

# Killing the kilowatt hour

**Rethinking energy as a consumer service** 

Phil New Energy Systems Catapult Chief Executive



## The energy system is transforming





# Future energy world won't be dominated by the energy mindset





## Current state ...







## Progress .. but big challenges ahead







## Internalising costs and aligning incentives







## Barriers to market normalisation



$$E_{in} - E_{out} = \Delta E_{stored} = E_2 - E_1$$

$$E_{in} = Q_{in} + W_{in} + m_{in} \left(h + \frac{v^2}{2g_c} + \frac{gz}{g_c}\right)_{in}$$

$$E_{out} = Q_{out} + W_{out} + m_{out} \left(h + \frac{v^2}{2g_c} + \frac{gz}{g_c}\right)_{out}$$

$$E_2 = m_2 \left(u + \frac{v^2}{2g_c} + \frac{gz}{g_c}\right)_2$$

$$E_1 = m_1 \left(u + \frac{v^2}{2g_c} + \frac{gz}{g_c}\right)_1$$



## **Consumer Insight**

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## Last year I spent

- £1,380 on
- 14,983kWh of gas and
- *4,125kWh of electricity.*

### Next year, I've no idea

- How much fuel I need
- What it will cost, or
- What experience I will get.

"Nobody understands a kWh, it makes no sense ... it's nice to know what you are paying each month."

·~'

#### I want to warm

the rooms I choose ...

... to the temperatures I like...



...when I am home.

For a fixed monthly price!

## Living Lab





## **Emerging Insights**





People ARE interested – but on their terms.

People are interested in outcomes and options.



People are very open to different offers – the current paradigm isn't the only paradigm.



People are open to broader, outcomedriven service propositions.



People can discriminate between proposals, without needing to take on the burden of being the system integrator, optimiser or obligated party.

## ESC is working across three time horizons



current technologies, established actors, current regulation and Laying foundations market arrangements for scale up **Energy Town** Living Lab Smart Systems and Heat ISCF – "Energy Revolution projects Integration Service" Local system integration Co-ordination of learning • and optimisation and outcomes across ISCF Modern Energy Partners Governance demonstrators and design projects Change Local Area Energy Planning . **Establishing Optimising within** innovation current context ecosystems New processes, governance models, stakeholders, business models and market arrangements

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# Thank you



Phil New