For section A, author begin by expressing the output from solar panel is DC and hence the need to convert the output to standard DC voltage and then to AC output to match the grid.

Author mentioned the use of MPPT algorithm to maintain the optimal voltage through DC-DC converter (Buck, boost and buck-boost converters)) since output by solar panel is DC.

Inverter is used to convert DC to AC through a circuit of switches. Three phase inverters are used to convert the DC to three phase AC output. Control of switches to regulate and match the required frequency is explained.

For section B, author mentioned the high sunshine received due to Singapore’s location near the equator and hence, use of solar energy is promising.

However, inconsistency in irradiance level due to cloud cover produces lower electricity output. Cost analysis on the drop in output was performed. Together with the low efficiency of current solar panels, benefits of solar panels might not be able to justify the cost due to the lower energy output.

Author expects solar panels technology to continue improving and with Singapore’s geographical advantage, Singapore will be in a better position to implement solar energy systems.