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# Affordable Heat with Micro CHP

EAUC Energy Seminar

Chimneys Hotel and Conference Centre

28th January, 2016

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# Topics

- Who is iPower?
- What's so exciting about fuel cells?
- Micro CHP Case Studies
- Business benefits
- Bigger than micro
- Strategy

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# Introduction to iPower

- iPower is a developer of low carbon projects in the UK
  - We develop, fund (when appropriate) and manage solar PV, Fuel Cell, renewable heat and energy efficiency projects
  - Our social esco (energy services company) business model helps our customer avoid capital cost and ongoing management and maintenance. The model can be applied across a range of technologies
  - We are a social enterprise. A majority of our profit is committed to supporting sustainable development in local communities

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# Question

Are your buildings an energy burden

Or

are they an energy opportunity?....

# What is so exciting about fuel cells?

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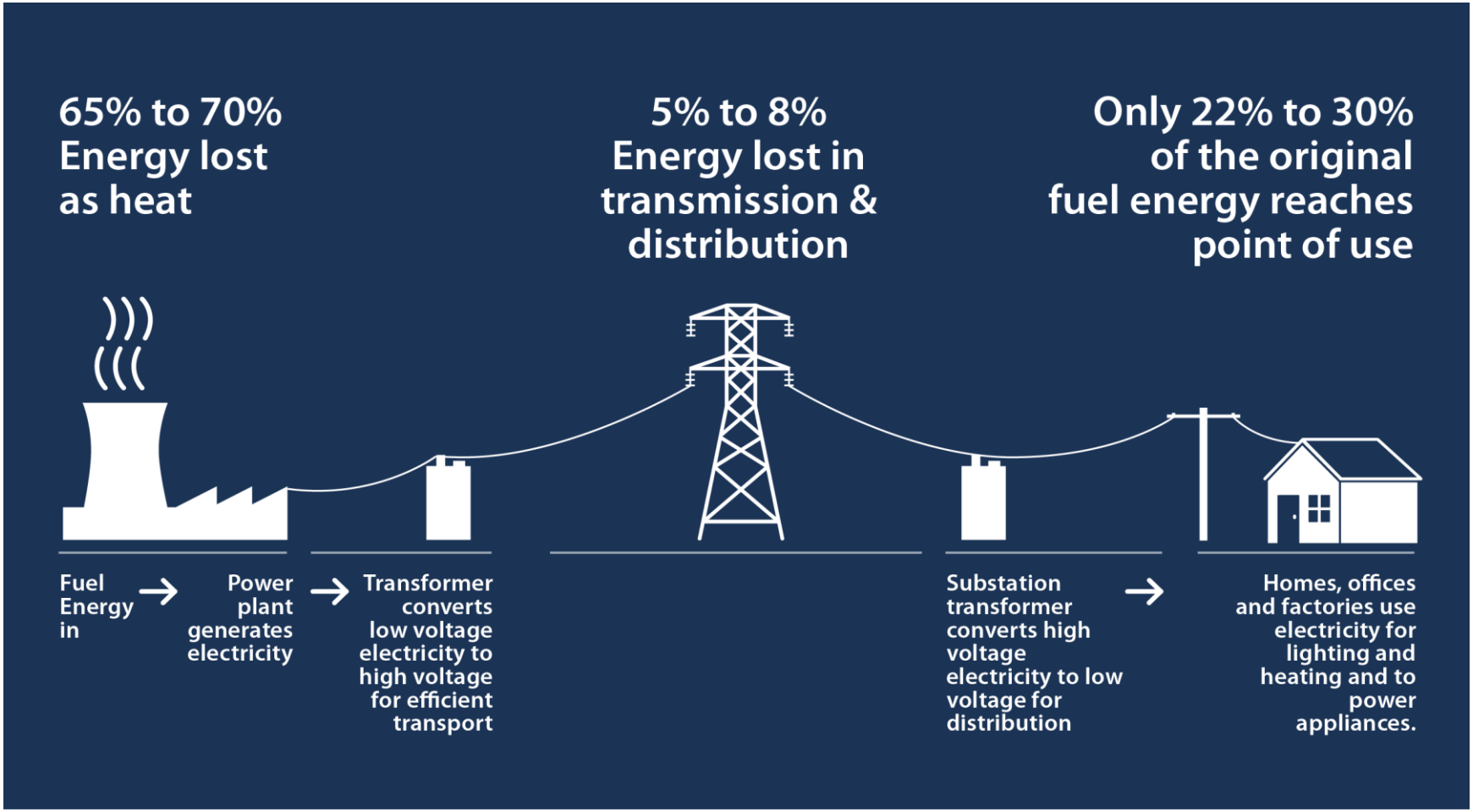
# From centralised coal fired generation:



# To controllable high efficiency Distributed Generation

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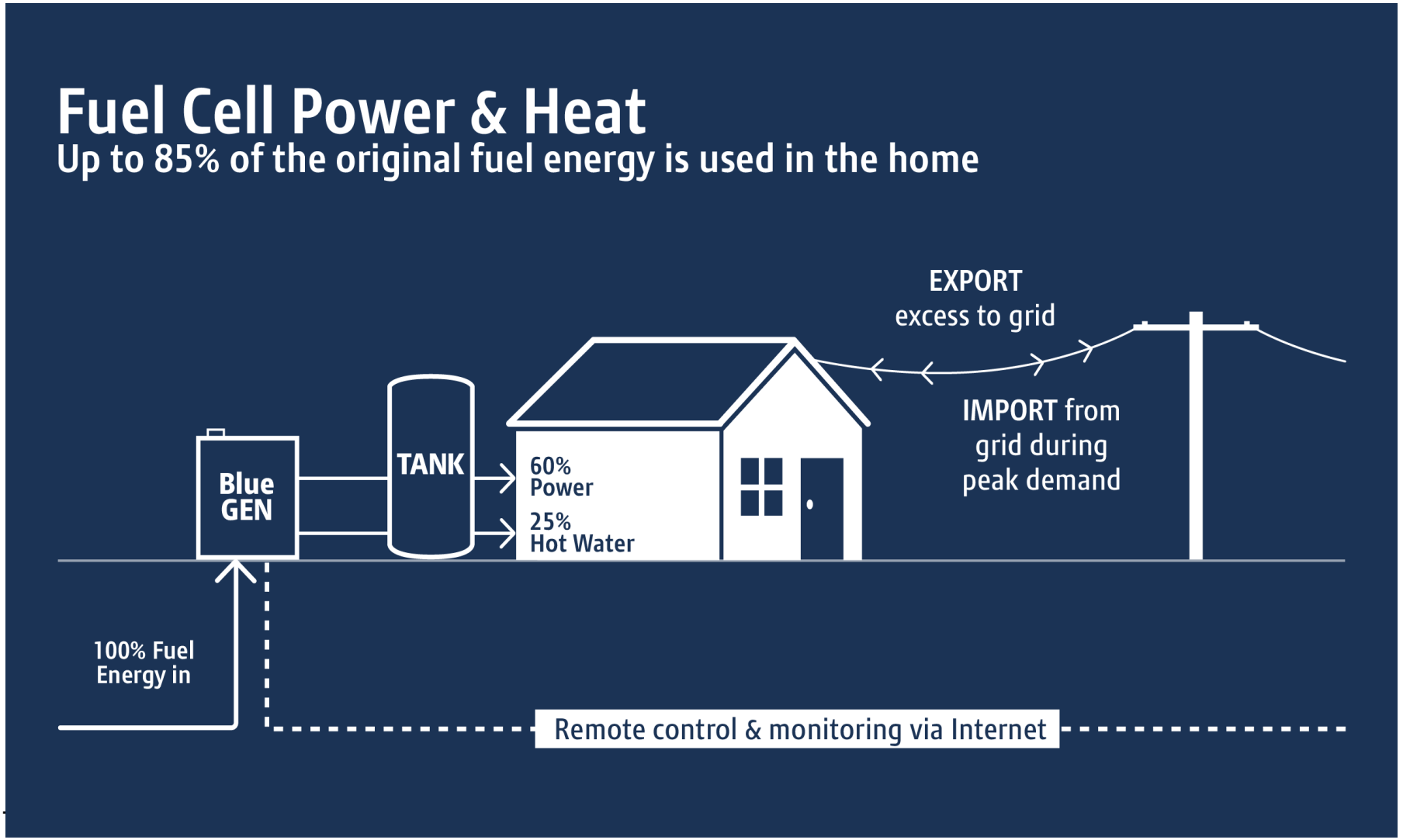
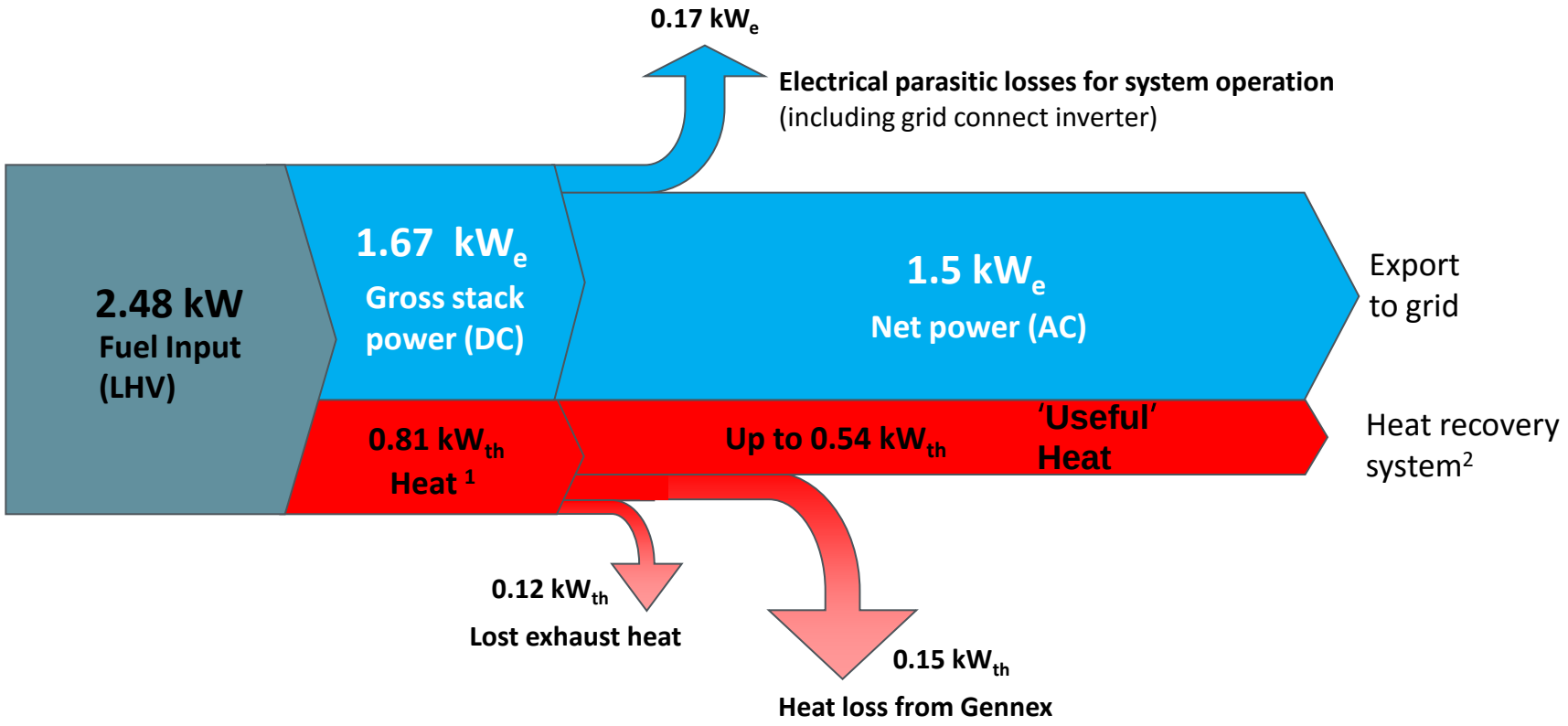


# Energy balance…

- At 1.5 kW export power




1. Including some HHV (latent heat) recovered from the fuel input
2. Based on exhaust gas cooled to 30° C

# Hairdresser case study

- The Anne Veck salon is an exemplar environmental scheme combining various new technologies and green solutions. It incorporates LED lighting, hot water recovery and low carbon, low cost energy generated from the BlueGen supplying power for the day to day electrical demand and delivering free hot water


*Anne Veck Salon Oxford*

The Salon is a showcase demonstrating how it is possible to obtain minimal impact upon the environment and provide real benefits to the financial sustainability of a business through the use of new technologies with BlueGen at the heart of the design.

*BeGreen engineer commissioning BlueGen*

# Anne Veck Hair Salon Installation.....

**BlueGen neatly installed in the kitchen area of the salon**

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# Anne Veck Hair Salon Installation.....

**BlueGen showing access to water treatment filters**

# Social Housing examples

**Sheltered Housing in Maidenhead**

- **X 4 BlueGen installations** – Installed in two sheltered housing blocks within the plant rooms reducing the base load cost with savings being passed to the tenants. **Includes UK's first multiple install**
- Hot water from the BlueGen units is supplied to the pre heat cylinders which in turn will reduce the cycling of the current gas boiler.

**Madeley Centre (near Crewe)**

- BlueGen installation installed within central plant room reducing base load electricity and providing hot water to pre heat tanks.
- Tenants within RSL attached to centre will benefit from **reduced monthly contribution payment for centres communal costs.**

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# MicroCHP Business Benefits

- Installed cost: c£15k: dep. on volume and site
- Self-Funded Option: 8-12% typical return; c6 year payback
- Third Party-Funded programme: 5+ units: 20-30% saving on cost of energy displaced
- Where suitable:
  - Single installs: sites with 20,000+ kWh/year electrical load and a use for heat generated
  - Multiple installs: sites with scope for private wire and multiple addresses e.g. new build, student accommodation etc.

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# Sheltered Housing Example

- Saving over 10 years per BlueGEN: £8116
- Y1 saving £383……Y10 saving £1201
- Saving rises as electricity prices increase faster than gas prices
- CO2 saving: 36 – 49 tonnes per BlueGEN over 10 years
- Higher savings if combined with heat pump or displacement of electric heating/ hot water

**12 x BlueGEN illustration**

- Around £100,000 saving over 10 years
- CO2 saving: 430-590  tonnes over 10 years

# Spice 2e MicroCHP

## Gas combustion engine


SUSTAINABLE POWER LTD

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www.sustainablepower.eu

# Powering a Sustainable Future

*Sustainable Power a UK company specialising in the development and production of high efficiency mCHP co-generating appliances for the SME and larger residential market*

***Generating average savings of £4,200 per year from site holders utility bills and up to a further 10% in overall efficiencies.***

***Reduces the site holders Carbon Footprint by up to 5 tonnes per annum***

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# MicroCHP in UK

- Expressions of Interest from: Universities, Schools, Businesses, Local Authorities, Housing Associations, NHS, Hotels /Brewery outlets

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# Bigger than Micro…

- Fuel Cell CHP is a developing story
- 250 kW – MW+ Fuel Cell CHP available
- High level of efficiency
- Electricity-led, unlike conventional CHP which is heat led
- Can combine with conventional solutions and with heat pumps

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# Strategic Context

- New ways of providing clean energy
- More embedded generation
- Storage
- Links to Grid
- Smart Management, Demand Response
- Virtual Power Stations
- Properties - a burden, or an opportunity?

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# Process

- Make contact
- Discussion  of suitable stock
- Business Case: with projected savings
- Confirmation of Interest
- Site visit
- Confirmation of proposition: Free/self-funded/lease
- Contract

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Let’s talk
and understand your needs…

Alistair Roberts
Community Renewables Manager
iPower Energy Ltd

Mob: 07809428439
alistair.roberts@ipoweruk.com