Comp Ana

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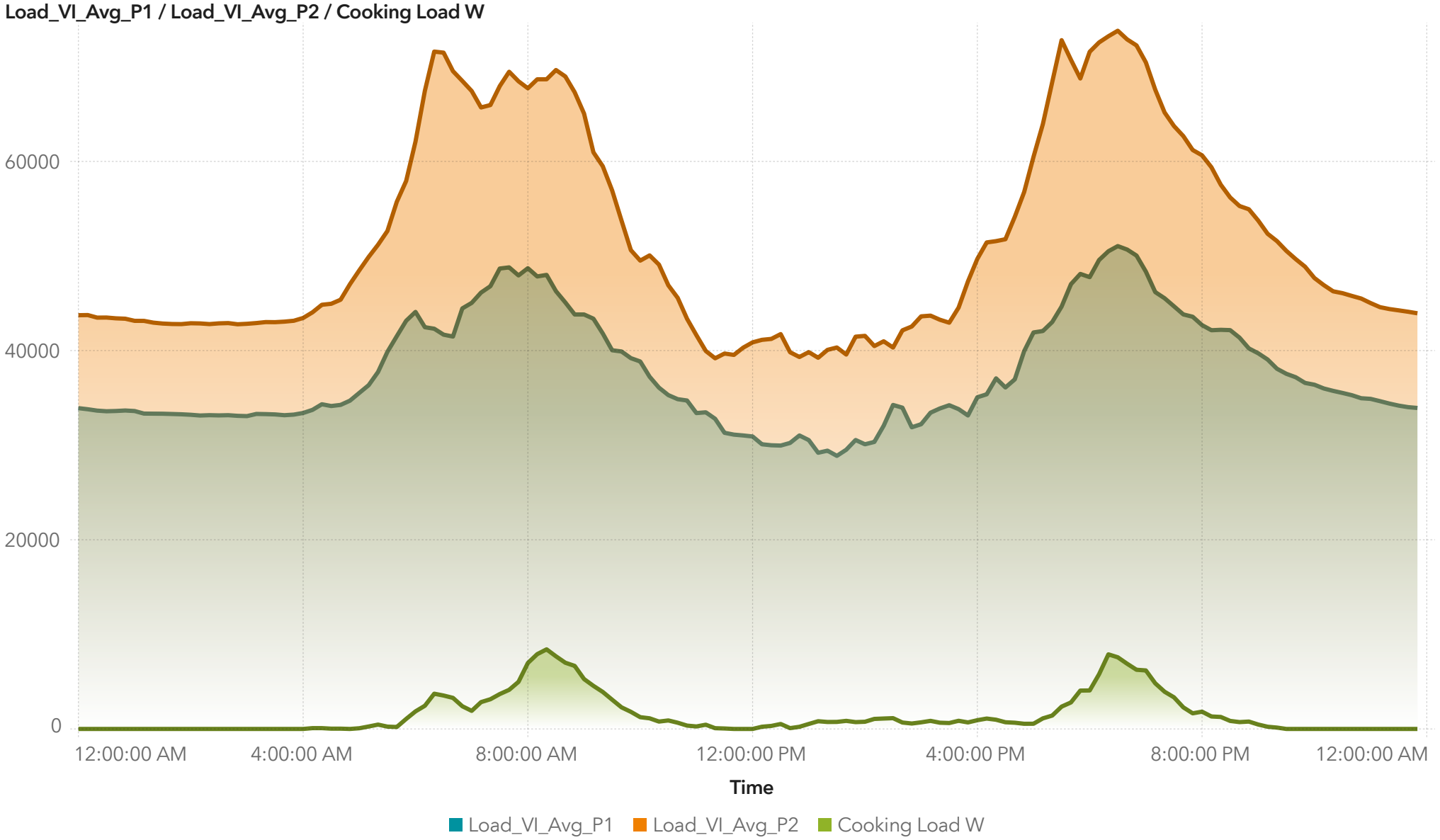
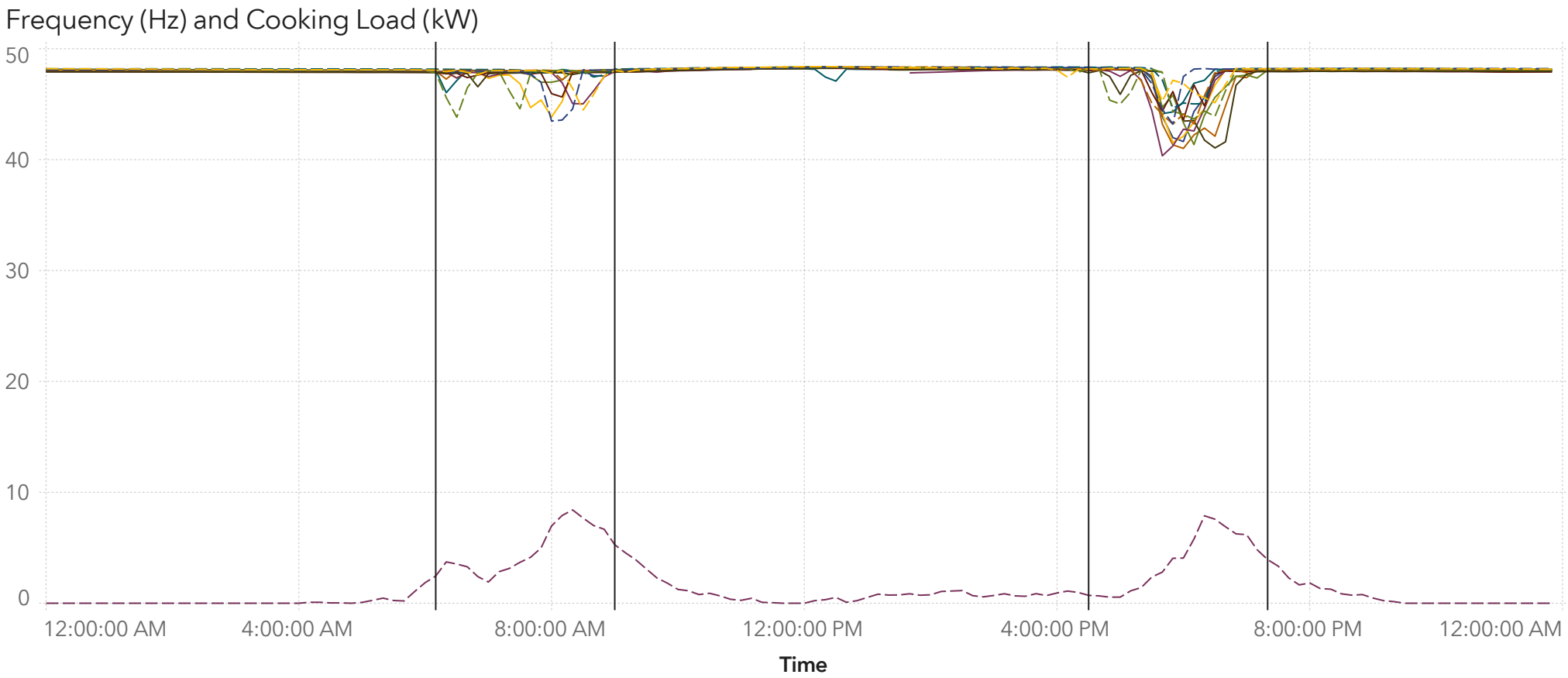
Comparative Plots

Load phase 1 and 2

Total Average Load power in phase 1 & 2 and the cooking load





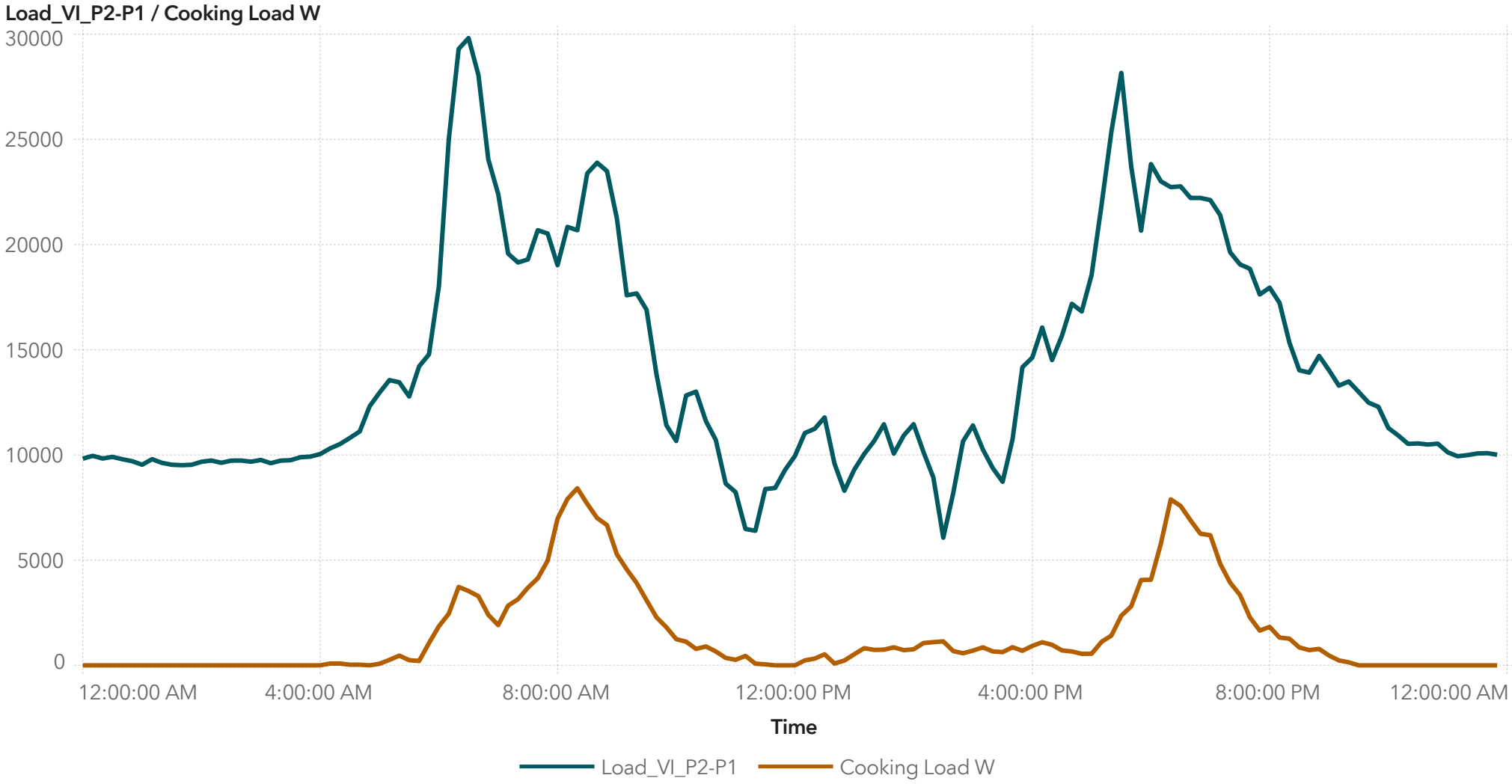
I think this is the good way to demostrate the MHP peak hours and the peak hours of the cooking load.

The frequency drop implies that the load is operating near generation or may be the demand is even higher looking at the freqiency drop.
The stable region of the frequency implies that the load is not yet close to the generation.

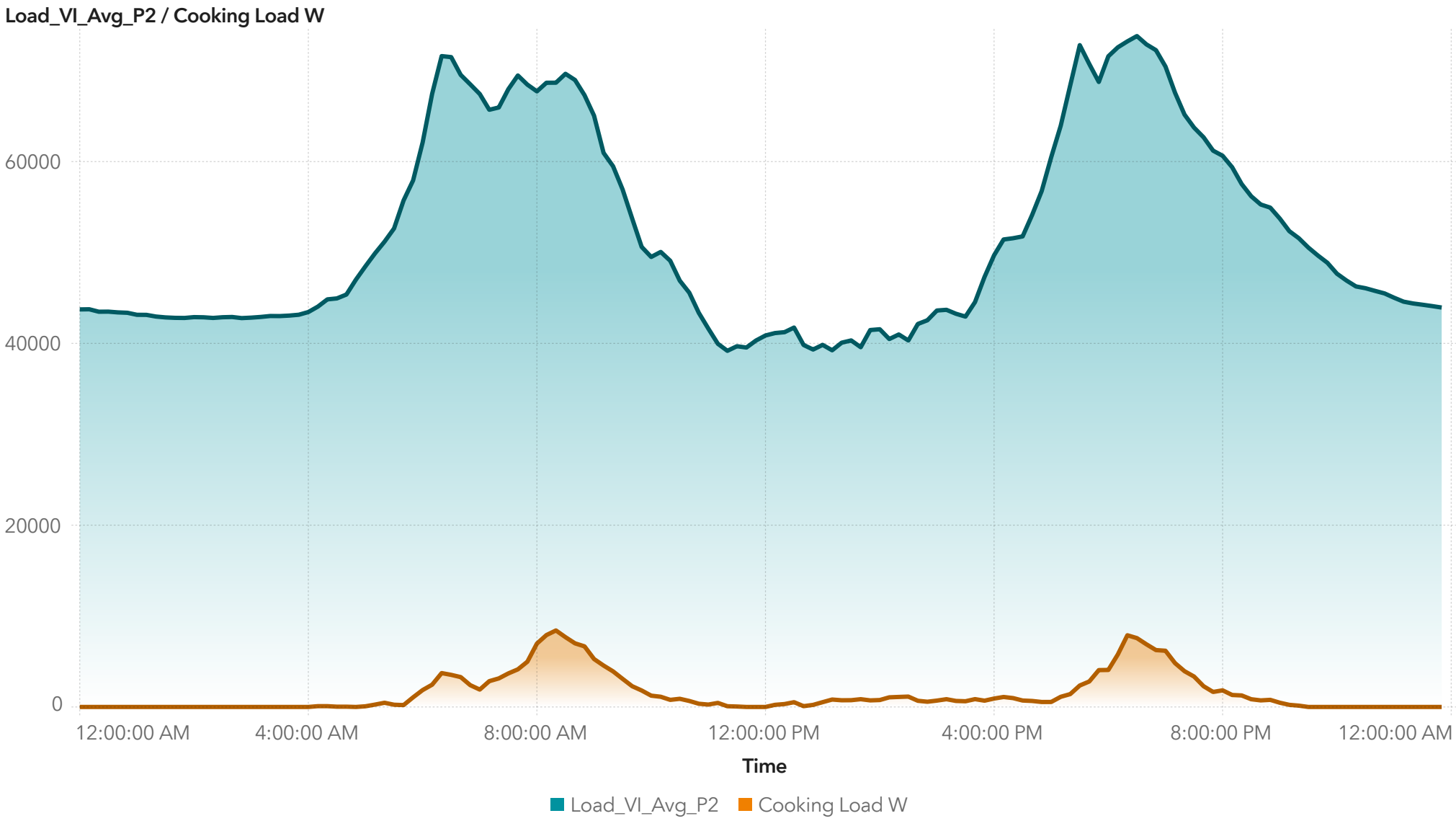
Both the cooking load peaks during the morning and evening falls between the MHP peak hours.

What do you think about this plot?

Load_VI_P2-P1, Cooking Load W by Time

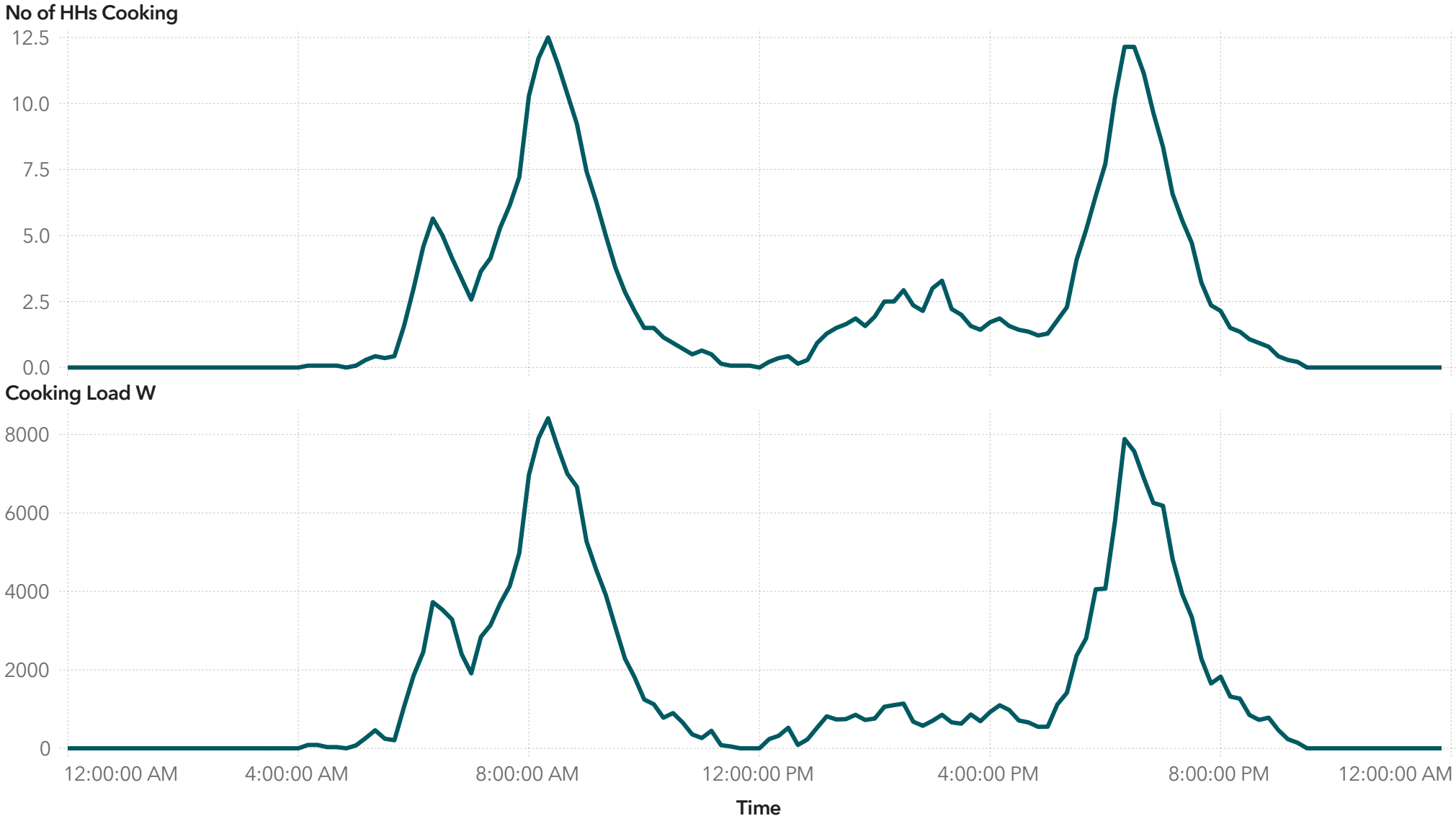


The average load power difference between phase 2 and phase 1 is indicated by Load_VI_P1-P2. There is no similarity in shape and magnitide between the 2 plots.

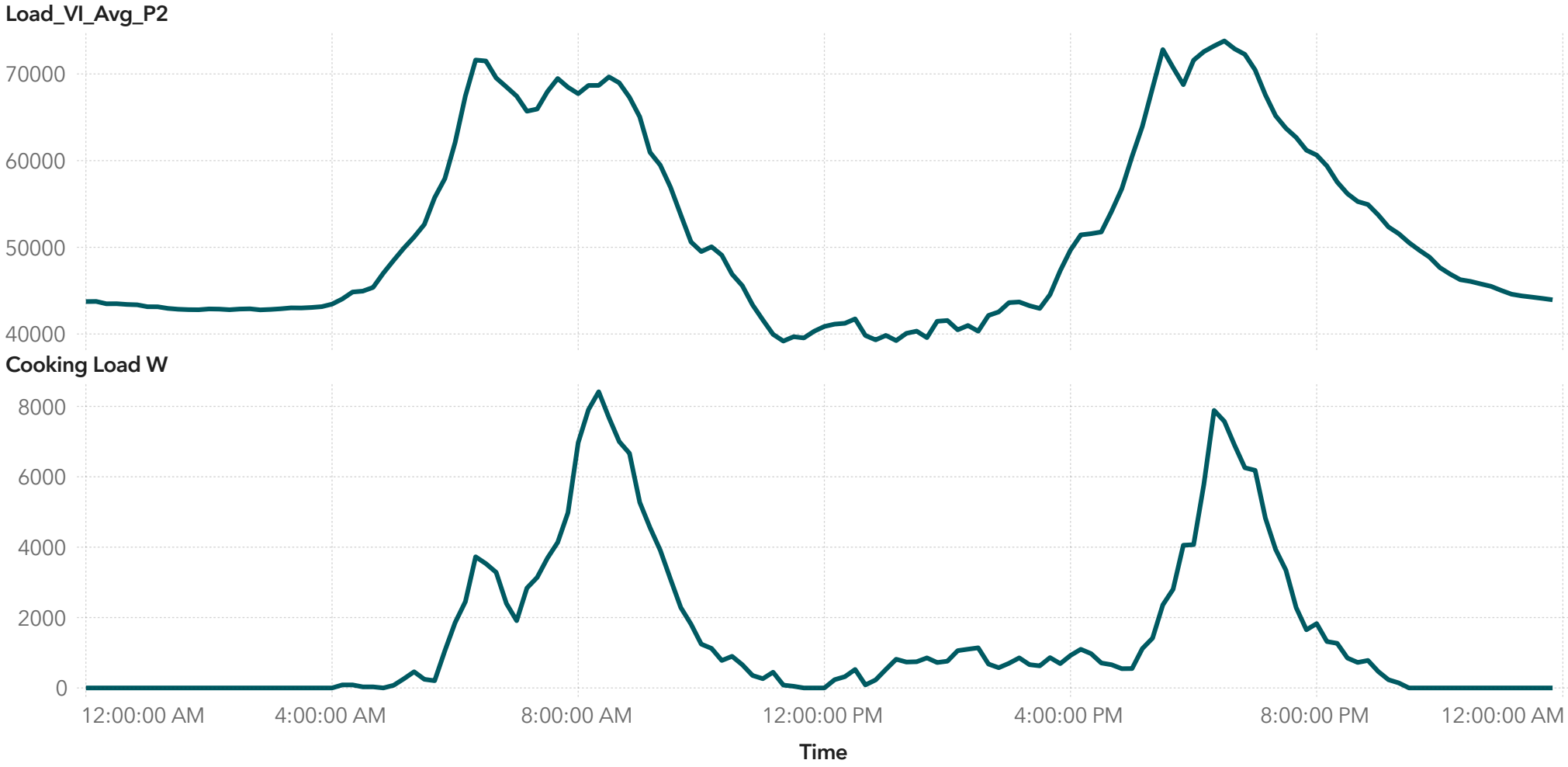


This plot gives a more clearer view of the cooking load proportion in the total daily MHP Load.

Cooking load

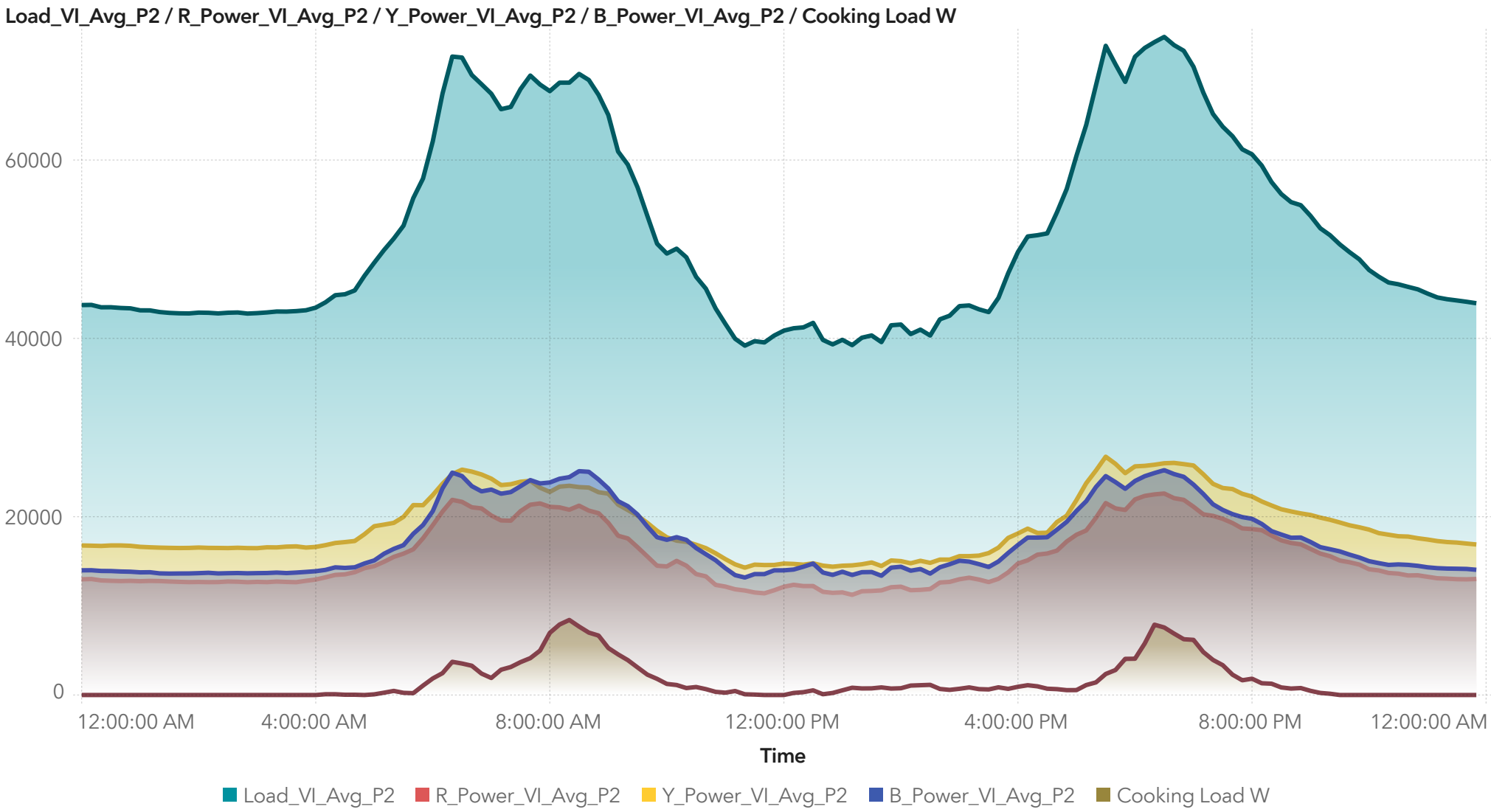


Looks fine I think



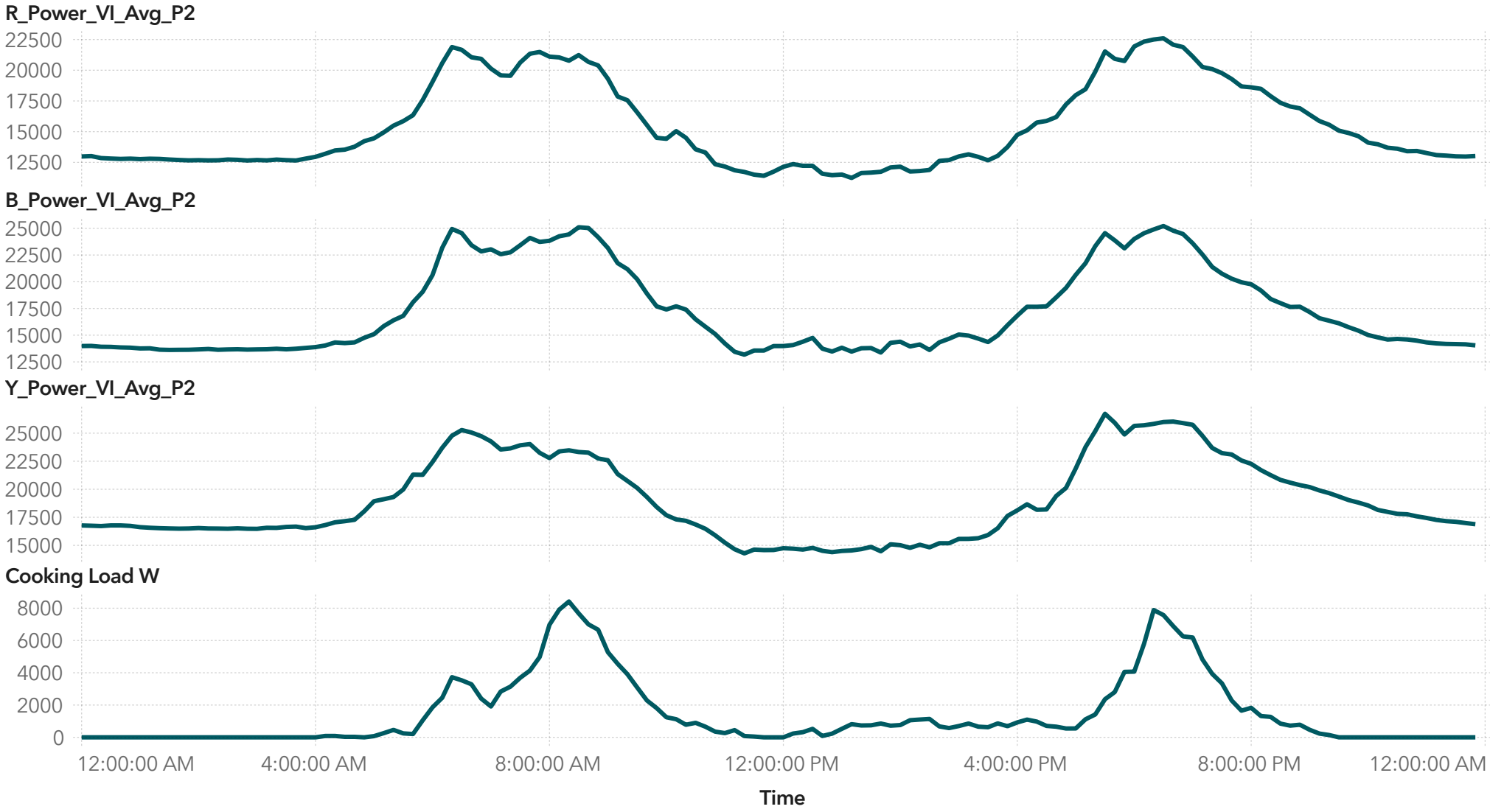
This is the comparative plot between the daily average MHP load and the cooking load.

The key charecteristics of the total load in phase 2 is that the morning peak is flat while the evening peak is very sharp. This kind of justifies for the sharp drop in voltage and frequency during the evening hours. Looking at the sharp peaks, the cooking load does seem to influence the total load during the peak hours.

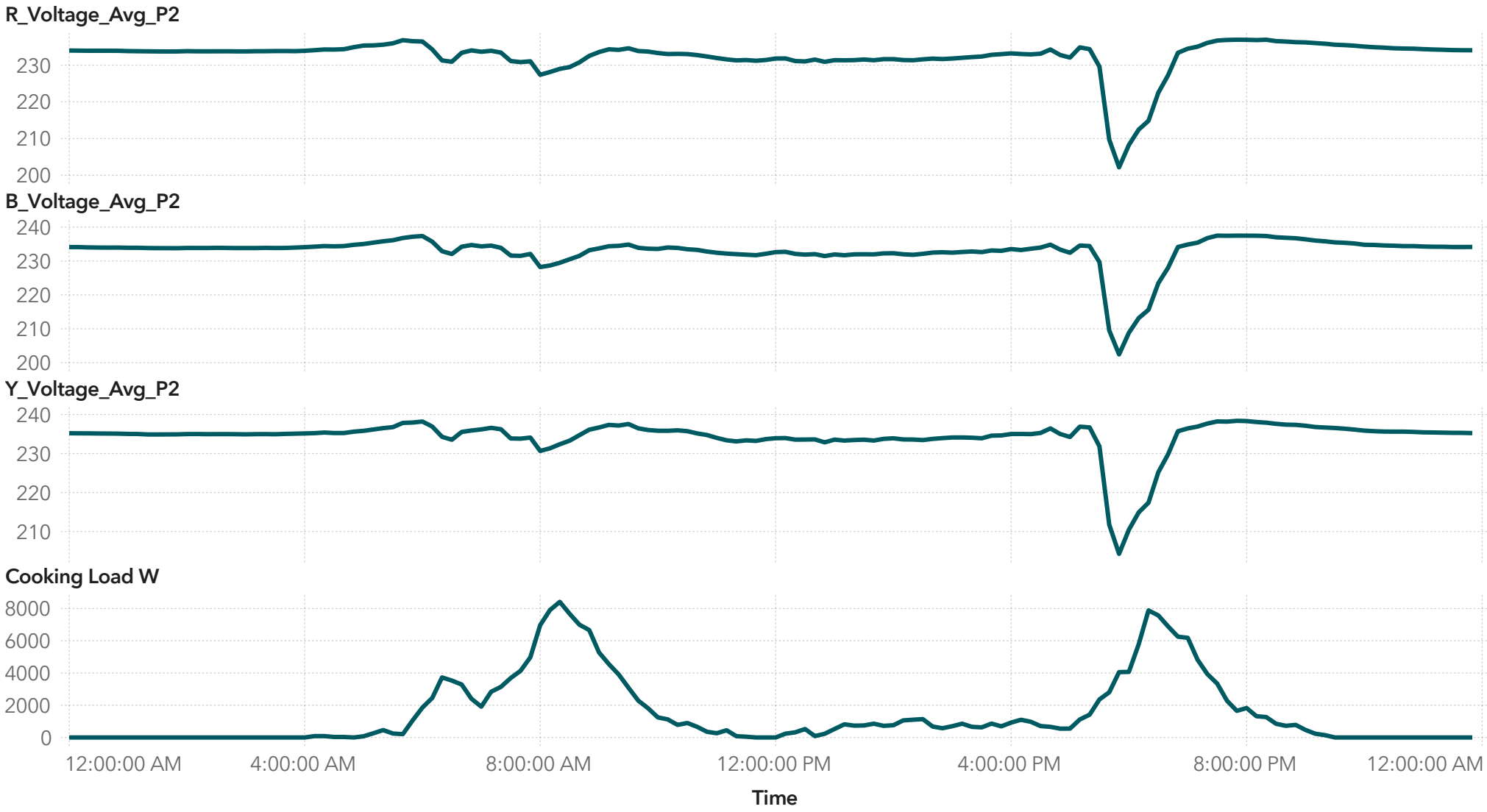


This is the total view of powers. Starting from the top which is the total load power, the middle is the each phase power and the cooking load power at the bottom

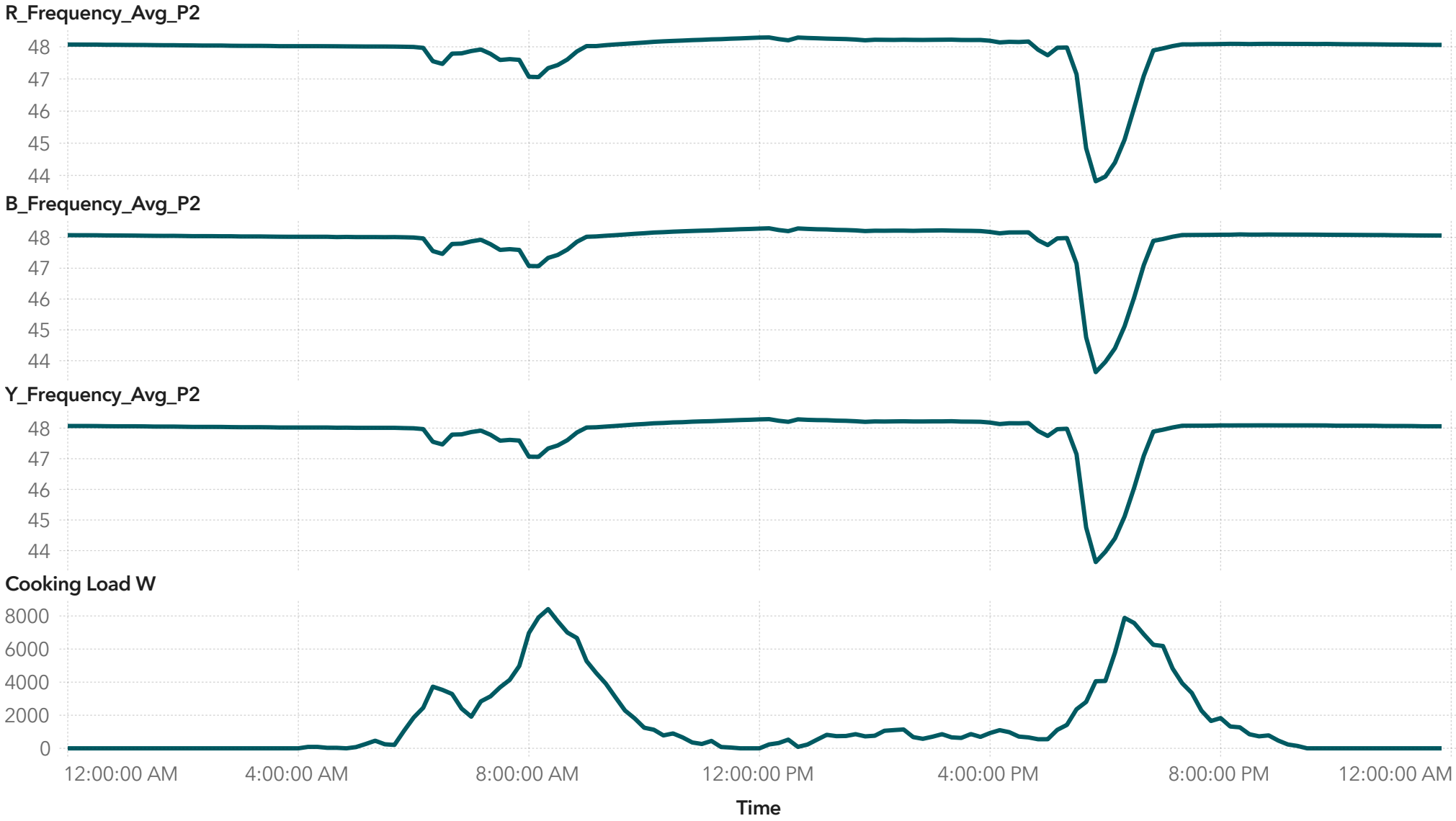
Comp 4



TRying to see if the cooking load has a more descrete influence on indivisual phase power. Can't see any typical influence expect for the first peak of the day. Can't say for sure that its because of the electric cooking load



The evening cooking load does seem to contribute to the steep fall in voltage although not entirely. But why is it not effecting the morning voltage as the peak cooking load is almost same. This is quite interesting.



The story is exactly same with the frequency as expected.

Some thoughts...

The magnitude of the cooking load during both morning and evening hours seems to be the same from the earlier plot.

But question is why is there more steep drop in the voltage and frequency in the evening hours.

I think the reason seems to be
1 - Sharp load currents during the evening peak, See the load current plots.
2 - The generation seems to be slightly weaker compared to the morning.

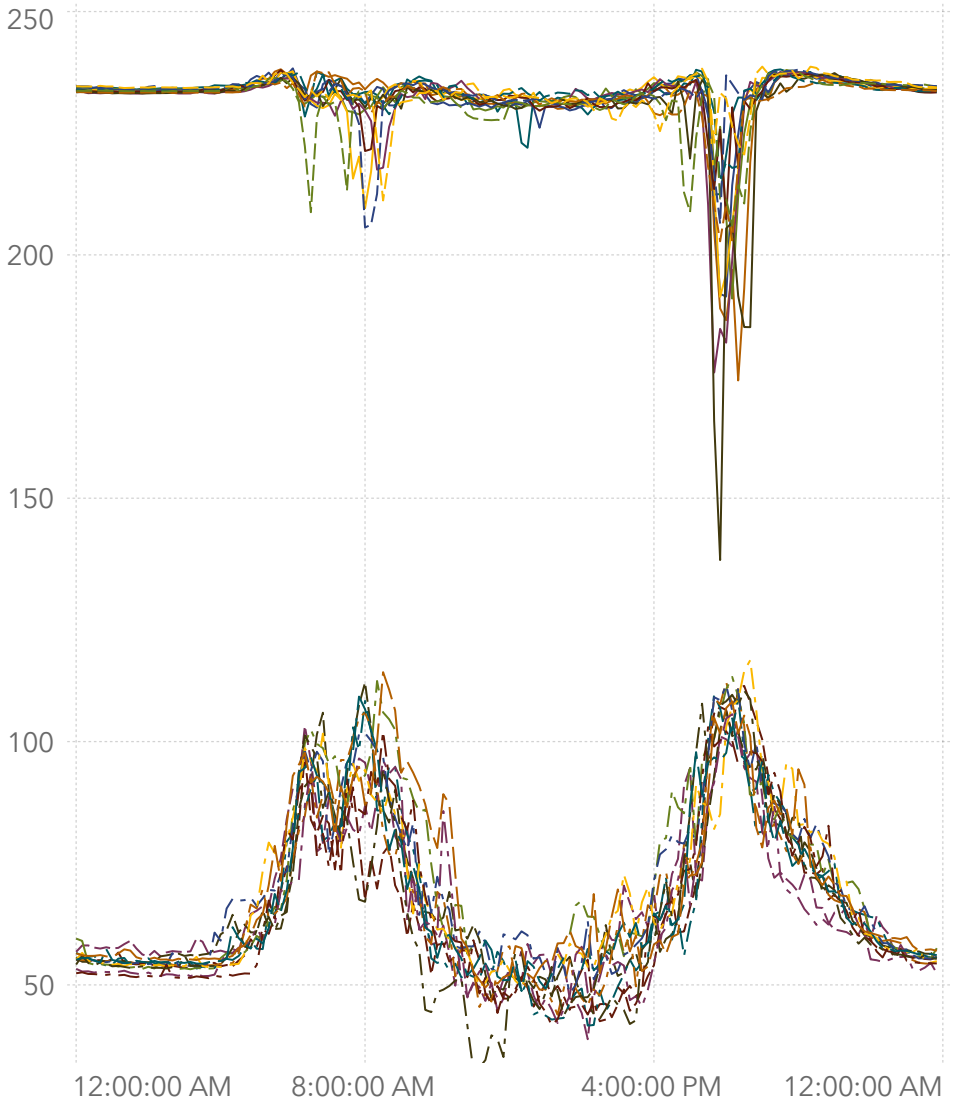
Check out the plots in the following pages.

Will, I think we could try to see how this influences cooking during the evening hours. I am thinking cooking meals during the morning time is quicker than in the evening.

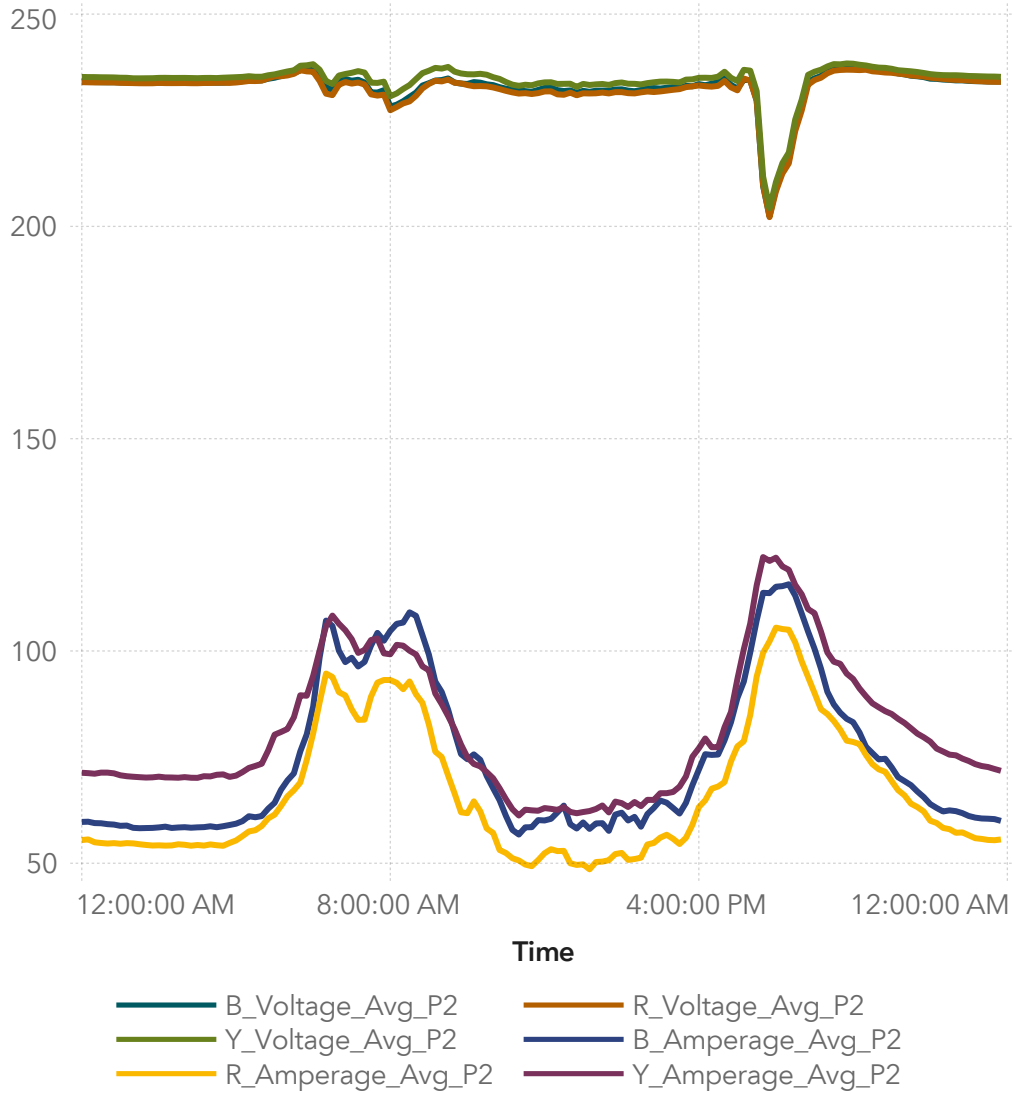
And total generation seems to fall flat at 80kW. Is this the peak power capacity for the 100kW system?

All R Vol & Curr

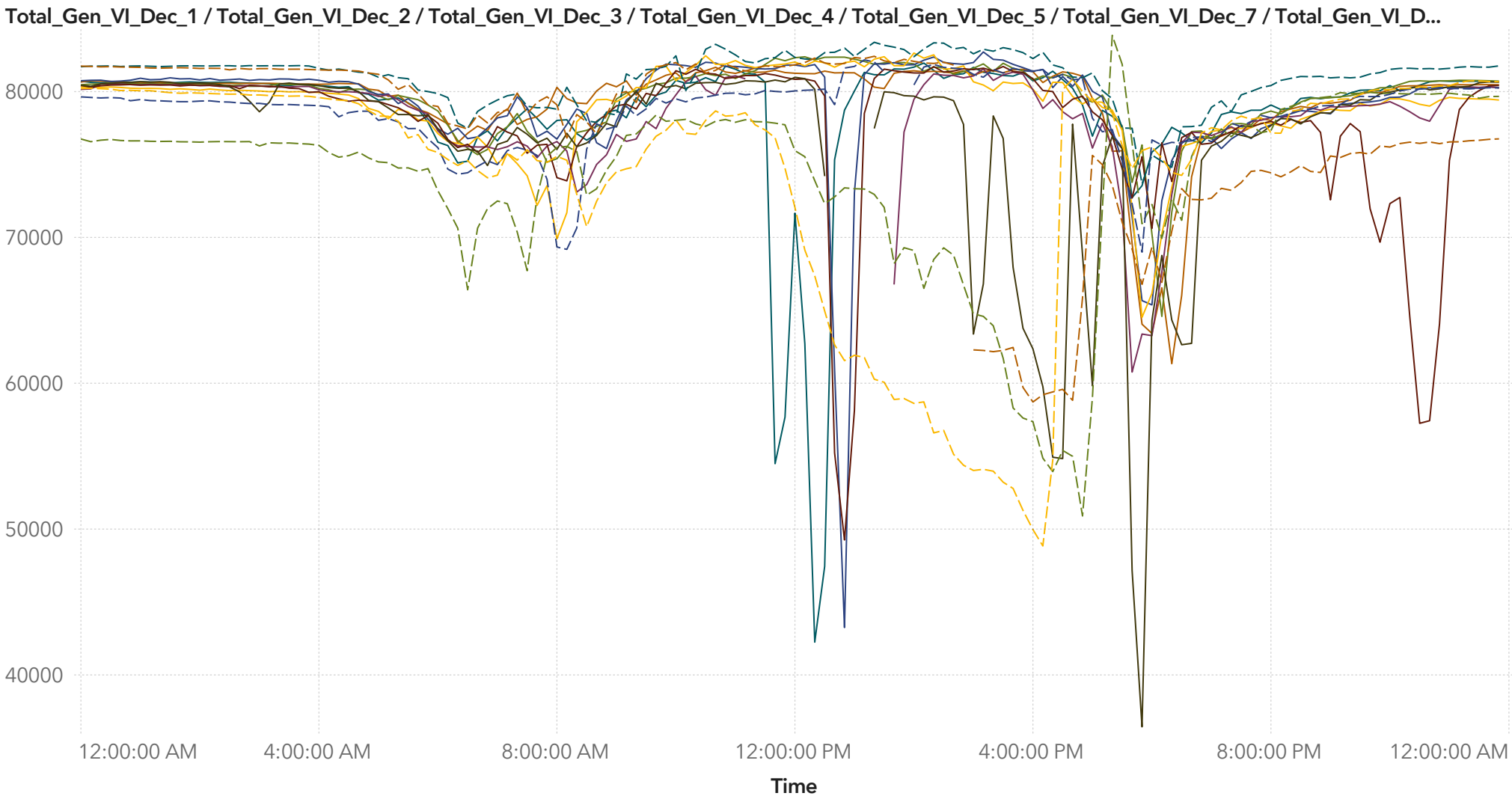
R_Phase Voltage and Currents



Average voltage and current phase 2



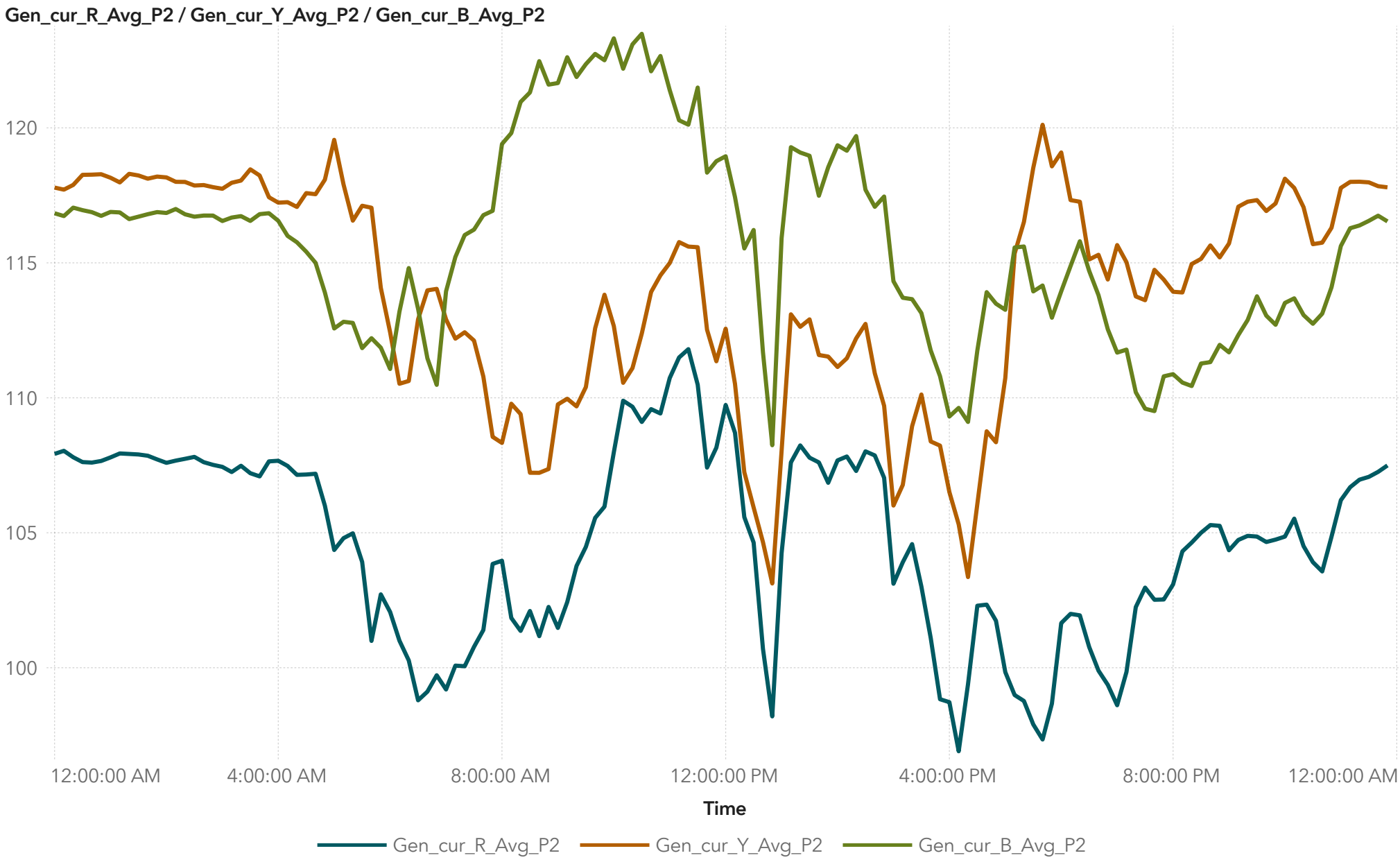
Total Gen Phase 2



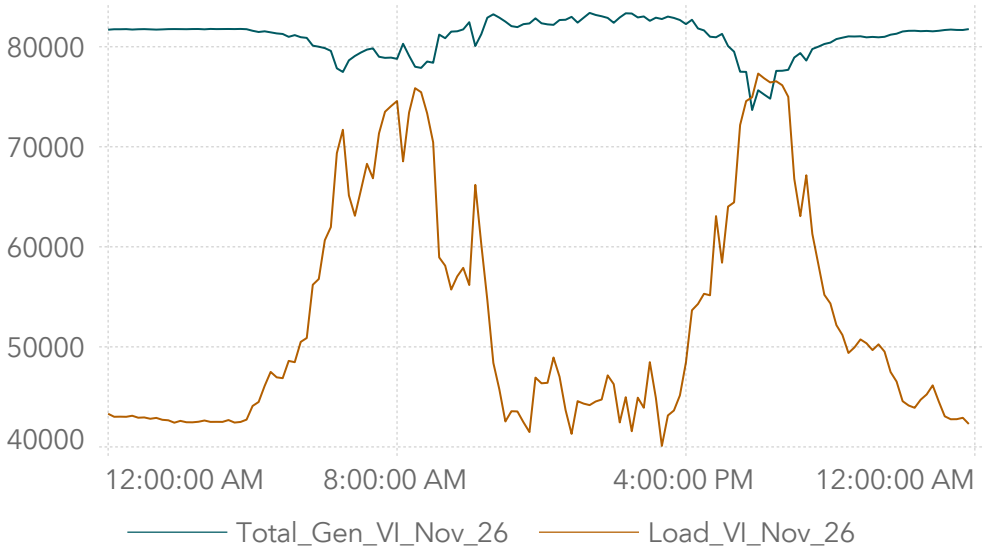
The generation seems to be gradually decreasing during the day time although the load is less during these hours.

Again there is a sharp and long fall of generation during the evening hours.

Avg Gen Cur


Gen_cur_R_Avg_P2 / Gen_cur_Y_Avg_P2 / Gen_cur_B_Avg_P2
120
115
110
105
100
12:00:00 AM
4:00:00 AM
8:00:00 AM
12:00:00 PM
4:00:00 PM
8:00:00 PM
12:00:00 AM
Time
Gen_cur_R_Avg_P2
Gen_cur_Y_Avg_P2
Gen_cur_B_Avg_P2

Gen and Load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70000
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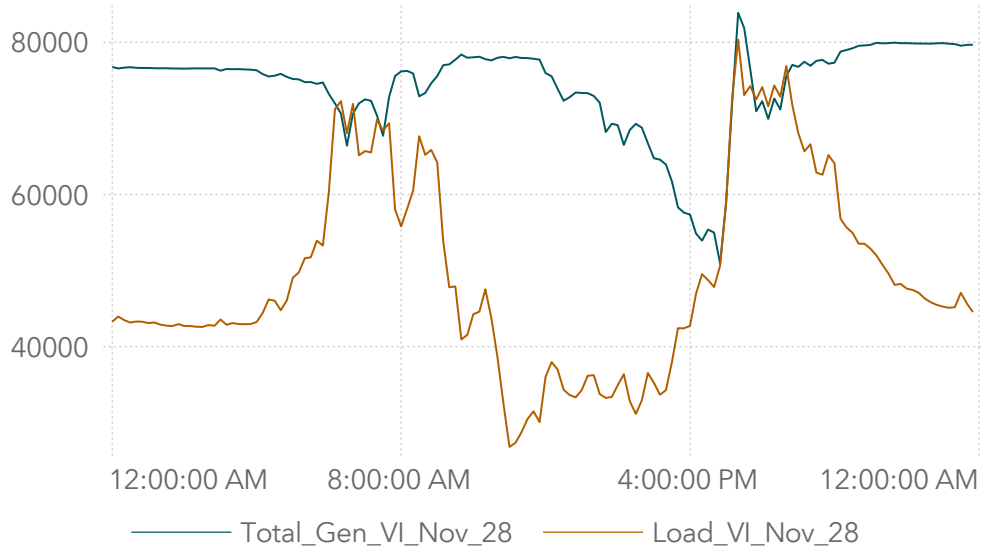
12:00:00 AM
Total_Gen_VI_Nov_26
Load_VI_Nov_26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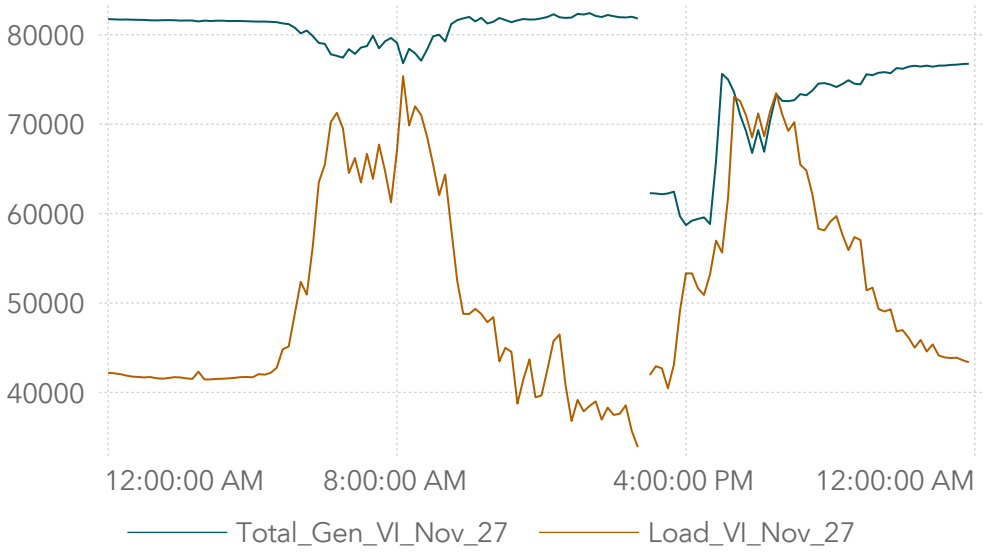
Total_Gen_VI_Nov_28
Load_VI_Nov_28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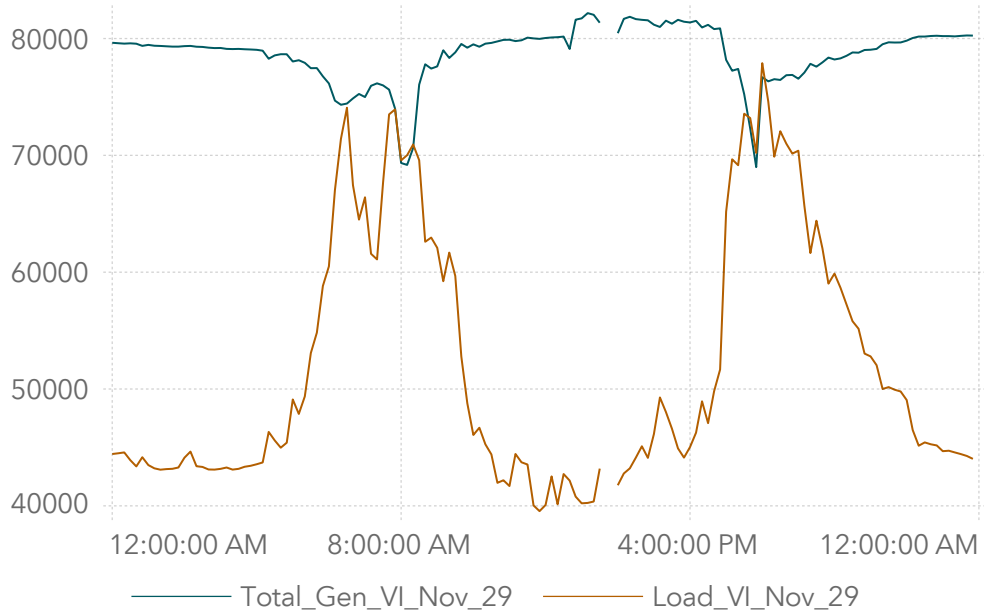
Total_Gen_VI_Nov_27
Load_VI_Nov_27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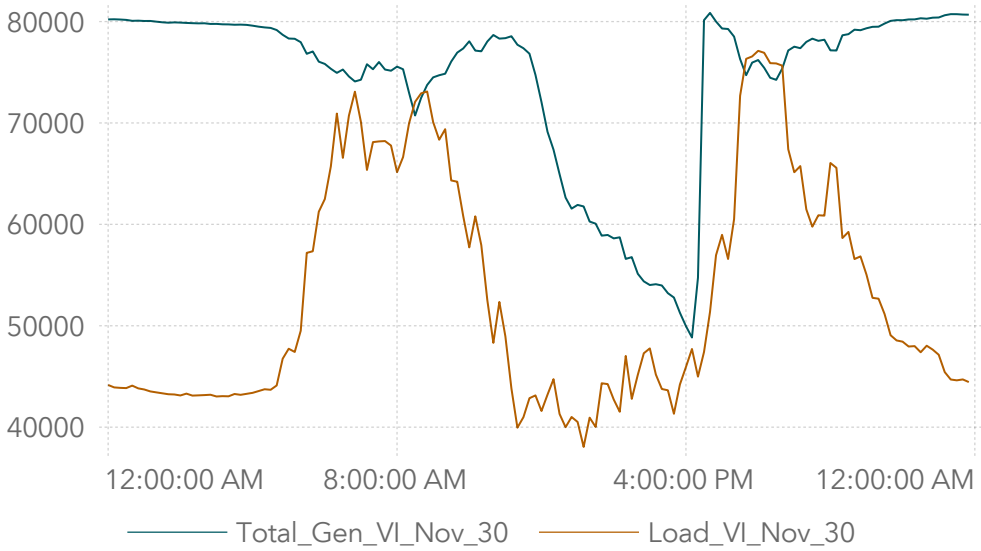
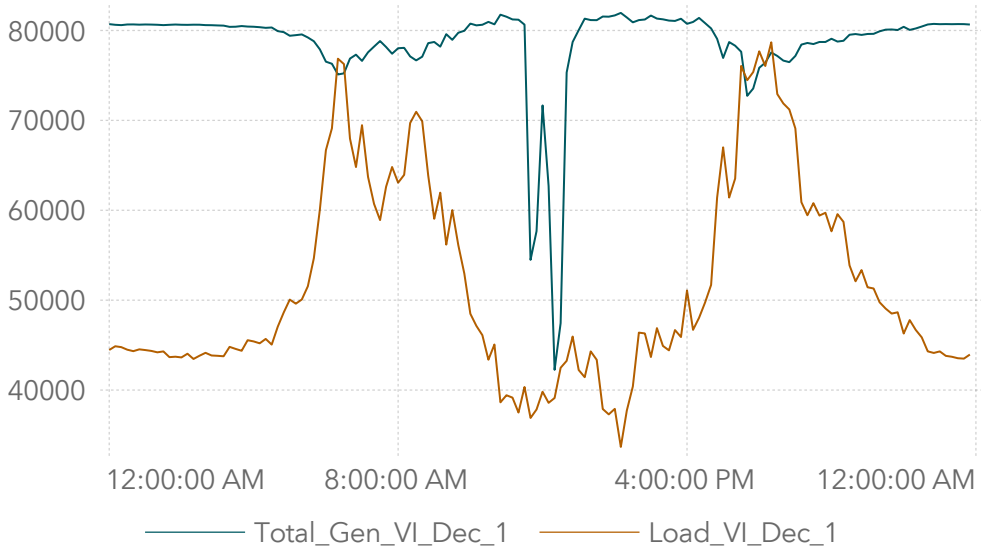
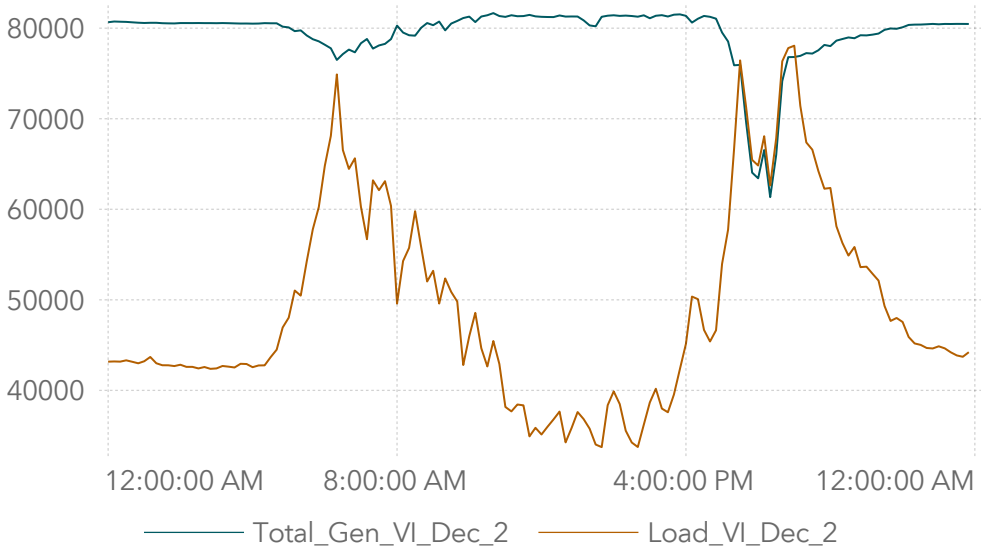
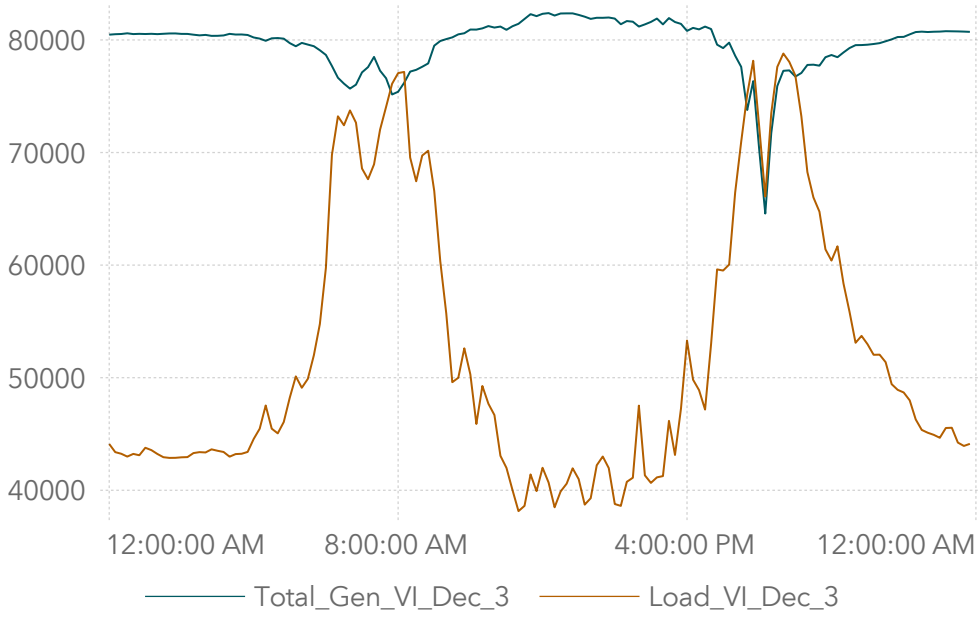
Total_Gen_VI_Nov_29
Load_VI_Nov_29

Gen and Load 2









Gen and Load 3