landowner support, land use, wind resource and grid connection.

⁵ Calculated using the NSW Wind Farm Greenhouse Gas Savings Tool developed by DECCW

5 Consideration of Alternatives

5.1 Site Selection

Site selection is crucial in wind farm development due to the market based structure of the electricity industry. The projects that exhibit the best characteristics for wind farm development (best energy yield with the lowest cost) will be the projects that get built. It is the combination of these characteristics that makes suitable sites for wind farms reasonably rare in NSW. Appropriate locations are found where:

- ▶ wind speeds are consistently high (around 7.5-8 m/s as an annual hub height average);
- ▶ capacity at existing transmission lines is available on or near the project site;
- ▶ transportation of turbines would be possible with only minor upgrades to roads;
- ▶ native vegetation cover is sparse or would be minimally impacted;
- ▶ housing in the immediate vicinity is relatively sparse; and
- ▶ involved landowners are interested in housing turbines on their land.

To date Epuron has successfully developed nine wind farm projects in NSW, six of which have been granted development approval, with two currently in the assessment phase and one awaiting formal determination.

Epuron has developed projects in the Northern Tablelands, the South-West Slopes, South Coast and Far West New South Wales, prior to investigating sites in the Central Tablelands area. As a result Epuron has developed a wide network of monitoring masts with around 30 currently active across NSW and South Australia (including five on site). After modelling data from these masts further investigations were undertaken to assess the feasibility of the project. In addition to having a consistently high wind resource, the project area also featured:

- ▶ suitably cleared ridgelines for suitable turbine locations;
- ▶ a low population density (DECCW, 2010c; CCA, 2012); and
- ▶ an existing transmission network.

In addition to these characteristics, the engagement of interested landowners enabled the project development to progress. The selected development envelope for the turbine and infrastructure layout was chosen over earlier alternatives based on its commercial viability, landowner consent and reduced environmental impacts.

As part of the Ecology Assessment in Section 11, the Liverpool Plains Shire Council, the Warrumbungle Shire Council, the Upper Hunter Shire Council and the Mid-Western Regional Council were consulted in regards to any Environmentally Sensitive Area mapping in the vicinity of the project. No relevant Environmentally Sensitive Area mapping was available from these LGAs, and therefore has no impact on site local suitability.

5.2 Improvements to Infrastructure Layout

The current layout that is presented in this EA has gone through an iterative design and assessment process, with turbine locations being repositioned, deleted and in some cases added to areas previously not utilised. The purpose of this process is to design a layout that efficiently harnesses the energy in the wind with minimal impacts to the existing environment (including ecology, land use productivity as well as visual and noise amenity for surrounding residents) whilst considering community feedback and incorporating it where possible.

Two major iterations of the layout initially proposed for the Liverpool Range Farm contained a total of 452 turbines and 417 turbine locations, proposed overhead power line corridor options, and 8 potential substation locations. These two major iterations are herein referred to as the initial layout and the previous layout (December 2012).

This initial layout was developed using a wind resource map created from existing monitoring mast data, along with preliminary topographic features (contours) and satellite imagery. Experience gained from previous projects was applied to areas such as noise and ecology in determining the exact locations, however, detailed studies would be required to confirm these locations were appropriate.

Epuron received feedback from the open house and neighbouring dwelling landowners regarding nearby turbines. As such a number of turbines were removed to reduce both noise and visual impacts to neighbouring dwellings. Turbines

were also relocated or removed from parts of the site to minimise impacts to native flora and other identified constraints, such as communications and airstrips. This formed the previous (December 2012) layout. Over the past year further feedback from community consultation, environmental studies, landowner negotiations and wind resource monitoring have further impacted the layout. This has resulted in the current layout. The main changes between the previous and current layout in terms of landowner involvement is the addition of two landowners who were previously uninvolved.

Figure 5-1 shows the division of the site into a grid reference system which is used to assist with the locations under discussion in Table 5-1, Table 5-2, Table 5-3.

The initial turbine layout overlaid on the previous and current layout can be seen Figure 5-2 and a comparison between all preliminary transmission line and substation locations overlaid on the current line and locations can be viewed in Figure 5-2. Figure 5-3 and Figure 5-4 show detailed areas of the wind farm site that have undergone infrastructure changes from one layout to another.

Along with the relocation or deletion of turbines, the associated access tracks and underground electrical cabling were modified. While the impact of an access track and underground cabling is less than a turbine, every attempt was made to reroute access tracks away from sensitive vegetation. In some cases, however, it was concluded that the impact caused in clearing a small area of vegetation on the top of the ridge would have a lower impact than relocating the track on the side of the slope where the overall impact of the cut and fill required to construct the track would have an impact over a much larger area.

Section 3.4 covers the grid connection and power line corridor options that were considered. This selection details the iterations in power line routing based on the final power line corridor option that was chosen. See Section 3.4 for further information on grid connection and corridor options. The power line route were rerouted or deleted, where possible, to: minimise the impact to biodiversity and archaeological constrained areas. The power line, particularly from the wind farm boundary to the grid connection location, had considerable rerouting due to continuous consultation with surrounding landowners and feedback from neighbouring dwellings. In many instances where a landowner did not want to be involved, significant rerouting of the power line upstream and downstream was required.

Table 5-3 provides comments on the redesign of the power line route, it is broken down into grid id system for ease of referencing to the associated map, Figure 5-5 and Figure 5-6.

In summary a total of 35 turbines were removed from the initial to the previous layout and a further 129 turbines removed from the previous to current layout, not that these are net i.e. actual number of turbines removed is greater but offset by the addition of turbines in utilised areas. A majority of the turbines were relocated or microsited due to spacing optimisation in addition to constraints identified such as environmental or feedback from consultation with surrounding landowners mostly regarding proximity, noise and visual impact.

Table 5-1 List of improvements made from initial to previous (December 2012) layout

Grid ID	Turbines in initial Layout	Turbines in current layout	Comments on redesign from initial layout to previous layout (December 2012)
C2	0	0	No change.
D2	8	9	1 turbine microsited from Grid D3.
E2	12	11	Turbines microsited. 1 turbine removed due to airstrip.
F2	0	0	No change.
G2	2	0	2 turbines removed due to high ecological constraint and consultation feedback from G2-1, G2-2, G2-3 regarding visual and noise impacts.
C3	5	5	All turbines microsited further away from dwellings D4-1 to D4-4 due to consultation feedback regarding visual and noise impacts.
D3	20	22	3 turbines added in unconstrained areas. 1 turbine removed due to spacing constraint
E3	33	19	3 turbines removed due to airstrip. 13 turbines removed due to landowner of dwelling E4-1, E4-2, E4-3 requesting not to be involved & consultation feedback from E3-2 and E3-3 regarding visual and noise impacts. 2 turbines added in unconstrained areas.

Grid ID	Turbines in initial Layout	Turbines in current layout	Comments on redesign from initial layout to previous layout (December 2012)
F3	41	38	3 turbines removed in high ecological constraint area. Turbines microsited into areas of lower ecological constraint.
G3	10	23	3 turbines removed in high ecological constraint areas. Turbines microsited into lower constraint areas. 16 turbines added in low constraint areas.
C4	0	0	No change.
D4	8	8	Turbines microsited into lower ecological constraint areas and feedback from D4-7 regarding visual and noise impacts.
E4	18	10	5 turbines removed due to airstrip. 2 turbines removed due to E4-1, E4-2, E4-3 requesting not to be involved & consultation feedback from E3-2, E3-3, E4-5, E4-6 regarding visual and noise impacts. 1 turbine removed due to ecological constraint
F4	27	34	1 turbine removed due to airstrip. 8 turbines added in unconstrained area.
G4	9	6	3 turbines removed due to community consultation identification of house G4-1. Microsite turbines further away from dwelling G4-1 due to consultation feedback from G4-1 regarding visual and noise impact.
C5	4	3	1 turbine microsited into Grid D5.
D5	34	23	2 turbines removed due to ecological constraint. 9 turbines removed due to spacing optimisation and consultation feedback from C5-10, D4-5 and D4-6 regarding noise and visual impacts.
E5	28	26	1 turbine removed due to consultation feedback from E5-1, E5-2, E6-2 regarding visual and noise impact. 1 turbine removed due to consultation feedback from E5-3, E5-4, E5-6 regarding visual and noise impact. Microsited turbines further away from E5-3, E5-4, and E5-6 due to consultation feedback regarding visual and noise impact.
F5	32	30	1 turbine removed in ecological constrained area. 1 turbine removed due to spacing constraint. Microsited turbines into lower ecological constraint areas.
G5	12	12	Turbines microsited.
C6	7	4	3 turbines removed due to consultation feedback from C6-1, C6-3, and C6-4.
D6	13	10	1 turbine removed due to consultation feedback from C6-1, C6-3, and C6-4. 2 turbines removed due to airstrip. 2 turbines microsited due to airstrip. 1 turbine reallocated into unconstrained area.
E6	25	25	Turbines microsited due to southern airstrip.
F6	18	19	3 turbines removed due to airstrip and consultation feedback from F6-1, F6-4, G6-1, F7-2 F7-1 regarding noise and visual impacts. Turbines microsited into lower ecological constraint areas. 3 turbines added into unconstrained areas. 1 turbine added due to micrositing from grid G6.
G6	9	8	1 turbine removed due to ecological constraint and consultation feedback from G6-3, G6-2 and G6-2 regarding noise and visual impact.
C7	0	0	No change.
D7	0	0	No change.
E7	11	8	4 turbines removed due to consultation feedback from D7-7, E7-1, D7-5 regarding noise and visual impact. 1 turbine added into unconstrained area.
F7	4	3	1 turbine removed due to spacing constraint.
G7	18	16	2 turbines removed due to airstrip. 2 turbine microsited into lower ecological constraint area.
F8	8	10	2 turbines added into unconstrained areas.
G8	27	27	Turbines microsited into lower ecological constraint areas.
F9	6	6	Turbines microsited further away from dwellings due to consultation feedback from F9-2, F9-3, F9-4, F9-5, F9-6.
G9	3	2	1 turbine microsited into Grid G8.

Table 5-2 List of improvements made from previous to current layout

Grid ID	Turbines in initial Layout	Turbines in previous (December 2012) layout	Turbines in current layout	Comments on redesign from Previous layout (December 2012) to Current layout
C2	0	0	0	No change.
D2	8	9	5	2 turbines removed due to consultation feedback from E2 and F2 dwellings and C2-4 and C2-3 regarding visual impacts. 2 Turbines microsited to Grid D3
E2	12	11	4	8 turbines removed due to consultation feedback from E2 and F2 dwellings regarding visual impacts. 1 turbine microsited to Grid E3.
F2	0	0	0	No change.
G2	2	0	0	No change.
C3	5	5	4	1 turbine removed due consultation feedback from dwellings D4-1, D4-2, D4-3, D4-4 regarding visual and noise impacts.
D3	20	22	19	6 turbine removed due consultation feedback from dwellings D4-1, D4-2, D4-3, D4-4 regarding visual and noise impacts. 2 turbines microsited from Grid E2. 1 turbine added in a low constraint area.
E3	33	19	25	13 turbines added due to involvement of landowner E4-1, E4-2, E4-3. 7 turbines removed due to consultation feedback from D4-7, D4-8, E4-1, E4-2, E4-3 regarding visual and noise impact.
F3	41	38	19	3 turbines removed due to high ecological constraint. 1 turbine microsited into area of lower ecological constraint. 16 turbines removed due to consultation from E3-2, E3-3, E4-5 and E4-6 regarding visual and noise impact.
G3	10	23	0	23 turbines removed due to high ecological constraint or surrounding areas of high ecological constraint
C4	0	0	0	No change.
D4	8	8	6	2 turbines removed due to consultation feedback from D4-1, D4-2, D4-3, D4-4, D4-7 and D4-8 regarding noise and visual impact.
E4	18	10	9	2 turbines added due to involvement of landowner E4-1, E4-2, E4-3. 3 turbines removed due to consultation feedback from E4-4, E5-3, E5-4, E5-5, E5-6 regarding visual and noise impact.
F4	27	34	18	16 turbines removed due to consultation feedback from G4-1, E4-4 regarding noise and visual impact.
G4	9	6	4	2 turbines removed due to consultation feedback from G4-1 regarding noise and visual impact.
C5	4	3	3	No change.
D5	34	23	19	3 turbines removed due to consultation feedback from E6-1, D6-1, D6-3, D6-2 regarding noise and visual impact. 1 turbine microsited to Grid D6
E5	28	26	21	5 turbines removed due to consultation feedback from E5-1, E5-2, E5-3, E5-4, E5-5, E5-6 regarding noise and visual impact.
F5	32	30	19	11 turbines removed due to consultation feedback from E5-3, E5-4, E5-5, E5-6 regarding visual and noise impact.

Grid ID	Turbines in initial Layout	Turbines in previous (December 2012) layout	Turbines in current layout	Comments on redesign from Previous layout (December 2012) to Current layout
G5	12	12	6	6 turbines removed due to consultation feedback from G6-3, H6-1, H6-2 regarding visual impact.
C6	7	4	5	1 turbine added in unconstrained areas
D6	13	10	13	2 turbines added due to consultation with landowner relaxing no go area constraint. 1 turbine added in unconstrained areas.
E6	25	25	17	8 turbines removed due to consultation feedback from E6-1, E6-2, E5-1, E5-2 regarding noise and visual impact.
F6	18	19	6	7 turbines removed due to consultation feedback from F7-1, F7-2, F7-3 regarding noise and visual impact. 5 turbines removed due to consultation feedback from F6-1, F6-2, F6-3, G6-1 regarding noise and visual impact.
G6	9	8	4	4 turbines removed due to consultation feedback from F6-1, F6-2, F6-3, G6-1, G6-2, G6-3 regarding noise and visual impact.
C7	0	0	0	No change.
D7	0	0	0	No change.
E7	11	8	3	3 turbines removed as landowner no longer involved. 2 turbines removed due to consultation feedback from D7-6, D7-5 regarding noise and visual impact.
F7	4	3	3	No change.
G7	18	16	14	2 turbines removed due to consultation feedback from H7-1, H6-3 regarding visual impact.
F8	8	10	9	1 turbines removed due to consultation feedback from F8-1 regarding visual impact.
G8	27	27	25	2 turbines removed due to consultation feedback from H7-1, H8-1, H9-1 regarding visual impact.
F9	6	6	6	No change.
G9	3	2	2	No change.

Table 5-3 List of improvements made to the power line and substation location

Grid ID	Comments on redesign
D3	Addition of substation location and power line due to further detailed electrical design.
F3	No change.
D4	Changed power line route to the new preferred substation in D3. Power line moved to lower elevated land due to feedback from D4-1, D4-2, D4-3, and D4-4.
F4	No change.
D5	Removed power line alternative due to removal of turbines.
E5	No change.

<i>Grid ID</i>	<i>Comments on redesign</i>
F5	No change.
F6	Additional alternate power line after consultation feedback from landowner F6-4.
G6	No change.
F7	No change.
G7	No change.
F8	Rerouted due to better construction conditions from consultation feedback from landowner F9-2.
F9	Microsite of power line.
D10	Microsite of power line due to consultation feedback from D10-7 regarding involvement. Microsite of power line due to to consultation feedback from D10-6 regarding visual impact.
E10	Removed power line due to consultation feedback from landowner E10-2 and E10-4, E10-5 regarding impacts and involvement. Subsequently power line rerouted to avoid E10-2, E10-4 and E10-5 parcels.
F10	Removed power line due to consultation feedback from landowner E10-4 and E10-5 regarding impacts and involvement. Microsite of powerline in Turill State Forest to minimise ecological impact.
D11	Removed power line due to consultation feedback from landowner D11-2 and E11-1 regarding impacts. Subsequently power line rerouted to avoid D11-2 and E11-1. Microsite of power line to reduce impacts on D12-17 after consultation feedback from landowner D12-17.
E11	Removed power line options due to consultation feedback from E11 dwellings regarding visual impacts.
F11	Removed power line alternative due to consultation feedback from landowner, dwelling E11-9 regarding visual impact and consultation feedback from crown land, also a more direct route.
D12	Removed power line option due to feedback from landowner D12-16, D12-17, D12-18, D12-19 after consultation feedback regarding willingness to be involved and visual impacts. Microsite of line to reduce ecological and environmental impacts in Durridgere State Forest with consultation from National Parks.
E12	Removed power line route due to consultation feedback at open house regarding proximity to archaeological constraint. Microsite of line to reduce ecological and environmental impacts in Durridgere State Forest with consultation from National Parks.
C13	Removed power line option due to consultation feedback from dwelling C13-1 as it is Ulan lease land. Removed power line option due to consultation feedback from dwelling C13-6 as it is Moolarban lease land.
D13	Rerouted power line due to consultation feedback from D13-2 regarding visual impacts. Rerouted power line option due to consultation feedback from dwelling C13-6 as it is Moolarban lease land. After consultation with Crown Land, route now runs through Crown Land.
C14	Rerouted power line option due to consultation feedback from dwelling C13-6 as it is Moolarban lease land. After consultation with Crown Land, route now runs through Crown Land.
C15	No change.

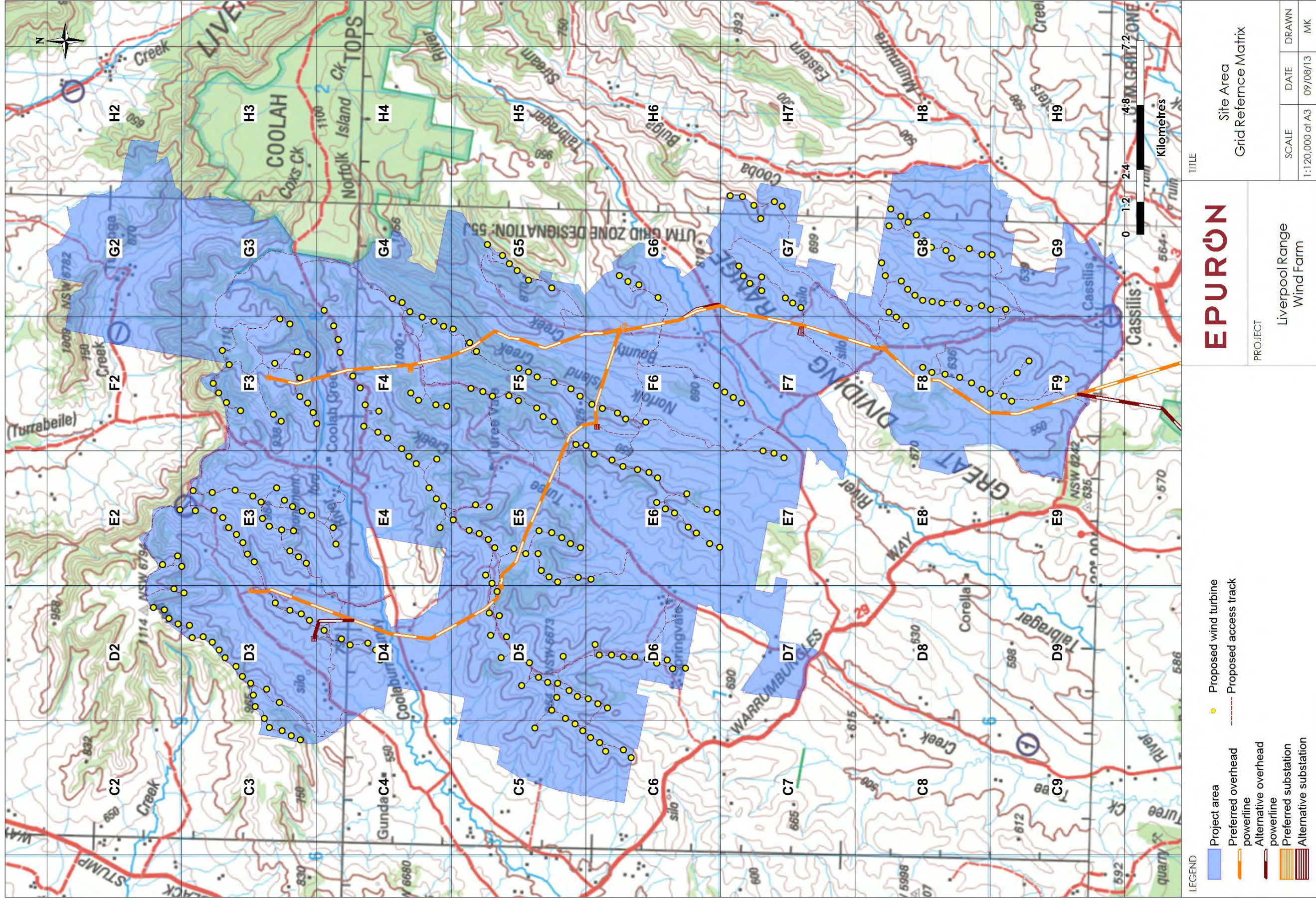


Figure 5-1 Liverpool Range Wind Farm grid reference system

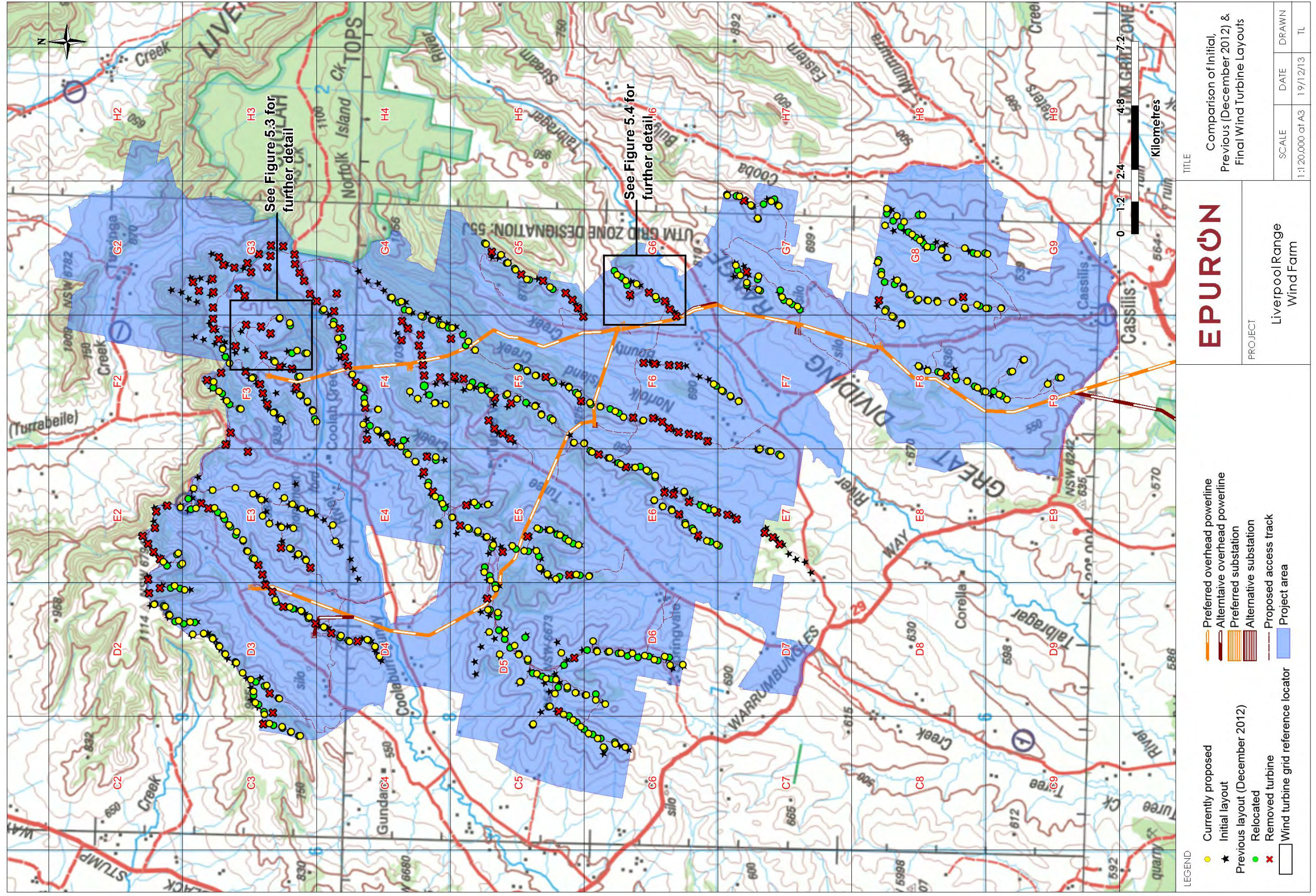


Figure 5-2 Comparison of the initial and final wind turbine layouts



Figure 5-3 Detailed changes made to wind turbine placements (map 1)

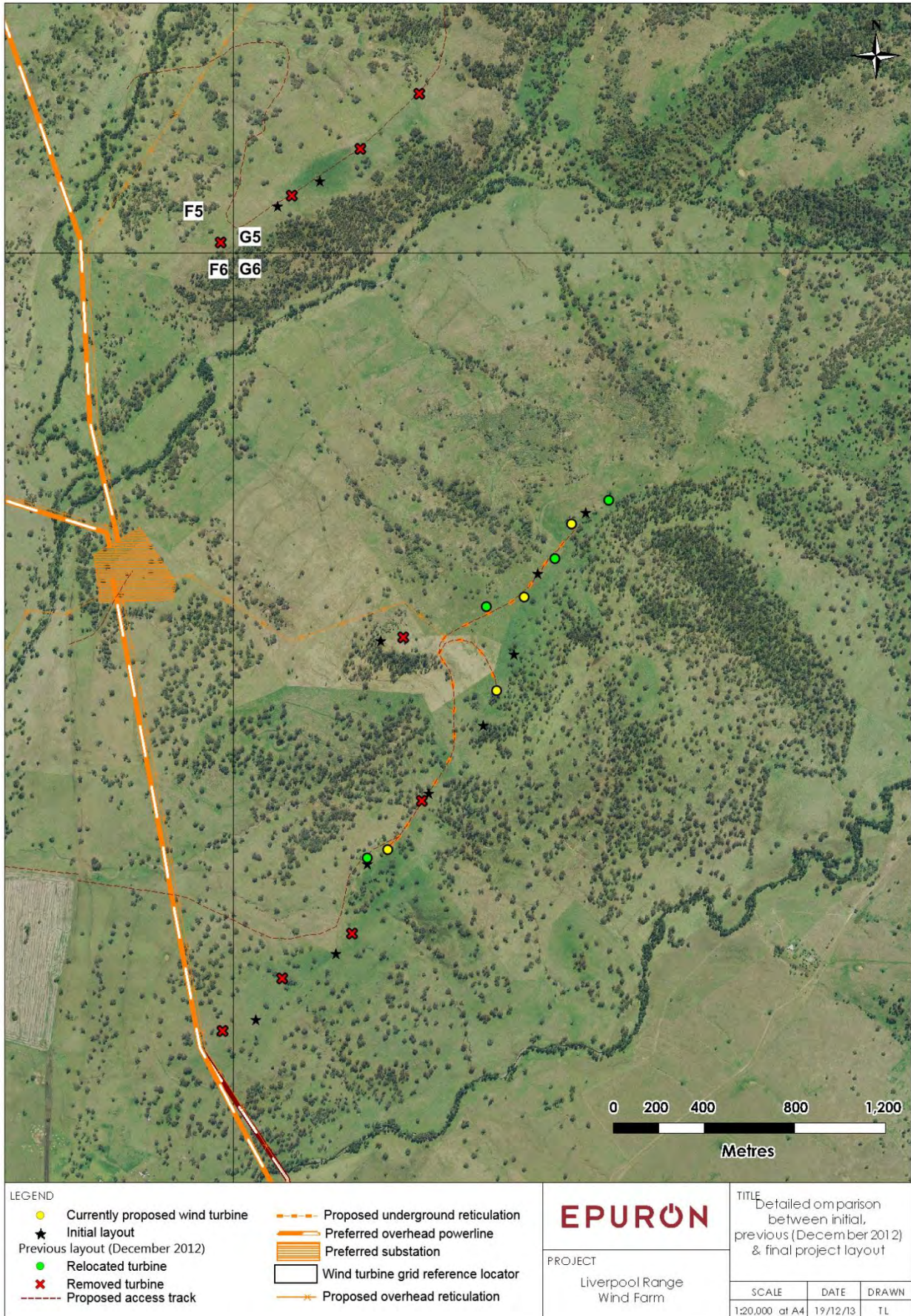


Figure 5-4 Detailed changes made to wind turbine placements (map 2)

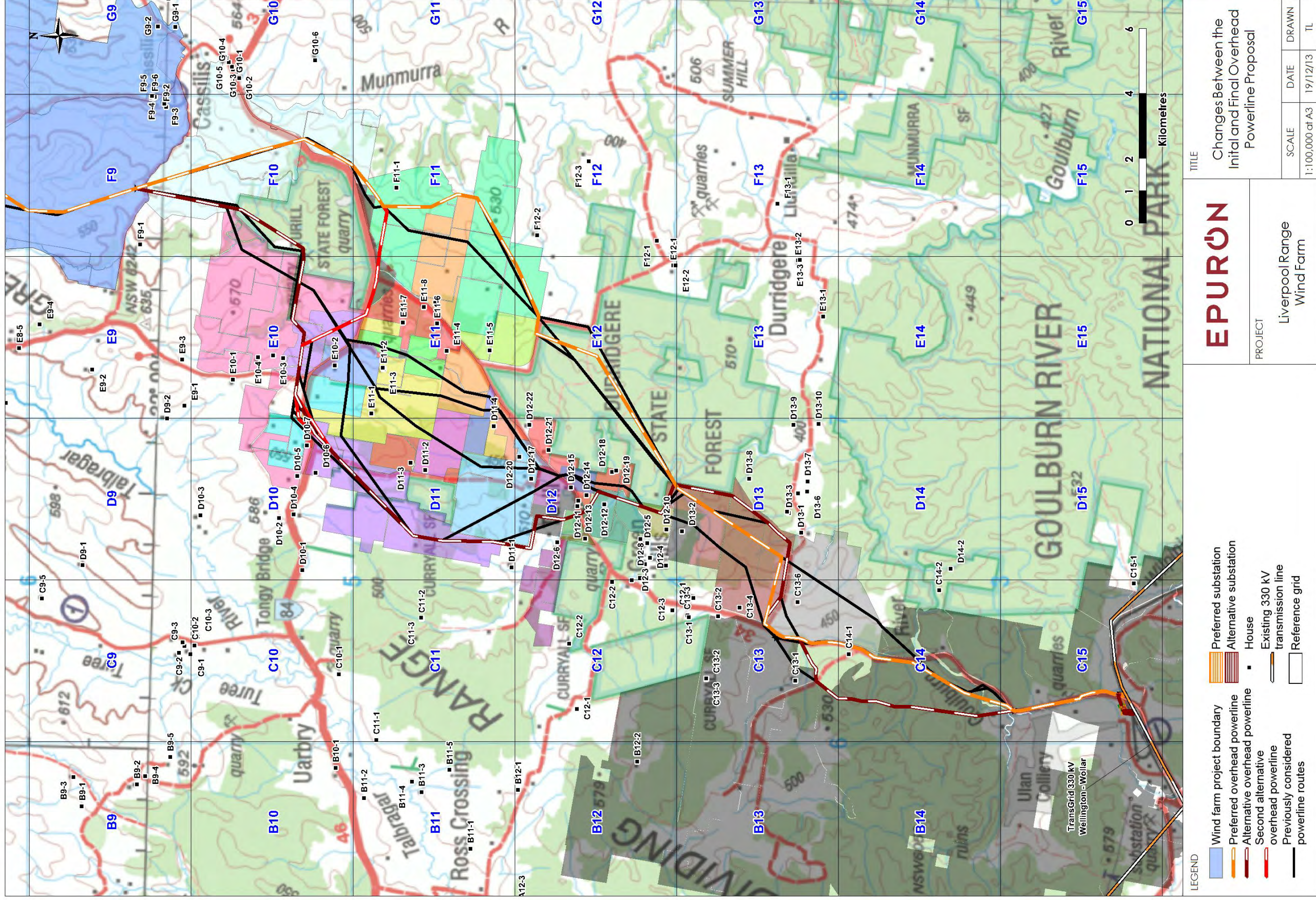


Figure 5-5 Changes between the initial and current transmission lines proposals (map 1)

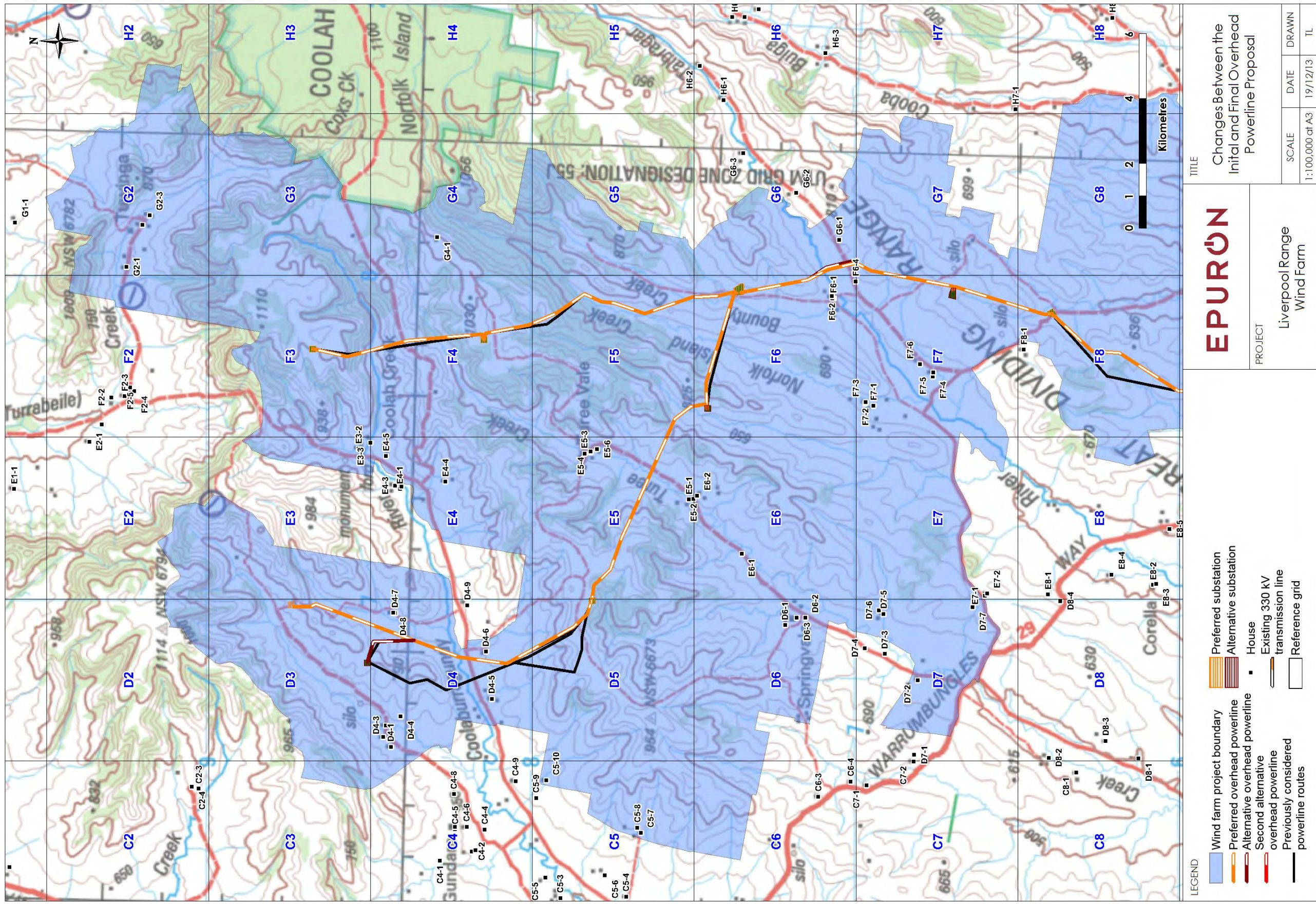


Figure 5-6 Changes between the initial and current transmission line proposals (map 2)

6 Planning Assessment Process

This section of the EA provides an outline of the relevant statutory provisions for the planning assessment process at the State, Local and Commonwealth levels in turn.

6.1 State Government Legislation and Policy

6.1.1 Environmental Planning and Assessment Act 1979

Planning in NSW is governed by the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Director General of the Department of Planning and Environment has issued the requirements for environmental assessment of the project.

Objects of the EP&A Act

Liverpool Range Wind Farm is consistent with the objects of the planning legislation, as stated in section 5 of the EP&A Act:

- The project promotes the welfare of the community and a better environment by providing construction jobs, rental income to landowners, electricity to the community, and reducing dependency on carbon-polluting energy sources;
- Orderly and economic use and development of land is encouraged as traditional grazing and farming activity can continue, while additional income can be earned by landowners hosting the wind farm, and through construction and maintenance jobs;
- The wind farm provides a utility service (electricity generation);
- The wind farm protects the environment by utilising large areas of cleared, grazing land for power generation, by biodiversity safeguards in relation to existing remnant native vegetation, and by helping the transition to a low carbon economy (through the exploitation of wind energy to generate electricity);
- The wind farm promotes ecologically sustainable development in the manner described in 6.1.5 (below);
- The wind farm promotes the sharing of responsibility for environmental planning between different levels of government in the manner that local government has been consulted. Each of the four local councils whose areas will host the wind farm are represented on the community consultation committees for the project. The requirements of State government agencies such as the Office of Environment and Heritage have been addressed.
- The wind farm provides opportunities for public involvement and participation in environmental planning and assessment through the community consultation committees, through community open days and newsletters for local people to learn about proposals and to provide comment, as well as through the public exhibition process.

Transitional Part 3A Project

The Liverpool Range Wind Farm was previously considered a transitional Part 3A project (EP&A Act, Schedule 6A Transitional arrangements—repeal of Part 3A – clauses 1, 2 and 3). This is because it has a capital investment value of more than \$30 million and was confirmed to be a project to which Part 3A of the EP&A Act applies by the Director-General of the Department of Planning and Environment on 2 June 2010, refer to Attachment 5.

Part 4 Project

The Liverpool Range Wind Farm will now be assessed as State Significant Development (SSD) under Part 4 of the NSW Environmental Planning and Assessments Act 1979, as of the 11th of February 2014 as advised by the Department of Planning and Environment.

Consent Authority

The Minister or the Minister's delegater determines State Significant Development projects (section 89E).