

The Net Zero Heavy Lifting

Heat and Transport

When the Rubber
Really Hits the Road



The New Complex & Dynamic Energy System



From the 400 to the 100 million

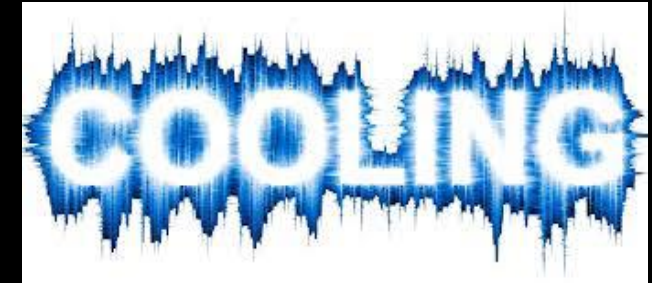
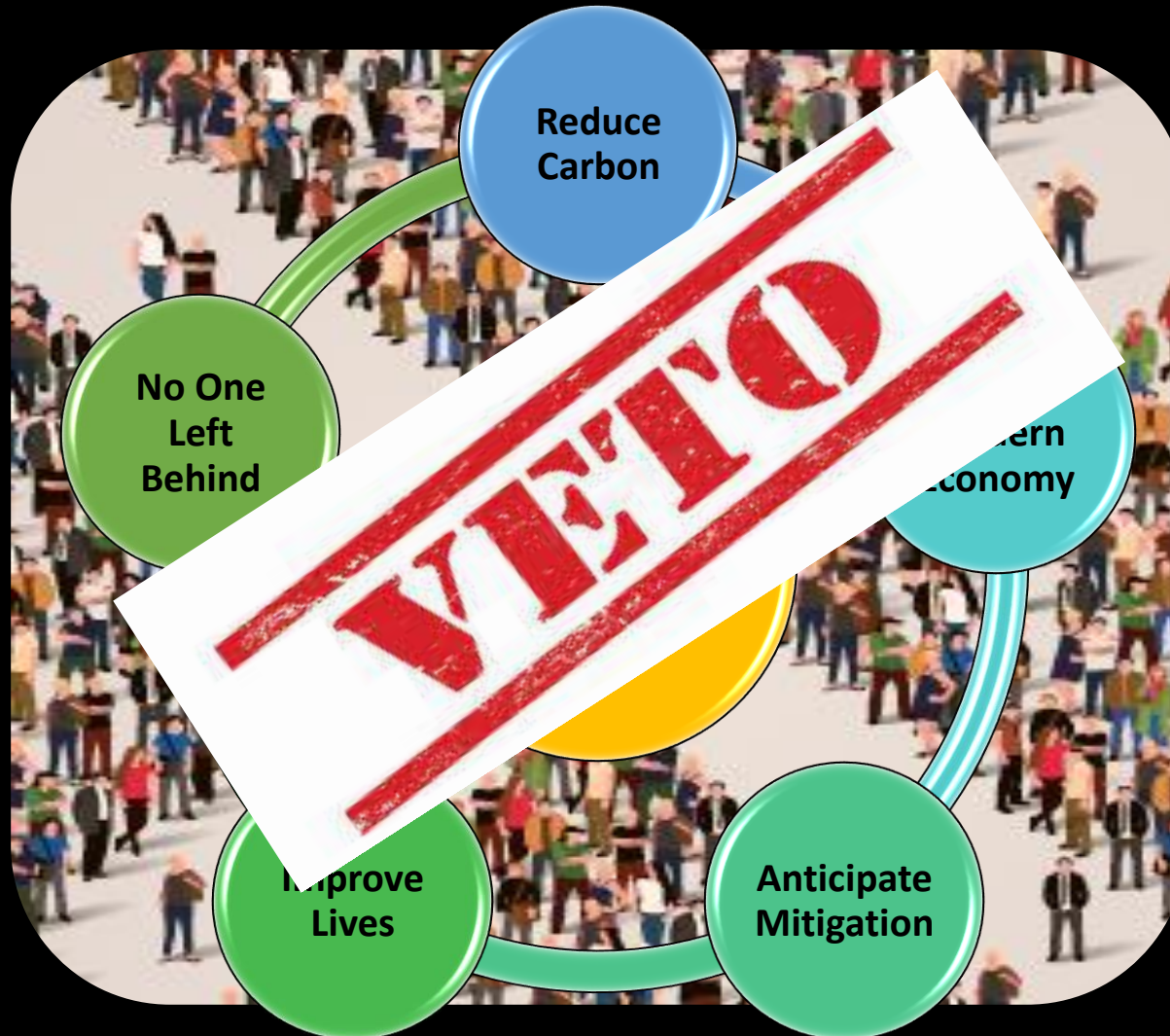
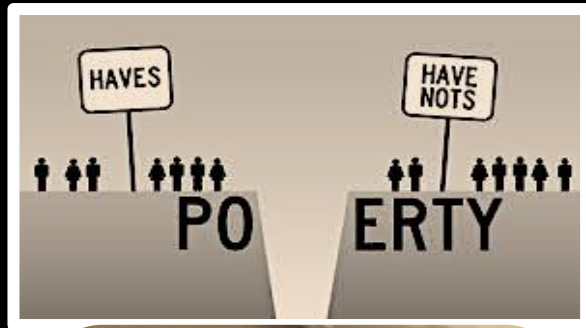
Power, Value &
Innovation Moving from
Energy & Commodities
to
Consumer Goods, Digital
Services & Integrated
Offers



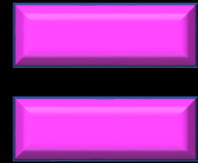


POWER SHIFT

70 million People at the Heart of this Transformation



How to Power Up 70m Customers: Recognise Demand is Equal to Supply



Capacity Market

Increase access for efficiency, all storage types, self-supply & DSR

All Markets

Equal access for demand & flexibility assets & actions

Mini Contracts for Difference

Contract for Difference miniaturized

Energy Efficiency

Fully loaded value of Avoided Cost of Energy & Carbon

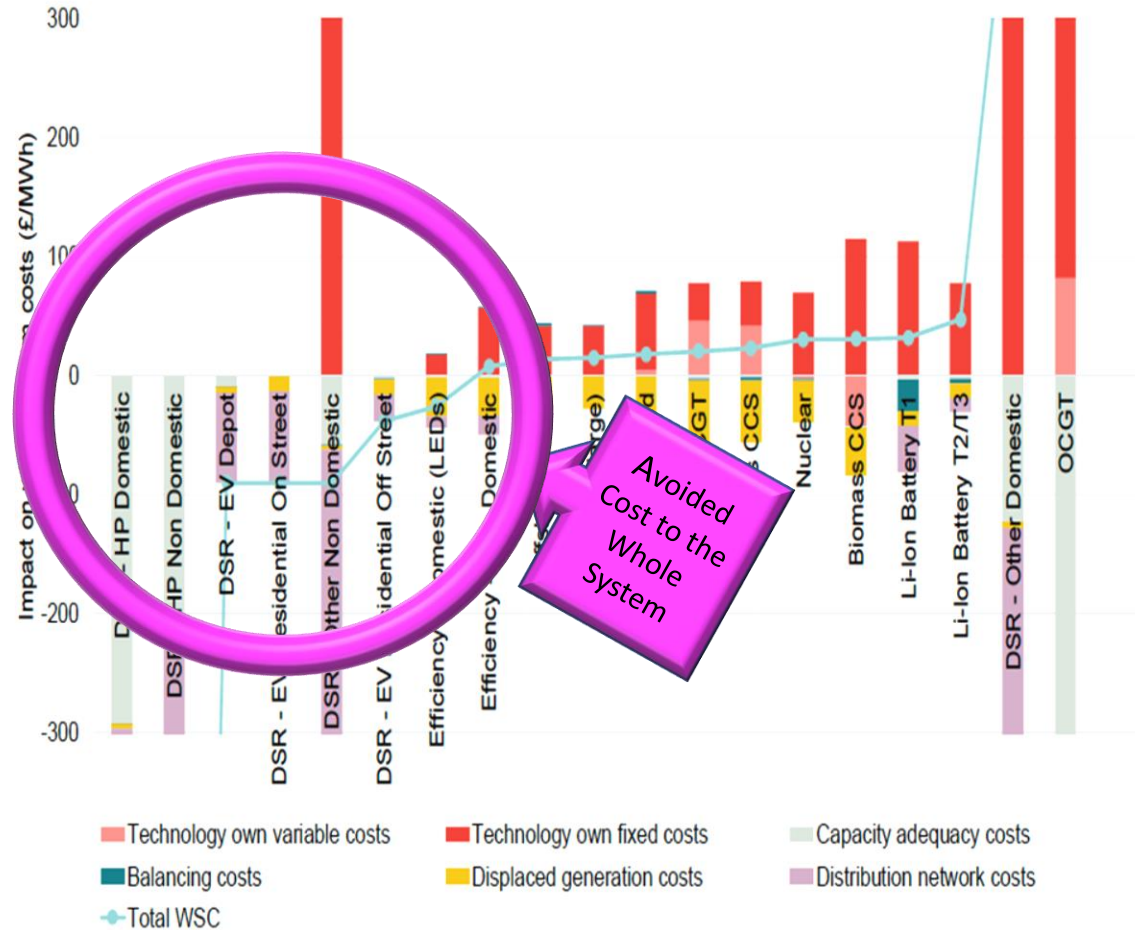
Flexibility Purchase Agreement

Suppliers, DNOs, ESO and generator buying Demand as they do Supply

Stop Short Changing Consumers Actions & Assets

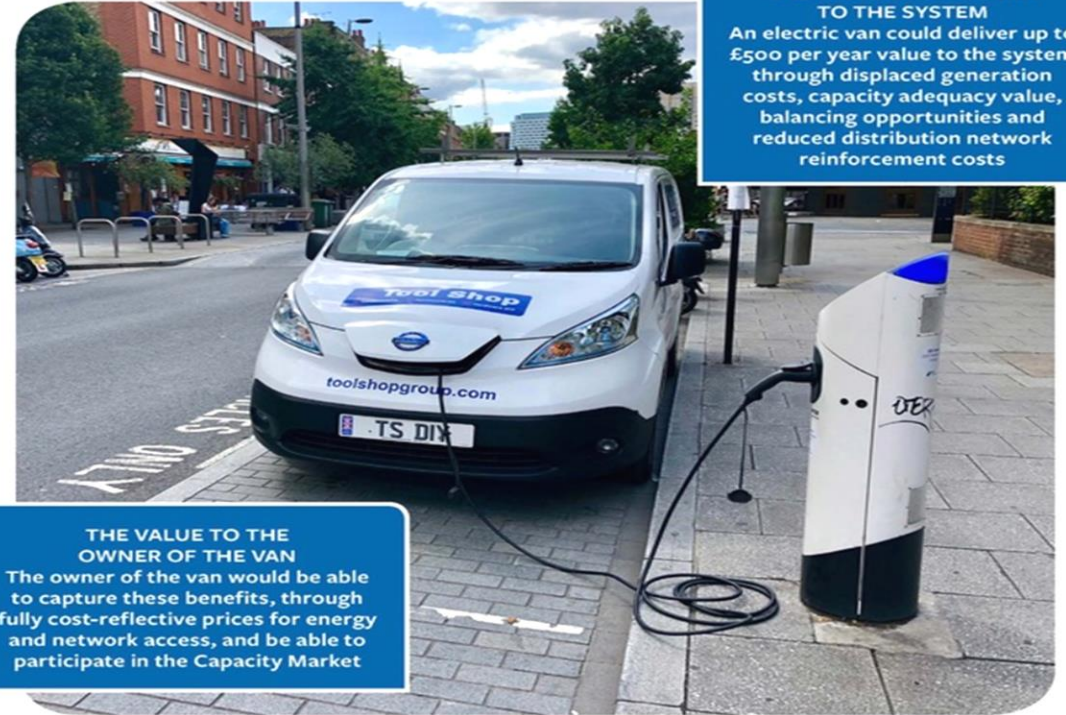
Valuing Demand

TOMORROW: WHOLE SYSTEM COSTS



These example figures should not be interpreted as "generic" estimates of the whole system impact of a class of technologies. Whole system impacts are dependent on the wider electricity system and when technologies are assumed to be built.

An EV van example



- Demand Equal to Supply
- Whole System Incentives
- New Framework Exists
- Reward Avoided Cost of Energy
- Accountability for Whole System Costs

From Commodities to Services

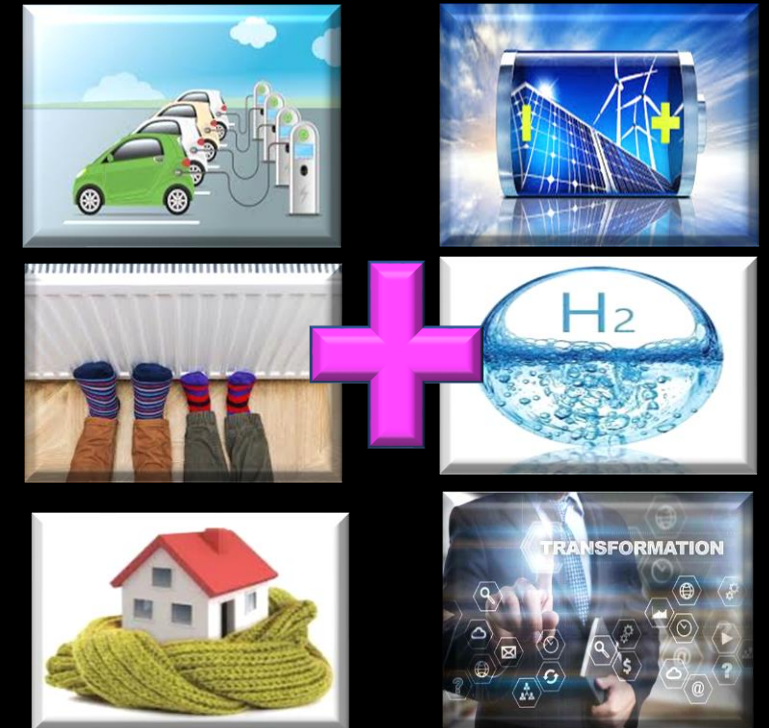
Why? Capital decarb assets don't respond to commodity price signals, & complexity & system optimisation needs to sit with companies not consumers

- **Open Up to Consumer Services:** Review retail license to unlock services
- **Consumer Protection:** new and appropriate safeguards required
- **Develop New Service Agreements:** develop a new range of services throughout the supply chain

Incentives in the Right Place to optimize & drive efficiencies



Unlocks Investment & Innovation

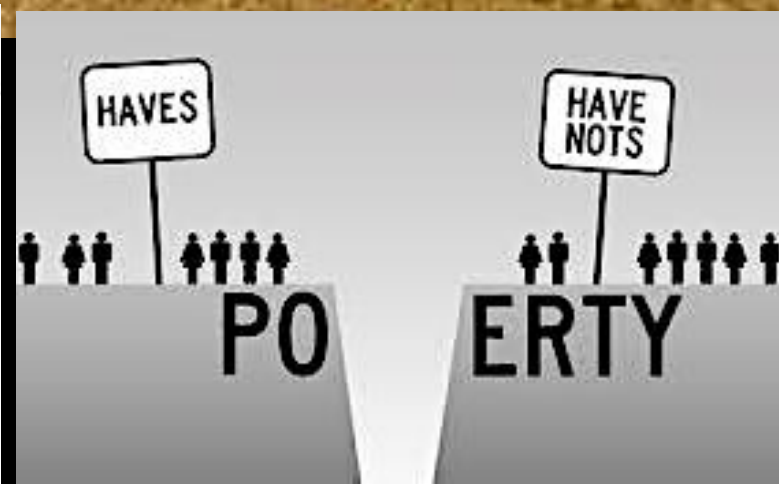


What a Service Should Look Like for EV's (Mobile phone model)



Recognition of new Business Models by Regulation
Appropriate protections for consumers
Linkage between leasing arrangements, financial services regulation and energy regulation

Rethinking the Essential Service Moving to the Broadband Model?





So is it us who
have to change
not the
consumer!

Huge Opportunities

100 million
Locational Varied
Actions

New Business
Models

Blended Value

Serving Customers

Complexity Delivers
Higher Rewards

Changing Nature of
Risk

But will the Energy Sector Capture this
New Value?

And what for Energy Economists!



Some Challenges



Collaboration across new disciplines

Engineering & Commodity Economists very different from fast moving digitalized consumer goods & services



Understanding Consumer Preferences, Choices & Taste

New Commercial Skills & Experience



Change in Nature of Security & Stability

Managing New Risks





**don't let the
perfect be
the enemy to
good**

-voltaire