

### Western Power Investigation of Transmission Line Corridor Options

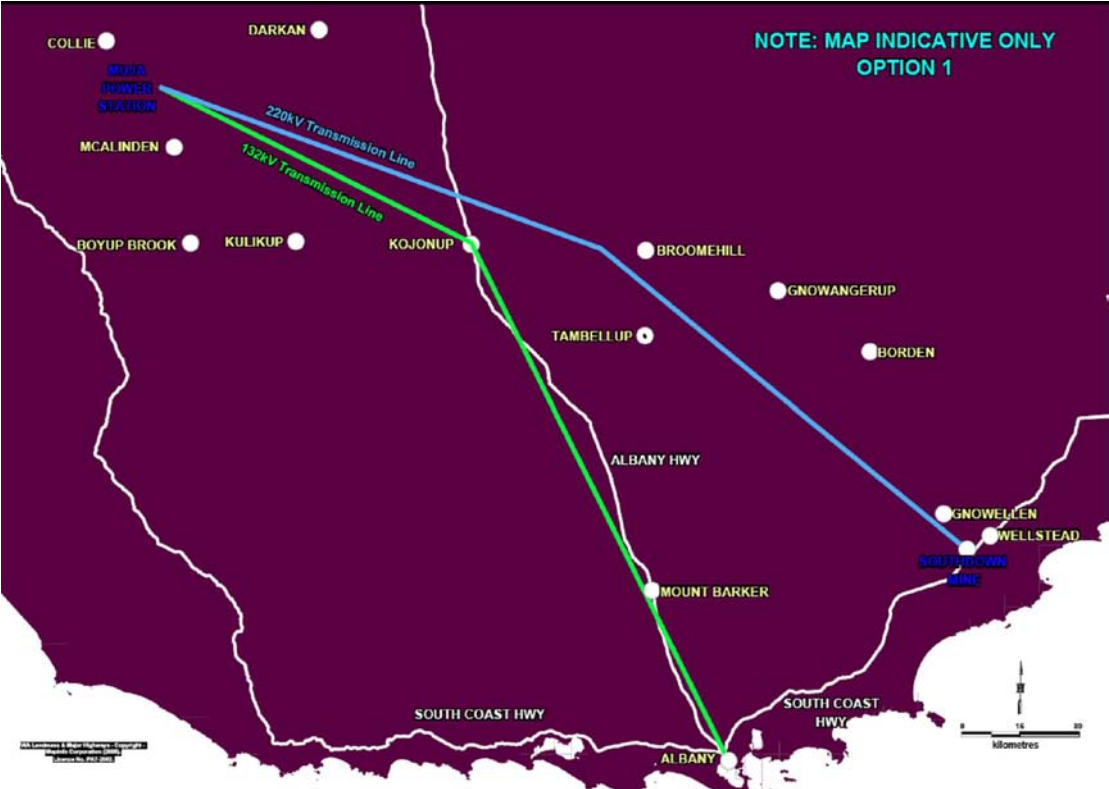
In response to Grange Resources' request to be connected to the electricity grid, Western Power investigated a number of line route options before deciding on the current alignment. The line route investigations were based on advice supplied by Grange Resources, requiring 75 megawatts. This would require the construction of a 220,000 volt (220 kV) transmission line, solely for the purposes of the mine site.

#### Option 1: Connecting a transmission line from Muja directly to Southdown (not passing through Kojonup)



Western Power first explored the option of going direct from the Muja power station near Collie to the Southdown magnetite mine in Wellstead. In order to secure future power supply to the lower southwest and great southern, consideration was given to the possibility of building a terminal substation in Kojonup, to utilise any power not required by Grange Resources. Routing the line through Kojonup would make it possible for us to connect the terminal substation into the grid.

**Option 2: Undergrounding the transmission line between Kojonup and Southdown**



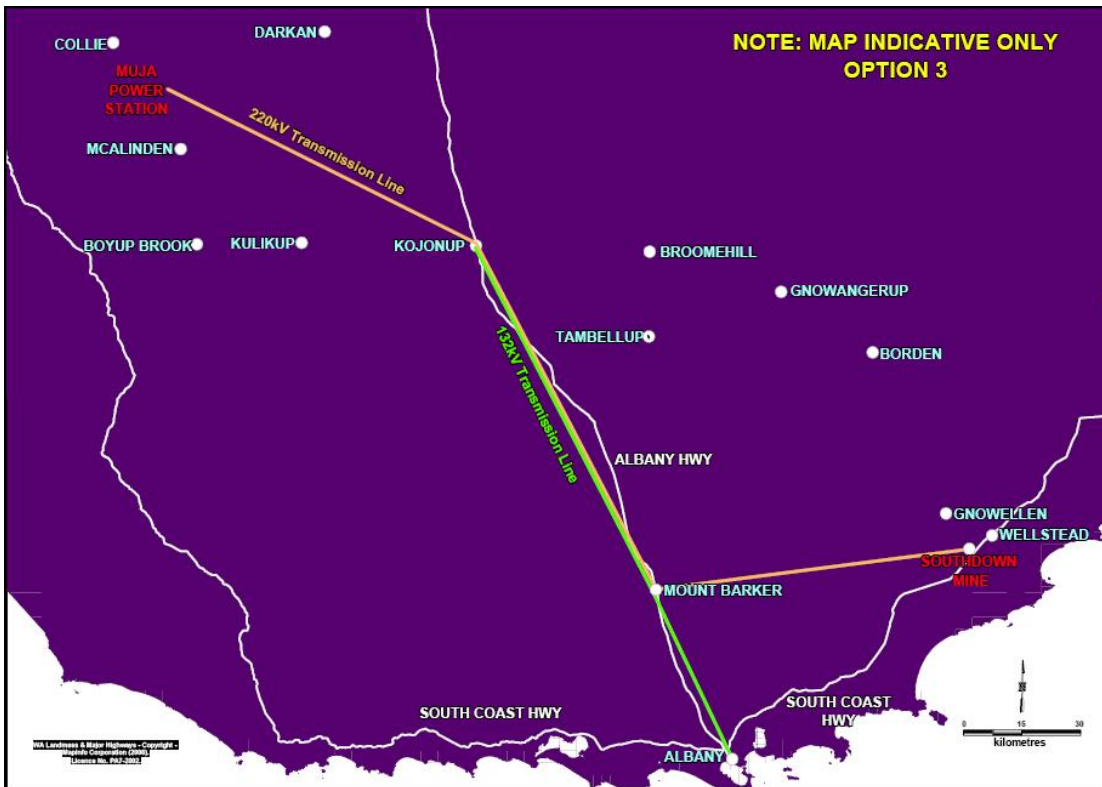
This option examines the possibility installing the 220 kV transmission line between Kojonup and Southdown underground. The cost of undergrounding 220 kV lines is approximately seven times greater than the cost associated with building an overhead transmission lines. This would increase the cost of installing the transmission line to more than \$1 billion, making the mine uneconomical.

**Option 3: Dual circuit lines from Kojonup to Mount Barker with deviations south to Albany and east to Southdown**

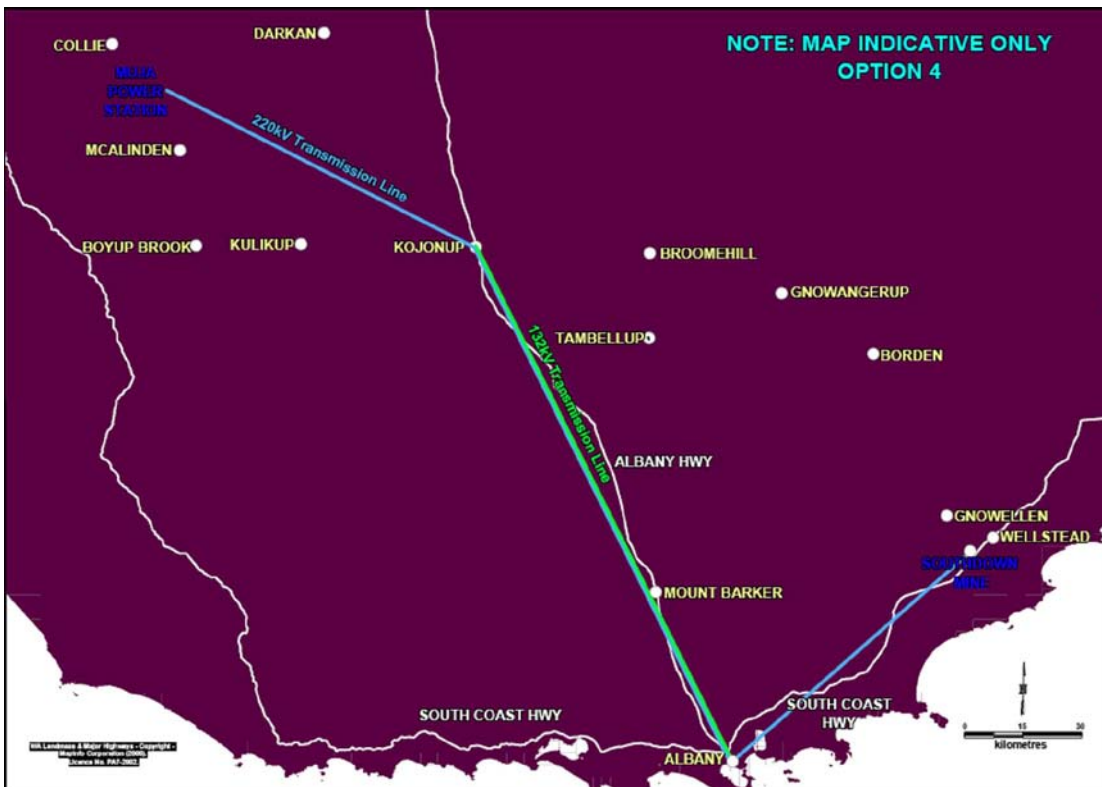
This option considered the construction of the transmission line from Muja to Southdown for Grange Resources and the planned construction of a third transmission line from Kojonup to Albany by Western Power. A 220 kV transmission line would be constructed from Muja to Kojonup and a dual circuit transmission lattice steel tower line would be constructed from Kojonup to Mount Barker. One side of the towers would operate at 132,000 volt (132 kV) and the other side would operate at 220 kV. From Mount Barker, the 132 kV line would continue south to Albany and the 220 kV would deviate east to Southdown.

This option could only be considered viable if Grange Resources' were willing to delay the timeframe of the mine such that Western Power would be able to combine its planned new line to meet Albany growth needs with Grange's needs.

This option would also require the transmission line to run directly between the Stirling Ranges and the Porongurups.



**Option 4: Dual circuit from Kojonup directly to Albany, with a deviation from Albany to Southdown**

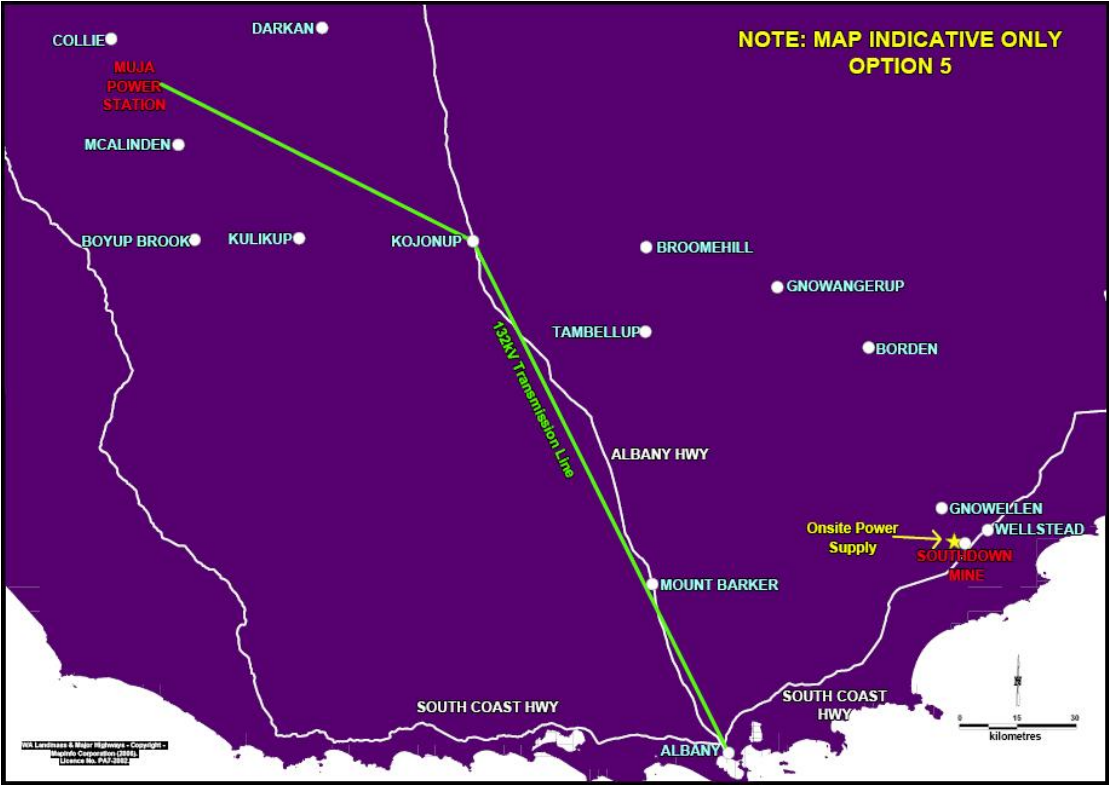


This line route is similar to Option 3. However, this option differs where the dual circuit line continues from Kojonup as far as Albany and does not deviate at Mount Barker. The deviation now runs east from Albany to Southdown.

During the early investigations, this option was not given further consideration on the understanding that Grange Resources' could not delay the timeframe of the mine such that Western Power would be able to combine its planned new line to meet Albany growth needs with Grange's needs.

Western Power has recently been informed by Grange Resources that it is possible that there will be a change to its timeframe for its power needs. Grange Resources is conducting a feasibility study on a staged mine development that would provide suitable time for Western Power to undertake the upgrade of power to Albany. However, results of the feasibility study will not be available until around July 2007.

**Option 5: Onsite power generation**



Grange Resources explored the possibility of using onsite power generation. This option was discarded, as it is extremely expensive. Diesel-powered generators also emit significant green house gasses. Grange Resources can be contacted for more information on the process they followed in determining why wind power and bio fuel power were not chosen.