Electrical Budget Worksheet (adapted from Pacific Cup)

1 Calculate your DC Loads:

Lighting	Amps	Hours	AH/Day	
Running Lights	2.0		0.0	
Masthead Tricolor Light	1.5	8	12.0	Planning to adapt to LED so should be less still
Anchor Light	1.0		0.0	
Strobe Light	0.8		0.0	
Spreader Lights	8.0		0.0	
Cabin Light (small)	1.0		0.0	Small battery powered LED cabin lights (8)
Cabing Light (big incandescent)	1.2		0.0	
Cabing Light (flourescent)	2.0		0.0	
Instrument Lights	0.3		0.0	
Handheld Spot Light	10.0		0.0	
Other			0.0	
	Lighting AH		**12.0**	

Galley	Amps	Hours	AH/Day
Refrigeration	4.0	8	32.0
Prop Solenoid	0.6		0.0
Other			0.0
Galley AH			**32.0**

Electronics	Amps	Hours	AH/Day	
Autopilot	4.0		0.0	
VHF (receive)	0.5	24	12.0	
VHF (transmit)	5.0		0.0	
SSB (receive)	1.5	2	3.0	
SSB (transmit)	28.0	0.5	14.0	
SSB Digital controller	0.2		0.0	
GPS	0.4	24	9.6	
Instruments	2.0	2	4.0	
Weather fax receiver	1.5		0.0	
Radar (standby)	3.0		0.0	
Radar (transmit)	4.0		0.0	
AIS	3.0	8	24.0	Includes laptop computer, serial adapter & GPS receiver
Energy Monitors			0.0	
Stereo			0.0	
Computer (screen off)	1.5		0.0	
Computer (screen on)	2.1		0.0	
Computer (serial adapter)	0.5		0.0	
Other			0.0	
Electronics AH			**66.6**	

Plumbing	Amps	Hours	AH/Day	
Fresh Water Pump	8.0	0.3	2.4	Calculate using average water consumption.
Bilge Pump(s)	5.0		0.0	This should be zero unless the boat leaks.
Other			0.0	
Plumbing AH			**2.4**	

Inverter	Watts	Hrs/day	AH/Day	All values assume inverter efficiency = 85%.
Microwave			0.0	Power factor may mess up this estimate.
Chargers (nicad)			0.0	
Other			0.0	
Inverter AH			**0.0**	

Gross Energy Consumption AH/Day	**113.0**

2 Alternative Energy Sources

Device	Amps	Hrs/day	AH/day	
Solar, avg	10.0	9	90.0	Assumes 3-50 watt panels
Wind, avg			0.0	Assumes AIR Marine wind turbine in good location.
Water, avg.			0.0	
Contribution of AES AH/Day			**90.0**	

3	Net Energy Consumption, AH/Day	**23.0**	
4	Desired Hours Between Charging	**96**	
5	Range of Battery Use	**0.35**	For example, from 50-85% state of charge.
6	Recommended Battery Capacity	**263**	
7	Alternator Output, Amps	**105**	Target would be 25% flooded, 40% gel, of capacity.
8	Charge Efficiency Factor	**0.85**	Gels = 95%, flooded cells = 85%
9	Minimum Minutes to Charge	**62**	Assumes alternator runs at full output.