

# Energy Local and demand shifting

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**Dr Mary Gillie**

# About me

- Physicist and engineer
- Worked on field trials and feasibility for all the UK DNOs for 'smart grids'
- Increasingly involved in community energy
- Recognised the need for local markets for communities, distribution network and national electricity market
- Fed up with treating the symptoms not the problems
- Saw an opportunity in the market with advanced metering, founded Energy Local

# Local Markets – not quite there yet but....

- Local markets are at best at the trial stage
- They focus on the different building blocks.

## **Special because.....**

- New local organisations can engage with communities, reach those who would not normally be involved.

## **In the jargon they are**

- Operating before or after gate closure

# What we are trying to achieve?

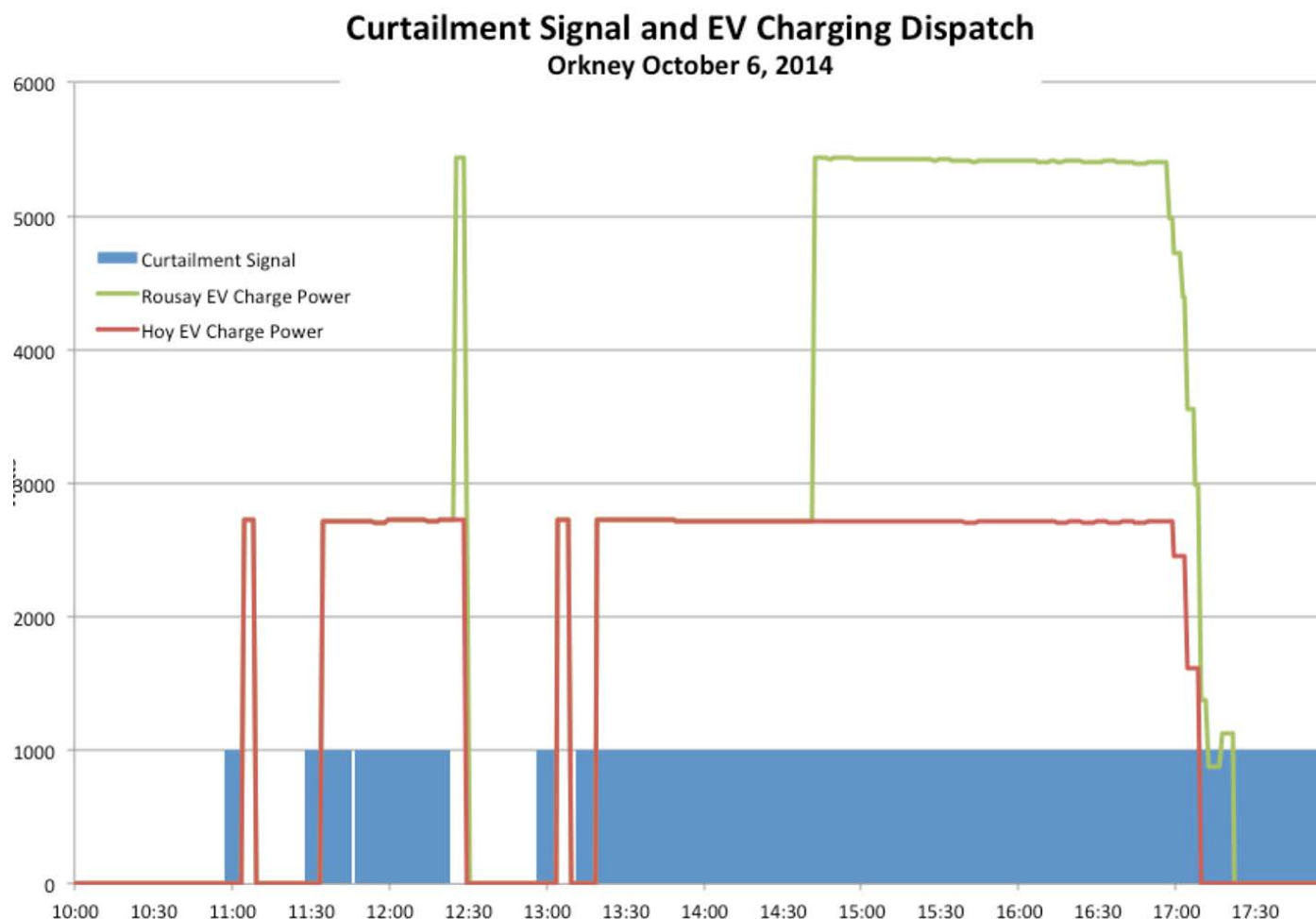
- Win for local groups,
  - Greater income for renewables,
  - Economic multiplier, reduce bills
  - Everyone can be involved, not just share holders.
  - Interaction with people!
- Win for suppliers
  - smoothing local curve, reduce the risk of imbalance
  - low cost of sale,
  - new relationship with customers
- Win for DNOs –
  - a commercial arrangement to facilitates local balancing.
  - potential simplify ANM at LV so it is not safety critical – no local balancing and gen is tripped
  - New opportunities for DUoS

# What are the jigsaw pieces Energy Local

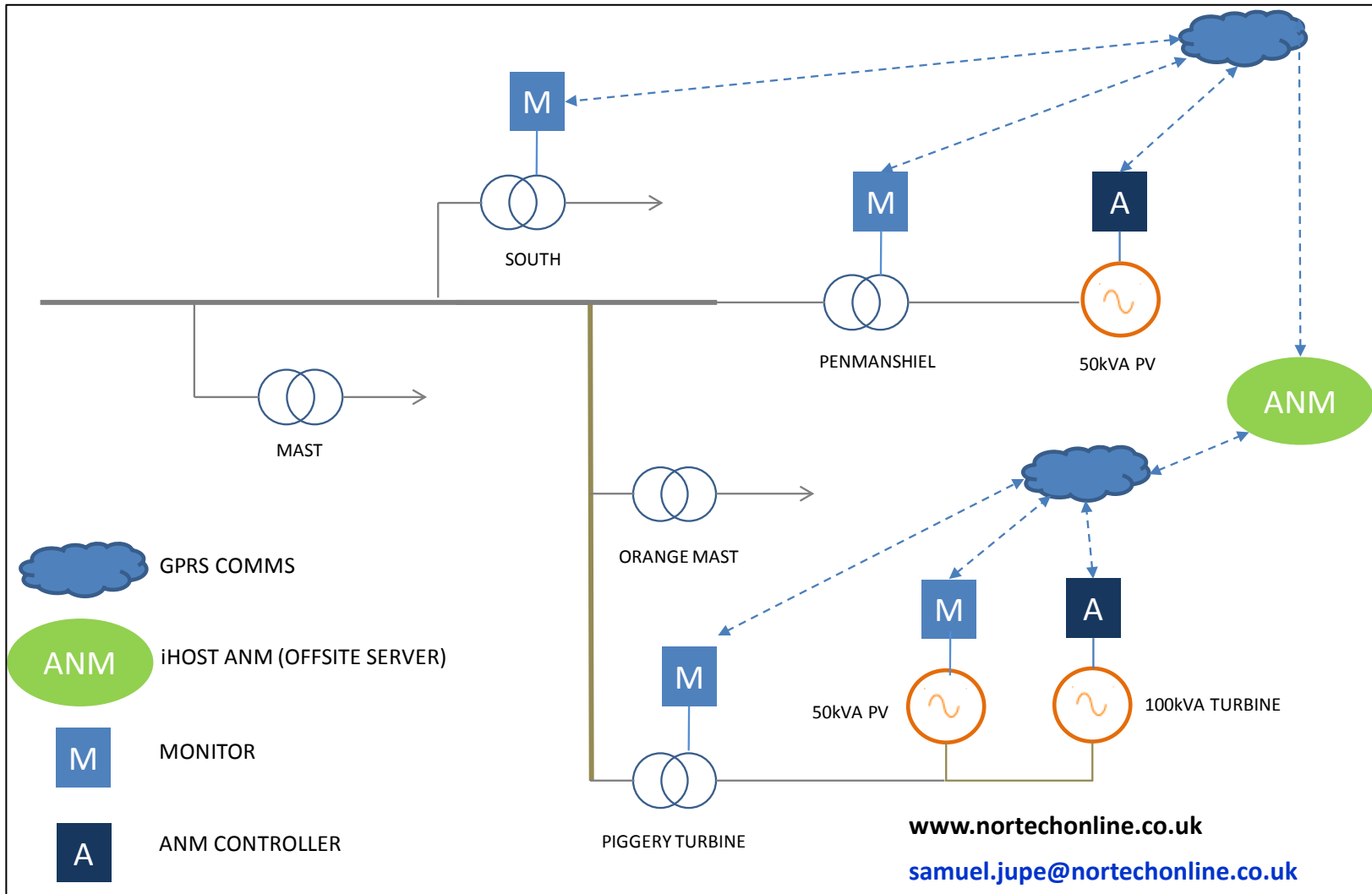
making energy work for you

- Rewards local balancing – without penalising generation or demand.
- Signals from local network measurements to encourage/control demand side response.
- Ability to provide demand side response/ancillary services from many small loads without 'big brother'.
- Local market that does not incur the costs of national settlement processes unnecessarily
- DUoS charges that gives due reward to local balancing.
- Engages consumers & communities – of all types in a manageable way.
- Advanced metering that facilitates the above.

# Controlling load rather than constraining generation on Orkney



# Nortech's ANM a number of LV generators



The solution makes use of existing network monitors, supplemented with Envoy generator controllers and iHost ANM

# Advanced metering

- 'SMETS 1 or 2' meters don't offer the functionality needed.
- Energy Assets and Energy Local are working together to use advanced metering to provide
  - Real time remote network measurements
  - 1 to 1 polling of meters
  - Real time access to meter readings on a community scale
  - Innovative 'energy dashboards'
  - New services for prepayment



# Energy Local



## Our Vision

Energy Local's aim is to help thousands of communities to get more value from renewable generation by using it locally. By sharing local generation we can

- reduce the cost of electricity,
- tackle fuel poverty,
- give local renewables a fair price for their power.
- keep the financial benefit local to build stronger, fairer, more resilient communities.

## Energy Local

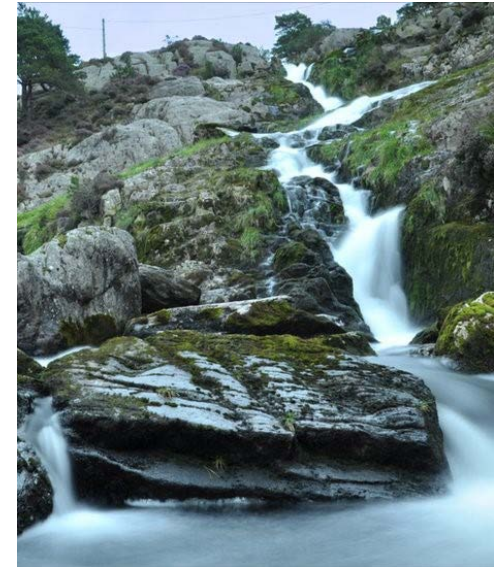
Works with existing organisations as much as possible.

## The problem

- If local generation is not used on site when it is generated, it is sold at ~5p/kWh and neighbours have to buy it back at over twice the price.
- Domestic customers are not rewarded for matching local power or using power at cheaper times of day.
- Reduces income to local economy.
- Renewables are not as viable.

# Energy Local – an example

- Ynni Ogwen (Ogwen Energy) raised funds for their community-owned hydro.
- They lose out with the status quo selling at 5-6p/kWh, buying at ~12p/kWh
- With Energy Local, households and the hydro form an Energy Local Club.
- Club members show the amount of power they use when the hydro is generating with an advanced meter.
- Members agree the price for the hydro they use when it is generating, e.g. 7p/kWh.
- Households get cheaper power and the hydro receives more money.
- Supplier provides billing and 'extra power' on a TOUT.



# Energy Local – end to end trial

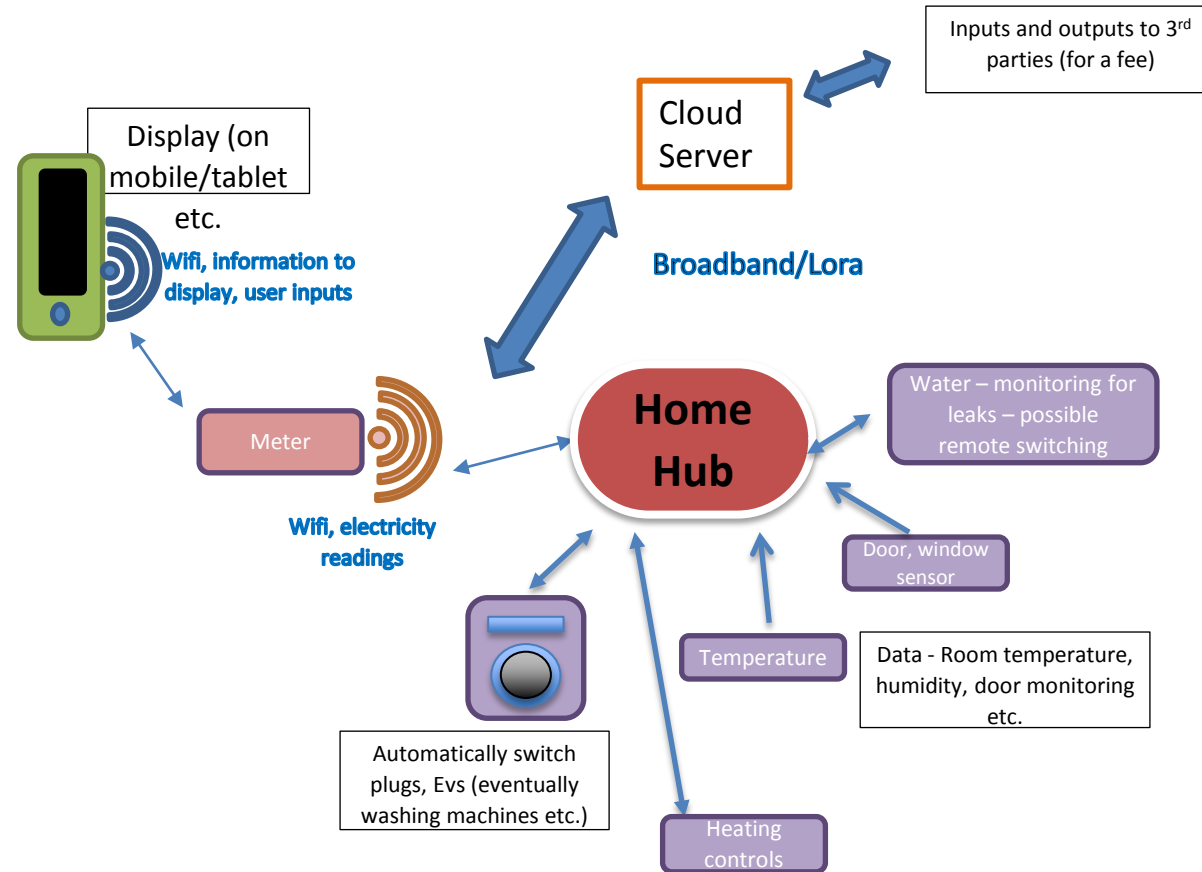
- Recruited 100 participants
- Switched to Coop Energy and formed an Energy Local Club.
- Now have 80+ on the Energy Local tariff matching with the hydro output
- Created an 'Energy Dashboard' – [cydynni.org.uk](http://cydynni.org.uk)
- Formed Energy Local CIC
- Still ironing out the wrinkles behind the scenes.
- Need to get to a 'cookie cutter' process – well a rubbery one.



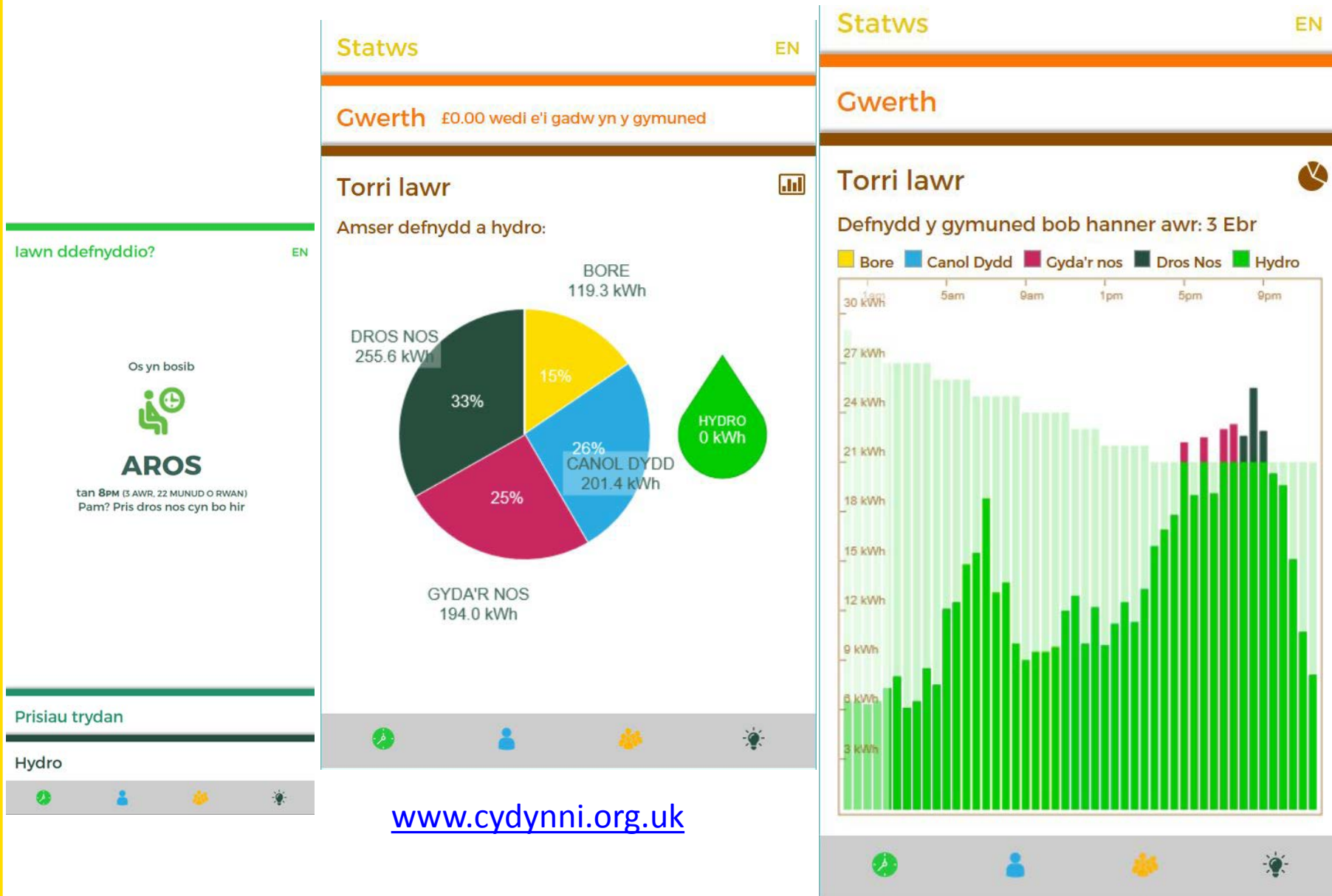
# Results to date

- Savings in bills, income to generators
- Shown it is possible to shift demand to match generation.
- Community endeavour and interaction greatest driver.
- People learn 'rules of thumb' and become aware.
- They love talking to each other and local experts – not preachers!
- Much more efficient at a community level.

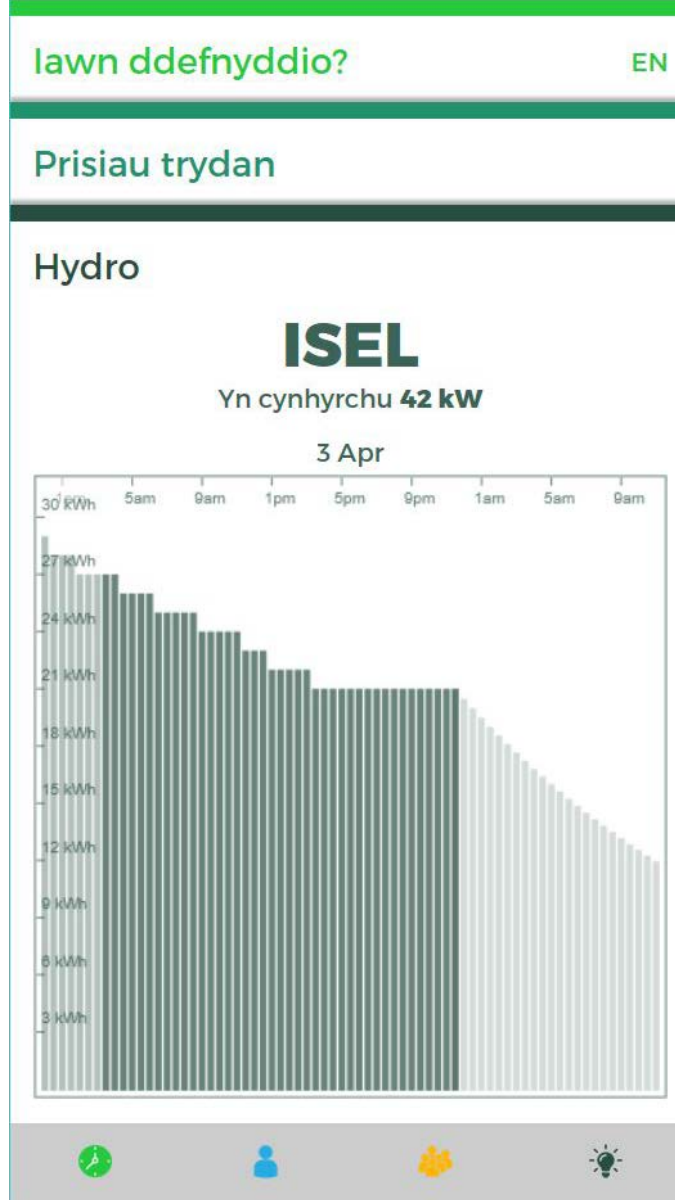
# The Home Hub – next step for demand shifting



# The 'energy dashboard' - on a phone/laptop – somewhere useful!



# The 'energy dashboard'



## Tips

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### LIGHTS

Switching off lights and appliance when not in use is a simple and effective way to use less electricity. You can make a special effort to do this during the morning and evening peaks.

< PREVIOUS

NEXT TIP >



[www.cydynni.org.uk](http://www.cydynni.org.uk)



# Which building blocks do we have?

- Technology to match load and generation locally – tick!
- Advanced meters and associated communications – tick!
- New local organisations – tick!
- New market model that enable reward for local balancing but does not – getting there with Energy Local
- Low cost, open home appliance scheduling – starting to get there, not Big Brother!
- HH metering - working on it
- Better UoS charging – errr!

**But not Business as Usual Yet**



# Contact



**Mary@energylocal.co.uk**

**07757900408**

**[www.energylocal.co.uk](http://www.energylocal.co.uk)**

**@energylocal**