Key Power Demands

A/C - 0/20/40/60/80/100/115 battery amps (220V)
Well - 90 battery amps (220V)
Pool – 60 battery amps (left inverter?)
Pressure pump – 60 battery amps (right inverter)
swamp cooler – 20/40 battery amps (right inverter)
Base line night – 30 battery amps
Base line day - 40 battery amps
Stock fan - 10 battery amps
Washer - 40 battery amps
Dryer(air only) - 30 battery amps
Microwave oven – 70 battery amps
Vacuum cleaner - 50 battery amps
Oven - 50 battery amps
Air popper - 40 battery amps
Insta-pot - 50 battery amps
Camper usage - 80 battery amps

Total possible on one phase: 63+45+60+60+40+40+10+40+30+70=458 (do not have map of loads->phases)

Manual balancing peak of 130 total for each inverter, spikes of 250.

Desired simultaneous loads:

A/C + microwave + base line day + camper +
0-115, 70, 40, 80 = 305A * 24V = 7.3 KW

A/C + Well + microwave + base line day + camper=
0-115, 90, 70, 40 = 395A *24V = 9.5 KW
Consideration: pressure pump is < 1 minutes duration

A/C + Well + pressure pump + microwave + base line day =
0-115, 90, 60, 70, 40 = 375A *24V = 9.0 KW

A/C + Well + pressure pump + microwave + base line day + wash/dryer=
0-115, 90, 60, 70, 40, 70 = 445A *24V = 10.7 KW

Alternate plan

Pressure pump = 60*24 = 1.44 Kw short duration < 3 minutes
Camper on its own inverter.

Well for 30 minutes a day
90*24= 2.2 KW

A/C + microwave + base line =
115, 70, 40 = 225*24= 5.4KW

A/C + well + microwave + pressure pump + base line =
115, 90, 70, 60, 40 = 375*24= 9.0 KW

Constraints plan A

Never use wash/dry while running microwave. Never run vacuum with microwave. Never run oven with microwave. Never run air popper with microwave. Pool uses DC pump and robot cleaner or never run with well. A/C is typically 50 except if run at peak heat of day. Don’t run well when running other appliances. 1 hr per day keeps well tank topped off.

Current system

Maximum per Inverter: 3000 W → 125 battery amps draw
Inverter battery charging during generator: 90 battery amps
Generator: 30000W → 15Kw/Phase → 600 battery amps available

US L16E XC2 300AH@10hrs 370@20hrs
Trojan L16E-AC 340AH@10hrs 370@20hrs
40 flooded 6V batteries: 370 ah → 185 ah useable
185*6=1110 w-hr per battery * 40 = 44,400 W-hr for night time use
Actual typical storage: 10,000 W-hr
Generator kicks on at <23.0 V for 5 minutes cumulative.
Text say flooded full charge at 6.32 (25.28)
50% discharged at 6.03 (24.12)

Usage:
24 hrs 33,000 W-hr
night 13,000 W-hr (5pm-8am)
day   20,000 W-hr (8am-5pm)

Average current night: 11,000W-hr/24V/14hrs = 33 Amps
Average current day: 19,000W-hr/24V/10hrs = 80 Amps

Possibly oldest Solar Panels

(19) Sharp ND-216UC1
216W Voc=36.5V Isc=8.2A Ser # 094202769
600V system voltage 14 AWG min
Fuse 15A

Mid age solar panels

(12) Canadian Solar Model C56P-265P
265W Voc=37.7V Isc=9.23 15A fuse

Newest solar panels

(10) ecoSolargy Orion Model ECO 230S156P-60
230W Voc=37.1 Isc=8.2A Fuse 15A
Derate: 10 yrs 90% 25 years 80%

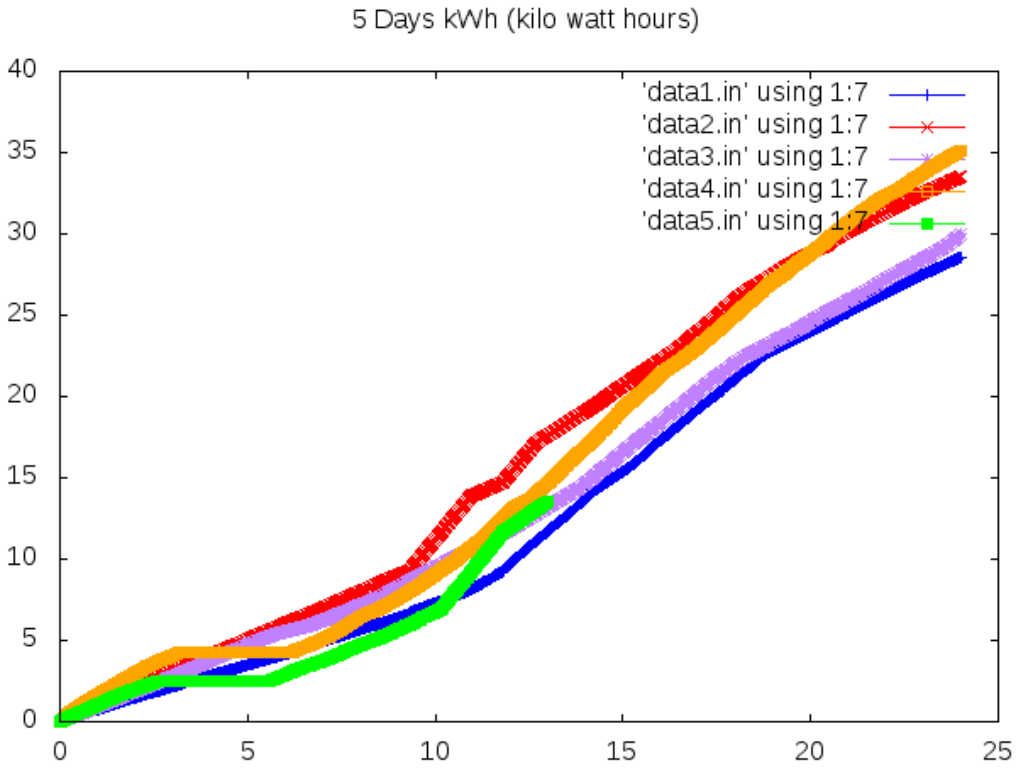
Unknown age

(5) JA Solar Technology Type JAP6-60-235
235W, Voc=37.74V, 600V, 15A Fuse

(4) ZJCY/ZICU can’t read box no label Name could be box name

(5) Unlabeled with Tonglin box no label

Current system consumption chart.



Improvement Scenarios

Upgrade existing system and add smaller systems for pool and mobile home – new wire, solar charger controllers, bigger wire to house

Convert existing system to supply pool and well and add 2 new systems for house and mobile home.

Salvage existing system with new upgrade and use salvage parts for pool and well. Add new system for mobile home.

Inverter candidates:

Sol-Ark SA-15K Hyprid Inverter System $8250
Includes 3 MPPT chargers each 26A 125-425V

https://www.solar-electric.com/sol-ark-sa-15k-pre-wired-hybrid-inverter-system.html?gclid=CjwKCAjwyaWZBhBGEiwACslQo6ie-TW-xP4JTGm22lAAYAEMRON5aFO7NhfuXTm_BmT1WDG6pYt-0hoCLroQAvD_BwE&fbclid=IwAR2yBDUMHrCXEQNmus8BJW7kWKkT28x2RttYbnA1V9CjlOMSyrc2_f8NlhA
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https://www.solar-electric.com/lib/wind-sun/Sol-Ark-15K-Manual.pdf
https://www.solar-electric.com/lib/wind-sun/Battery-Communications-Integration-Guide.pdf

	A/C	swamp cooler	Well	Pool	Pressure pump	base night	base day	stock fan	washer	dryer (air only)	microwave oven	Gas oven	air popper	Insta-pot	vacuum cleaner	camper	Battery Amps	Kwatts
	0/20/40/60/80/100/115	20/40	90	60	60	30	40	10	40	30	70	50	40	50	50	80		
Worst case	115			60	60		40	10	40		70					80	475	11.4
Normal use	80			60			40	10	40		70					50	350	8.4
Worst spike	115		90		60		40	10	40		70			50	50	80	605	14.52
																	0	0
Morning Use	60		90		60		40	10	40		70					50	420	10.08
Afternoon Use	115				60		40	10	40		70			50		60	445	10.68
Late afternoon	115				60		40	10	40					50	50	60	425	10.2
Can plan to avoid well with any kitchen appliance. Gas oven use will not have instapot or microwave concurrent. Pressure pump runs 30 seconds but more when watering plants, animals where 30 sec on 20 sec off.																		
	Only 1 at a time																	
	Only 1 at a time																	
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