



Personal Carbon Trading: An Overview

Richard Starkey

Tyndall Centre for Climate Change Research
The University of Manchester

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Outline

- 1. Define personal carbon trading (PCT)**
-
- 3. Summarize policy debate**
-
- 5. Outline PCT**
-
- 7. Assess PCT**

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Definition

Personal carbon trading (PCT) schemes are...

***proposed* greenhouse gas emissions trading schemes**

under which

individuals are allocated some/all available emissions rights

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- 3. Summarize policy debate**
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5. Outline PCT
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7. Assess PCT

PCT and policy #1

Research

- Royal Society of Arts
- Environmental Change Institute, Oxford University
- Institute for Public Policy Research

Government

- PCT has “a simplicity and beauty”
- Defra completed pre-feasibility study

Parliament

- Environment, Food and Rural Affairs Committee
- Environmental Audit Committee

PCT and policy #1

Research

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Parliament

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PCT and policy #2

Political parties

- Adopted as Green Party policy
- Awareness/discussion of PCT within 3 main parties
- Even discussed by British National Party!?!

Other

- Formation of carbon rationing action groups (CRAGs)

PCT now well known within the policy community

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7. Assess PCT

A particular form of PCT

- Domestic Tradable Quotas (**DTQs**)
Tradable Energy Quotas (**TEQs**)
- Proposed by David Fleming in 1996
- Since July 2003 assessed by Tyndall for
 - *feasibility*
 - *appropriateness*

What are DTQs?

- PCT scheme covering emissions from **energy use**
- Rights allocated to **end purchasers of fuel and electricity**
 - ☐ *individuals*
 - ☐ *firms*
 - ☐ *other organizations*

3 elements

2. Setting the carbon budget
4. Allocating carbon units
6. Surrendering carbon units

3 elements

2. Setting the carbon budget

CAP

+

4. Allocating carbon units

TRADE

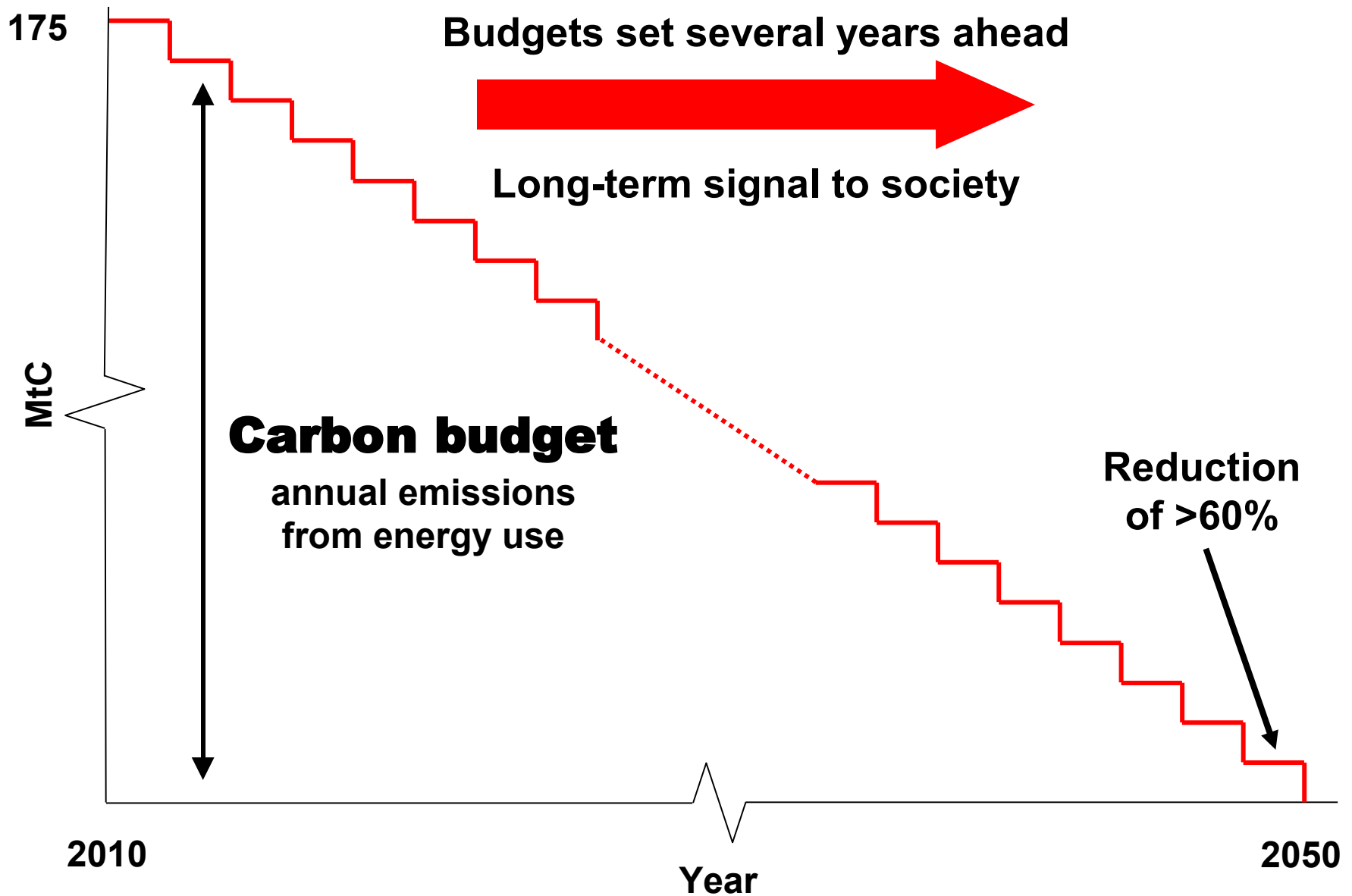
6. Surrendering carbon units

3 elements

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3 elements

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3 elements

2. Setting the carbon budget

4. Allocating carbon units #1

6. Surrendering carbon units

Carbon units

- Carbon units are **emissions rights**
- 1 carbon unit = right to emit 1kg CO₂ (equivalent)

How are carbon units allocated?

Carbon units equal to carbon budget divided between

ADULT INDIVIDUALS

and

ORGANIZATIONS

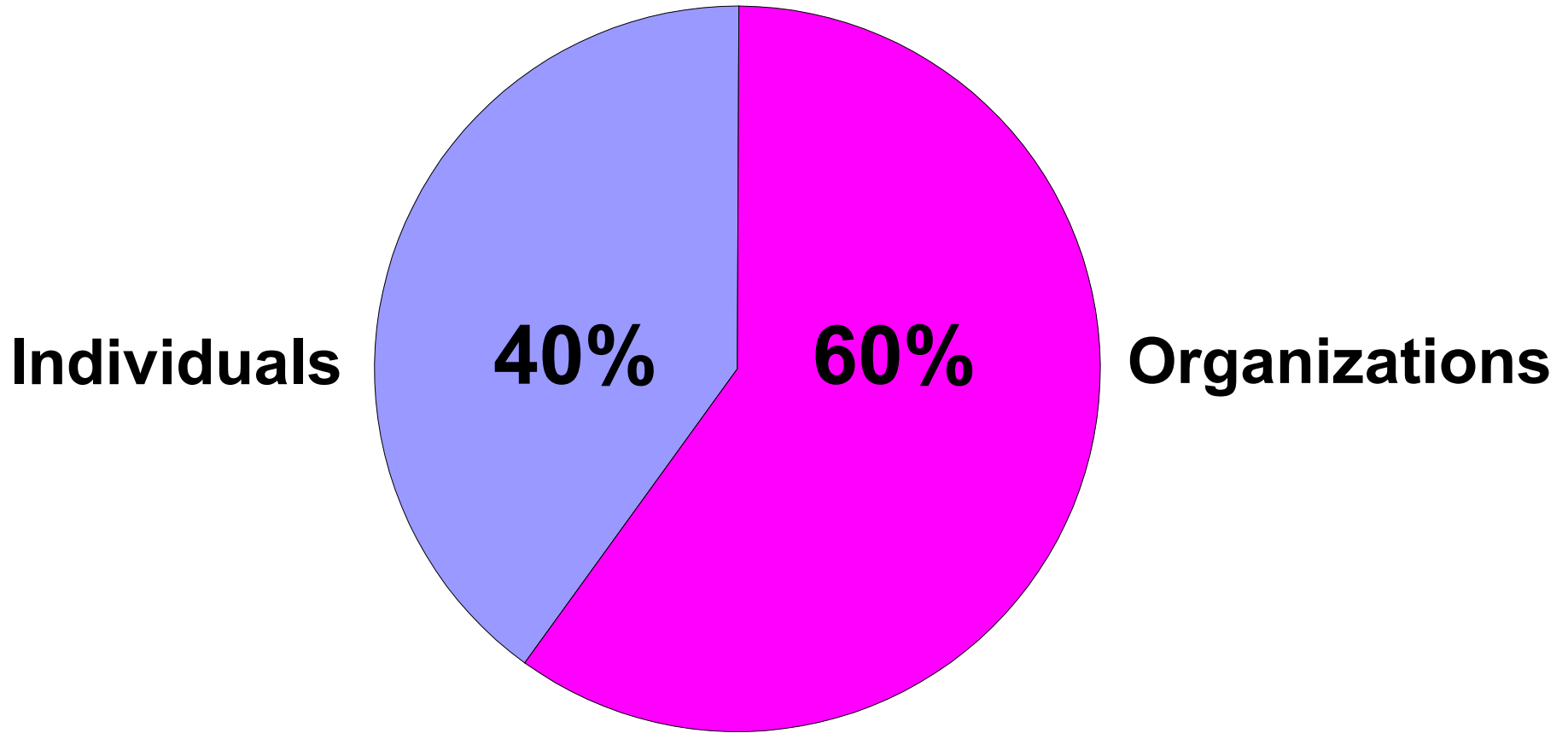
Individuals

% carbon units to individuals

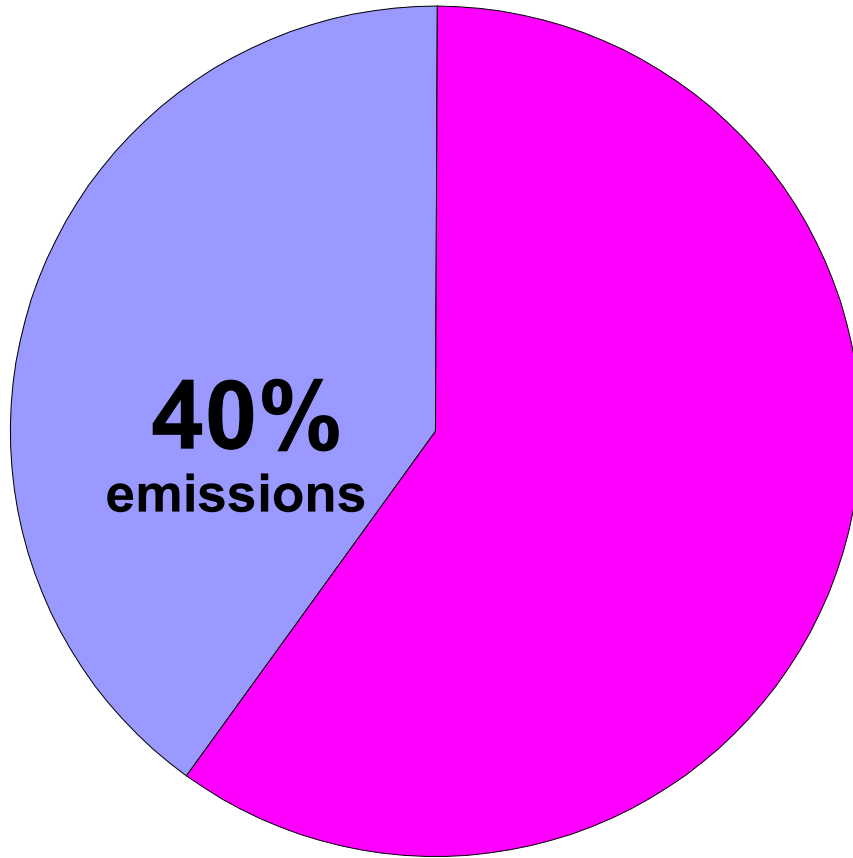
equal to

% energy emissions from their **fuel + **electricity** use**

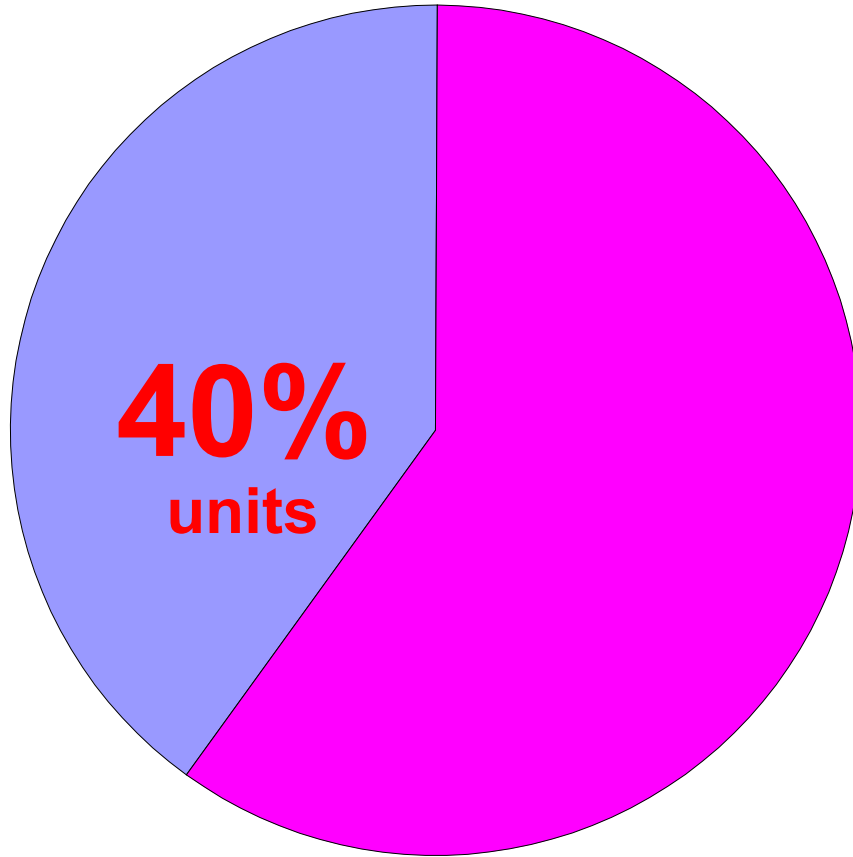
Energy emissions



Individuals



Individuals

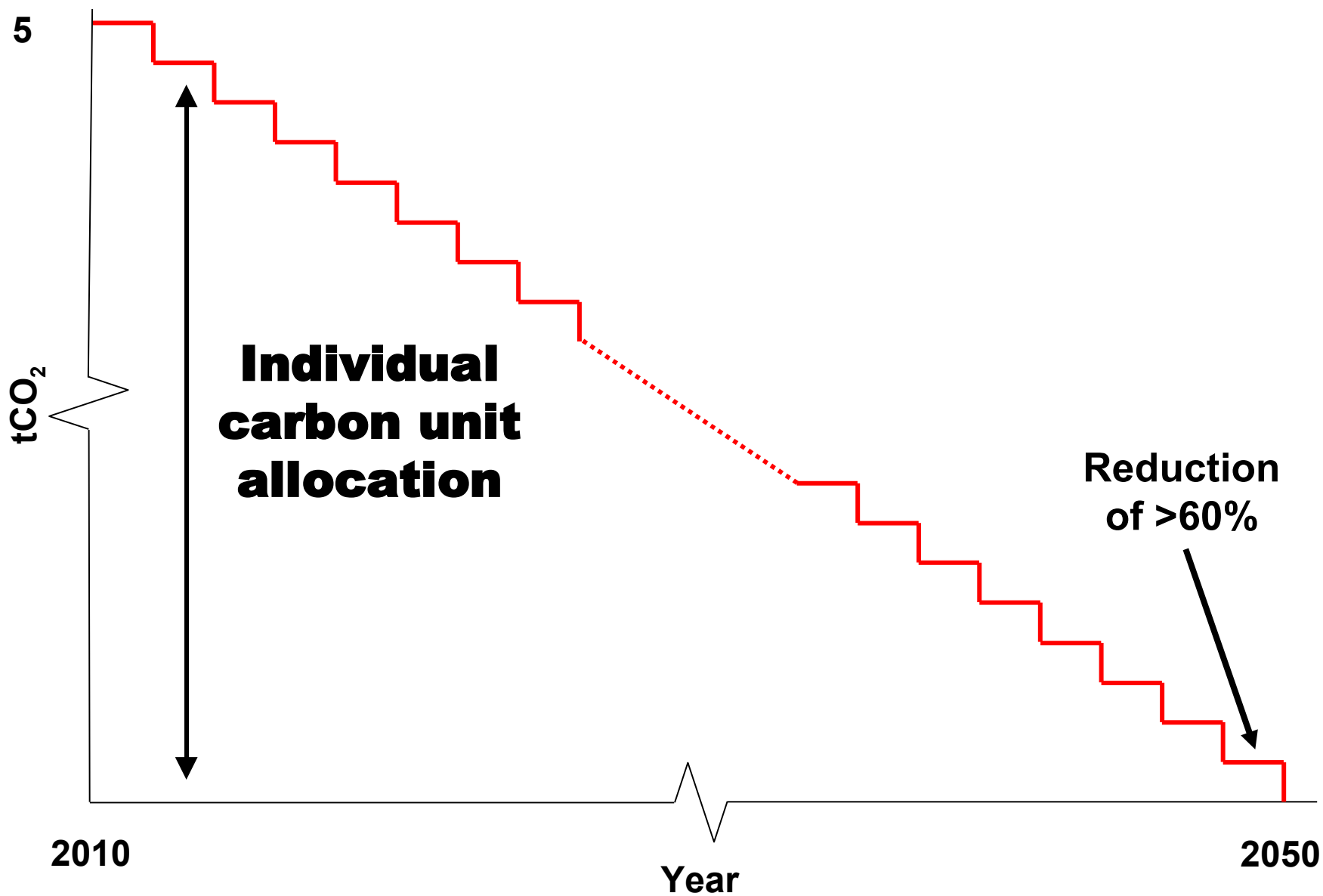


Free and on an

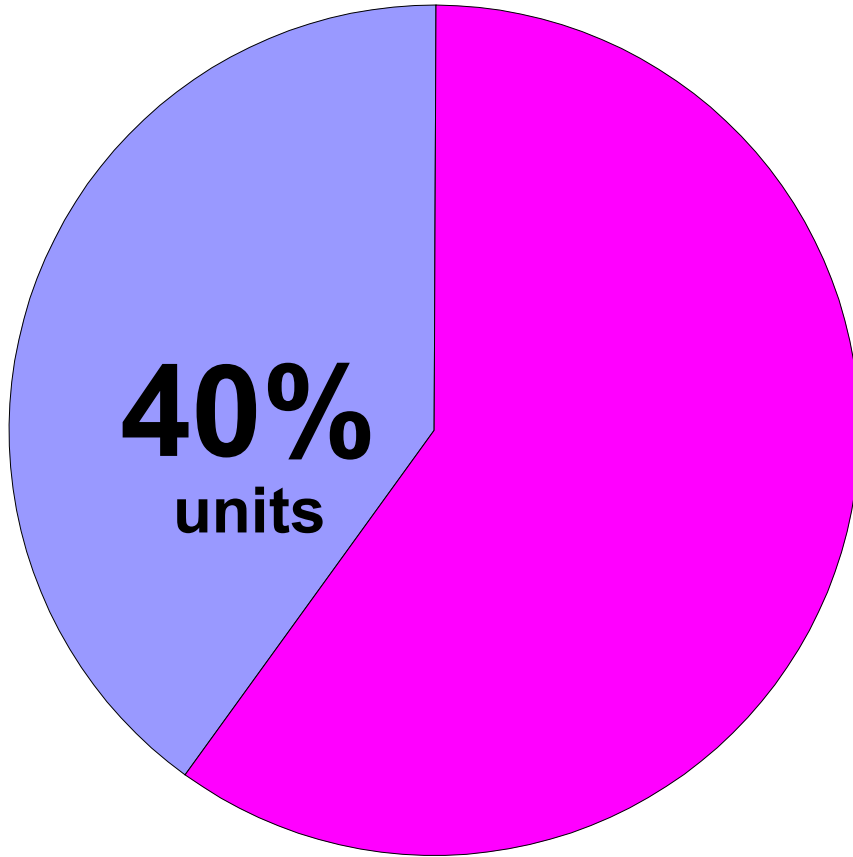
Equal per capita basis

Carbon account

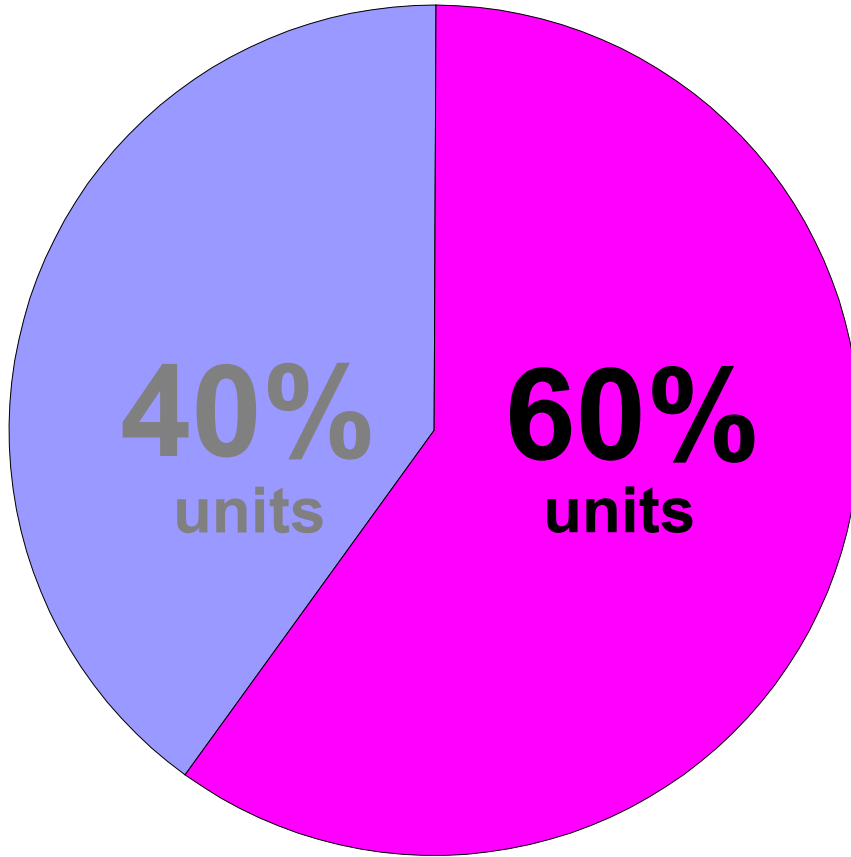
- **Units deposited in an electronic carbon account**
 - **Carbon account similar to bank account**



Individuals



Individuals



**Auctioned by
government
on the...**

...National carbon market

All organizations must purchase units on market

...more on the carbon market later

3 elements

2. Setting the carbon budget

4. Allocating carbon units #1

6. Surrendering carbon units

3 elements

2. Setting the carbon budget

4. Allocating carbon units

6. Surrendering carbon units

Surrendering

- Units surrendered whenever **fuel/electricity** purchased
- **N.B.** No surrender when purchasing e.g. train ticket
- Quantity surrendered covers carbon content of purchase

Surrender must be easy and convenient

When paying

- gas and electricity bills

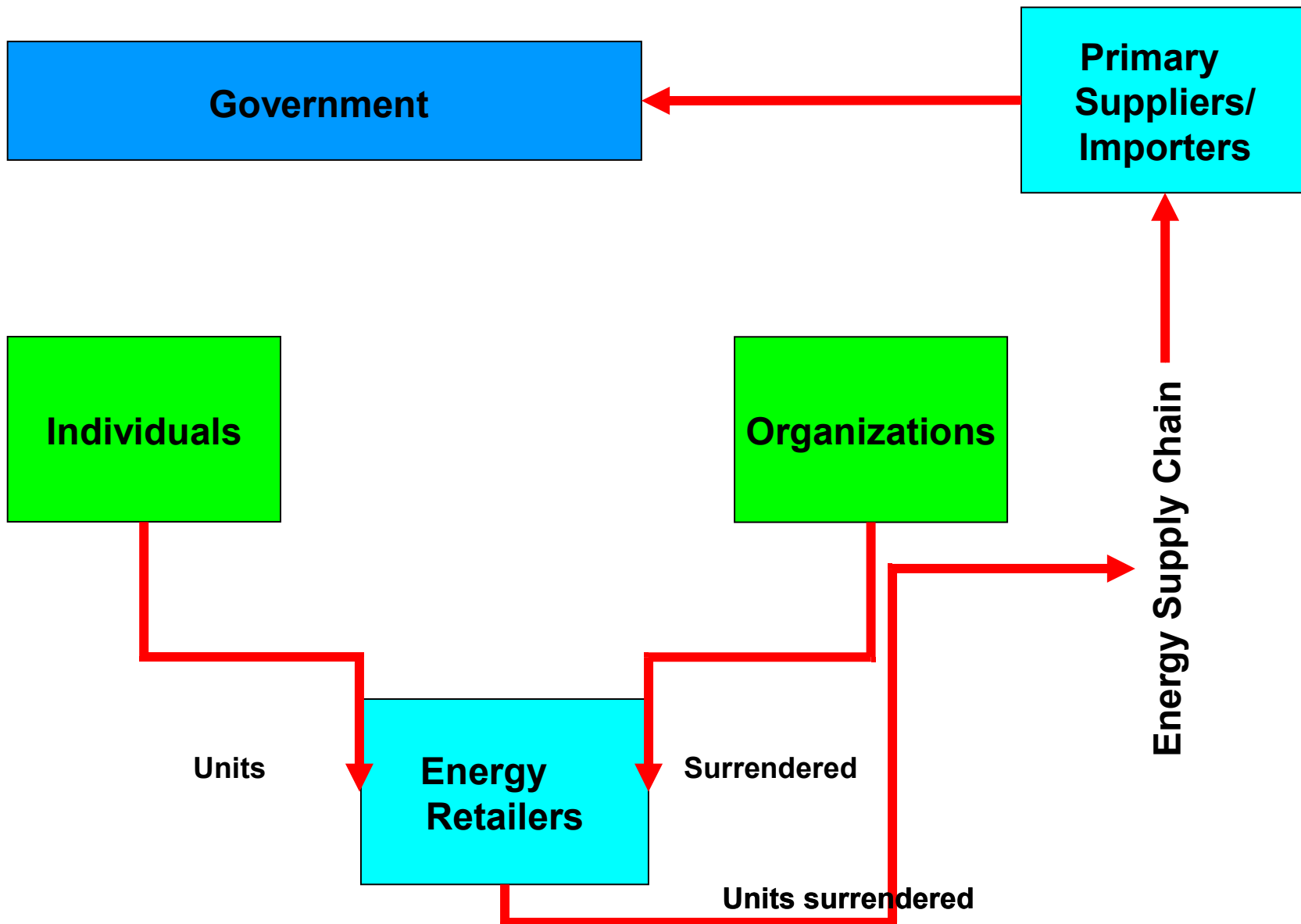
surrender by direct debit from carbon account

- for petrol/diesel

surrender by...

...carbon card





3 elements

2. Setting the carbon budget

4. Allocating carbon units

6. Surrendering carbon units

3 elements

2. Setting the carbon budget

4. Allocating carbon units #2

6. Surrendering carbon units

...More on the national carbon market

National carbon market

Sellers

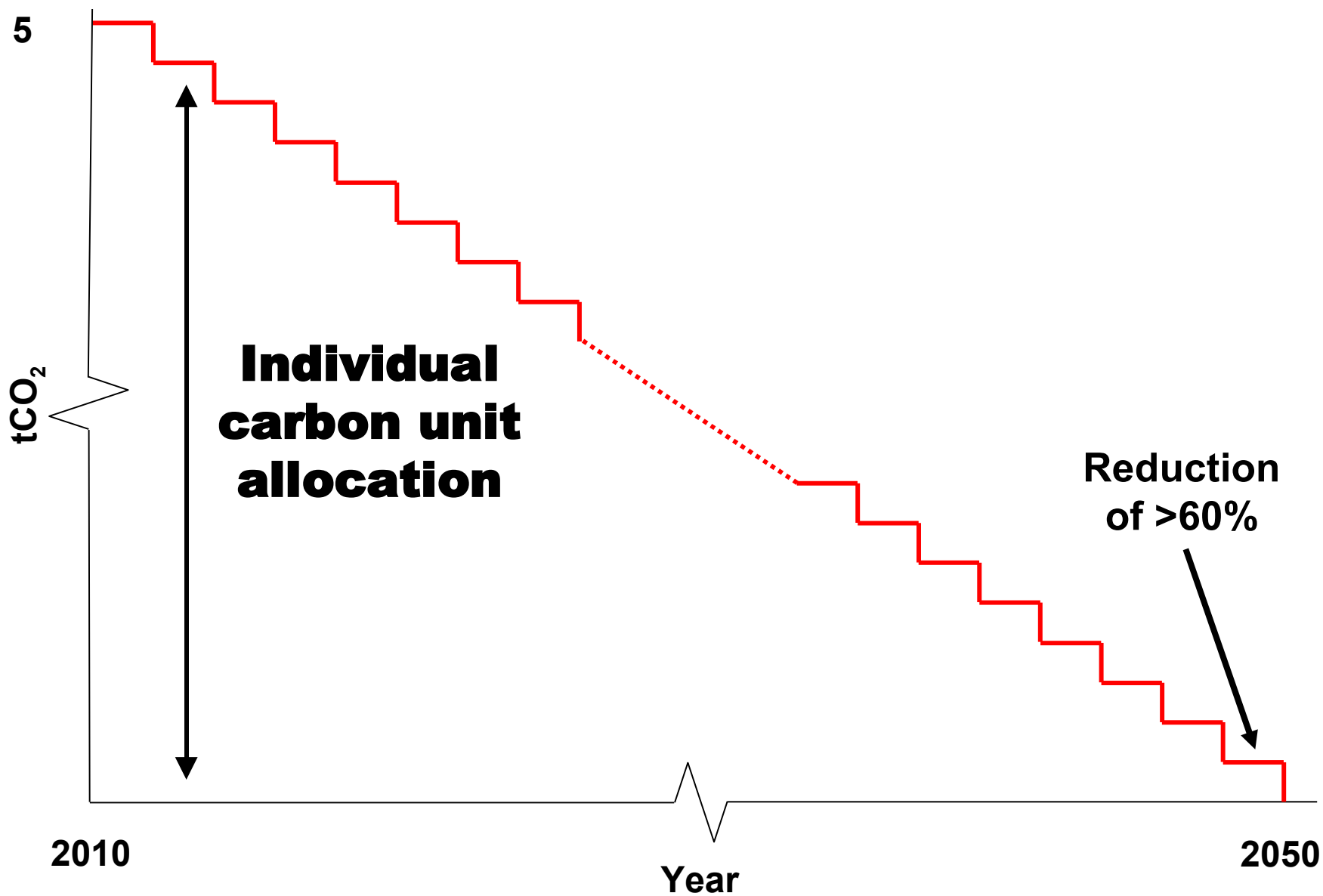
Government *(60% at auction)*

Below-allocation individuals

Buyers

Below-allocation individuals

- **Emit at level below that permitted by their allocation**
- **Have surplus units**
- **Surplus can be saved...**



Below-allocation individuals

- Emit at level **below** that permitted by their allocation
- Have surplus units
- Surplus can be saved...
- ...gifted, retired or **sold**

National carbon market

Sellers

Government *(60% at auction)*

Below-allocation individuals

Buyers

Organizations

Above-allocation individuals

Below-allocation individuals

emit at level **below** that permitted by their allocation

Above-allocation individuals

emit at level **above** that permitted by their allocation

National carbon market

Sellers

Government (60% at auction)
Below-allocation individuals

Buyers

Organizations
Above-allocation individuals

Buy at auction

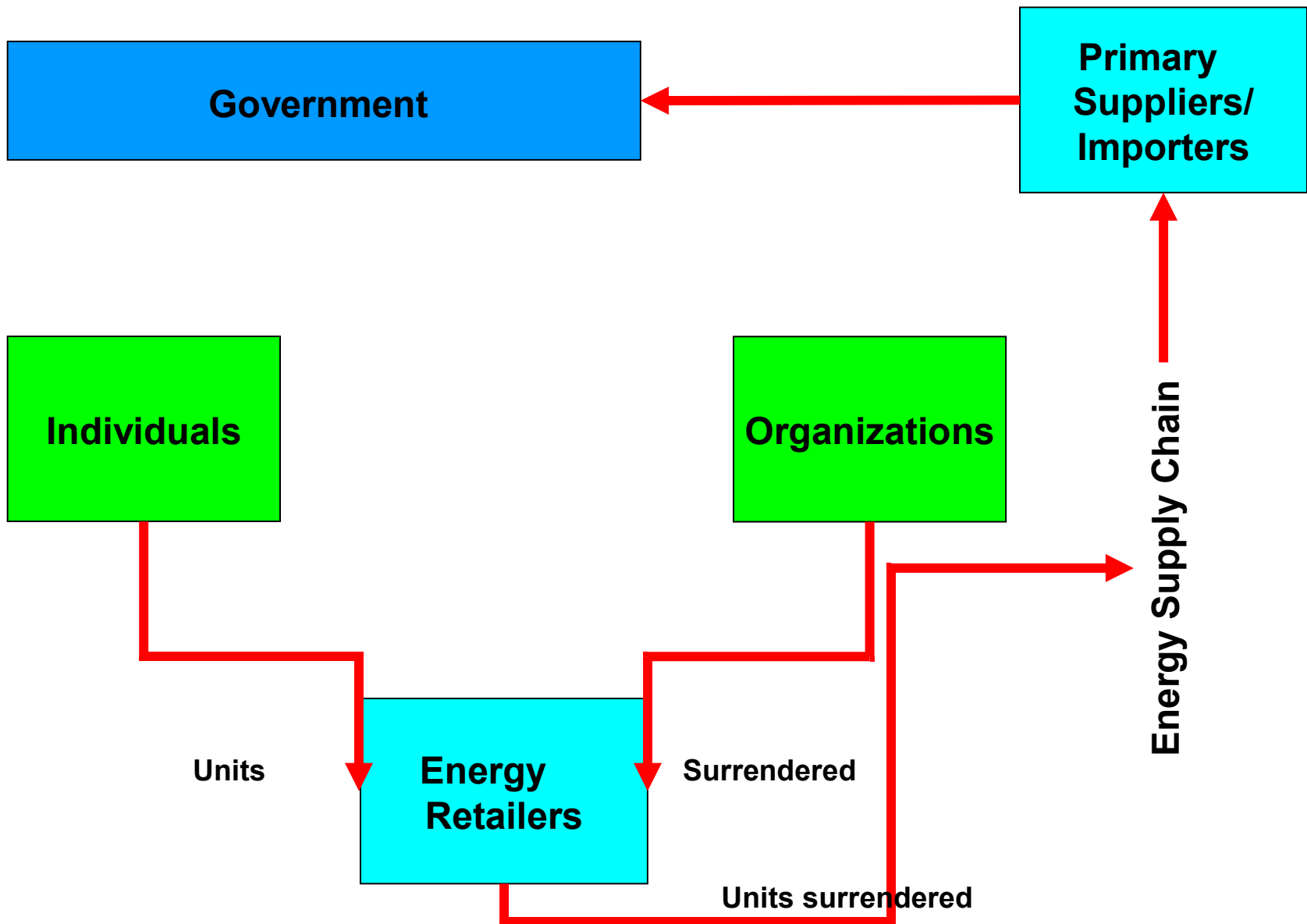
Buy

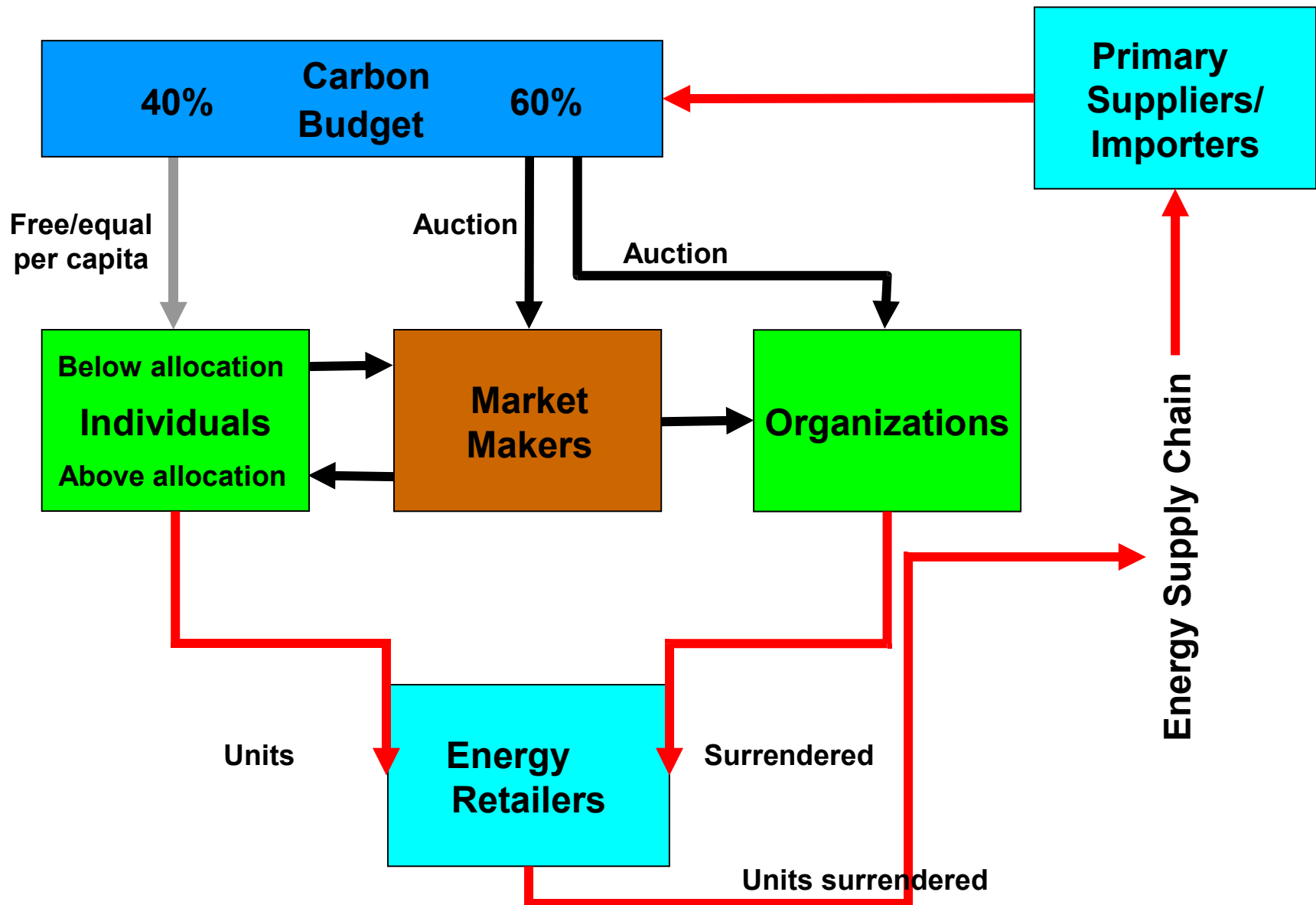
Sell

Market makers

E.g. banks, post office
Profit on “bid and offer” spread

Trading made easy – online, by phone or over-the-counter





Question

What if customer has no units at point of sale?

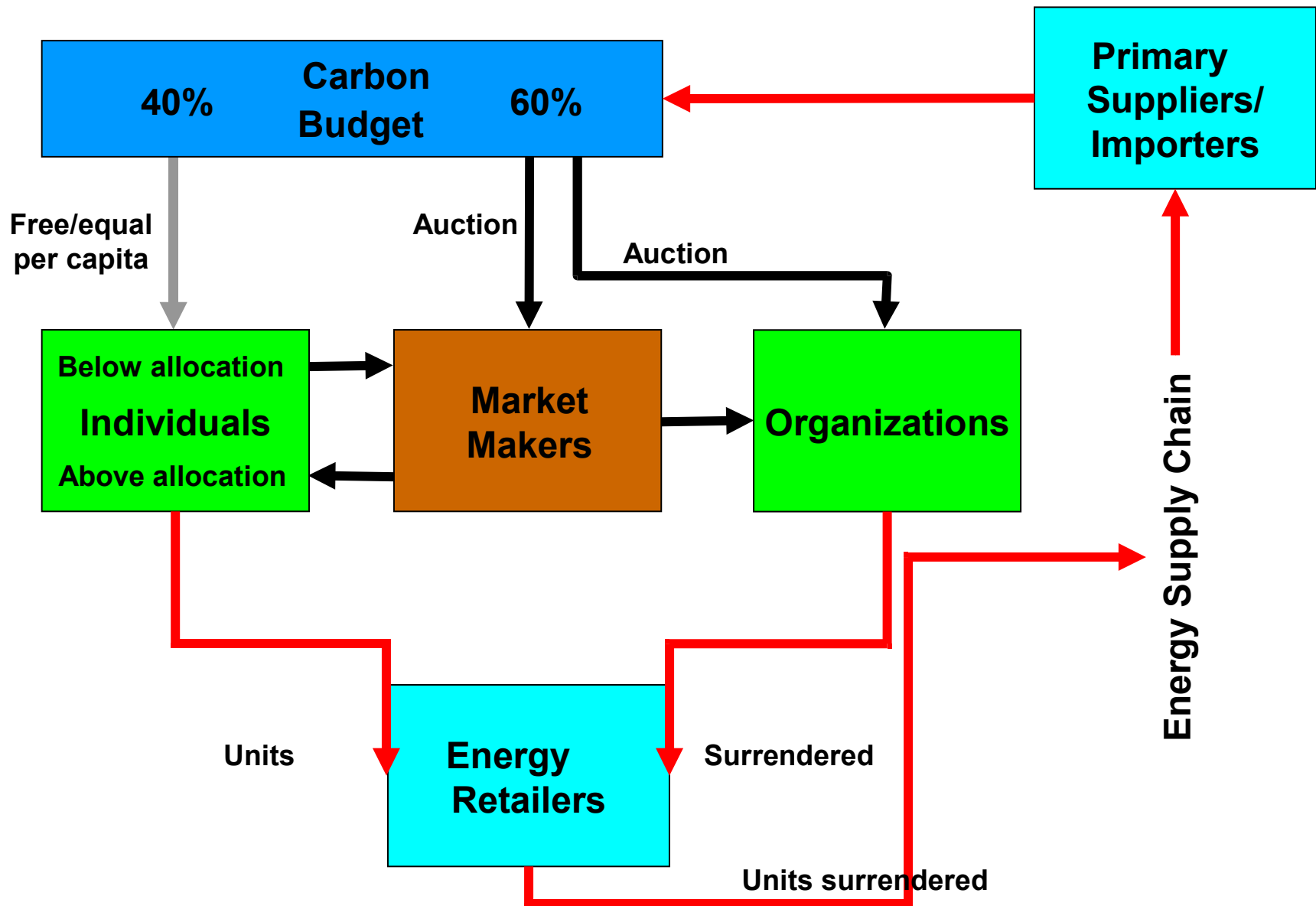
(e.g. forgotten carbon card, overseas visitor, run out of units)

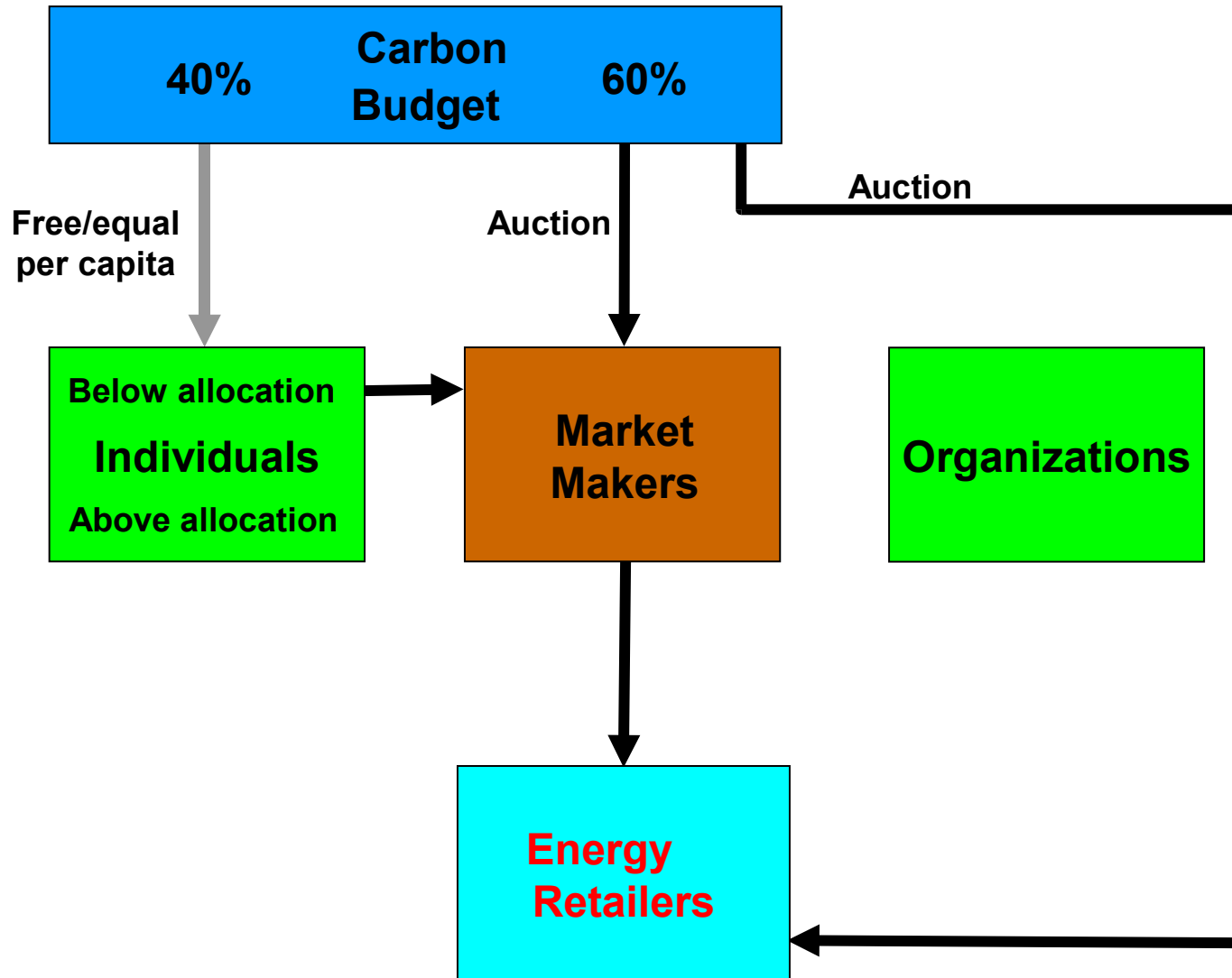
Answer

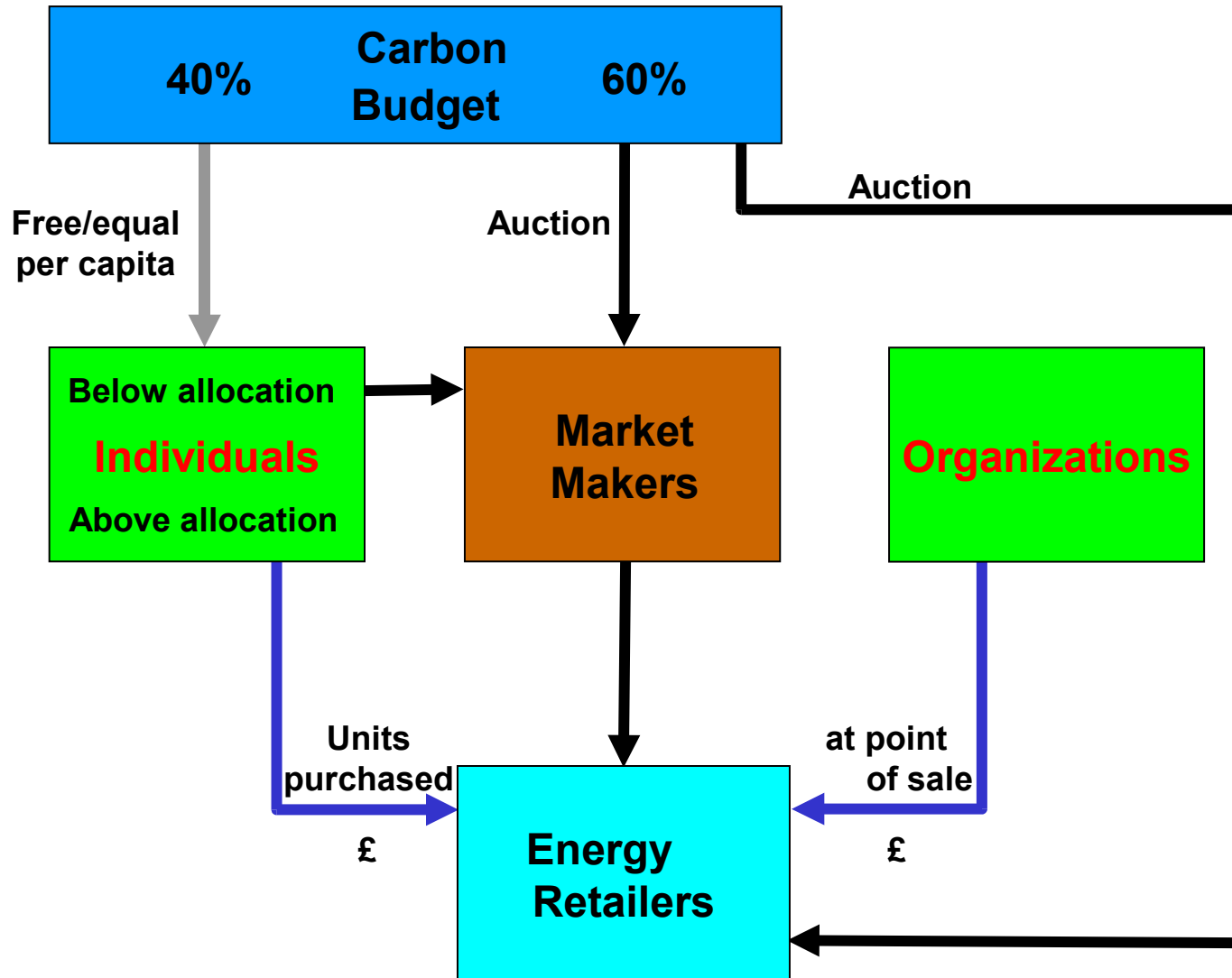
They buy units at the point of sale

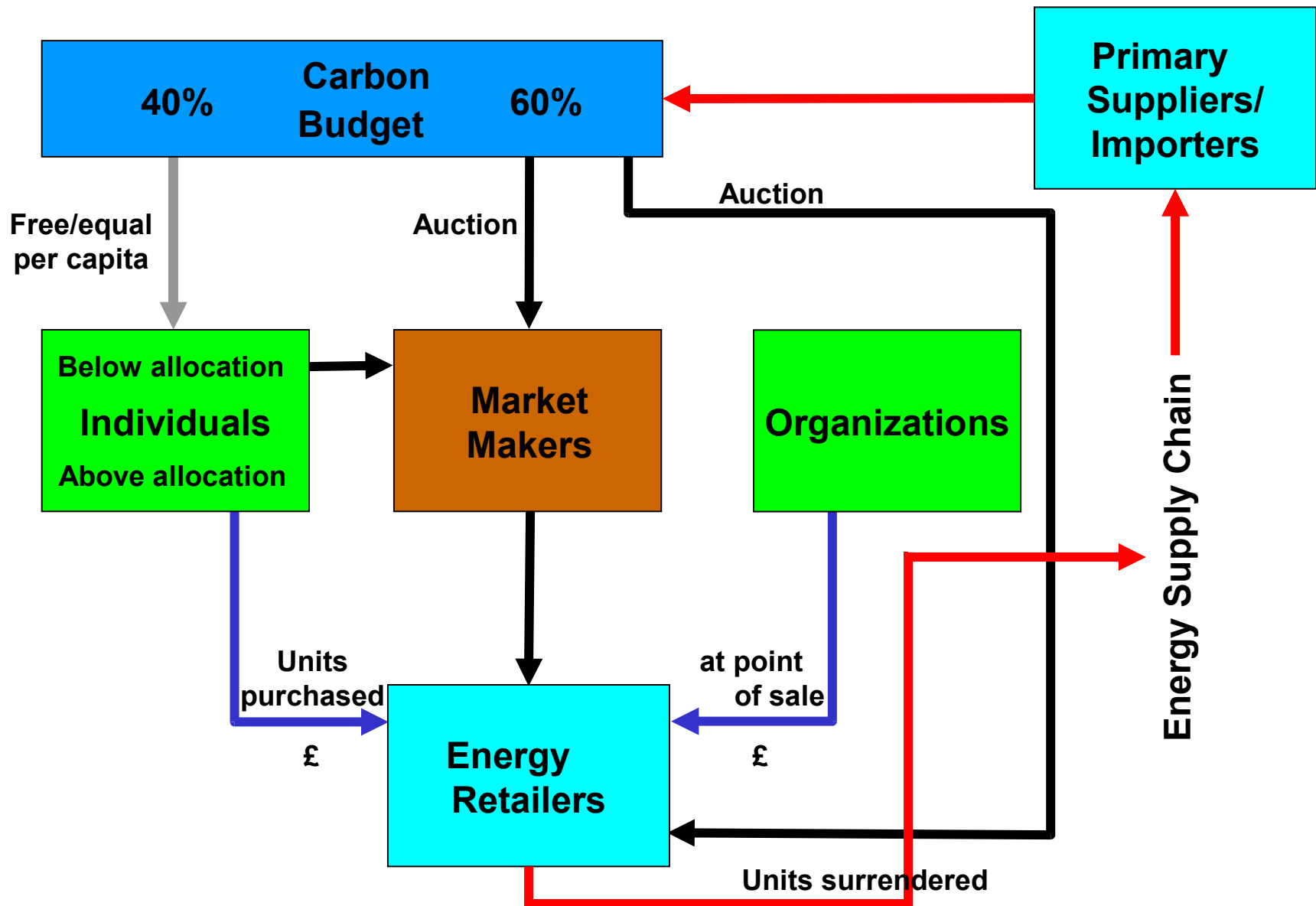
(1) Retailer buys units required by customer on market

(2) Cost added to customer's bill





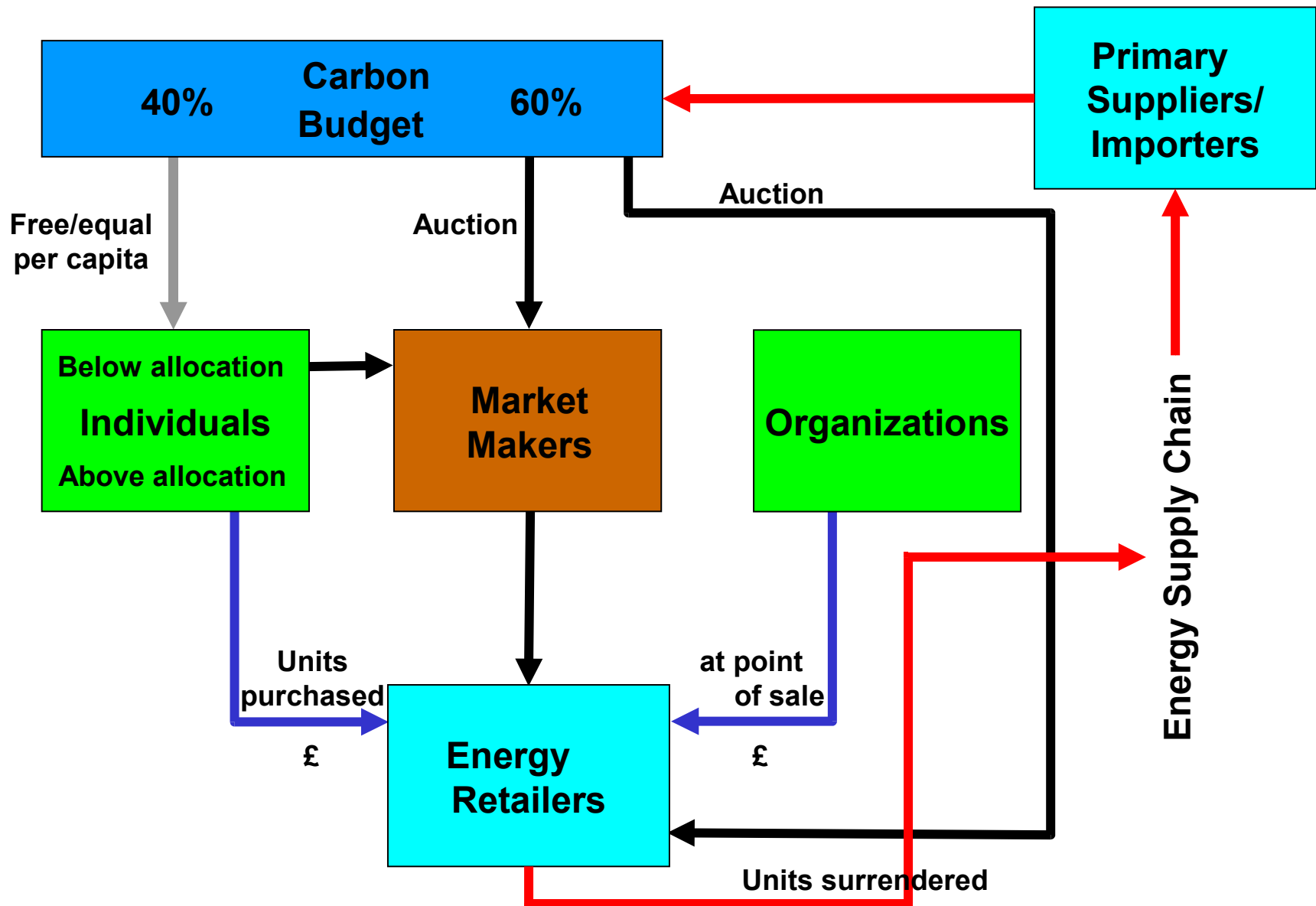




For those who don't understand...

...or who don't want to transact in carbon units

- 3. Sell ALL units immediately they enter carbon account**
- 5. Buy ALL units required at point of sale**



For those who don't understand...

...or who don't want to transact in carbon units

- 3. Sell ALL units immediately they enter carbon account**
- 5. Buy ALL units required at point of sale**
- 7. Deal only in money...like a carbon tax**

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LOVE OR HATE?



A large, solid pink heart shape that serves as a background for the text and question mark.

Why do some people love DTQs

?

Two reasons

- **A fair allocation**
- **A tangible stake**
 - *Adults made stakeholders in the atmosphere*
 - *Carbon units are ones actual stake*



Why do some people love DTQs less?





Will become clear during assessment

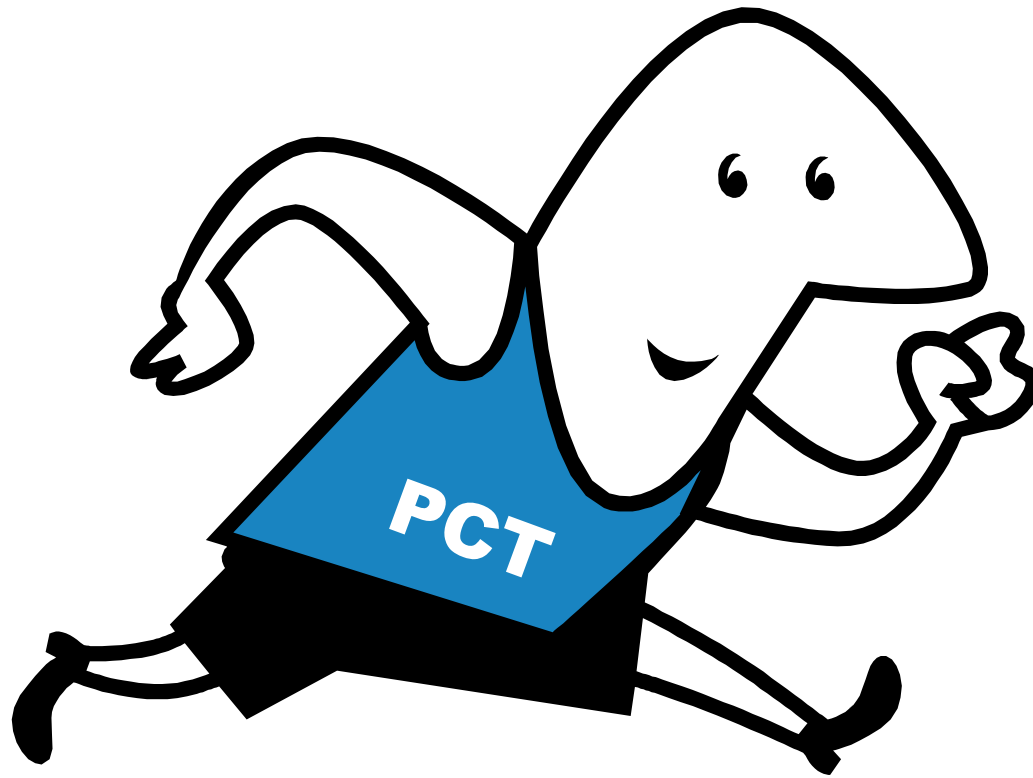


Three hurdles to implementation

2. Fairness

4. Technology

6. Efficiency



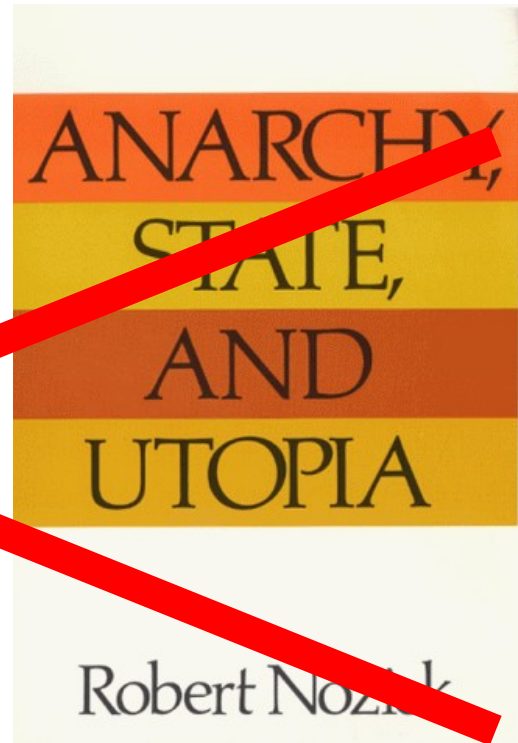
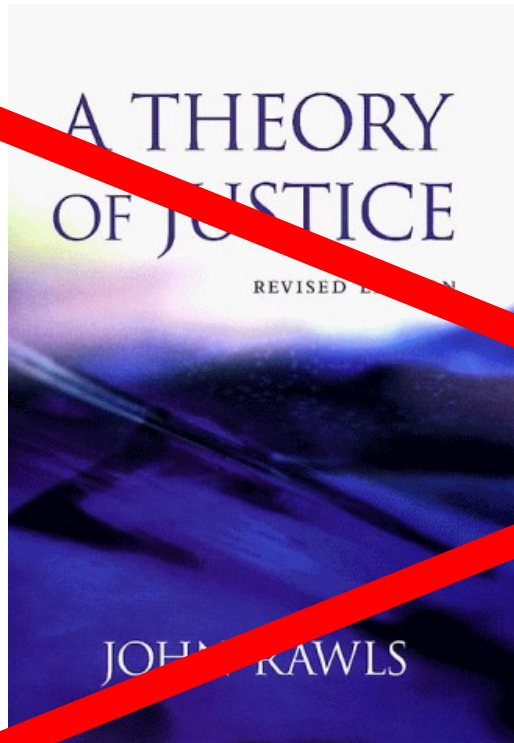
The core principle of PCT...

“Every human is entitled to release into the atmosphere the same quantity of greenhouse gases”

Royal Commission on Environmental Pollution (2000)

No justification offered

“Non-philosophical” justification



“Non-philosophical” justification

The atmosphere is a COMMONS

Q. OK, but what exactly is a commons?

A. ...it's confusing!

John Locke



John Locke

*“God...hath given the world to men **in common**....*

*Whatsoever then [man] removes out of the state
that nature hath provided...he hath mixed his labour
with it, and ...thereby makes it his property.”*

John Locke (1689)

Privatization

In the beginning

Nature jointly and equally owned

Lockean commons

Private property

Implicit non-philosophical justification

Atmosphere originally jointly and *equally* owned

AND

Atmosphere not something that can be privately owned

↓

Follows that



Humans *still* jointly and *equally* own the atmosphere

↓

Follows that



They have right to emit *equally* into atmosphere

Implicit non-philosophical view

Atmosphere originally jointly and *equally* owned

Contemporary philosophical view #1

“Once we understand that the world was not made by anybody, for anyone or any purpose in particular, then we must confront the fact that the world is just stuff, devoid of moral qualities and not [initially] owned by anyone let alone everyone.”

Jan Narveson (1999)

Contemporary philosophical view #2

“In the absence of any...belief that the earth was previously owned by some being who transferred this right of ownership to humankind at the outset, it is reasonable to regard the earth as initially unowned.”

Michael Otsuka (2003)

Privatization

In the beginning

Nature jointly and equally owned

Lockean commons

Nature unowned

Unowned commons (

Private property

Individually owned

Jointly owned

Swiss commons

Atmosphere as C1

Atmosphere originally jointly and *equally* owned

AND

Atmosphere not something that can be privately owned

Follows that

Humans *still* jointly and *equally* own the atmosphere

Follows that

They have right to emit *equally* into atmosphere

Atmosphere as C2

Q. If the atmosphere is an **unowned** resource...

...should we have the right to emit **equally** into it?

A. **Most contemporary philosophers would, I think, say not**

For example...

An equal per capita allocation is an example of

EQUALITY OF RESOURCES

and contemporary philosophers argue that...

Equality of resources isn't fair

“... if Smith and Jones have similar tastes and abilities except that Smith has a severe handicap remediable with the help of expensive crutches, then if the two are accorded equal resources, Smith must spend the bulk of his resources on crutches whereas Jones can use his resource share to fulfil his aims to a far greater extent.

It seems forced to claim that any notion of equality of condition that is worth caring about prevails between Smith and Jones.”

Richard Arneson (1989)

Equality of welfare** - a good idea

- Equalize resources → **unequal welfare**
- Equalize welfare

Seven Seas

Seven ~~Seas~~ Cs

Seven Cs

Individuals who

- Live in the **countryside**
- Live in a **cold** region of a country
- Live in a **chilly** house
- Have **children**
- Feel the **cold**
- Are single rather than in a **couple**
- Are **crook** (and require e.g. home dialysis)

Under equality of welfare

- All require **more energy** to achieve same welfare
 - More energy = **more emissions**
- ⇒ They should get **more emissions rights**
- ⇒ *In theory*, a **fair** allocation is an **unequal** allocation

In theory, fair allocation is unequal

All start with an equal per capita allocation (EPCA)

EPCA then adjusted for the various factors

- **susceptibility to cold**
- **living in countryside**
- **living in a colder region**
- etc etc**

“The adjusted allocation”

In practice...

May be too difficult to adjust for these factors

If so then

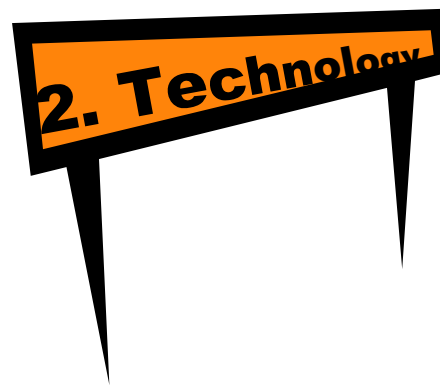
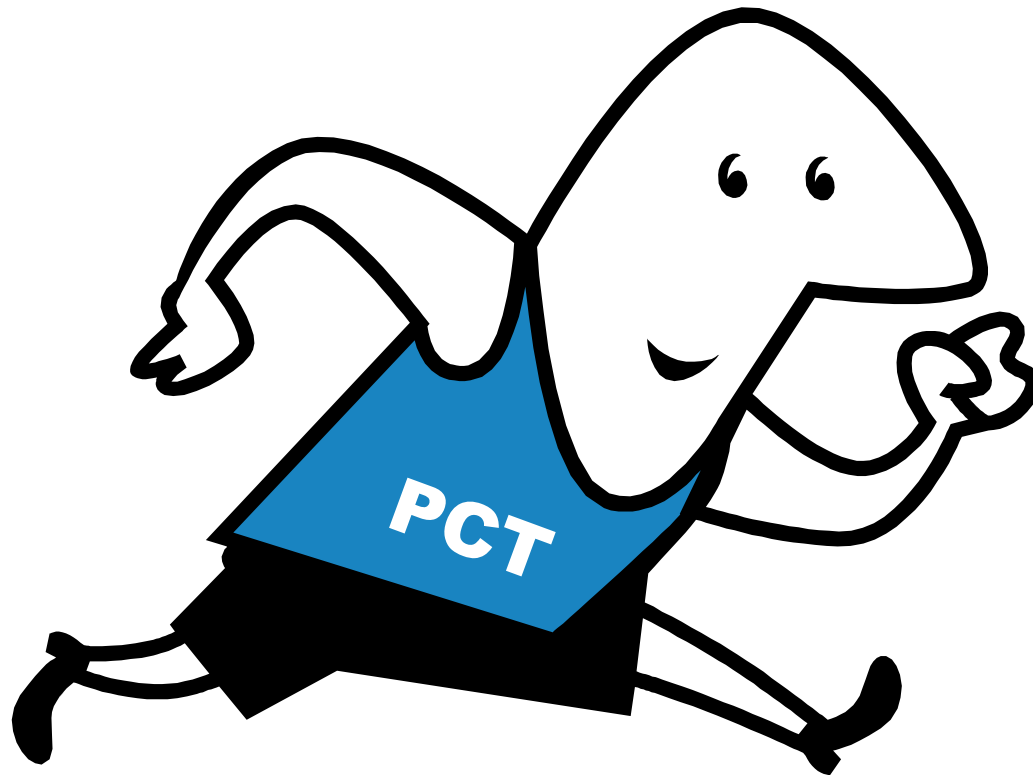
unadjusted equal per capita allocation

would be the

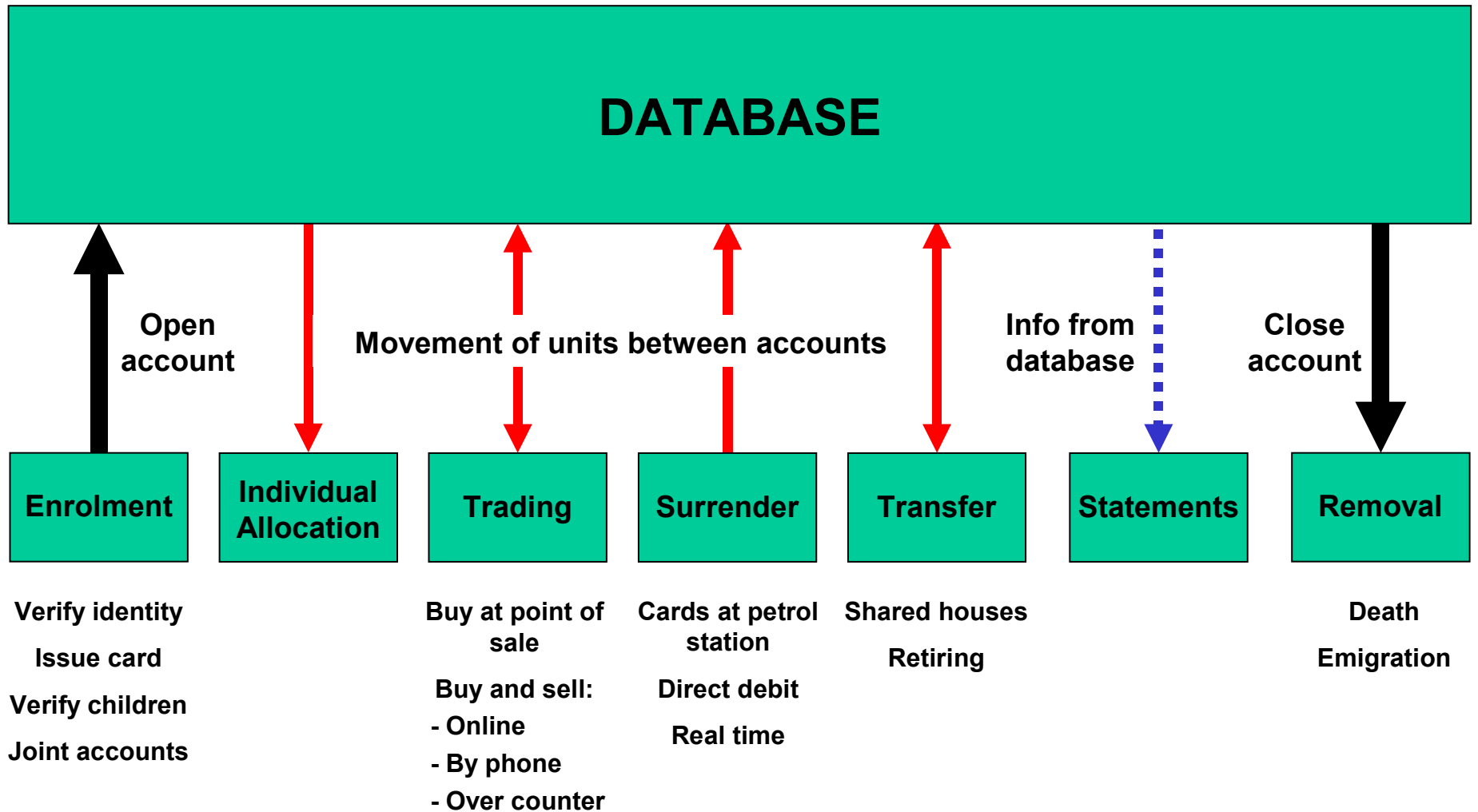
closest feasible approximation

to the

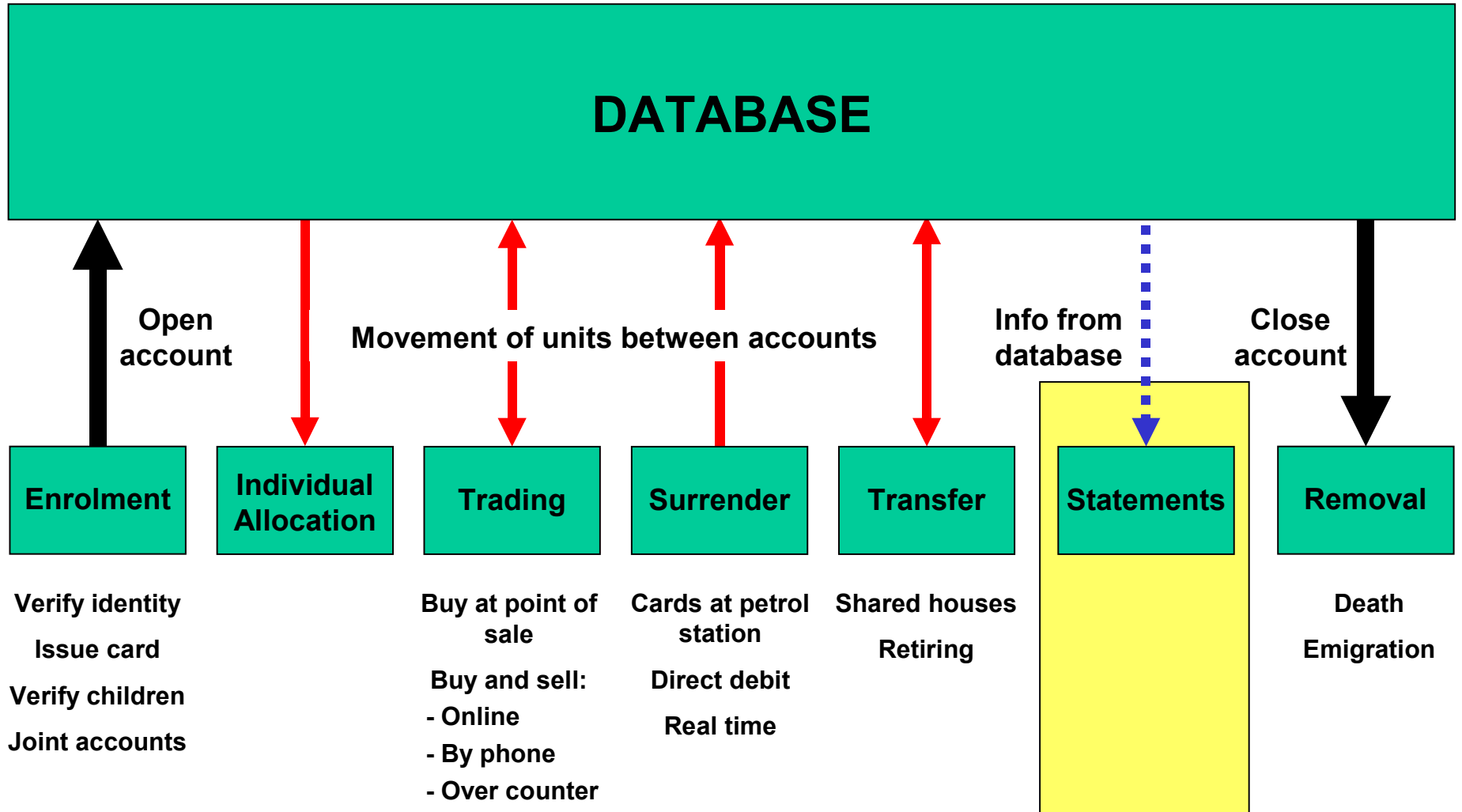
unequal “adjusted allocation”



Life cycle of carbon account



Life cycle of carbon account



Statements

- **Statements online**
- **Paper statements posted to home address**
 - *£0.20-0.40 x*

Statements

- Statements online
- Paper statements posted to home address
 - $\pounds 0.20-0.40 \times 12 \times 50m = \pounds 120-240m$
- **Telephone balance?...**
- **...Available with bank acc but statement still issued**
- **Make paper statements opt-in**
- **Joint accounts reduce number of statements**
- **Bundling with bank/phone bills**

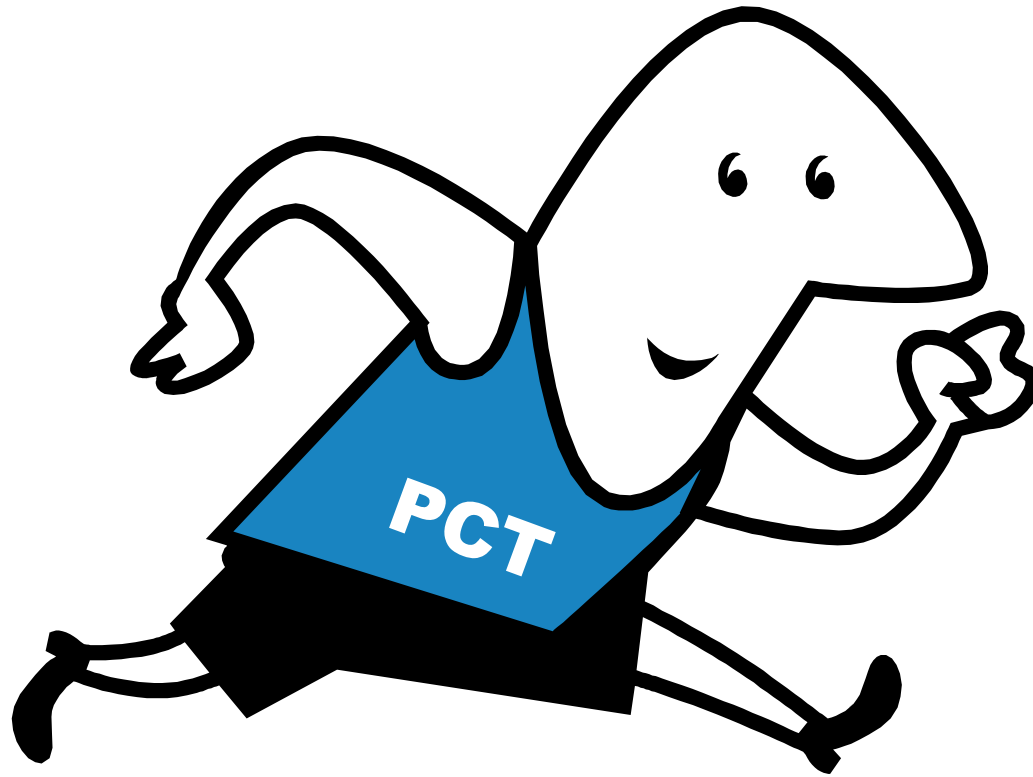
Alternatives to online/paper statements

- **Over the counter at banks and post offices**
- **Dedicated terminals**
- **ATMs**

Defra pre-feasibility report

“We have not identified an insurmountable technical obstacle for the implementation of this type of Personal Carbon Trading scheme from this initial analysis. It appears that the majority of functions could be fulfilled by modifying and / or adding capacity to existing systems.”

Accenture (2008)

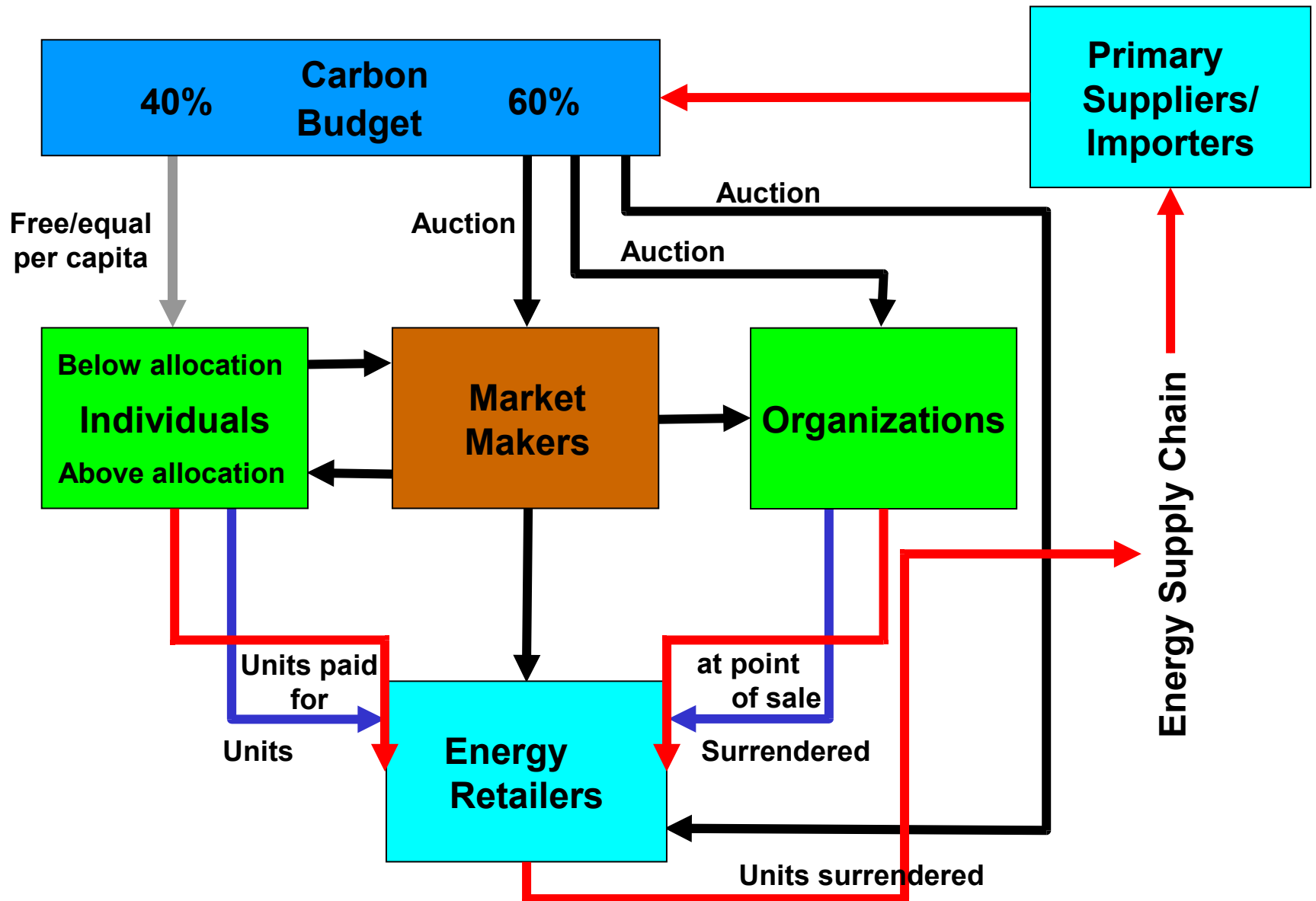


Objection

Can implement equal per capita more cheaply

- *Upstream trading*
- *Carbon tax with lump-sum recycling*

DTQs



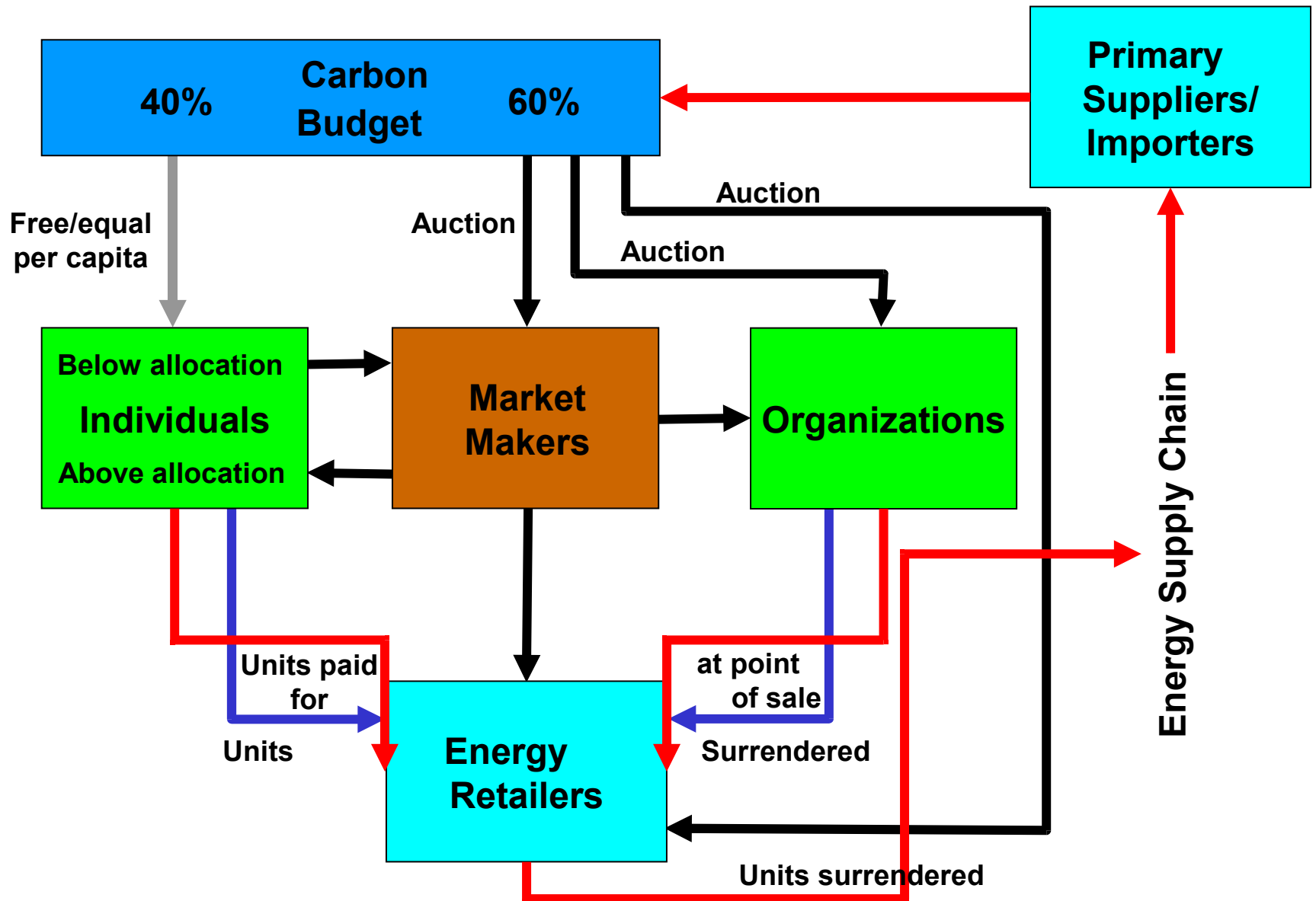
Defra study - costs

DTQs

Set up costs £0.7-2 billion

Annual running costs £1-2 billion

DTQs



40%

**Carbon
Budget**

60%

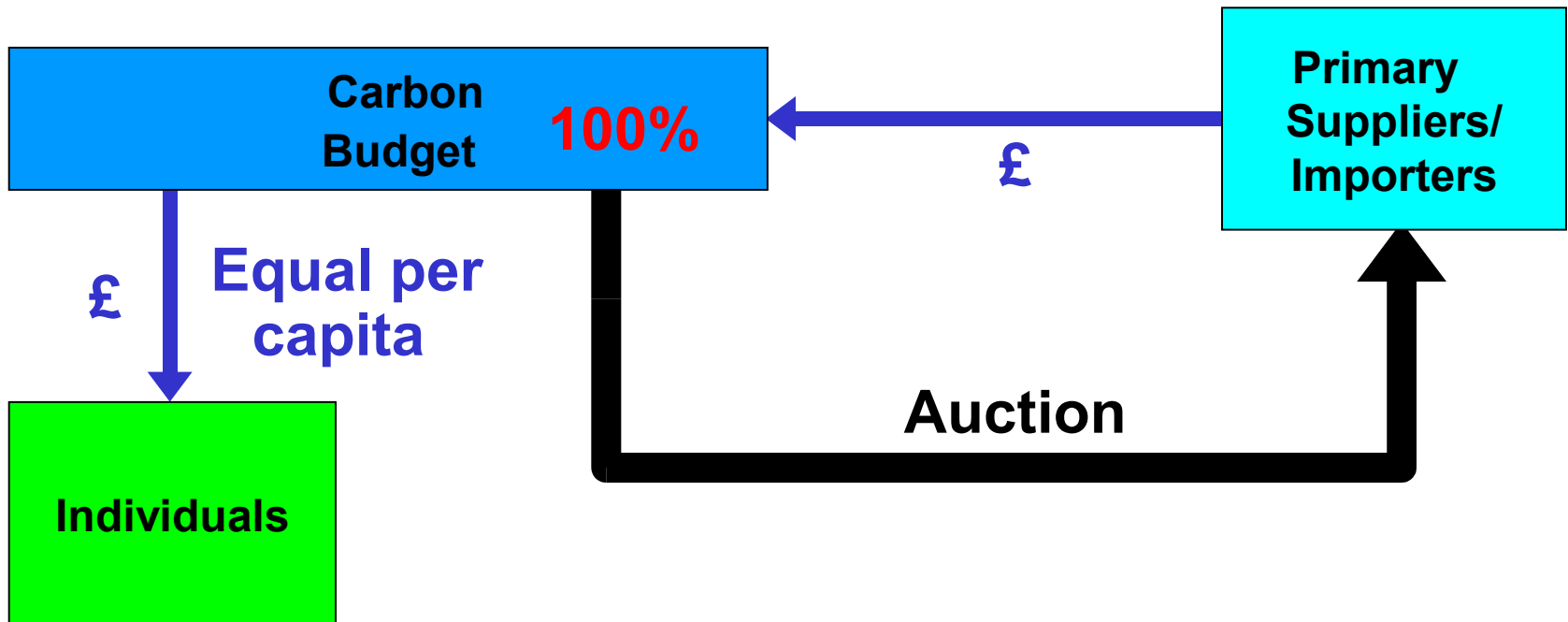
**Primary
Suppliers/
Importers**

Individuals

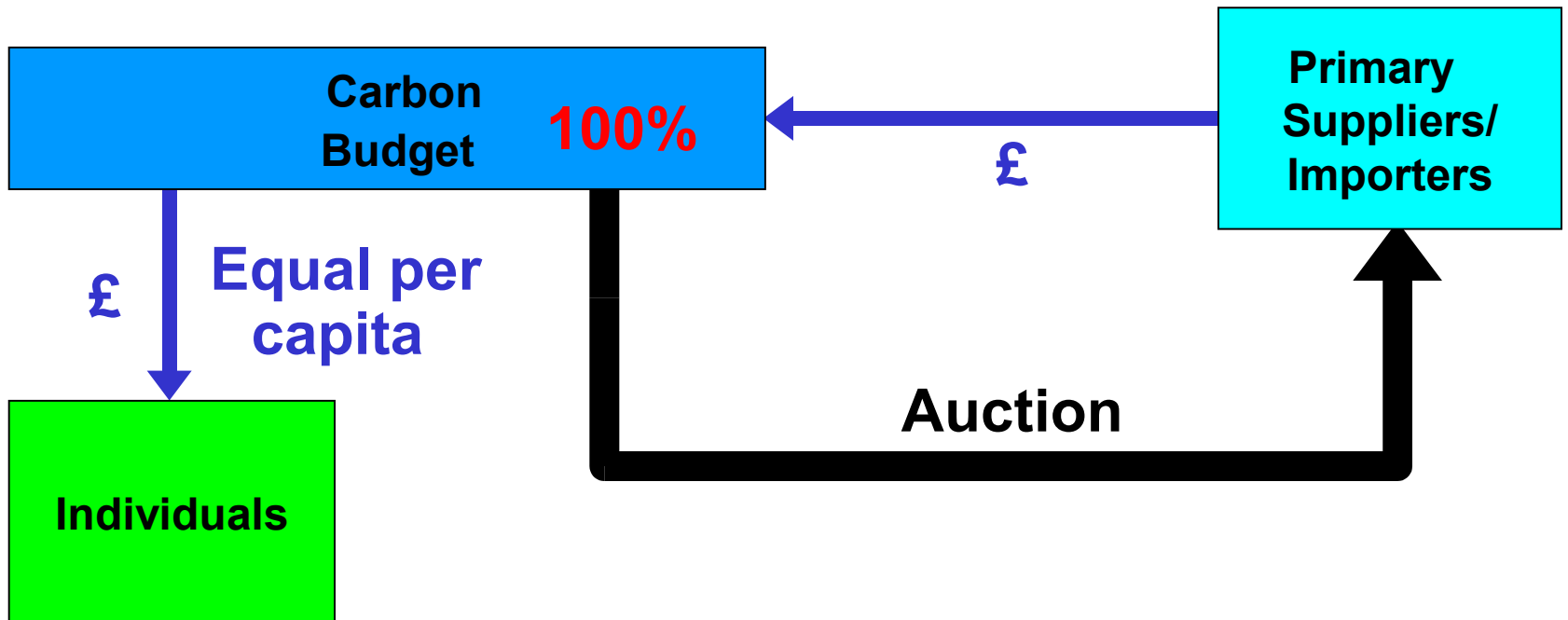
Upstream auction



Upstream auction



Sky Trust



Equivalent but CHEAPER!

Not

emissions rights

being allocated on

equal per capita basis

but

REVENUE FROM SALE OF EMISSION RIGHTS

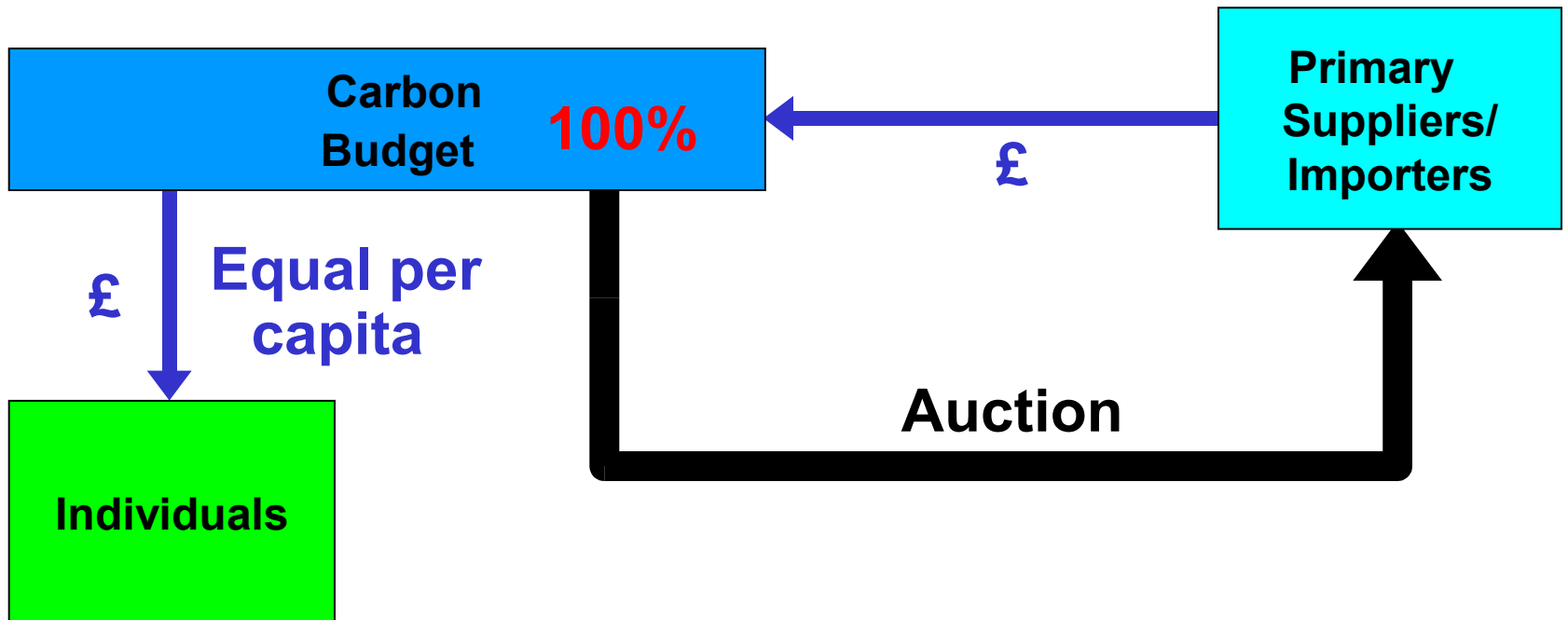
Q. How much cheaper?

Q. How much cheaper?

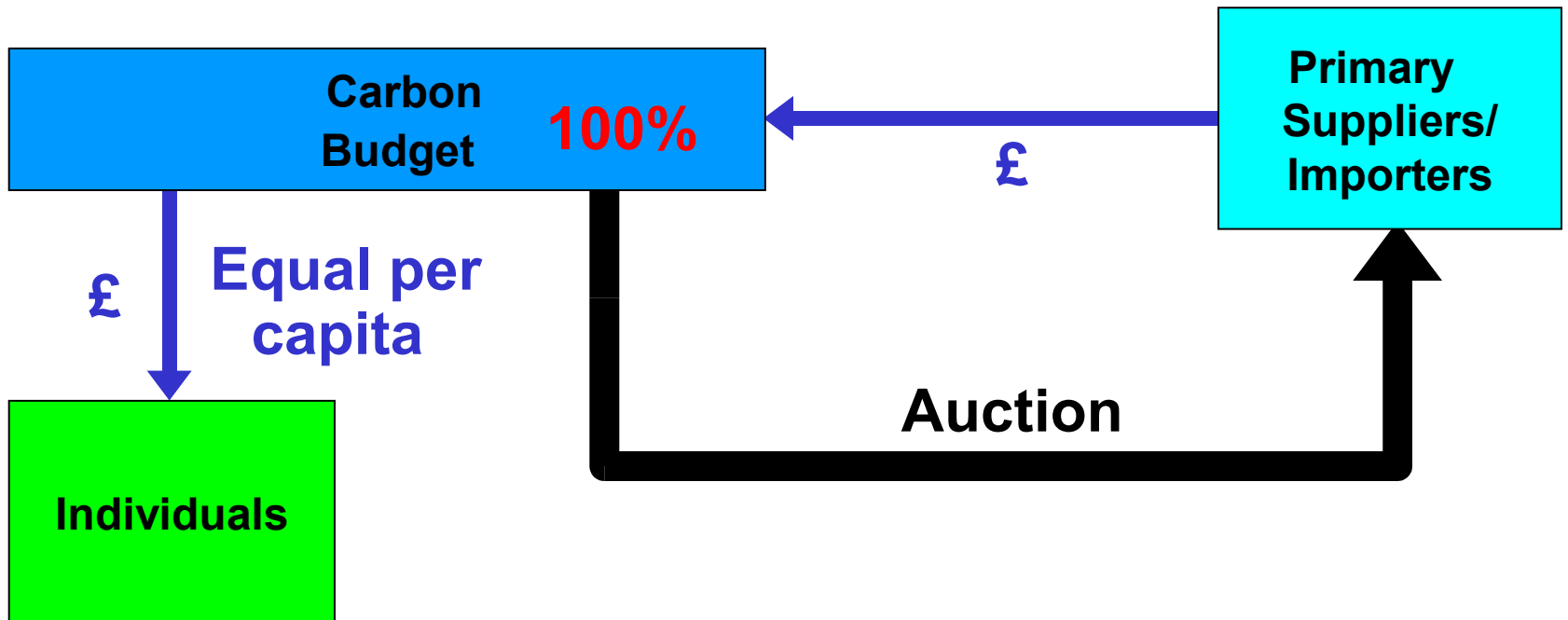
	DTQs	Sky Trust
Set up costs	£0.7-2 billion	£50-100 million
Annual running costs	£1-2 billion	£50 million

A. Much cheaper!

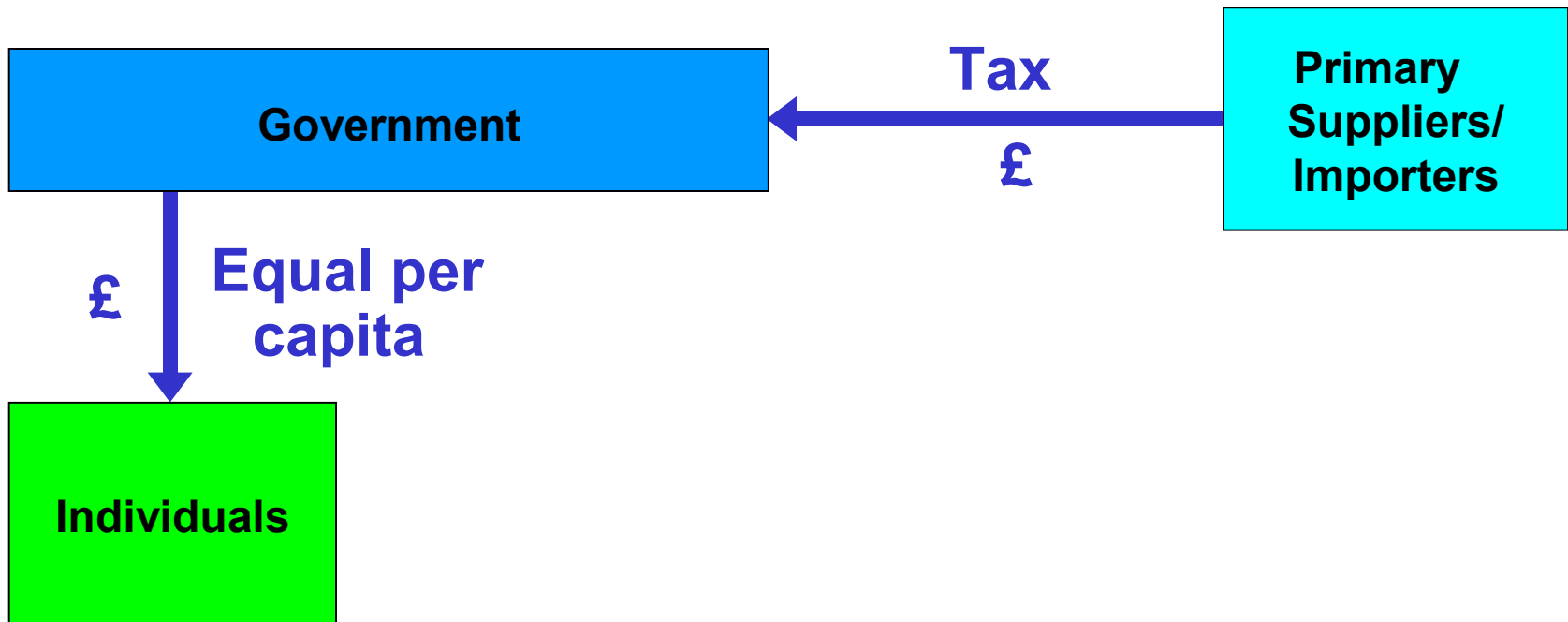
Sky Trust



Carbon tax



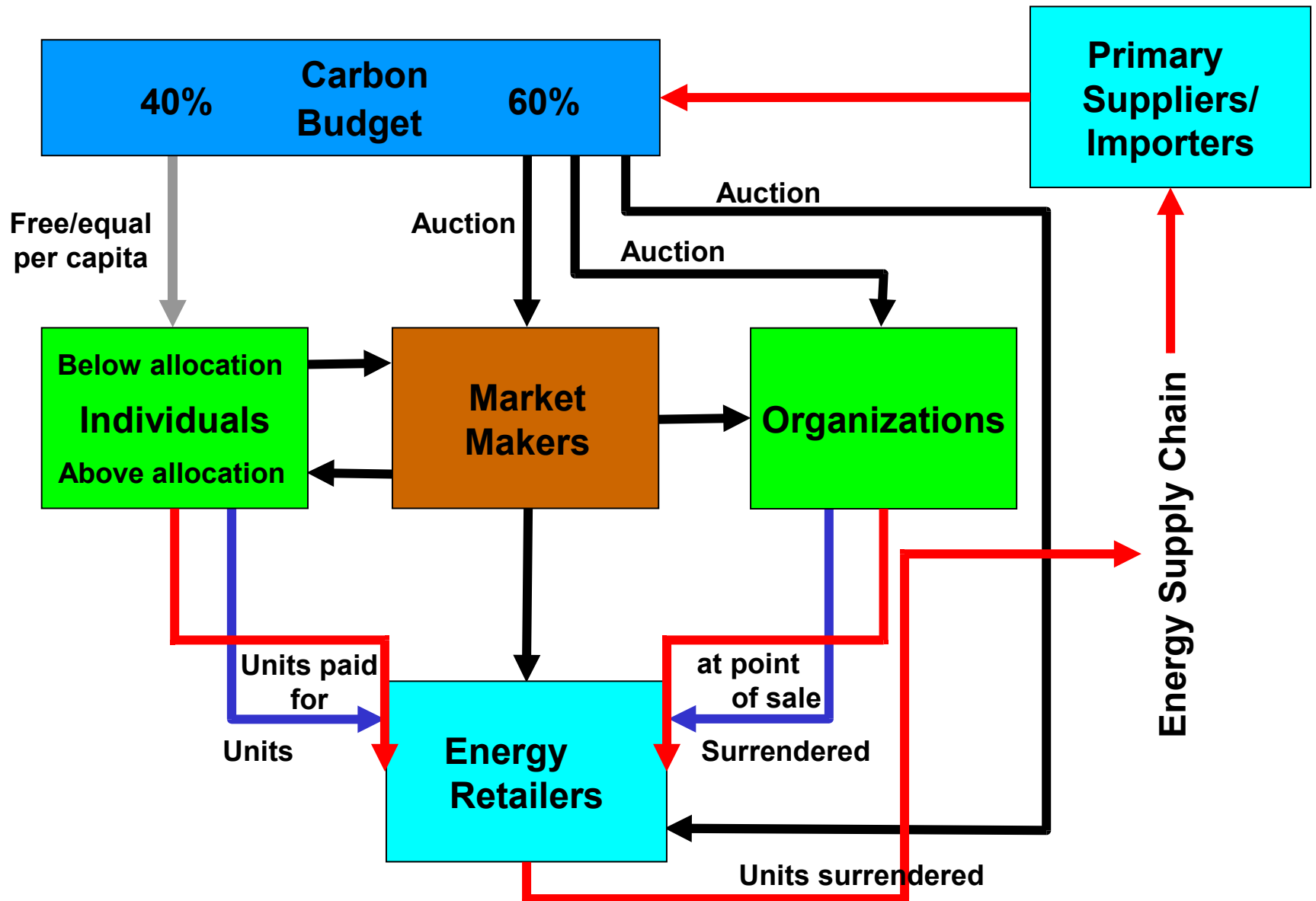
Carbon tax



Cap and Share (C&S)

Individuals being allocated rights is important

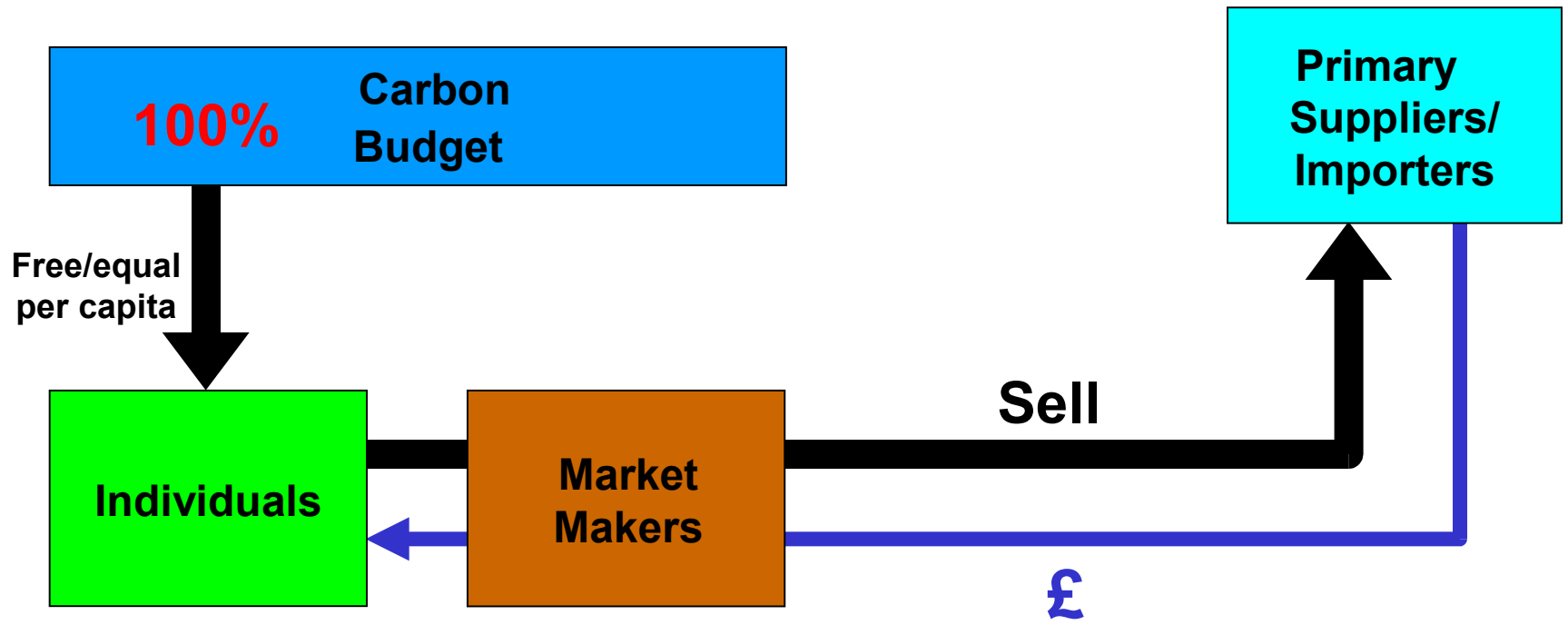
DTQs



C&S



C&S

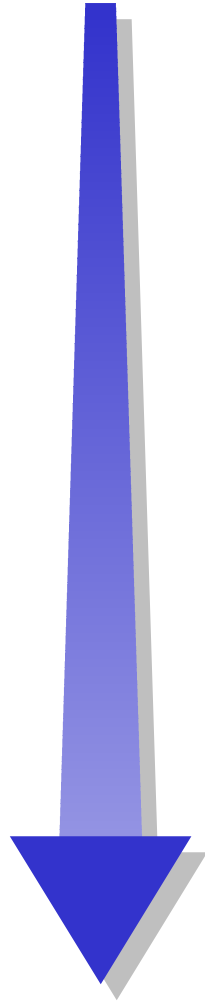


Irish government considering implementing C&S

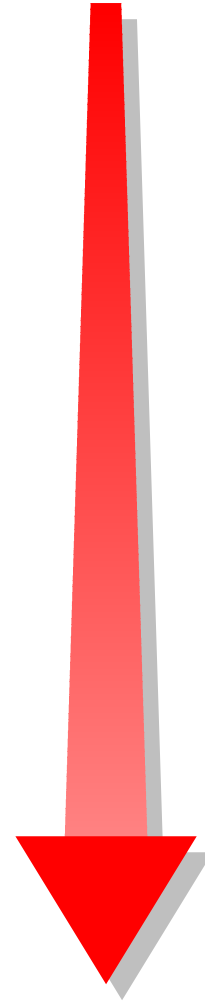
Sky Trust

C&S

DTQs



**Increasing
costs**



**Increasing
benefits**

Suggested additional benefits

- **Makes individuals stakeholders**
- **Promotes sense of common purpose**
- **Increases carbon visibility**
- **Increases carbon consciousness**
- **Increases carbon literacy**
- **Gives sense of responsibility**
- **Gives sense of agency**
- **Empowers individuals**

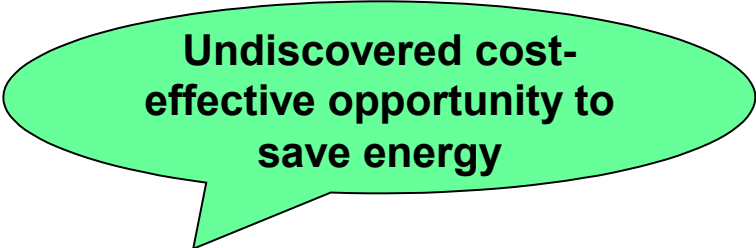
Suggested additional benefits

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Not just feel-good factor...

Increased carbon consciousness

leads to

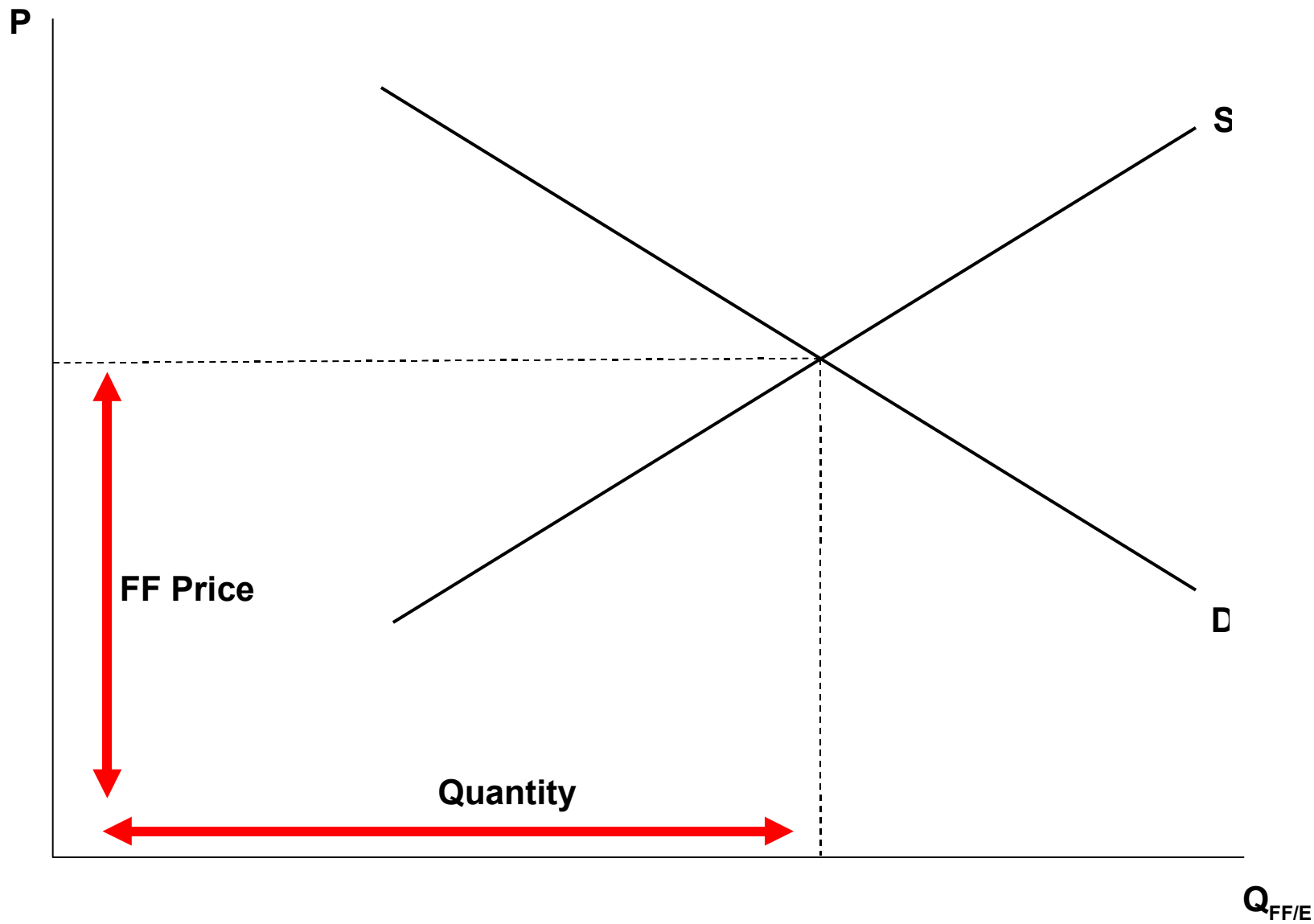


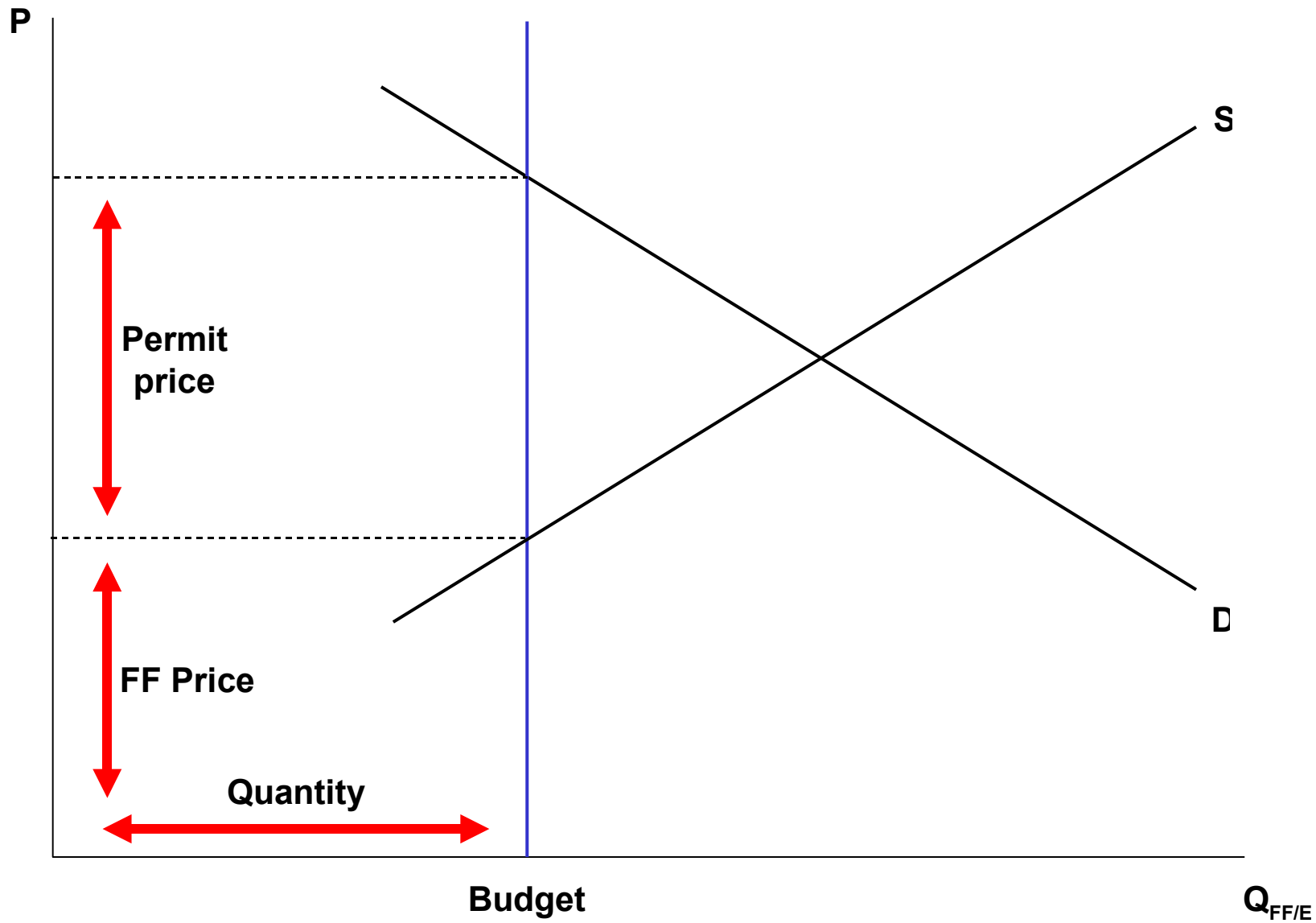
Undiscovered cost-effective opportunity to save energy

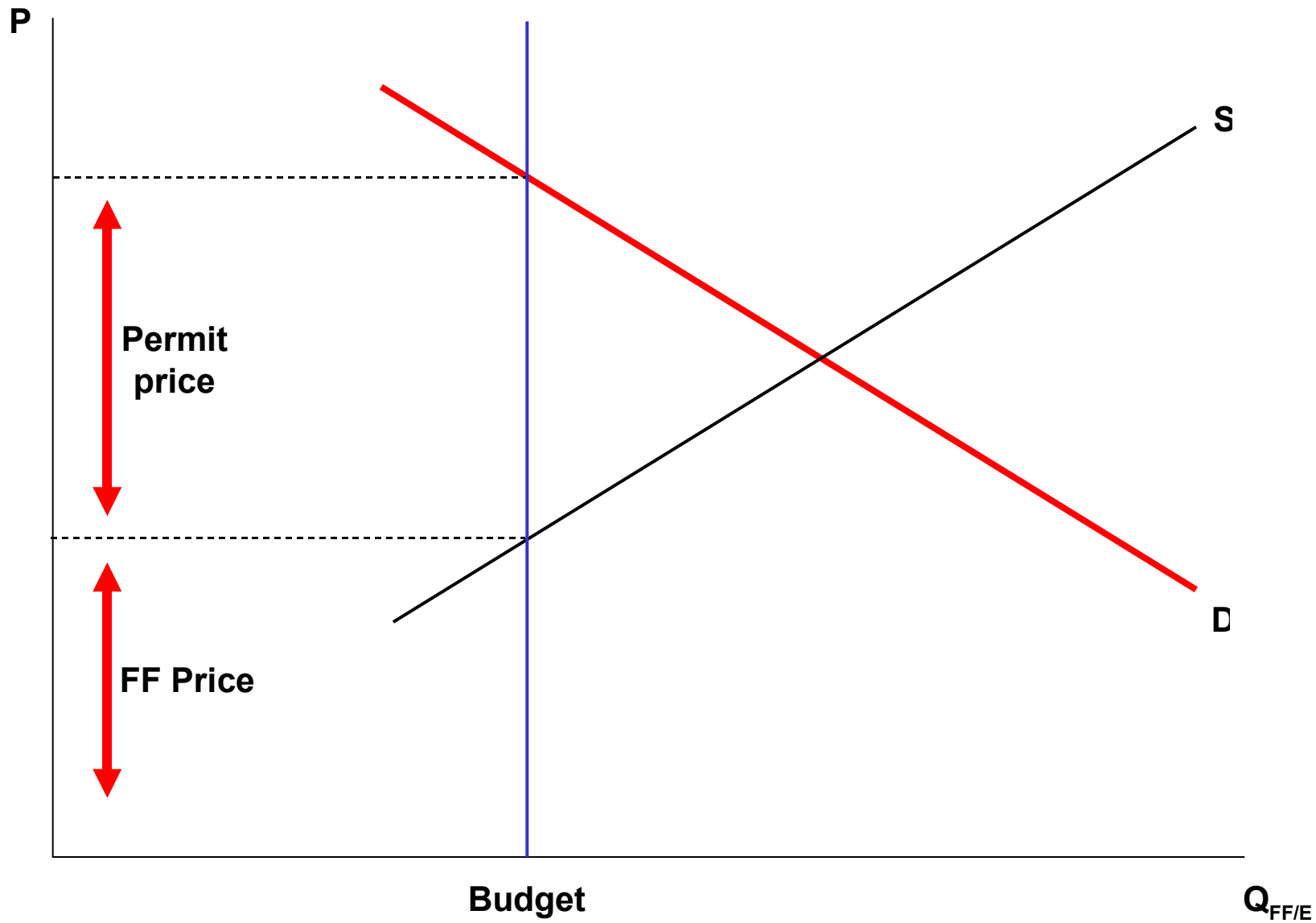
greater search for and picking of “low hanging fruit”

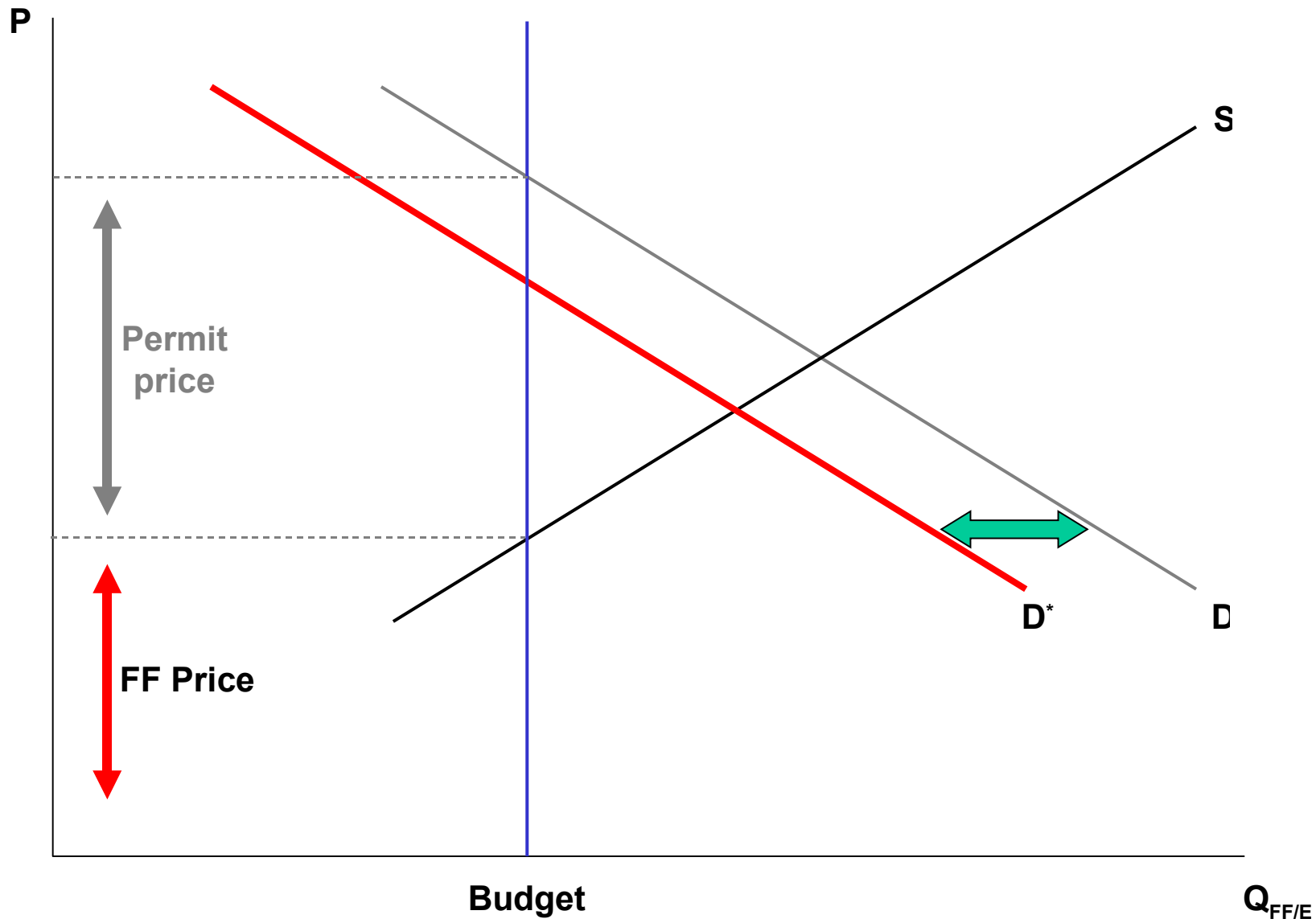
leads to

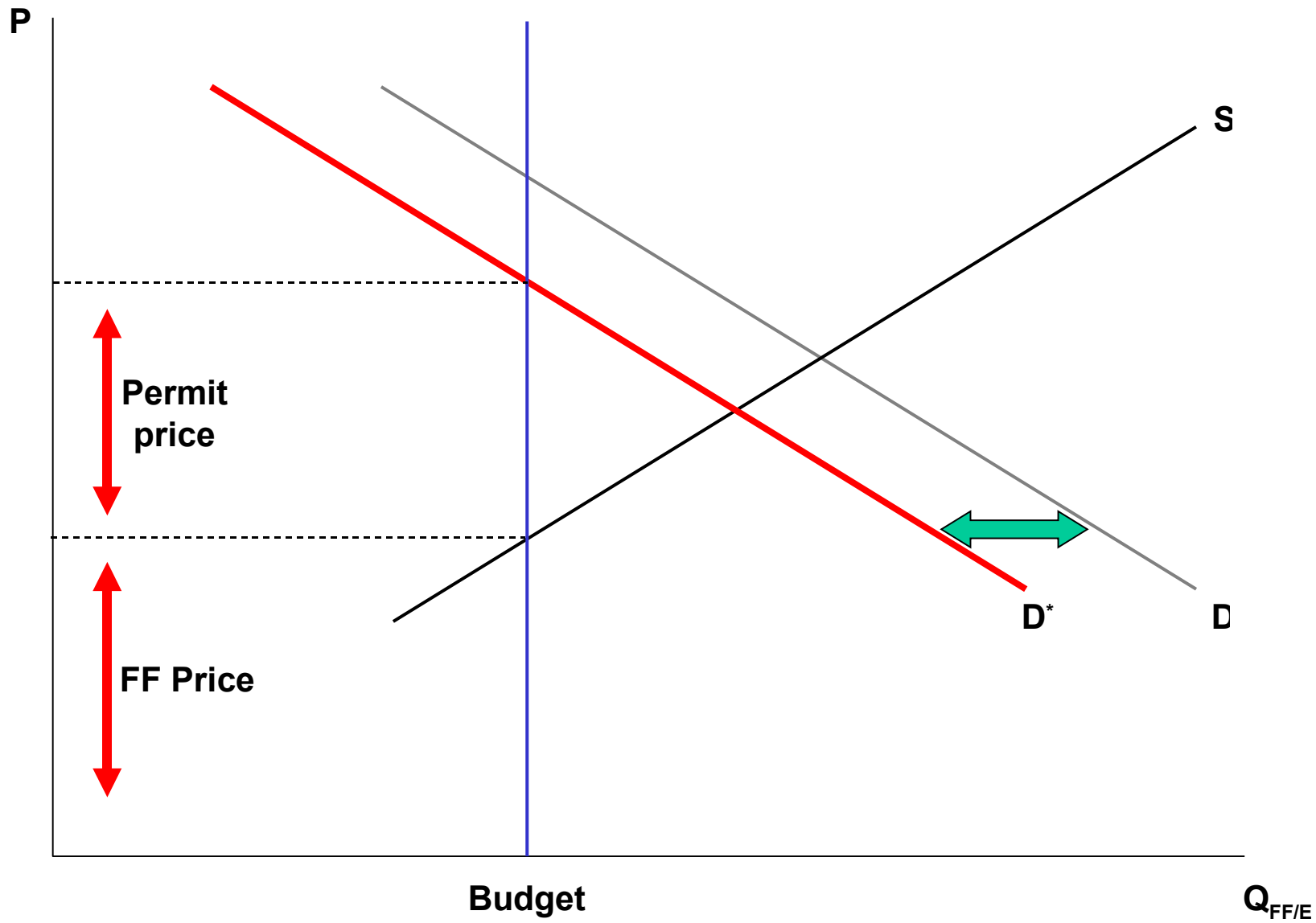
cheaper reduction of emissions

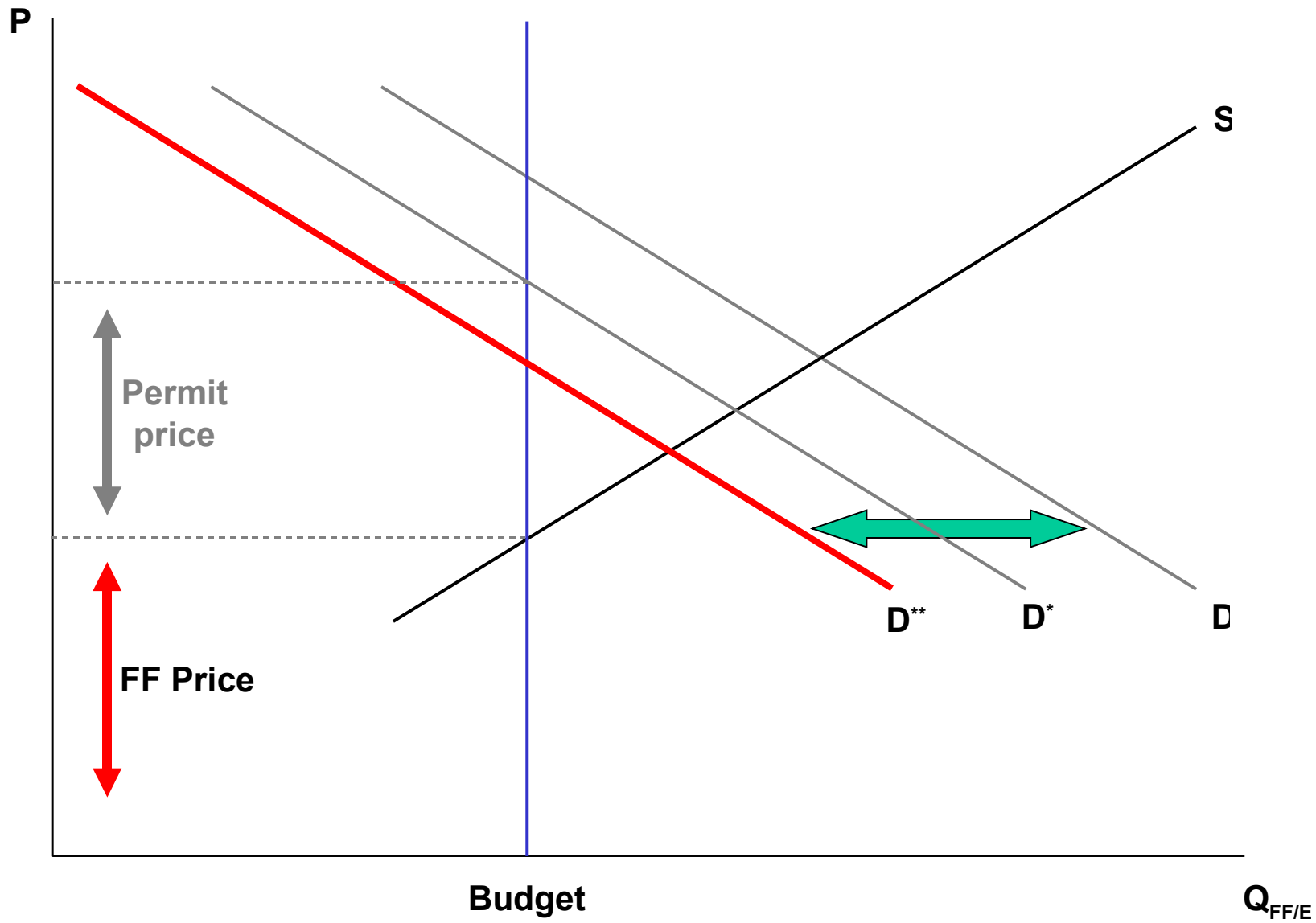


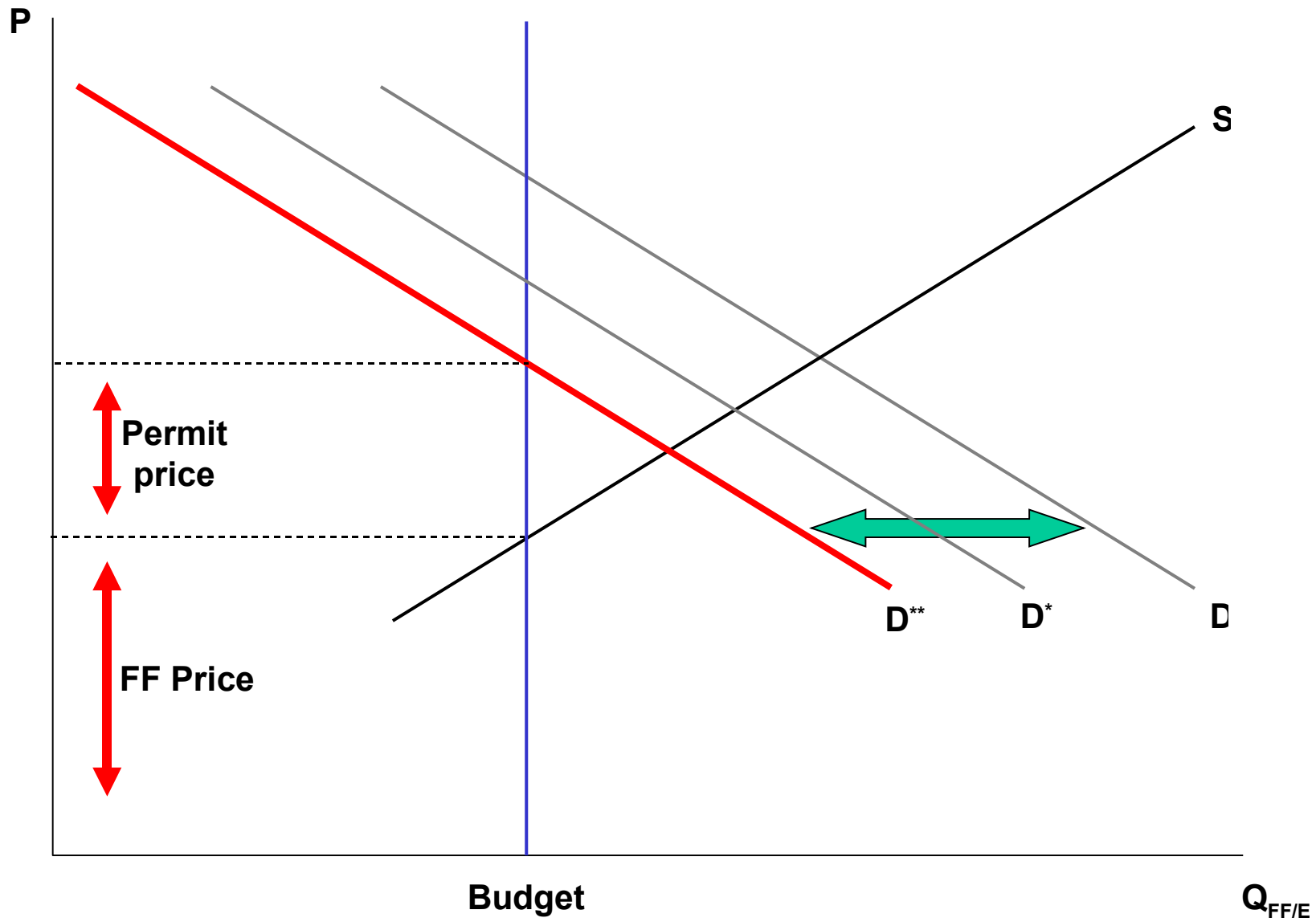












Cost-benefit

DTQs viable if

Benefits from reduced permit price

\geq

Additional set up and running **costs**

Defra's findings

Insufficient additional benefits to justify additional costs

- Much low-hanging fruit “picked” by existing/planned instruments
 - Efficiency standards for appliances
 - Banning of incandescent bulbs
 - Building regulations
 - Emissions standards for vehicles
- Visibility of residential carbon increased by smart meters

Defra on cost-benefit

“The cost benefit analysis presents a challenge to the introduction of personal carbon trading. The costs identified are large and outweigh, by many times, the estimated potential benefits of personal carbon trading... Although there are circumstances under which personal carbon trading may be cost-effective, a significant reduction in the project costs of increase in the value of benefits... would be necessary.”

Defra synthesis report, para 1.2 (2008)

Only yesterday...

“We regret that, following its pre-feasibility study into personal carbon trading, the Government has decided to wind down its work in this area on the grounds of high implementation costs and public resistance to the concept. We recognise the extent of these challenges, but we believe that work on personal carbon trading must be continued in earnest if these difficulties are ever to be overcome. Although we commend the Government for its intention to maintain engagement in academic work on the topic, we urge it to undertake a stronger role, leading and shaping debate and coordinating research. Without action of this kind it is unlikely that personal carbon trading could become a viable policy in the foreseeable future.”

Environmental Audit Committee (2008)

Conclusions

- **Important to consider fair allocation of emissions rights**
- **EPCA not straightforwardly fair**
- **To argue against Defra's position proponent of DTQs**
 - **Benefits greater than suggests**
 - **Costs less than suggested**
 - **Kill two birds with one stone – climate change and peak oil**

This is the challenge for German researchers