Site Feasibility Report

The subject land where the 4.95MW solar farm is proposed is chosen due to the following:

- Solar irradiance,
- Proximity to electricity infrastructure,
- Site topography.

Solar Irradiance

According to SOLARGIS Prospect, the site has a specific yield of 1,675 kWh/kWp meaning that for every 1kW DC installed, the system will be able to produce approximately 1,675kWh of electricity per year. This efficiency number is greater than most areas in Victoria that have access to electricity infrastructure, as shown in below irradiance map.

Figure 1. Irradiance Map

Proximity to Electricity Infrastructure

Powercor, the local Distribution Network Service Provider, has provided a map screenshot of the subject land showing the nearby electricity poles and 22kV powerlines. The proposed solar farm will be connected to one of the poles along Naring Hall Road, and the electricity produced will be fed into the Numurkah substation. The relatively strong electricity network and close proximity to the substation have made this site ideal for solar farm generation. Network studies also indicate that the impact of the proposed solar farm to the local network is very minimal. Therefore, the location of the solar farm will maximise the generation efficiency and the supply of electricity into the grid.

Figure 2. Network Map

Site Topography

The topographic survey has been carried out and the results show that the site has a flat surface with minimal slopes along all directions. As the solar panels are fixed to the tracking frames which will be driven into the ground and rotating during the day to follow the path of sun, the flat topography poses minimum risks to both design and construction of the solar farm structure. This will also ensure that the shading of arrays can be avoided across the whole site and generation will be quite efficient.

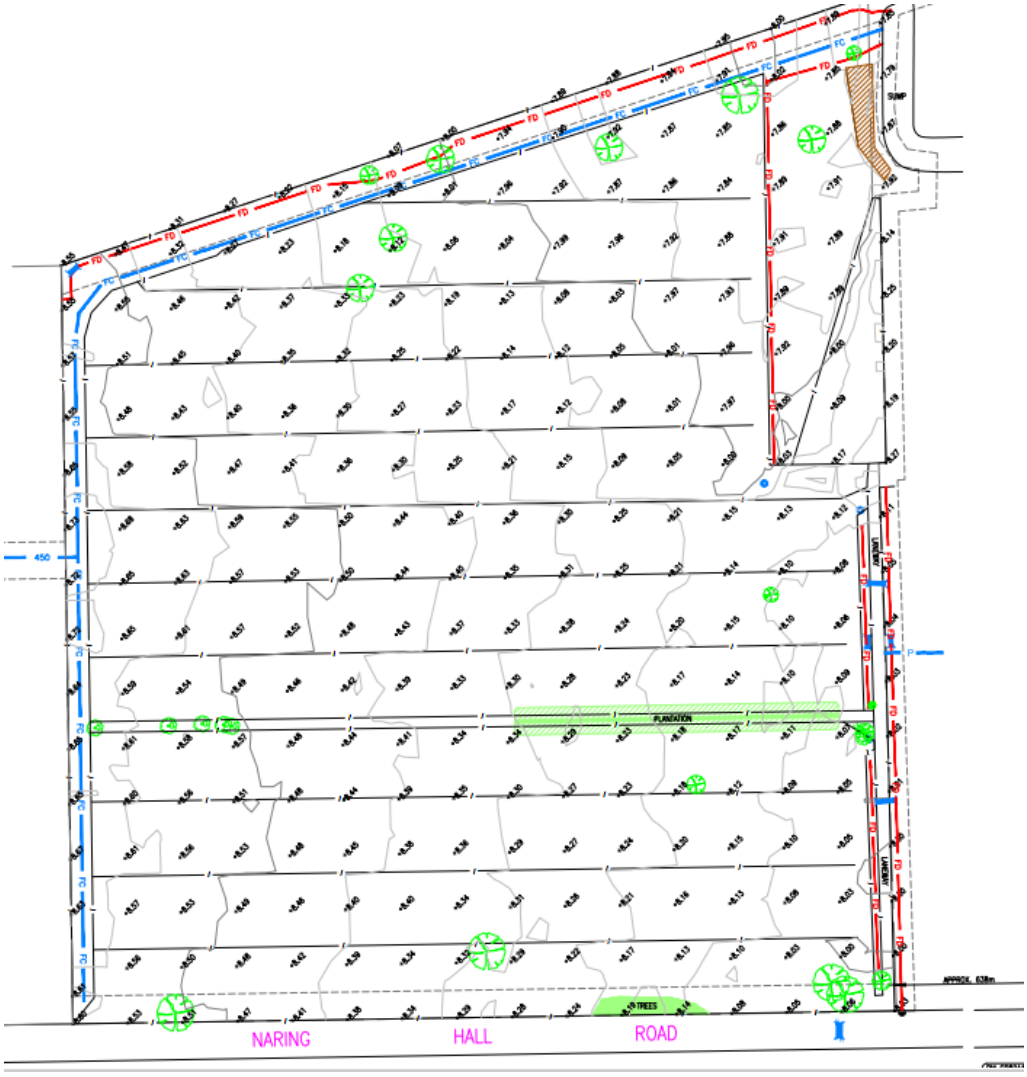

Figure 3. Site Topographic Report

Conclusion

The proposed solar farm has been designed and located to maximise the electricity generation efficiency while limiting any adverse impacts on the subject land and surrounding locality. A PVSyst report shows that the annual electricity production of the site will be approx. 11,520MWh and the CO2 emission will be reduced by 239,490.2 tCO2. It is also estimated that during construction, a large portion of the work will be undertaken by the local contractors. Those who do not reside in the area will need to be accommodated which will create an influx of spending within the area. The proposal will also have a positive effect on Victoria's electricity prices and place downward pressure on the market prices.