

# VPhase

Voltage  
Optimisation

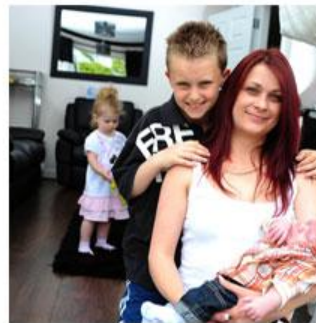
Brand new thinking on domestic energy saving

## Voltage Optimisation

### Saving Energy in Homes

Adrian Fishley

CAN Taunton - August 13<sup>th</sup> , 2013



## VPhase and Domestic Voltage Optimisation

# VPhase – The Market Leaders in Domestic Voltage Optimisation



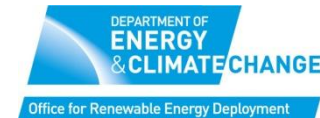
## Why Do We Need Voltage Optimisation?

- National Grid are responsible for delivering 230V +/- 10%
- Overhead delivery infrastructure built in 1960's and is relatively inefficient, losing voltage along the way
- Voltage is increased to guarantee minimum levels everywhere
- Result is a higher than necessary average
- Voltage Optimisation reduces voltage at point of entry
- Result is both financial and carbon saving



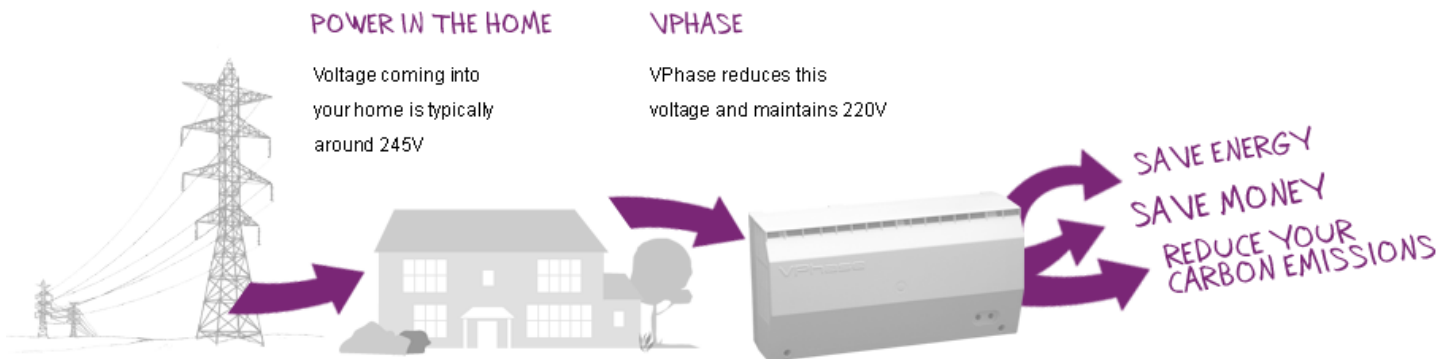
## Technological Innovation in Industry

- Voltage optimisation is not a new technology
- Organisations like Tesco, Asda, Defra, DECC – and many others have employed voltage optimisation commercially for many years
- Saves big business millions each year in reduced energy bills
- It has previously been too expensive and too large for domestic application
- Development of a domestic version of this technology has involved significant re-engineering and innovation

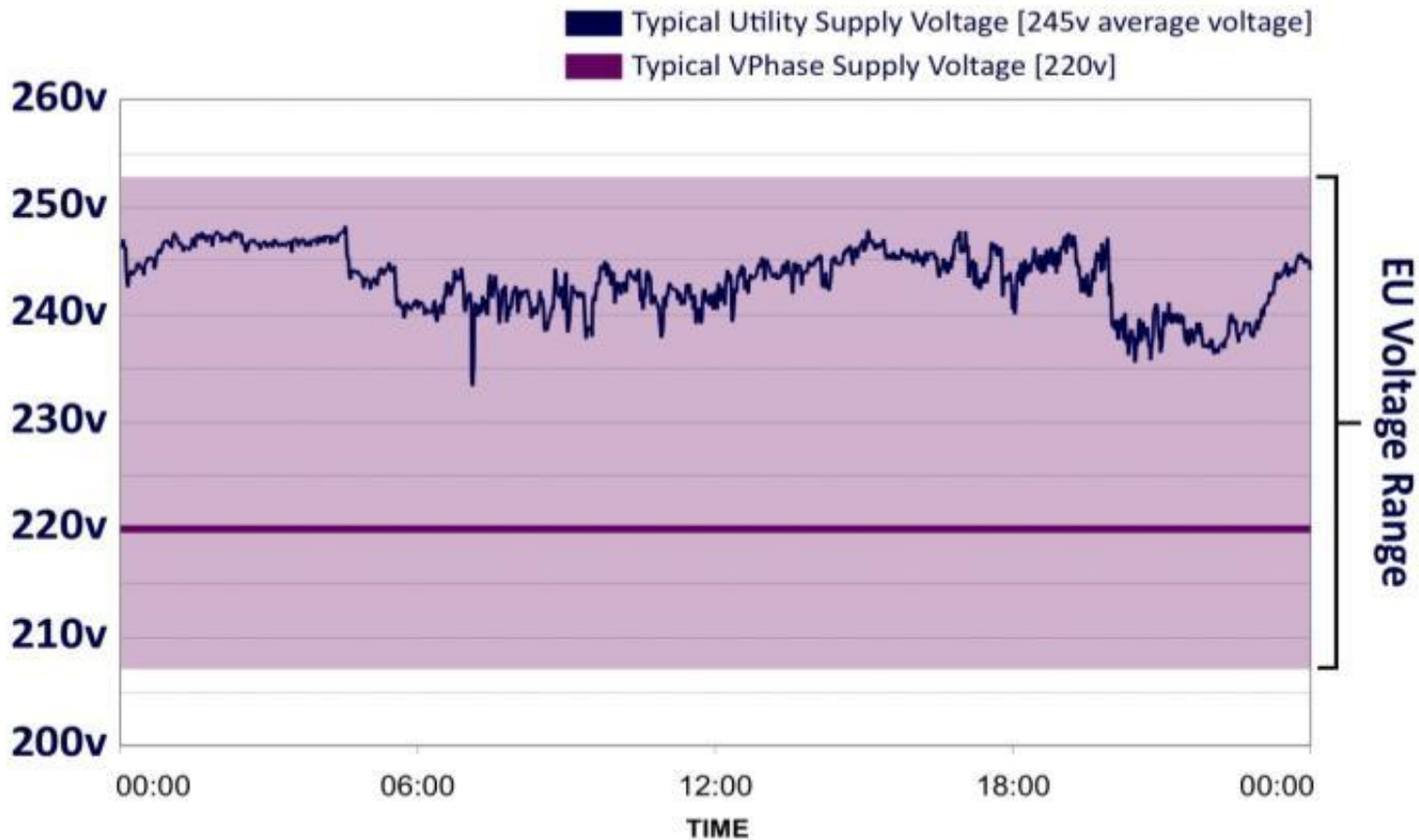


## How it works

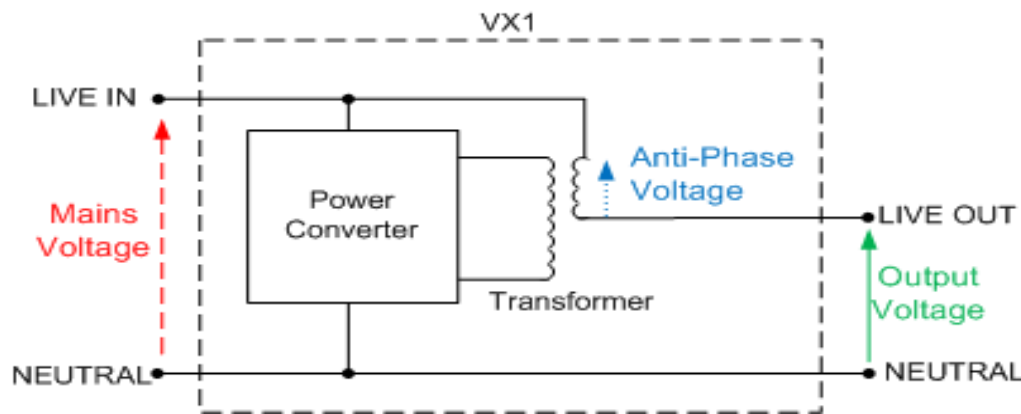
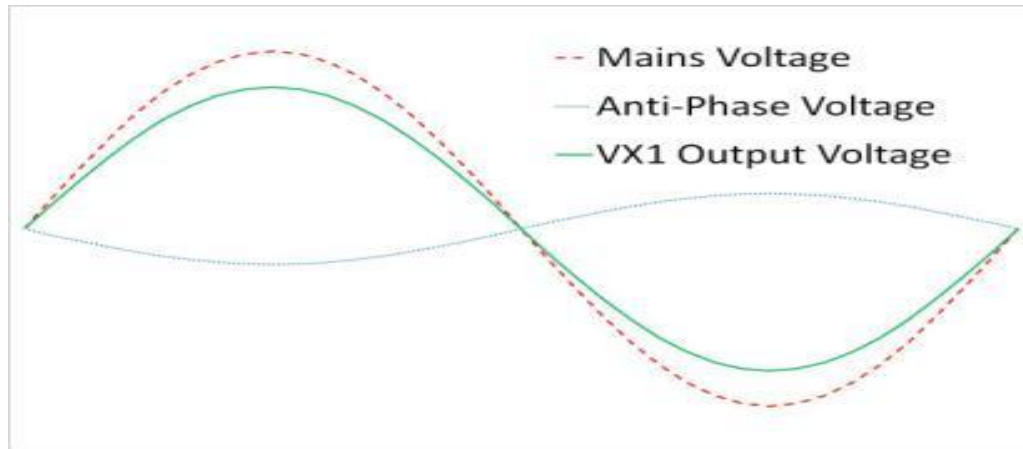
- Voltage supply averages 245 volts in the UK
- CE Marked appliances must work across the EU range 207 volts to 253 volts
- Most appliances do not benefit from excess voltage
  - Wasted as heat
  - Impacts on appliance life
- The VPhase unit regulates the incoming supply to 220 volts



## How it works



## How VPhase manages your voltage supply



- The VPhase VX1 generates an anti-phase component of voltage at the output winding of the transformer
- The anti-phase voltage is added to the mains voltage
- The resulting output voltage is lower than the mains voltage
- The magnitude of the anti-phase voltage is varied from zero volts to approximately 30 volts maximum by the power converter
- By varying the magnitude of the anti-phase voltage the output voltage is maintained at a set and stable level



## Energy Savings Demonstrated

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)





## VPhase and Social Housing

### Great Places Housing Group

- Demonstrated ease of retrofit
- Average electrical energy savings of 8.7%
- Average yearly CO2 savings of 183kg
- Estimated average whole house CO2 reduction of 3.7%
- *July 2011 update – VPhase now specified on all new builds & rewires*



### Greenwatt Way (SSE)

- VPhase installed in 10 eco-homes in Slough
  - Working alongside other green tech
- “The VPhase voltage optimisation device was easily installed, fitting neatly next to the fuse boards in the Greenwatt Way homes”*

Paul Corbin, M&E Project Manager, SSE



## Green Watt Way-Slough

The properties employed a range of technologies to achieve zero carbon status, including:

Solar PV

Mini district heating scheme (housed in an adjacent energy centre)

Solar thermal panels

Air source heat pump

Biomass boiler

Mechanical ventilation

Heat recovery solution

Smart meters

Rainwater harvesting

**VPhase voltage optimisation**



## Save Money, CO2 and More!

- Saves typically 10% on electricity bills for customers
- And saves up to 4.5 tonnes of CO2 over the life of the product
- Savings demonstrated do not include additional savings in lifetime of appliances and replacement of lamps so added benefits to the customer
- Many properties already have insulation, solar, etc. What next?
- Fuel Poverty – Simple Solution



## Risk-Free Technology

- 5 year manufacturer's warranty
- Maintenance free device with no moving parts
- Payback periods typically less than 5 years means it's a virtually risk free investment
- Components independent assessed with projected lifespan of 36 years
- Quality / safety certification:
  - EN 60730-1:2000
  - EN 61000-6-1:2007
  - EN 55022:2006+A1:2007
  - CE marking for sale throughout the EU



## VPhase and Solar Installations

- VPhase is a complementary technology
- Improves overall household energy efficiency
- Improves export potential for solar PV
- Low on-cost installation as already in property
- Solar Tech – Synergy/Working Together
- Low additional project cost
- Adds value to sales offer/package
- Minimal disturbance to homeowners



## Adaptable and Flexible

- Stockport Homes-SHINE Programme
- Manchester South-British Gas-Alongside Boiler Installs
- Norwich DC-Re-Wire Programme
- Southern Housing Group-IOW-Air Source Pump Installs
- Berneslai Homes-Energy Efficiency Programme
- Birmingham City Energy Savers (Aim High Project)
- NEA Belfast-Fuel Poverty Trial
- Melin Homes-Arbed/South Wales Energy Efficiency Programme



## Key Points Summary

- Fitted by a qualified electrician-existing trades base
- Minimal install disruption-easily replicable
- Voltage optimisation works 24/7, in most properties
- Good fit alongside solar installations-extra savings
- VPhase saves homeowners typically 10% off their electricity bills
- VPhase can deliver 3.6% of whole-house CO2 saving
- It's a maintenance free solution – fit, forget and save from install
- No homeowner behavioural change or input required to achieve savings



- Thank You-Any Questions

