DRAFT 2022 ISP SUBMISSION

GENERAL

The 2022 ISP plan put forward represents an admirable utilization of existing transmission lines together with judicial extensions, consistent with the existing system. It shows the potential extent and capacity over time.

This system has been developed over many years based upon coal mine sites, major cities and known smelters and similar load facilities and lies in a north/south direction generally about longitude145E. It has developed around coal resource sites resulting in local power stations linked to loads with specific transmission lines. This has led to some problems with the transition to solar generation such as the "duck curve" in Queensland in the transition to the ISP plan.

SPECIFIC

It is suggested that consideration be given to the properties of the coming major generation resource of solar power in extending the transmission system. Solar installations have relevance and value because of their potential generation together with their physical location. Renewable energy zones (REZ) have been proposed as a grouping together of increased solar and wind activity generation for locating a transmission line extension.

The prime limitation of solar lies in being available for a limited time every day. At the same time Australia extends from Cape Byron 153 E to Steep Point in the west at 114E. This makes the possibility of expanding this window towards the daily peak by extending the system in a westerly direction. This is expressly relevant to the AEMO east coast load peak. The present proposed REZ installations all lie relatively close to the present north/south centreline of the system about 145E and contribute little due to their location beyond their existing solar day.

The limitation of sites near longitude 145E and location of solar REZ installations to the west would extend the effective solar generation into the east coast peak and reduce the necessary rate of rise in firming capacity using solar generation. In addition, moving proposed REZ sites from Queensland to South Australia would also reduce the potential "duck" effect.

Australia is one of the few economies where solar facilities can be effectively extended over a considerable longitude, taking advantage of their dual attributes over time, approaching the daily peak.

In the first instance this could be instituted by expanding westward from Olympic Dam or Broken Hill followed by links from the Sydney ring to Broken Hill, Olympic Dam and westward. This could be facilitated by identifying and valuing the location of solar installations sites.

At some stage the potential value, due to location, of solar installations needs to be recognized and acted upon, possibly in the form of a marginal gain factor (MGF) similar to the present MLF but fixed in value. This could be used as a driver to promote expansion westward.

For consideration
Sligar and Associates,