Electrical Budget Worksheet (Chesapeake - Outbound 46)

1 Calculate your DC Loads:

Lighting	Amps	Hours	AH/Day
Running Lights	3.5		0.0
Masthead Tricolor Light	0.5	9	4.5
Anchor Light	0.5		0.0
Strobe Light	0.5		0.0
Spreader Lights	3.5		0.0
Cabin Light (small)	0.9		0.0
Cabing Light (big incandescent)	0.9		0.0
Cabing Light (flourescent)			0.0
Instrument Lights	0.2	9	1.8
Handheld Spot Light	2.0	0	0.0
Other			0.0
Lighting AH			**6.3**

Galley	Amps	Hours	AH/Day
Refrigeration	6.4	3	19.2
Prop Solenoid	0.9	1	0.9
Other			0.0
Galley AH			**20.1**

Electronics	Amps	Hours	AH/Day
Autopilot	6.0	18	108.0
VHF (receive)	0.5	24	12.0
VHF (transmit)	4.2	0.1	0.4
SSB (receive)	1.5	2	3.0
SSB (transmit)	28.0	0.5	14.0
SSB Digital controller	0.2	2	0.4
GPS	0.2	24	4.8
Instruments	2.0	24	48.0
Weather fax receiver	0.0	0	0.0
Radar (standby)	3.0	24	72.0
Radar (transmit)	6.2	4	24.8
AIS	0.2	24	0.0
Energy Monitors	0.8	24	19.2
Stereo	1.0	1	1.0
Computer (screen off)	1.5	2	3.0
Computer (screen on)	2.1	0.5	1.1
Computer (serial adapter)	0.2	2	0.4
Other			0.0
Electronics AH			**312.1**

Plumbing	Amps	Hours	AH/Day	
Fresh Water Pump	4.2	0.1	0.4	Calculate using average water consumption.
Bilge Pump(s)	2.8	0.1	0.3	This should be zero unless the boat leaks.
Other			0.0	
Plumbing AH			**0.7**	

Inverter	Watts	Hrs/day	AH/Day	All values assume inverter efficiency = 85%.
Microwave	116.0	0.2	2.3	Power factor may mess up this estimate.
Chargers (nicad)	1.0	24	2.4	
Other			0.0	
Inverter AH			**4.7**	

Gross Energy Consumption AH/Day	**343.9**

2 Alternative Energy Sources

Device	Amps	Hrs/day	AH/day	
Solar, avg	5.0	9	45.0	Assumes one large panel.
Wind, avg	0.0	0	0.0	Assumes AIR Marine wind turbine in good location.
Water, avg.			0.0	
Contribution of AES AH/Day			**45.0**	

3	Net Energy Consumption, AH/Day	**298.9**
4	Desired Hours Between Charging	**24**
5	Range of Battery Use	**0.35** For example, from 50-85% state of charge.
6	Recommended Battery Capacity	**854**
7	Alternator Output, Amps	**200** 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	**105** Assumes alternator runs at full output.