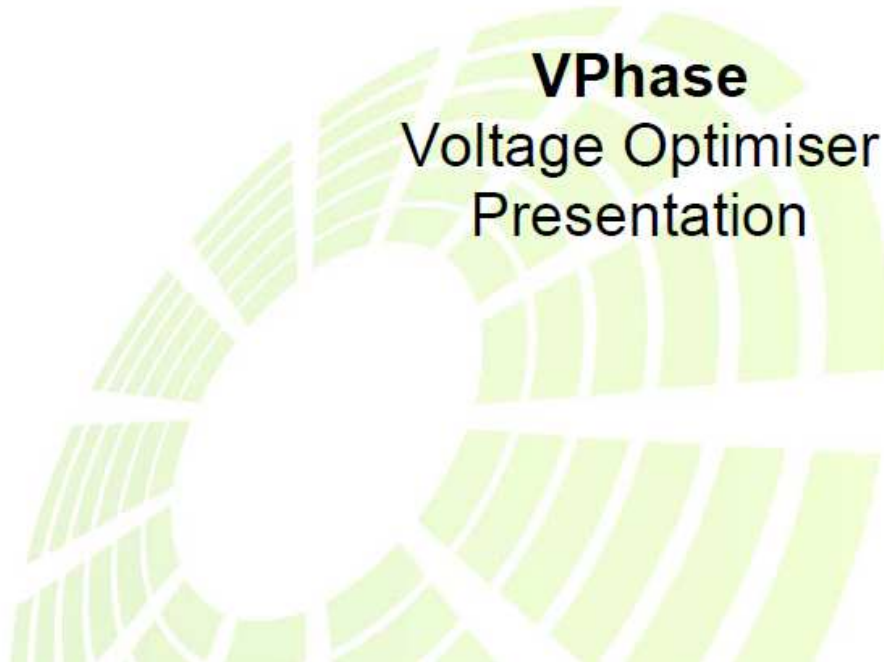




Intelligent Energy Saving



**VPhase**  
Voltage Optimiser  
Presentation



# Better Electrical Energy Efficiency – Voltage Optimisation



Item	Before			After		
	w	v	a	w	v	a
fish tank lights	90	246	0.38	72	219.5	0.35
fish tank pump	8	246	0.05	7	219.5	0.04
cuboard light	13	248	0.08	10	219.1	0.05
playstation	21	249	0.17	22	218.9	0.17
TV	70	249	0.44	63	218.9	0.44
freeview box	4	250	0.04	3	219.5	0.04
computer	60	246	0.29	60	221.4	0.27
monitor	27	247	0.22	27	220.6	0.23
speakers	1	246	0.01	0	218.3	0.01
router	5	247	0.04	5	218.7	0.04
laptop	23	247	0.2	33	218.5	0.29



# Feed-in-Tariff (FIT)

- FIT launched on 01/04/2010
- Generators of renewable power receive a set rate for every unit of electricity they *generate* (up to 41.3p)
- Generators also receive an additional 3p (min.) for every unit of electricity that is exported back into the grid
- The tariff will last for 20 - 25 years (depending on technology) and will be index linked
- FIT is tax free for domestic customers

Generation tariffs 1 April 2010 – 31 March 2013

Technology	Scale	Tariff level for new installations in period (p/kWh) [NB tariffs will be inflated annually]			Tariff lifetime (years)
		Year 1: 1/4/10 – 31/3/11	Year 2: 1/4/11 – 31/3/12	Year 3: 1/4/12 – 31/3/13	
Anaerobic digestion	≤500kW	11.5	11.5	11.5	20
Anaerobic digestion	>500kW	9.0	9.0	9.0	20
Hydro	≤15 kW	19.9	19.9	19.9	20
Hydro	>15-100 kW	17.8	17.8	17.8	20
Hydro	>100 kW-2 MW	11.0	11.0	11.0	20
Hydro	>2 MW – 5 MW	4.5	4.5	4.5	20
MicroCHP pilot*	≤2 kW*	10*	10*	10*	10
PV	≤4 kW (new build**)	36.1	36.1	33.0	25
PV	≤4 kW (retrofit**)	41.3	41.3	37.8	25
PV	>4-10 kW	36.1	36.1	33.0	25
PV	>10-100 kW	31.4	31.4	28.7	25
PV	>100kW-5MW	29.3	29.3	26.8	25
PV	Stand alone system**	29.3	29.3	26.8	25
Wind	≤1.5kW	34.5	34.5	32.6	20
Wind	>1.5-15kW	26.7	26.7	25.5	20
Wind	>15-100kW	24.1	24.1	23.0	20
Wind	>100-500kW	18.8	18.8	18.8	20
Wind	>500kW-1.5MW	9.4	9.4	9.4	20
Wind	>1.5MW-5MW	4.5	4.5	4.5	20
Existing microgenerators transferred from the RO		9.0	9.0	9.0	to 2027

\* Note the microCHP pilot will support up to 30,000 installations with a review to start when the 12,000<sup>th</sup> installation has occurred

# Feed-in-Tariff - Photovoltaics Illustration

PV System Size	3.96	kWp	22 x 180W modules
Site conditions	South facing, 30° pitch Little or no shading		
Estimated annual generation	3301	kWh/yr	834 kWh/kWp
Estimated carbon saving	1875	Kg / yr	0.568 kg CO2 / kWh
FIT rate (generation)	0.413	£/kWh	<= 4 kWp retrofit
<b>Annual FIT income (generation)</b>	<b>£1363</b>	<b>£/yr</b>	
Electricity exported	1650.5	kWh/yr	Assumed 50%
FIT rate (export)	0.03	£/kWh	
<b>Annual income (export)</b>	<b>£49</b>	<b>£/yr</b>	
Electricity consumed on-site	1650.5	kWh/yr	Assumed 50%
Standard import rate	0.14	£/kWh	
<b>Value of generated electricity consumed on-site (avoided electrical import)</b>	<b>£231</b>	<b>£/yr</b>	
<b>TOTAL ANNUAL BENEFIT OF PV SYSTEM</b>	<b>£1643</b>	<b>£/yr</b>	
<b>Scheme cost</b>	<b>£20,000</b>		
<b>Payback in</b>	<b>12 years</b>		

VPhase technology allows households to make significant electricity savings through

### **Voltage Optimisation.**

The VX1 fits alongside the consumer unit (fuse box) in the property to regulate voltage to a set and stable level where the majority of appliances operate more efficiently.





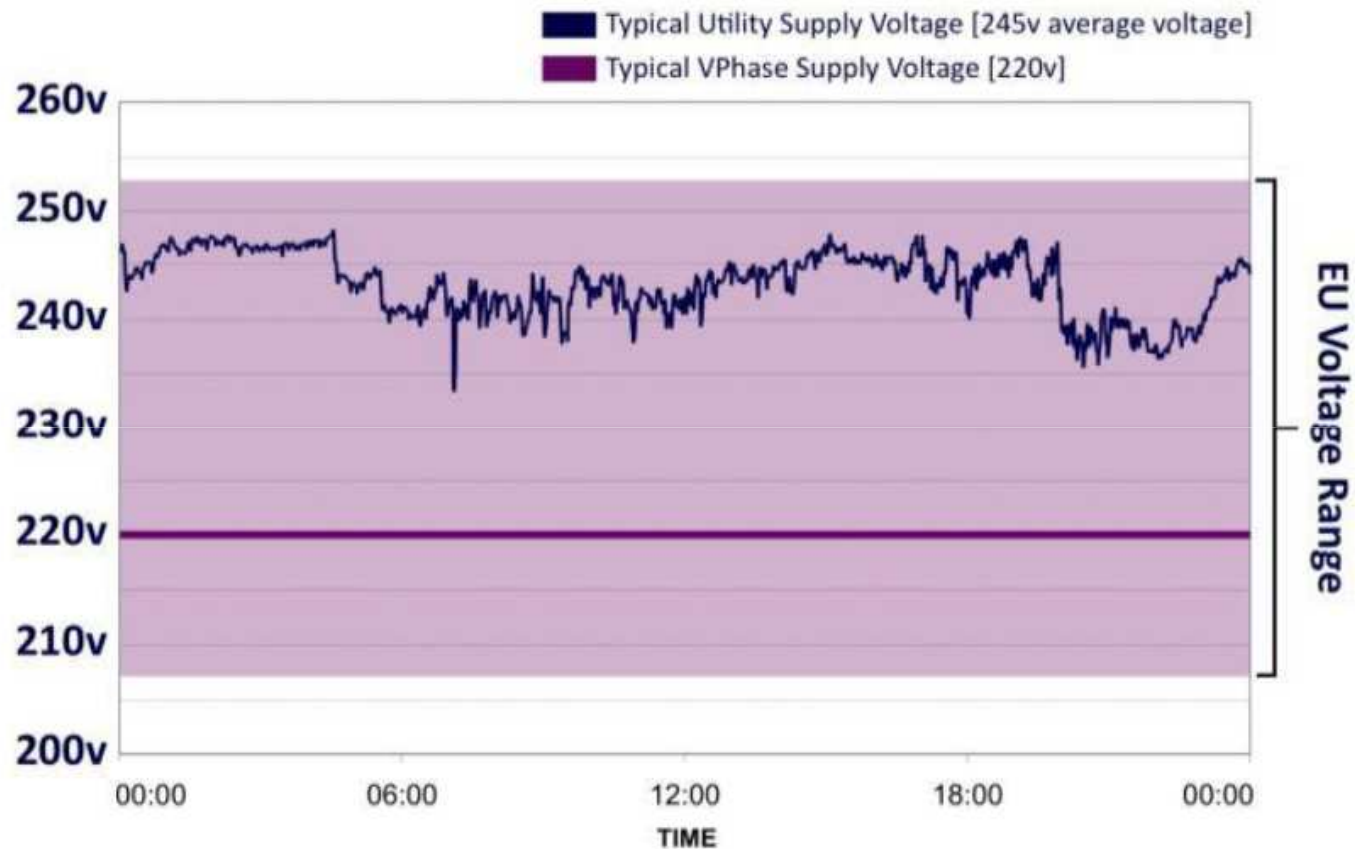
**Carbon-busting technology that saves homeowners money and energy.**

**Fit, forget and save instantly, no lifestyle or habit changes.**

**Already saving large companies millions each year. This is the first time it has been available on a domestic scale.**

**Many appliances will work more efficiently and use less electricity at a lower voltage.**

**[Available to buy now.](#)**



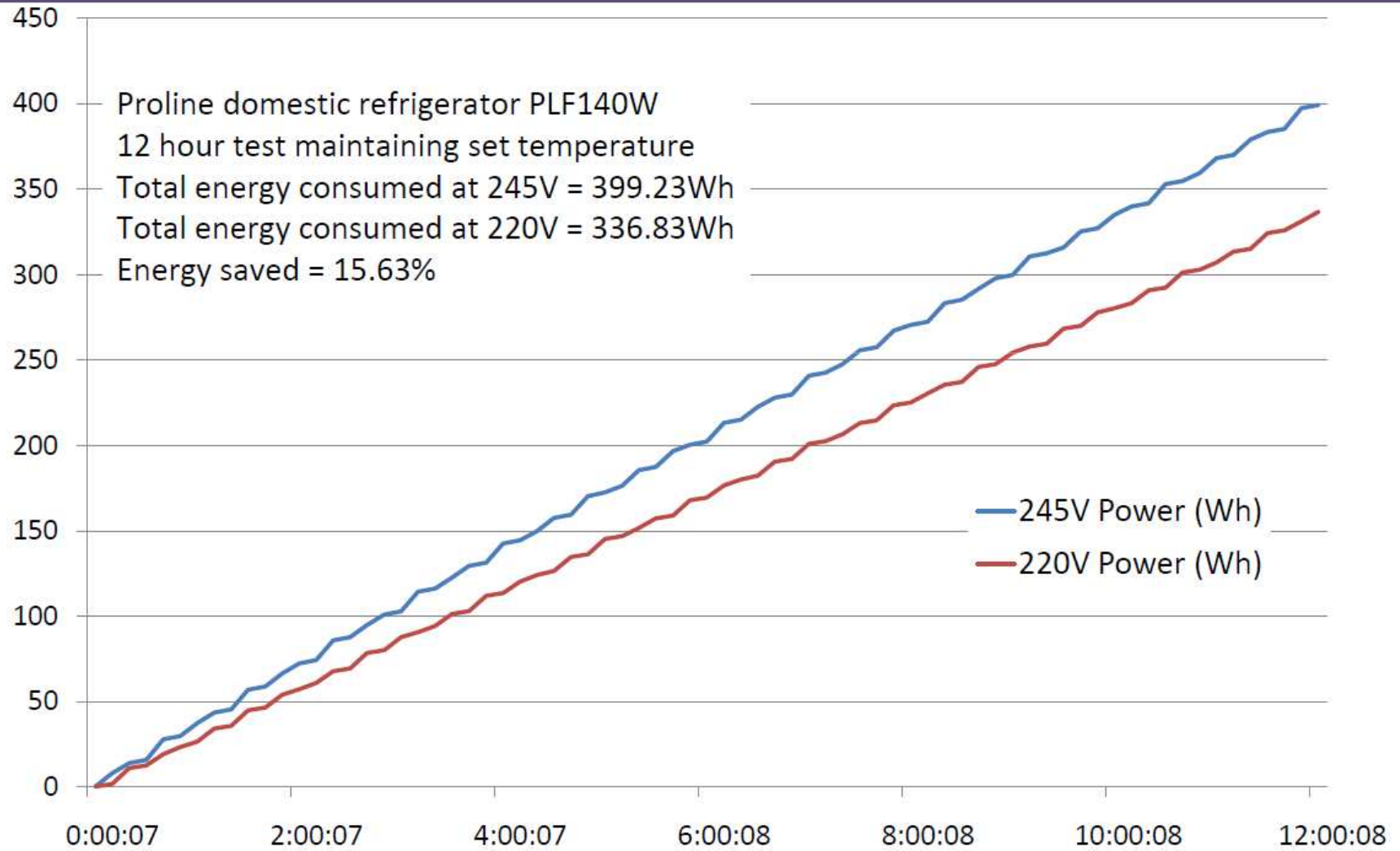
- UK and EU legal voltage limits are 207V to 253V.
- Appliances are designed to operate over this complete voltage range.
- Properties often fluctuate between 240V and 250V.



## Example Energy Savings

Appliance	VPhase Energy Saving
Incandescent lighting	15%
CFL lighting	11%
“A rated” freezer	17%
Vacuum cleaner	19%
“AA rated” washing machine	Up to 10% (14% standby)
3 speed central heating pump	15% to 18%
Television	3% (5% standby)
DECT Cordless Phone	30% (44% standby)
Computer and monitor	4%
ADSL modem and wireless router	5%
DAB Digital Radio	5% (15% standby)

# Refrigerator Example



VPhase plc supplied recorded data from several properties that had been fitted with a VPhase VX1.

EA Technology has analysed the electricity consumption data for these properties, for the period between December 2009 and February 2010.

The energy savings over this period ranged, for these properties, from 6%-12%.

Energy savings of this magnitude, provided they are sustained over a whole year, would result in a yearly saving of between £75-£135 at these properties.

## CASE STUDY

- Mr & Mrs H
- 5 bedroom detached house
- Family of 5
- Gas central heating, gas hob and electric oven
- Typical Voltage Reduction of 8.9%

**VPHASE SAVES £75 PER ANNUM**



Independently  
Verified  
Results

## CASE STUDY

- Mr & Mrs S
- 4 bedroom detached house
- Family of 5
- Gas central heating, gas hob and electric oven
- Typical Voltage Reduction of 7.1%

**VPHASE SAVES £82 PER ANNUM**

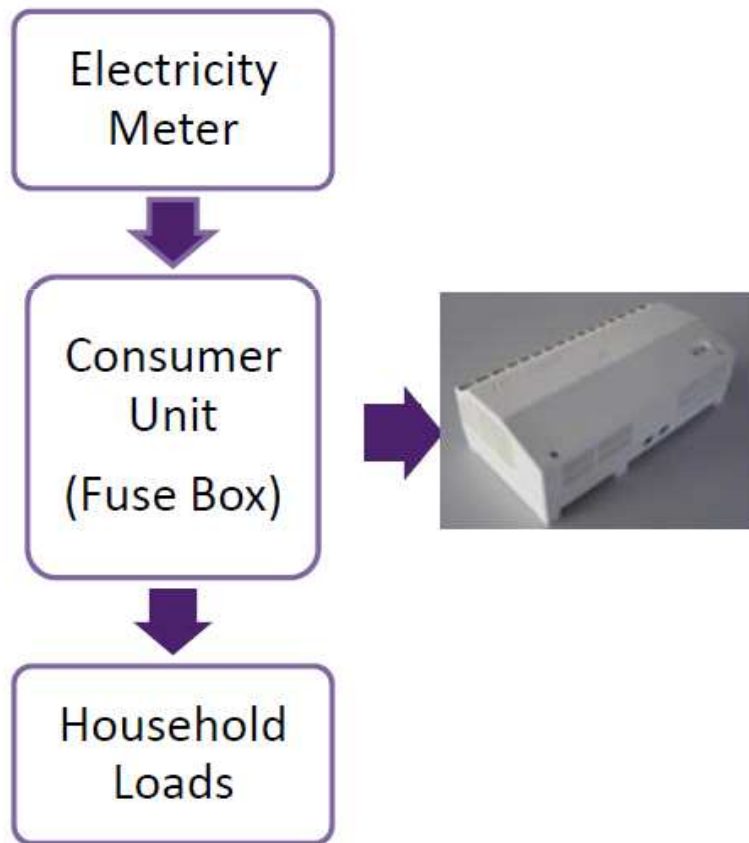


## CASE STUDY

- Mr & Mrs B
- 4 bedroom detached house
- Family of 5
- Gas central heating and electric oven
- Typical Voltage Reduction of 10.3%

**VPHASE SAVES £135 PER ANNUM**







## **Direct Contact Details**

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[www.iesenergysaving.co.uk](http://www.iesenergysaving.co.uk)