



CO₂

A

B

C

D

E

F

G

Electricity labelling

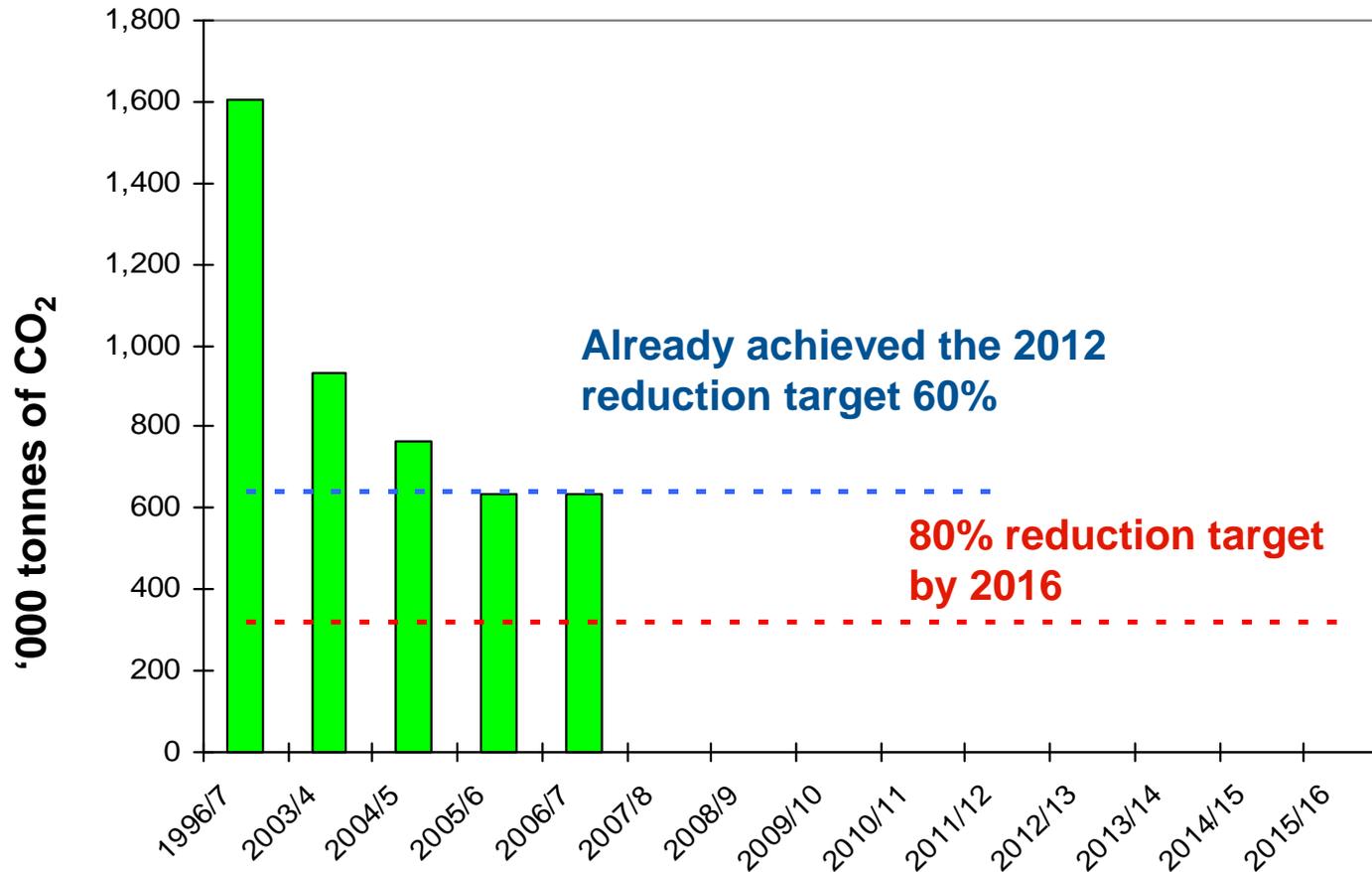
Solving the carbon footprinting problem

Why is BT talking about electricity labelling

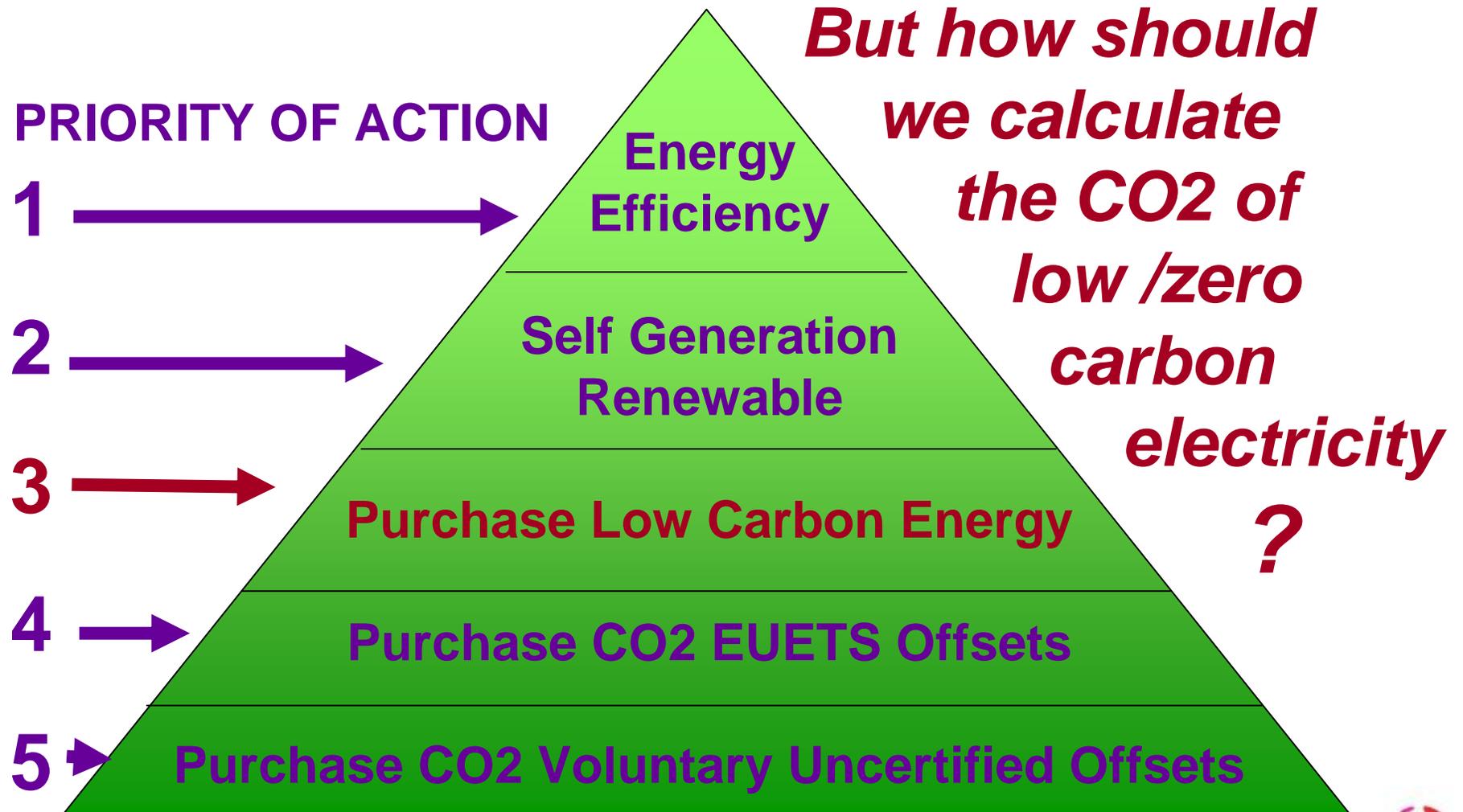
- Because we consume 0.7% of the UK's electricity (one of the top ten users in the UK)
- One of the largest “green” electricity contracts in the world
- Ranked top of the Dow Jones Sustainability Index seven years running
- Top sustainability company - Business in the Community awards



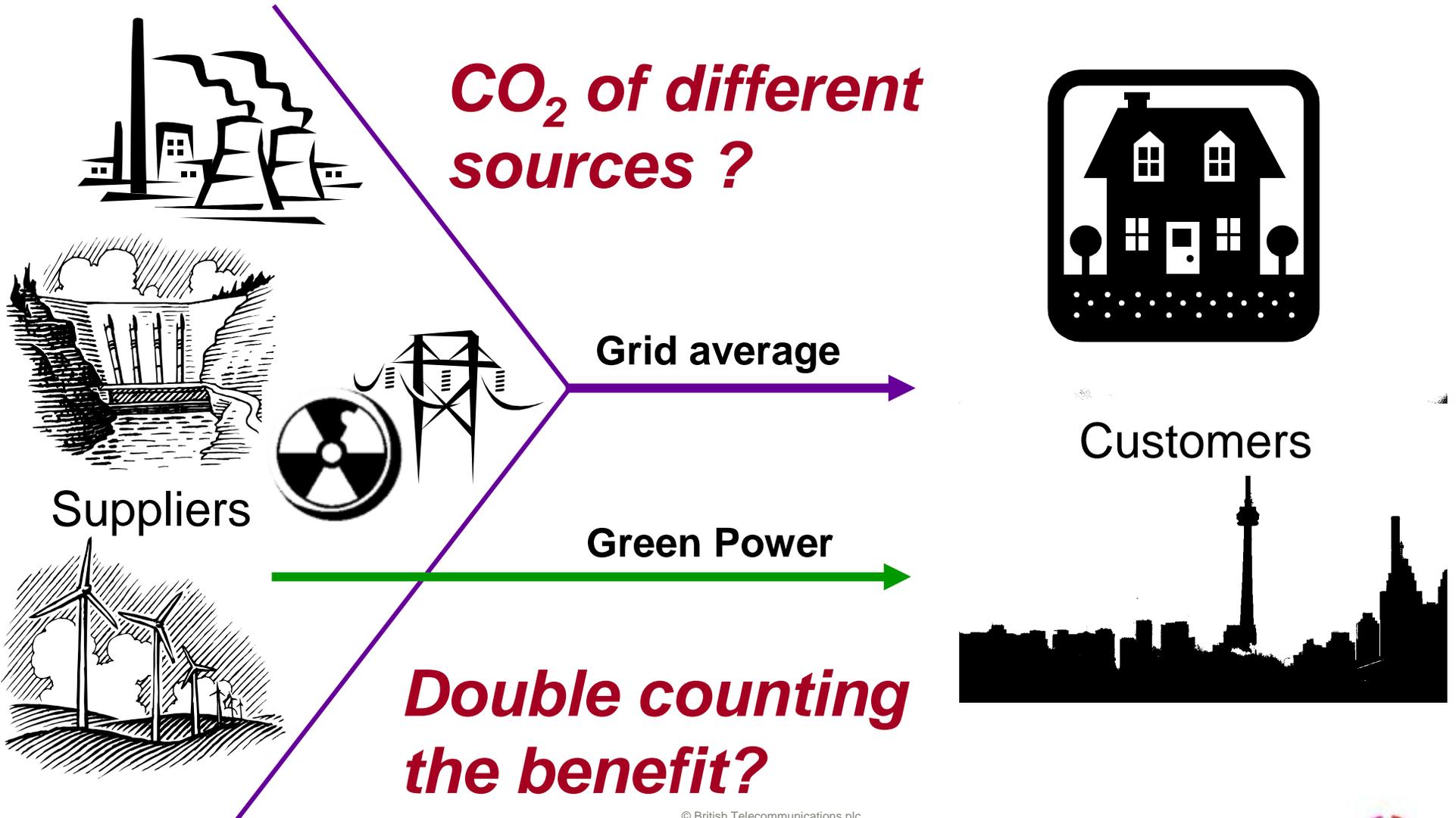
BT has an ambitious strategy to achieve an 80% reduction in CO₂ by 2016 from a 1996 baseline



Buying low/zero carbon energy is an important step towards CO2 reduction



Electricity supply – current situation



Calculations of CO2 emitted should be equal on both the supply and demand side of the market

Supply Side:
Electricity Suppliers

- RWE Npower XX
- British Gas XX
- EON XX
- British Energy XX
- EDF.... XX

TOTAL CO2 = XXX
(GHG Reporting 'Scope 1' Emissions)

Demand Side:
Electricity Consumers

- Households XX
- Business users XX
- Industry XX
- Government XX

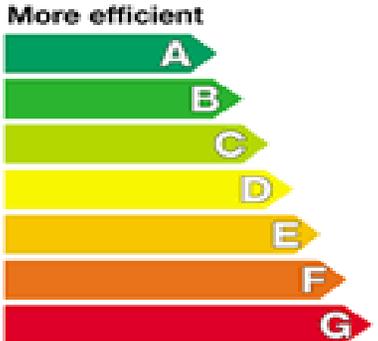
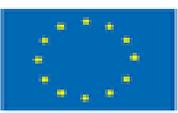
TOTAL CO2 = XXX
(GHG Reporting 'Scope 2' Emissions)



Most products are labelled with their ingredients



Many products have energy efficiency and energy saving recommended labels

Energy	
Manufacturer Model	Fridge-Freezer
More efficient 	A
Energy consumption kWh/year <small>(Based on standard test results for 24h)</small>	325
<small>Actual consumption will depend on how the appliance is used and where it is located</small>	
Fresh food volume l Frozen food volume l	190 126 
Noise <small>(dB(A) re 1 pW)</small>	
<small>Further information is contained in product brochures</small>	
<small>Norm EN 153 May 1995 Refrigerator Label Directive (EC/93)</small>	



and some products have CO2 labels, based on their supply chain



Opportunity to introduce an electricity label

Electricity CO ₂ Label	CO ₂ / kWh	%	KWh supplied	CO ₂ tonnes
A Renewable / zero carbon	0g	%		
B Low carbon / CCS	<200g	%		
C Gas CHP	<300g	%		
D CCGT Gas	<400g	%		
E UK Average / Gas	<600g	%		
F Good Coal / Oil	<800g	%		
G Coal	>800g	%		
TOTAL ELECTRICITY CO₂				

*

* NUCLEAR WASTE – this label could include a column showing nuclear waste at 0.0025g/kwh

Where does BT's electricity currently come from ?

Electricity CO ₂ Label	CO ₂ / kWh	%	GWh supplied	CO ₂ tonnes
A Renewable / zero carbon	0g	42 %	950	0
B Low carbon / CCS	<200g	0 %	-	-
C Gas CHP	<300g	56 %	1,275	382,500
D CCGT Gas	<400g	0 %	-	-
E UK Average / Gas	<600g	0 %	-	-
F Good Coal / Oil	<800g	0 %	-	-
G Residual	>800g [†]	2 %	34	34,000
TOTAL ELECTRICITY CO₂	184g	B	2,259	416,500

† Assuming 1kg CO₂ / kWh for CO₂ calculation of 'G-rated' electricity

Carbon figures are indicative

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Why is a CO2 label needed? – market demands have changed

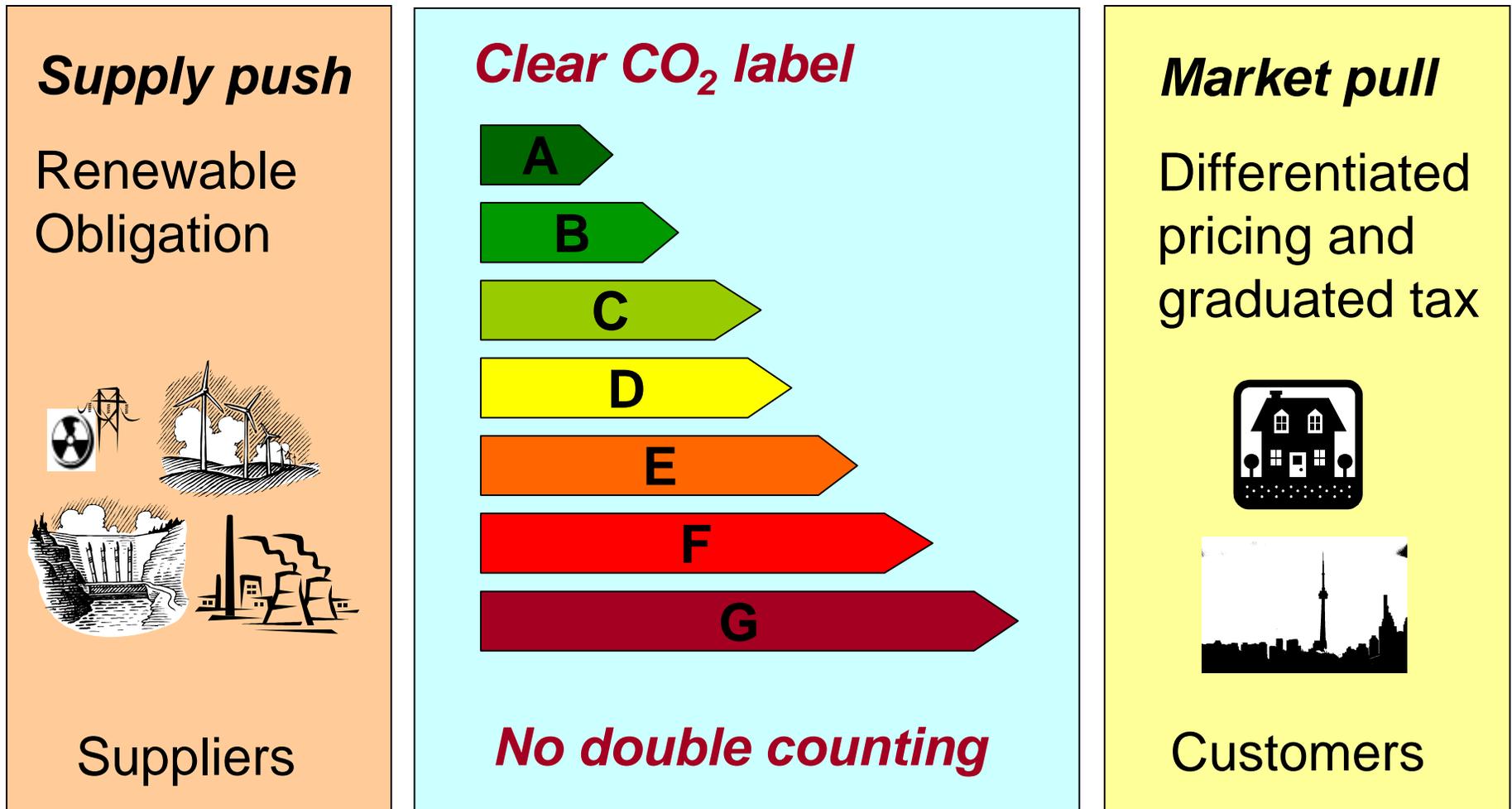
Companies

- Need to measure and reduce their carbon footprint
- Annual Report – CO2 emissions
- Transparent, Auditable, Exclusive (no double counting of low-C supply)
- Customer and investor confidence
- Remove “smoke and mirrors”

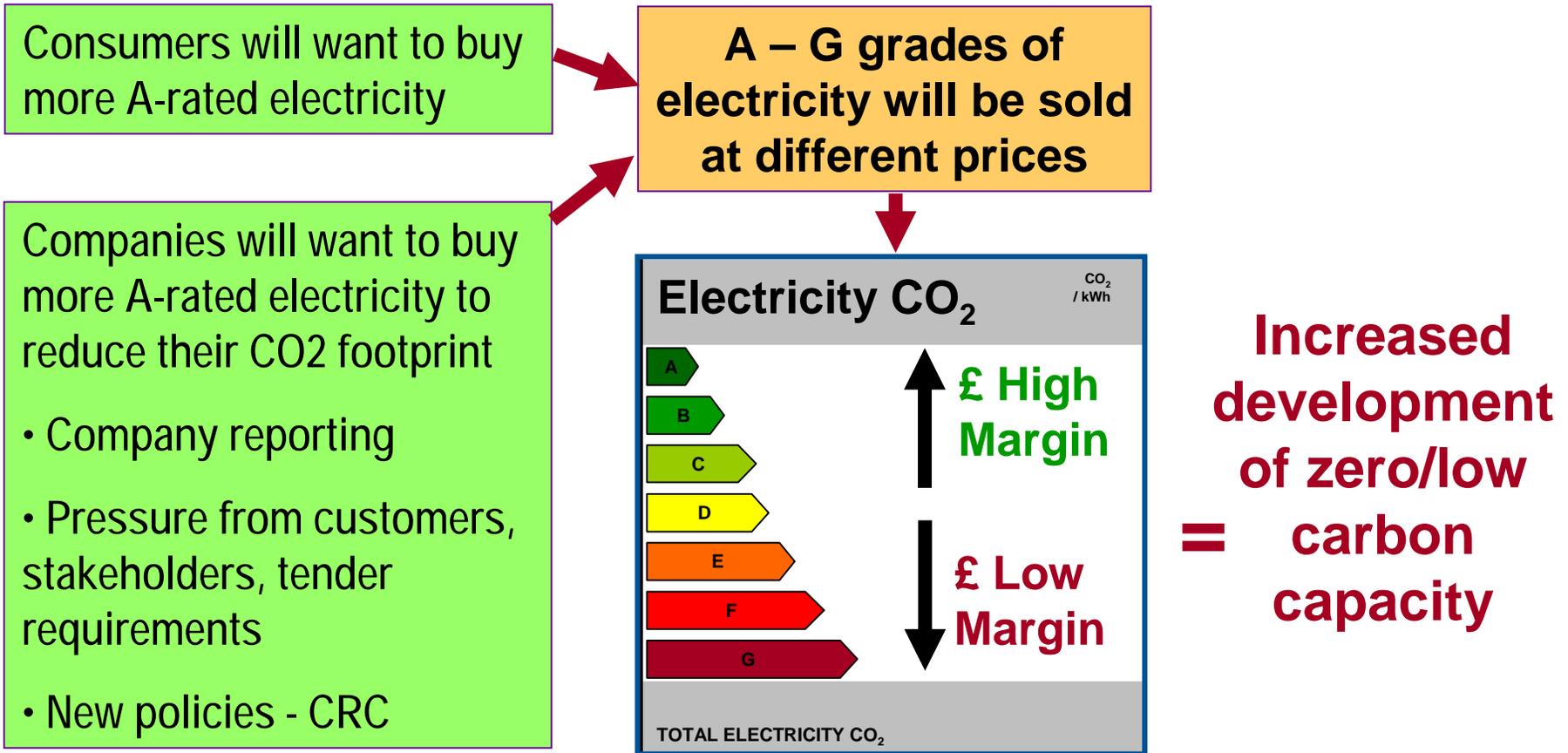
Consumers

- Price premium for positive environmental benefit
- Confident in what they are buying
- Simple, clear, trusted

“Market-pull” is required to drive growth of low/zero carbon energy supply to reach target levels



Labelled electricity could deliver the required market pull mechanism and drive up demand for increased supplies of zero/low carbon power



Annex

Analysis of the Carbon Footprint problem

Analysis of Customer needs

Making the label work in practice

Electricity – which is the highest carbon product of them all, does not carry a label

Each electricity supplier is required to disclose their fuel mix overall.

This is provided to customers but does not represent the source of the electricity or CO2 of the product which each customer has purchased.

npower Fuel Mix 1 April 2006 to 31 March 2007		
	Npower /RWE	UK average
coal	44.0%	35.8%
natural gas	37.0%	38.8%
nuclear	13.0%	18.6%
renewable	3.0%	4.7%
other	3.0%	2.1%
CO2 emissions*	0.543	0.461
nuclear waste**	0.0015	0.0025

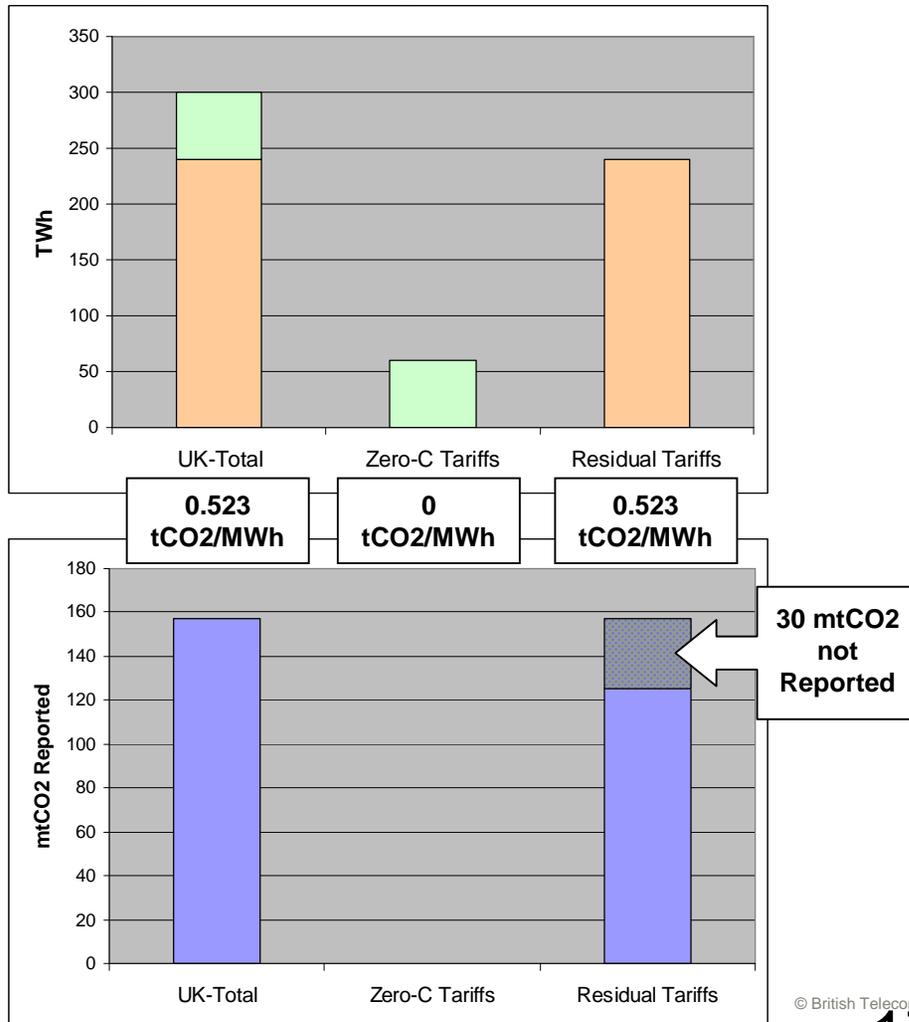
The Carbon Footprinting Problem

Currently most companies in the UK	430g CO2/KWh
New guidelines for grid average (Defra)	523g CO2/KWh
Renewable energy contracts with LECs	0g CO2/KWh
CHP energy contracts with LECs	295g CO2/KWh
Grid average electricity contracts ???	> 523g CO2/KWh

The Carbon Footprinting Problem

EXAMPLE:

- 20% of UK Electricity Sold as Zero-C; &
- CO2 reported under current guidelines.



Current Reporting Guidelines:

- Use Avg tCO2/MWh;
- But allow 0 tCO2/MWh if RE.
- This does not work.

For Market with differentiated LZC product offerings:

- No electricity consumer should use a grid average factor.
 - All must use either:
 - a product differentiated CO2 factor; or
 - a residual CO2 factor.

Problems to solve ...

- Consumers and businesses need a robust & accurate methodology to calculate CO2 from electricity use
- “Smoke and mirrors” reputation in the electricity market
- Pricing of different types of electricity is not open
- Supply of renewable electricity needs to accelerate

Current Supply and Demand mechanisms are failing to provide information on CO2 savings

Supply Side

- Renewable Obligation Certificates ROCS
- All suppliers have to meet a % quota of renewable energy (current 6%)
- 20% target by 2020
- Progress is slow and lagging behind the target

Demand Side

- Climate Change Levy Exemption Certificates LECs (business only)
- ROC retirement by some green tariffs
- Double counting of LECs – not transparent
- Different CO2/KWh used by different companies
- Carbon Reduction Commitment proposed to exclude renewable electricity purchasing
- Pricing is behind closed doors for green contracts
- Electricity trading is non-differentiated by source of electricity

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A new A-G electricity label could...

- Be attached to every unit of electricity sold to customers
- Provide Accurate CO2 information at consumption
- Be simple, visual, and easy to understand
- Work across Europe and Internationally
- Maintain consistency with other labels
- Allow different prices for different types of electricity to be traded
- Allow market incentives / penalties to be applied to different grades of electricity

The label should be based on the CO₂ intensity of the different sources of supply

Electricity CO ₂ Label	CO ₂ / kWh	%	KWh supplied	CO ₂ tonnes
A Renewable / zero carbon	0g	%		
B Low carbon / CCS	<200g	%		
C Gas CHP	<300g	%		
D CCGT Gas	<400g	%		
E UK Average / Gas	<600g	%		
F Good Coal / Oil	<800g	%		
G Coal	>800g [†]	%		
TOTAL ELECTRICITY CO₂				

† Assuming 1kg CO₂ / kWh for CO₂ calculation of 'G' rated electricity

Analysis of customer needs and benefits:

- What do customers want to know about their electricity?
- The following analysis provides an assessment of how different proposed solutions for information provision and how each of these meets the needs of customers
- Aim to reach the best customer driven solution

Different customers need **electricity info** for different reasons

- Companies with **CO2 footprint** targets
 - Need to measure and reduce their footprint
 - Voluntary Carbon Targets
 - Annual Carbon Report
- Company with **Green-CSR**
 - Procurement driven by ‘Deep-Green’ CSR
- **Green-consumers**
 - Price premium for positive environmental benefit

Company with CO2 target needs...

- Use of Low-C power to reduce C-footprint
- Carbon Content of Consumed Electricity:
 - Transparent
 - Auditable
 - Exclusive (no double counting of low-C supply)
- Separation of:
 - ‘Carbon Content’ of power consumed today; from
 - Future Environmental Benefit (i.e. of new RE)

Company with Green-CSR needs...

- Type of Power Supplied
- Additionality of Environmental Benefit
 - Confidence in Environmental Benefit of Price Premium
 - Confidence of customers / investors
- Brand Enhancement

Green Consumer needs...

- Type of Power Supplied
- Additionality of Environmental Benefit
 - Confidence in Environmental Benefit of Price Premium
- Simplicity
 - Simple trustable information to navigate green-products

Electricity labelling provides the best match to meet the needs of consumers

Green Accreditation + Carbon Label

Desired Characteristic	Driver	Current Status	ROC Retirement	Green Accreditation Only	Electricity Labelling for information	Electricity Labelling for C-Reporting
C-Content: - Transparent, - Auditable, & - Exclusive	C-Footprinting	ü	ü	ü	ü	ü
Impact on reported C-footprint	C-Footprinting	?	ü	?	?	ü
Separation of: - 'Carbon-content'; & - 'Future Benefit'	C-Footprinting	ü	ü	ü	ü	ü
Brand-enhancing	CSR	?	ü	ü	ü	ü
Type of Power Supplied	CSR; & Consumer	ü	?	?	ü	ü
Confident Environmental Benefit	CSR; & Consumer	ü	ü	ü	ü	ü
Simplicity	Consumer	ü	?	?	?	?

Making Electricity Labelling Work – build on precedent

Current UK Legislation / Practices

- Fuel Mix Disclosure;
 - Renewable Energy Guarantee of Origin (REGO);
 - Generator Declarations
 - Currently reported for overall supplier fuel mix
- Defra's guidelines on Company Reporting of GHG;
- Green Electricity Accreditation [prospective]

Other Practices

- WRI's GHG Reporting Protocol;
- Green Elec. Accreditation (EUGENE, Green-e ...)
- E-TRACK project

How Electricity Labelling would work in practice

(1) Extend Fuel Mix Disclosure

Fuel Mix Disclosure Data								
supplier	coal	natural gas	nuclear	renewable	other	CO ₂	nuclear waste*	disclosure year
Good Energy	0.0	0.0	0.0	100.0	0.0	0.000	0.0000	2007
Ecotricity	23.8	22.8	25.9	24.1	3.3	0.316	0.0029	2007
Green Energy	7.0	82.0	8.0	1.0	1.0	0.375	0.0009	2007
British Gas	18.0	56.0	20.0	4.0	2.0	0.382	0.0022	2007
Utilita	33.0	39.0	21.0	4.0	3.0	0.460	0.0025	2006
Scottish & Southern Energy	30.6	57.8	0.8	10.2	0.6	0.489	0.0001	2007
Powergen	42.0	36.7	14.2	3.6	3.5	0.530	0.0020	2007
EDF Energy	47.0	29.0	17.0	5.0	2.0	0.540	0.0018	2007
npower/RWE	44.0	37.0	13.0	3.0	3.0	0.543	0.0015	2007
ScottishPower	55.2	36.7	1.0	6.8	0.3	0.630	0.0001	2007
UK average	35.8	38.8	18.6	4.7	2.1	0.461	0.0025	2007

CO₂ emissions are in kg/kWh; nuclear waste relates to high-level waste in g/kWh.

Non domestic Fuel Mix

Supplier	Coal	Natural Gas	Nuclear	Renewable	Other	CO ₂ ¹	Nuclear waste ²
UK Average	33.4	38.3	20.6	3.8	2.0	0.46	0.0025
Dizz Energy	20.0	47.0	22.0	0.0	5.0	0.34	0.0026
Sizz Energy Cleaner Choice	0.0	100.0 ³	0.0	0.0	0.0	0.20	0.0000
Rev Energy Green Choice	0.0	0.0	0.0	100.0	0.0	0.00	0.0000
British Energy	11.0	<1.0	08.0	>2.0	0.0	0.10	0.0100
Good Energy	0.0	0.0	0.0	100.0	0.0	0.00	0.0000

1. CO₂ emissions are in kg/kWh; 2. nuclear waste relates to high-level waste in g/kWh; 3. Gas/High Efficiency CHP.

- Extend FMD from supplier level to individual product level
 - Auditable & Exclusive C-content attached to each product
 - Utilize current evidence of REGO; and enhance Generator Declaration
 - Enhanced-GDs [or EGOs] to include accurate CO₂ information
 - E-TRACK certificate (or similar) as vehicle for info
 - Annual audit modelled on US 'Green-e' scheme 'Process Audit'
 - Final Carbon content 'settled' after reporting period

How Electricity Labelling would work in practice

(2) Supplier forward-sells product by A-G 'band'

Electricity CO ₂ Label	CO ₂ / kWh	%	KWh supplied	CO ₂ tonnes
A Renewable / zero carbon	0g	█ %		
B Low carbon / CCS	<200g	█ %		
C Gas CHP	<300g	█ %		
D CCGT Gas	<400g	█ %		
E UK Average / Gas	<600g	█ %		
F Good Coal / Oil	<800g	█ %		
G Coal	>800g [†]	█ %		
TOTAL ELECTRICITY CO₂		█		

- A-G banded electricity sold
 - each with approximate carbon content attached
- Supplier matches quantity of each 'band' sold with equal quantity of evidence
 - REGOs & GDs demonstrate each product, in aggregate, has C-content of less than band threshold.
- Annual 3rd Party 'Process Audit' checks this; assigns precise C-content; & requires additional purchase or refund by supplier if non-compliant

Summary

Our Key Objectives

1. Ability to Report our Scope 2 C-emissions;
With confidence that it is:
 - Auditable;
 - Transparent; &
 - Exclusive †
2. Ability to Reduce these Scope 2 C-emissions by procurement of Low-C electricity
3. Knowledge of Type of Power Supplied to us

† All electricity consumers in a market where differentiated low-C products are offered must use a product differentiated [or a residual] CO2 factor for C-reporting; not a grid average.

Summary

Our Proposal

OPTION 1:

- Extend FMD to **MWh** level – (obj's 1&3)
- Each MWh & Product sold on A-G basis – (obj 2)

OPTION 2:

- Extend FMD to **product** level – (obj's 1&3)
- All products sold on an A-G basis – (obj 2)

OPTION 3:

- Extend FMD to **product** level – (obj's 1&3)
- Low-C products sold on A-G basis; other products default to residual band upon settlement – (obj 2)