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Breakout Session 3.8 Modelling, Charging and Billing

LCNI Conference
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Value of Lost Load (VoLL)

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What is the value of lost load (VoLL)?



The **social** cost of supply interruptions to customers in £ per MWh



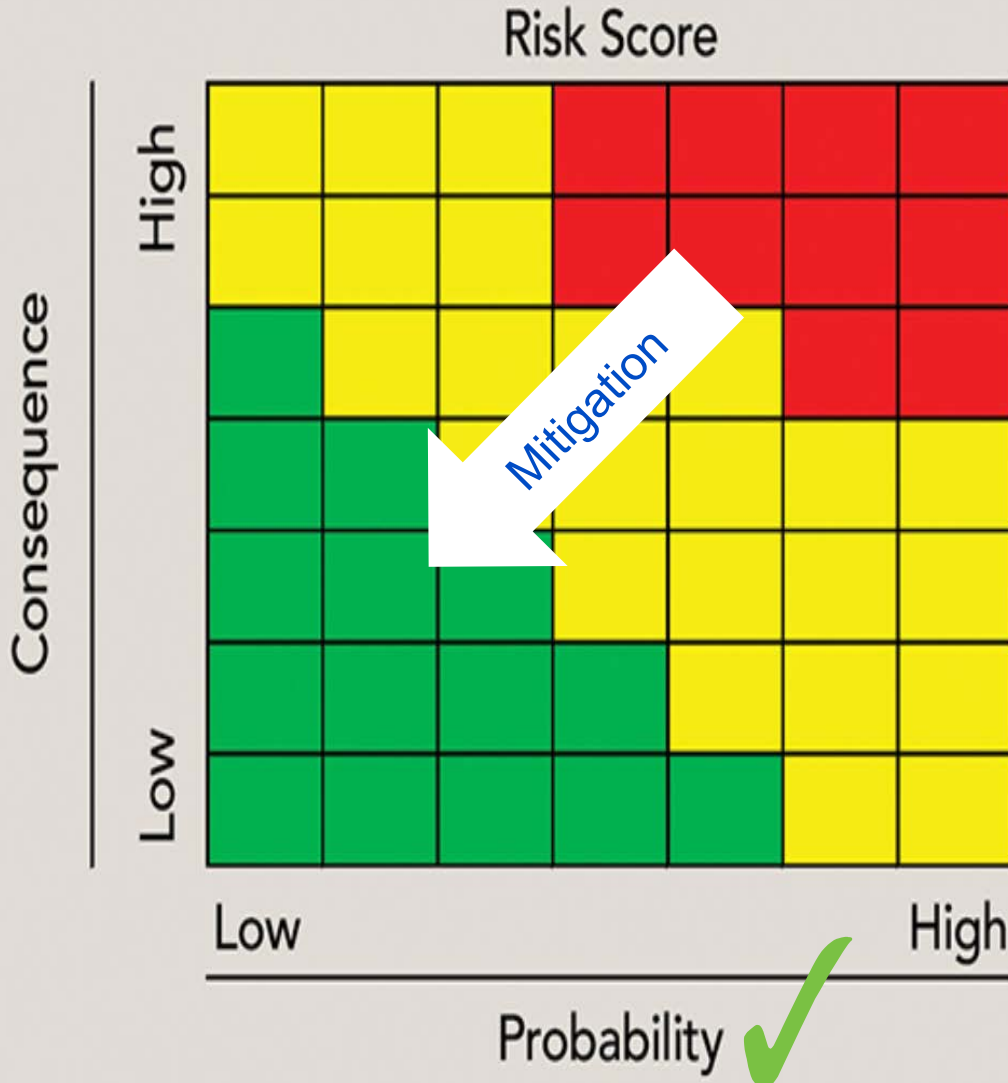
VoLL has existed since 1990
2013 - London Economics
~£17k/MWh
average value (excluding I&C)

VoLL varies considerably across
domestic and SME customer
segments

A single average figure is used to
provide an overall value for a given
asset / decision

Ofgem used a figure of ~£16k/MWh for RIIO ED1

VoLL is a key component of measuring the consequence of asset failure



When DNOs invest to mitigate the risk of service failures they can quantify the probability of an asset failure but...

One of the key factors in the *consequence* to customers is the number of customers affected by the failure

The current single VoLL gives **no differentiation between customer types**

Objectives of our project



Outcome:
Future decisions directly guided by customer needs

for example comparative need of vulnerable and non vulnerable customers



So . . . we need an accurate and representative VoLL covering a range of customer groups to create a bespoke investment value per decision



Demonstrate how segmented VoLL model will help DNOs improve planning models and guide investment strategies



Our challenge was to establish VoLL across the full spectrum of customers using data readily accessible to DNOs

How we structured our research



Interviews with key stakeholders to guide research approach



ECP panels of domestic and SME customers
Depth interviews



6,000 interviews across GB with domestic and SME customers



New VoLL model
Suitable for use by DNOs



Statistically robust & representative research to establish VoLL by key customer segments now and in the future

Who did we speak to?



Domestic

Interviews were conducted with a wide range of customers across all of GB in winter and summer

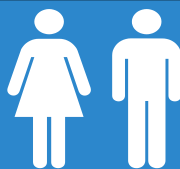


2446



2510

Domestic customer data was weighted to reflect the national profile



Gender



Age



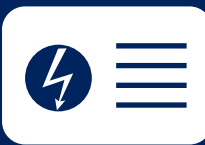
Socio-economic



Vulnerable



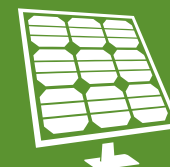
Fuel poor



Electric heating



Electric vehicle



PV

Who did we speak to?



SME

Interviews were conducted with a wide range of customers across all of GB



561



480

SME customer data was weighted according to:



Industry sector



Company size

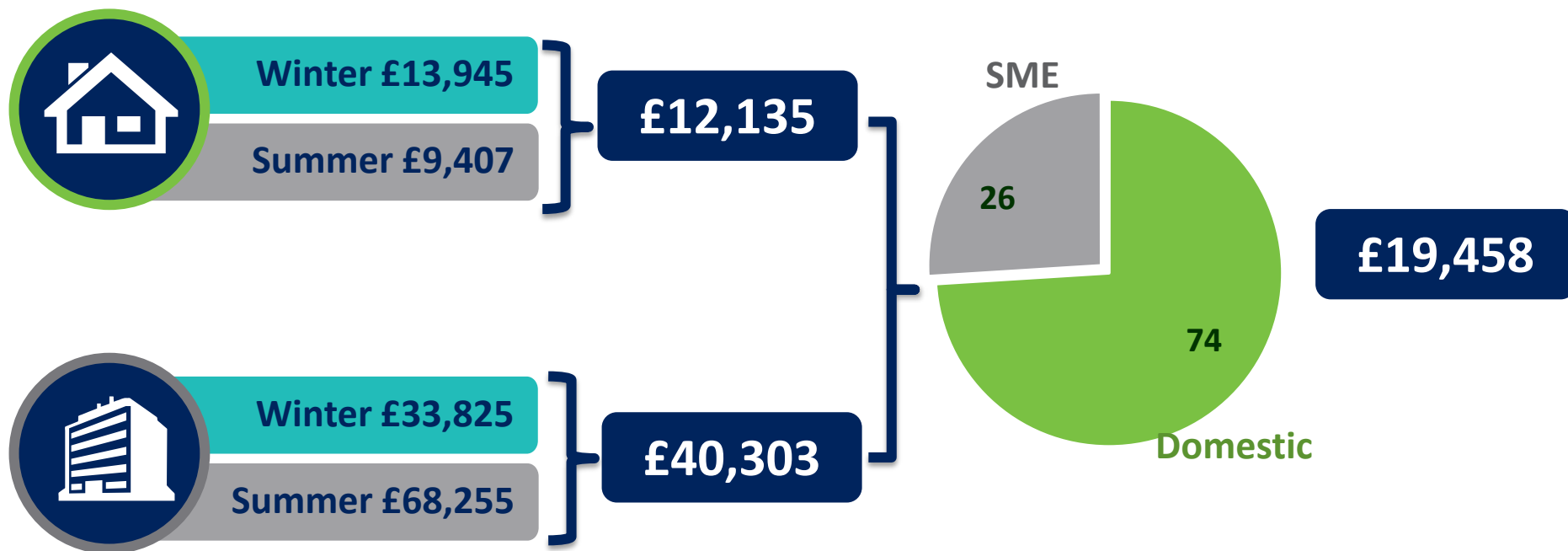


Public vs private

Companies over 250 employees were outside the project scope



Combining our values to reconstruct 'vanilla' VoLL



LE value = £16,940

How does domestic VoLL vary?



Factors which have less impact on domestic VoLL

Average VoLL
= £ 12,135

-£100

+£100

-£1,100

+£600

Male

Female

Never

Yes



Gender

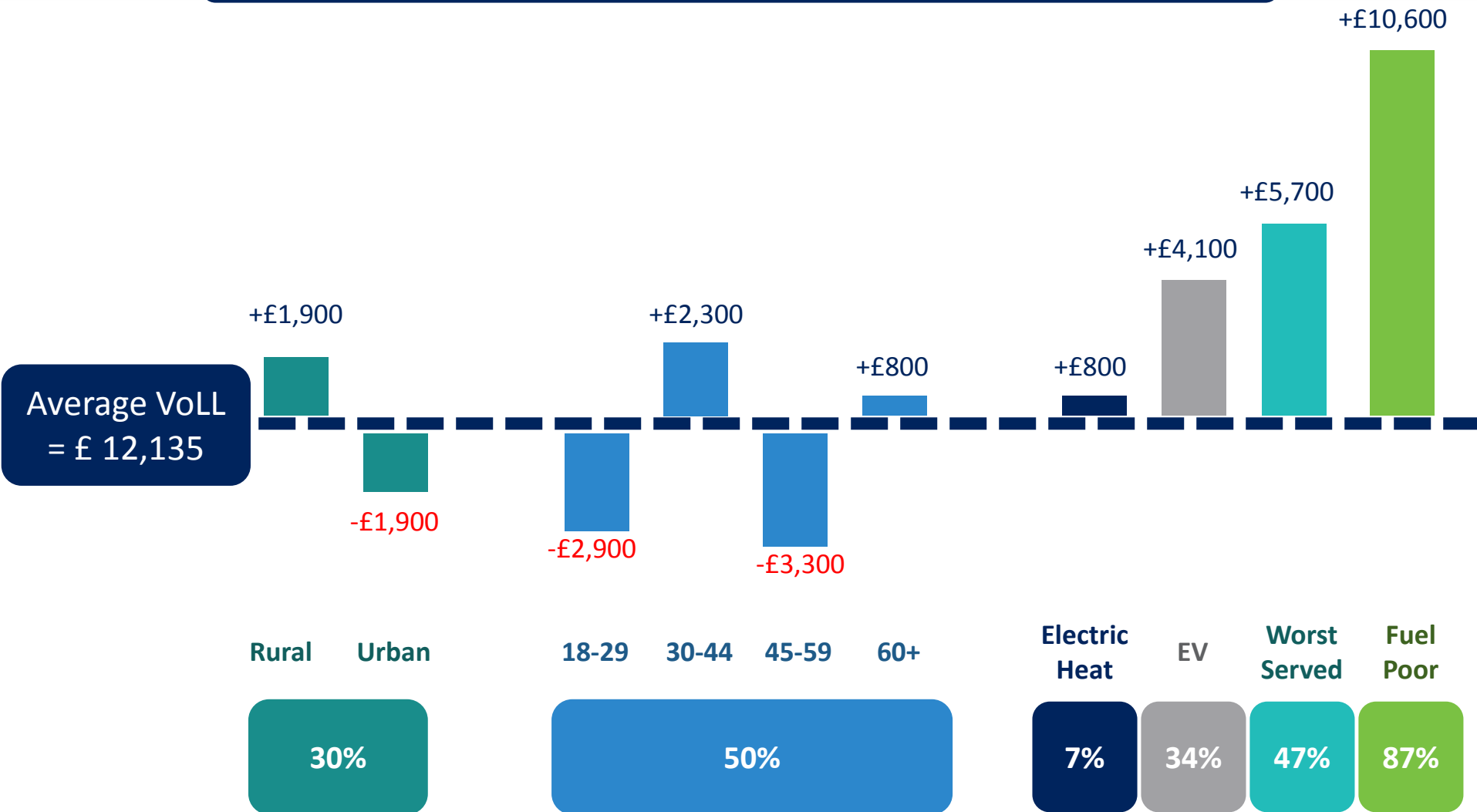


Power cut

How does domestic VoLL vary?



Factors which have more impact on domestic VoLL



Current estimation of VoLL



10 hour LV feeder fault occurring once every five years, over a period of 40 years



Two LV feeders, both supplying 50 homes

Old VoLL



X 35



X 15

£ 72,000



X 15



X 20



X 15

£ 72,000

VoLL currently calculated by multiplying the number of homes x standard figure

New estimation of VoLL



10 hour LV feeder fault occurring once every five years, over a period of 40 years



Two LV feeders, both supplying 50 homes

Old VoLL

New VoLL



X 35



X 15

£ 72,000

£ 48,000



X 15



X 20



X 15

£ 72,000

£ 108,000

VoLL calculated for each household by applying a weighted combination of values for each household characteristic

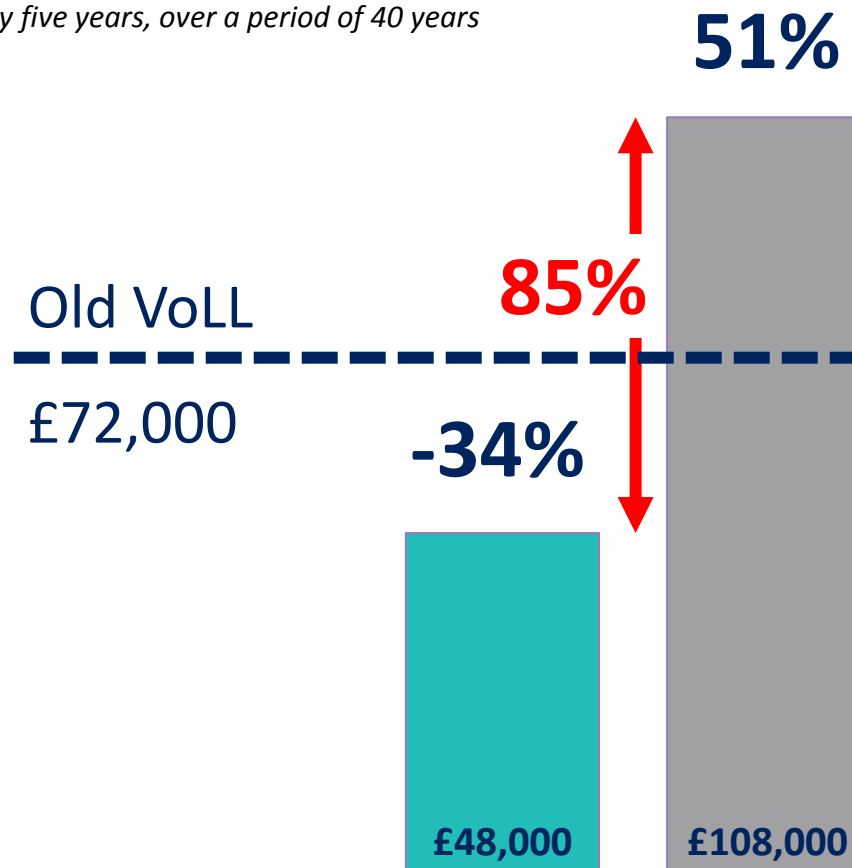
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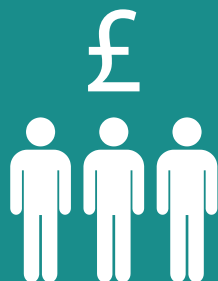


VoLL calculated for each household by applying a weighted combination of values for each household characteristic



Existing approach undervalues the needs of certain customers

Not reflective of those dependant on LCTs



Worst served and fuel poor are hugely under represented

Others are over represented potentially driving inefficient investments



VoLL model published January 2018 will provide an effective tool that all DNOs can use without the need for new data flows



Segmentation model enables DNOs to make decisions more reflective of actual customer needs



For more information



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