fixed DC link voltage is a very common solution for grid-connected inverters, which consist of a boost DC/DC conversion stage and a DC/AC conversion stage. The fixed DC link voltage is definitely greater than peak values of AC voltage.

One of two conversion stage MUST regulate DC link voltage and the another one controls current injected/extracted at DC link . If the DC/AC converter regulates VDC by controlling dq-axis current, the DC/DC converter which is tie to PV array regulates DC current withdrawing at DC link. This DC current is normally to extract as much PV production power as possible. Its means DC/DC control MPPT by controlling DC current at DC link.

It sounds more sensed than the second option, which MPPT is controlled by DC/AC converter and DC/DC converter controls DC link voltage. Because if the DC/AC converter controls MPT, it needs to get measurements of PV voltage and PV current, which are actually input power of the DC/DC converter. So, control and measurement circuitry is more complicated and hence requires more PCB area.

In conclusion, regulating DC bus voltage by controlling d-axis current of DC/AC converter and regulating MPP by controlling input of DC/DC converter will reduce the complexity of circuoitry of a commercial grid-connected PV system. Controlling DC bus by regulating d-q current of DC/AC inverter is the best solution to maintain high dynamic response at the AC side.

For new generation of grid-connected inverter, DC link voltage caries according to sinusoidal waveform of AC current ( which looks like this http://www.electronics-tutorials.ws/diode/diode18.gif?81223b). The reason behind it is to reduce switching energy loss of both converters, and hence increase total efficiency. The higher DC link voltage is, the more loss switches cause when instantaneous value of AC current changes from positive to negative and vice-versa. Some new generation of SunnyBoy inverters applied this technique.

Kind regards,