

# Energy-XS

*Switch on the Sun and Wind*

[www.energyexcess.com](http://www.energyexcess.com)

Elegant small wind solutions for  
Residential and Industrial use.

Models ranging from 1000 Watts to 5000 Watts

Grid-tie and off-grid systems.

**LPG Gas  
V/s Induction Cooking  
Primer**



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**[www.energyexcess.com](http://www.energyexcess.com)**

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Two of the goals for modern residential as well as commercial buildings are: **A Zero Energy Building AND no combustion.** A zero energy building gets all of its energy needs (heating, hot water, and electricity) from renewable sources; and no combustion means we don't want to burn anything — no oil, no gas, no corn, no pellets or wood.

Energy-XS can help you achieve Zero Energy planning with Energy-XS Vertical Axis Wind Turbines or hybrid Wind and Solar PV systems. As for no combustion here are some pointers:

Immediately we can think of three options here, 1) Electric radiation using coils such as in electric heaters, ovens, hotplates etc, 2) microwave ovens and 3) Induction heating and cooking systems. Of these options the last two are the most efficient (see the chart below to compare efficiency) with Induction cooking being the cheaper by far.

Induction heating works on the principal that an alternating electric current in the cooktop generates a magnetic field between the cooktop and the pan, this magnetic field generates an electric current in the pan directly. The only thing that gets hot is the pot or pan which is being heated, which then heats the food. You can boil water in a pot with a piece of paper between the pot and the cooktop and the paper will never get hot enough to burn. The transfer of energy between the magnetic field and electric field is more efficient than transferring heat through the air first. Induction heating is about 20% more efficient than radiant electric cooking and overall efficiencies of over 90% are common. Boiling a pot of water requires significantly less time with induction and the cook has more direct and immediate control of that heat than with any other heating method. You can get a very low simmer and you can get an immediate turn off of heat.

### Comparison of cooking range efficiencies

Efficiency and time required to boil 2 liters of water.

Type	Efficiency	Time	Energy
Induction stove	83 to 90%	4 minutes	745kJ
Halogen stove	60%	9 minutes	1120kJ
Electric Coil	55%	9 minutes	1220kJ
Gas	40%	8 minutes	1700 kJ

We have been specially recommending induction cooking options along with Energy-XS systems, specially in the hotel industry where they are dependent on LPG gas, for induction cooking is 50% more efficient than LPG gas, besides being a great time saver.

In one case study for a client, with the current rate of a commercial LPG cylinder of Rs. 700/- and consumption of 8 cylinders per week, and a capital cost of Rs. 90/- per installed watt of an Energy-XS system, the client would recover his investment within one year. Besides this, the client will also be able to claim 80% accelerated depreciation. Add to this the fact that he will not have to take energy austerity measures as once installed, he will not be effected by escalation of LPG gas prices for the 15 year life time of the installation.

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**Wattage reckoner for common household and industrial appliances. All figures in Watts.**

**Air Conditioner**

Room	1000
Central	2000 - 5000

**Air Conditioners rated in tons**

For Each Ton Assume	3517
E.g. 5 Ton AC Unit	17585

Blender	300
Blow Dryer	1000 - 1500
CB Radio	5
CD Player	15 - 30
Ceiling Fan	10 - 50

**Computers**

Laptop	20 - 75
Desktop PC	80 - 200
Printer	100

Coffee Maker	800
Clock Radio	1
Dishwasher	1200 - 1500
Dryer (Clothes)	4000
Electric Blanket	200
Electric Clock	1
Frying Pan	1200
Freezer (15 hrs/day runtime)	445
Sunfrost Freezer	112
Furnace Blower	300 - 1000
Garage Door Opener	350
Hot Plate	1200
Iron	1000

**Comparison of different Lighting Systems**

Incandescent	Fluorescent	LED
100W	30W	5W
75W	20W	3.5W
60W	16W	3W
40W	11W	2W
Microwave		600 - 1500
Popcorn Popper		250
Radio Telephone		5
Transmitter		40 - 150

**Refrigerator/Freezer**

Conventional 20 cubic feet (15hrs/day runtime typical)	540
Conventional 16cf (15hrs/day)	475
Sunfrost 16cf DC (7)	112
Sunfrost 12cf DC (7)	70
Conserv 10.5cf (8)	60
Conserv 7.5 cf (8)	50

Satellite Dish	30
Sewing Machine	100
Shaver	15
Stereo	10 - 300
Table Fan	10 - 25
Toaster	800 - 1500

**Tools**

Weed Eater	500
1/4" drill	250
1/2" drill	750
1" drill	1000
9" disc sander	1200
3" belt sander	1000
12" chain saw	1100
14" band saw	1100
7 1/4" circular saw	900
8 1/4" circular saw	1400
Vacuum Cleaner Upright	200 - 700
Vacuum Cleaner Hand	150
VCR	40
Washing Machine	500

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