Energy Local
making energy work for you

Energy Local

Barriers and opportunities for local renewable electricity markets

Our Vision

See the establishment of thousands of local, not-for-profit, Energy Local Clubs (ELCs) that allow local renewable generation to be used locally.

Benefitting communities and local renewables networks and the national system.

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What we do - An Example….

- Local hydro Arfon Berthen near Bethesda is sold for ~14p/kWh and residents still pay up to 27p/kWh.
- Participants and the hydro form an Energy Local Club.
- The supplier will install smart meters which show when power is used as well as how much. Club members can show how much they are using when the hydro is generating.
- Members will agree the price for the local hydro they use when it is generating, e.g. 20p/kWh.
- Households get cheaper power and the hydro plant receives a higher income – more money for the community.

Maintains the customer care and protections of a licensed supplier.

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Win Win for all

Community energy needs to take the lead in enlightened self interest.

The transition to net zero means the UK must rapidly ramp up renewable energy generation and decarbonise transport and heat.

However, there is currently not enough capacity in the UK's electricity system to enable this. We don't have time to get the diggers out to build enough network

To use the network as efficiently as possible we need to match load to generation. Reduces bottlenecks in both directions.

This reduces costs for everyone – not just those in a local energy market.

Price spikes occur because we are dependant on gas and global prices to balance out energy market national. The more we balance load to generation the less exposed we are to global price spikes.

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Tanygrisiau
Community
ESCO
Groundbrea
local energy
Twmpathau
Humps

The Problem

We have abundant renewables resources to

- decarbonise our power, heat and transport.
- tackle widespread fuel poverty

But its not happening!

The perceived regulatory and financial risks make raising capital very difficult, holding back potential to decarbonise and benefit local economies.

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So how would this look?

Mrs Jones has struggled to find a way to insulate her house. She is trapped with high heating bills so can't save to improve her home.
The CESCo offers to upgrade her home and provide her with heat from the local community heat network with a standing charge to pay for the improvements and heat.

.The local hydro and solar power runs the heat pump to for the community heat network and charges local community transport to help people get to work and college.

The CESCo is more attractive to investment as there are multiple sources of income. They try to get a mix of demand for power that uses as much power as possible locally.

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So how would this look?

The Gwneud a Mab, a local factory is struggling to pay its bills. By using power from the local hydro it can reduce its costs and continue to employ local people. The income helps make the hydro viable.

LlanGlaw Community Energy want to build a new hydro but is struggling to raise the capital. By joining forces under a CESCo they can raise the capital. The power runs the heat pump to for the community heat network.

LlanGlaw Community Energy install solar on a large warehouse to provide power to the heat network in the summer when the water is low. The warehouse uses little power itself but the large south facing roof is ideal.

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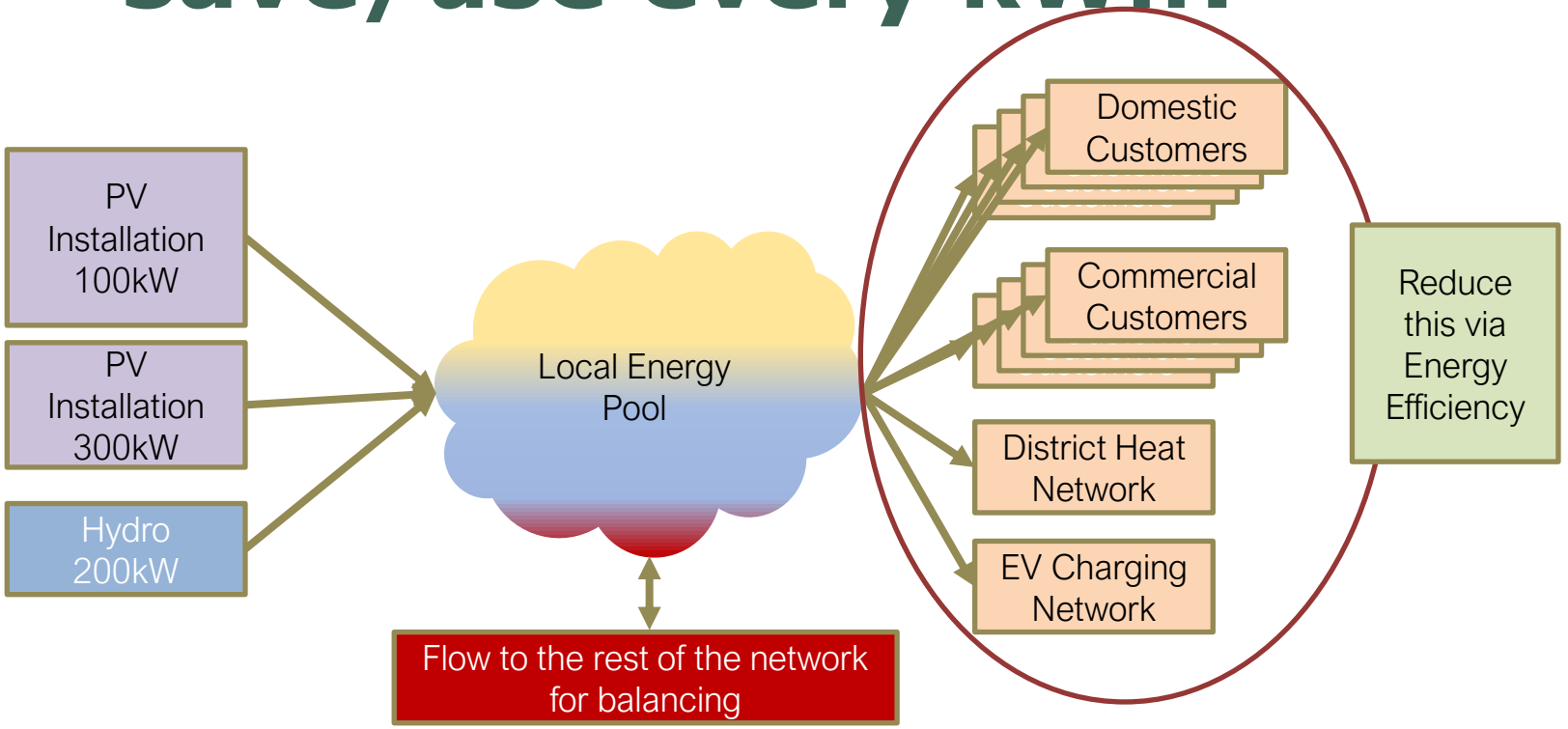
What's the best way to save/use every kWh?



Throughout the year the CESCo will maintain a pool of energy for its customers to buy via Energy Local.

The energy pool is created from assets owned and managed by the CESCo using imported grid energy to cover demand spikes. Battery technology and Smart Metering can be used to reduce imports and exports.

Any excess energy is sold back to the national market but the key goal is to minimise export; use local energy locally.

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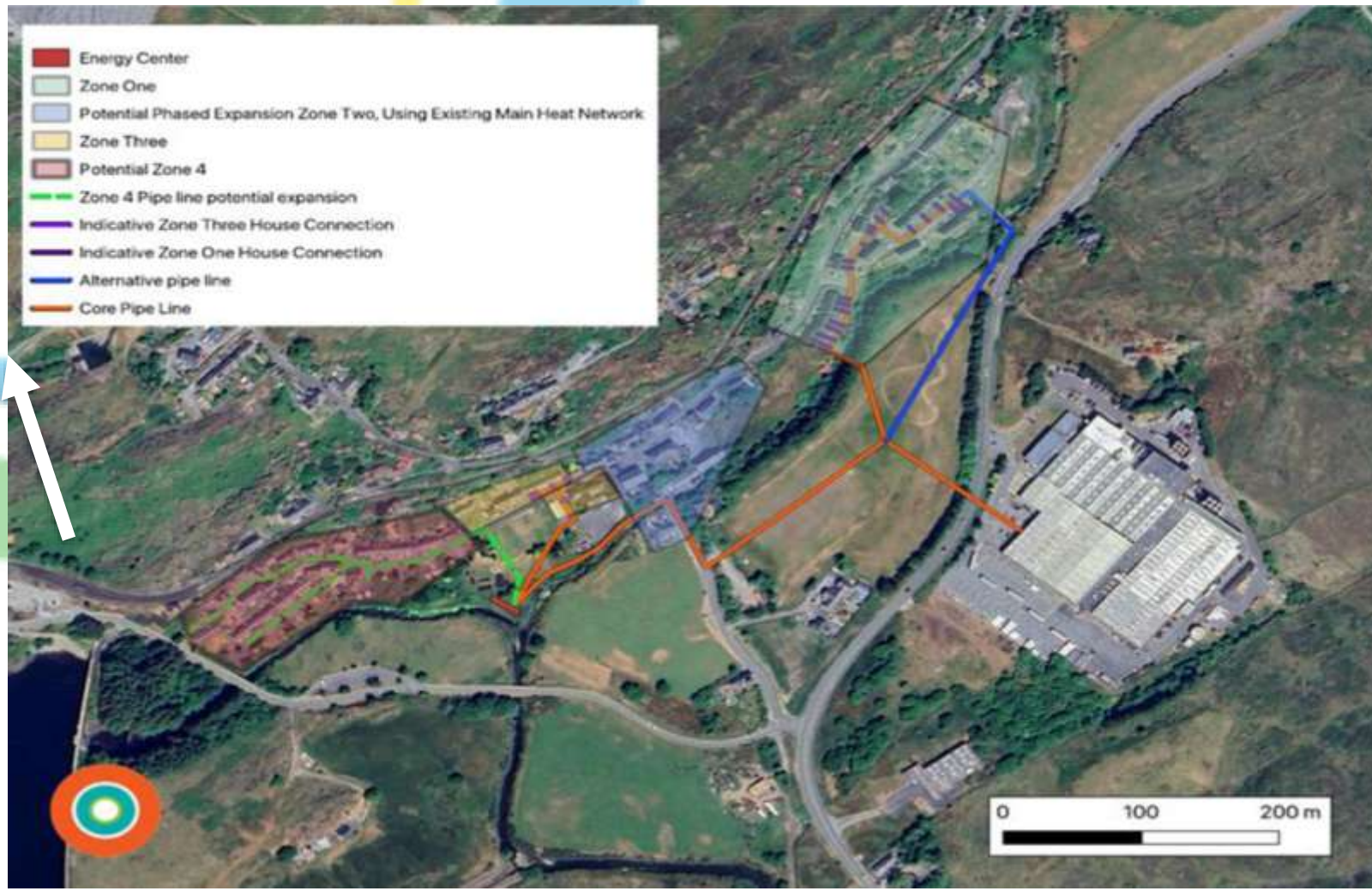
Hydro


Energy Center
Zone One
Potential Phased Expansion Zone Two, Using Existing Main Heat Network
Zone Three
Potential Zone 4
Zone 4 Pipe line potential expansion
Indicative Zone Three House Connection
Indicative Zone One House Connection
Alternative pipe line
Core Pipe Line
0
100
200 m

What's the win win?

- Less volatile price and income for generation and heat – allows long term finance.
- Area-wide retrofit included, better way to fund it – no conflict between saving heat and selling heat.
- Takes additional load from electrifying heating off the LV network.
- One systems, uses diversity to reduce overall size needed.
- Include storage reduces constraints and helps supports the network.

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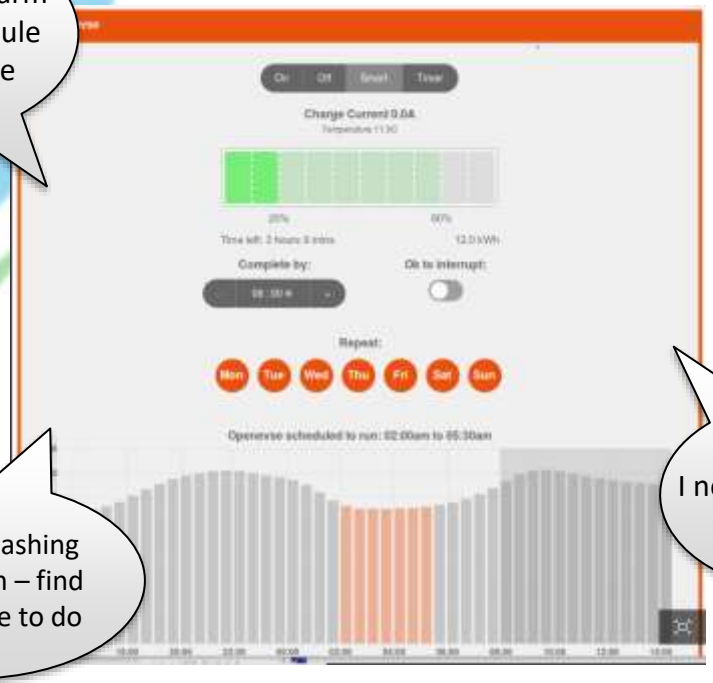
Giving people a helping hand

Scheduling

I want to be warm at 7pm, schedule heating to be cheapest



I need the washing done by 7am – find the best time to do it.

I need full charge by 9am.

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Flexibility?

- Lots of different things and scales
- Shifting demand or matching demand and generation at a local level to manage network constraints.
- Shift way from times of peak usage and matching ‘spare’ renewables at a national scale.

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Er…. well we are doing all that.

- By its nature, Energy Local encourages shifting from peak times of usage and using local generation.
- Simple means to harness all shiftable demand in the homes.
- Works at the local and national level.
- Avoids conflicting signals from DNOs, suppliers NationalGrid.
- Have to manage all our demand in all renewables market.

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