



GHG Protocol Workshop on Accounting for Green Power Purchases

*January 24, 2010
London, U.K.*

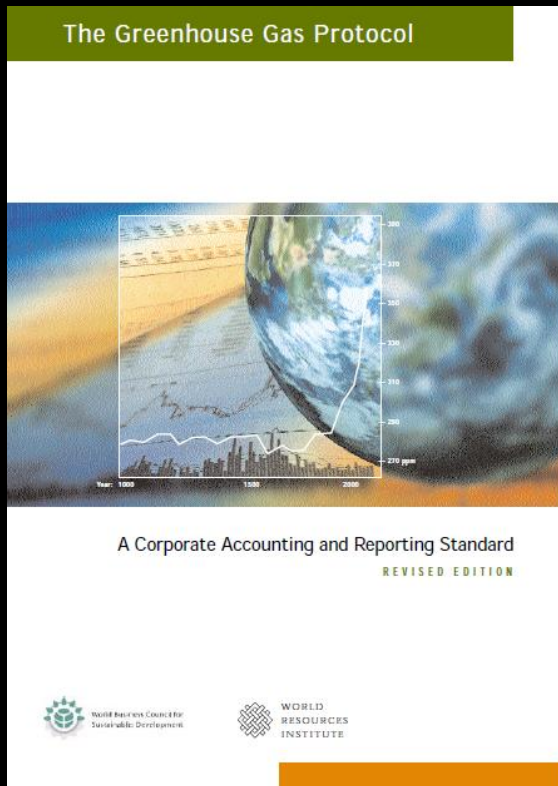


WORLD
RESOURCES
INSTITUTE



World Business Council for
Sustainable Development

Background on the GHG Protocol Initiative



- The Climate Registry
- CDP
- Executive Order 13514
- ISO 14064-1
- UK voluntary reporting program
- Major economies reporting initiatives (e.g. China, India, Brazil, Mexico)



GHG Protocol publication modules

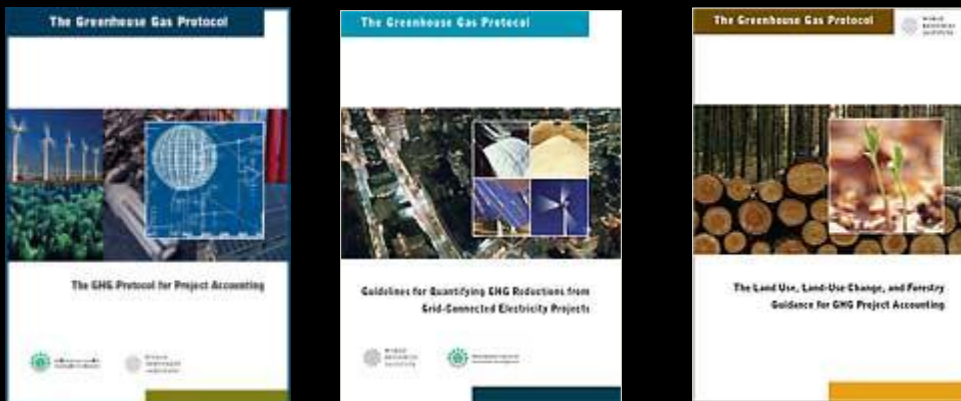
Corporate Module



- **Entity-level accounting**
 - *Corporate Standard*
 - *US Public Sector Protocol*
 - *Supplements*

- **Facility-level accounting**
 - Sector-specific guidance and tools (cement, power)

Project Module



- **Reduction project-level Accounting**
 - *Project Protocol*
 - *Supplements*



Vision

To provide internationally accepted GHG accounting and reporting guidance on green power purchases and energy-related instruments.



Objectives of this workshop

Purpose: Gain a deeper understanding and facilitate discussion and consensus on the issues and options for moving forward

Tangible outcomes: A summary of possible best practices and outstanding issues

Intangible outcomes: An improved common understanding of each others perspectives



GHG Protocol decision-making approach for critical issues

- Broad agreement on a single best practice approach
 - recommend a single approach
- Support is split between 2 or more best practice approaches
 - offer a choice of approaches with guidance on how to select
- No agreement on any generic best practice approaches
 - provide best practice case studies as examples, or
 - offer no guidance or case studies - address qualitatively
- Agree the issue should not be addressed in the guidelines
 - provide rationale for omission in guidelines



Ground rules

- Participate to the fullest of your ability
- Keep jargon to a minimum
- Share your knowledge
- Criticize ideas, not people
- Keep an open mind
- Every issue identified today will have follow-up
- Signal when we are going off-track



Workshop schedule - AM

UK Development in RE-relevant policies	Stephen De Souza, DECC	9:10-9:30
Overview of discussion draft	Mary Sotos, GHGP	9:30-9:50
Session I: Accounting for Emission Rates from RE Projects		
Introduce discussion questions	Stephen Russell, GHGP	9:50—10:00
Discussions and group feedback		10:00—11:45
Session II: Accounting for Avoided Emissions from RE Projects		
Introduce discussion questions	Mary Sotos, GHGP	11:45-12:00
Discussions		12:00-12:45
Lunch		12:45-1:45



Workshop schedule –PM

Session II Group feedback		1:45-2:30
Session III: Accounting for Green Tariffs		
Introduction discussion questions	Stuart Pyle, DECC	2:30-2:40
Discussions and group feedback		2:40-4:30
Closing		4:30-4:45



Questions?





Overview of Issues from Concept Note

Mary Sotos
World Resources Institute



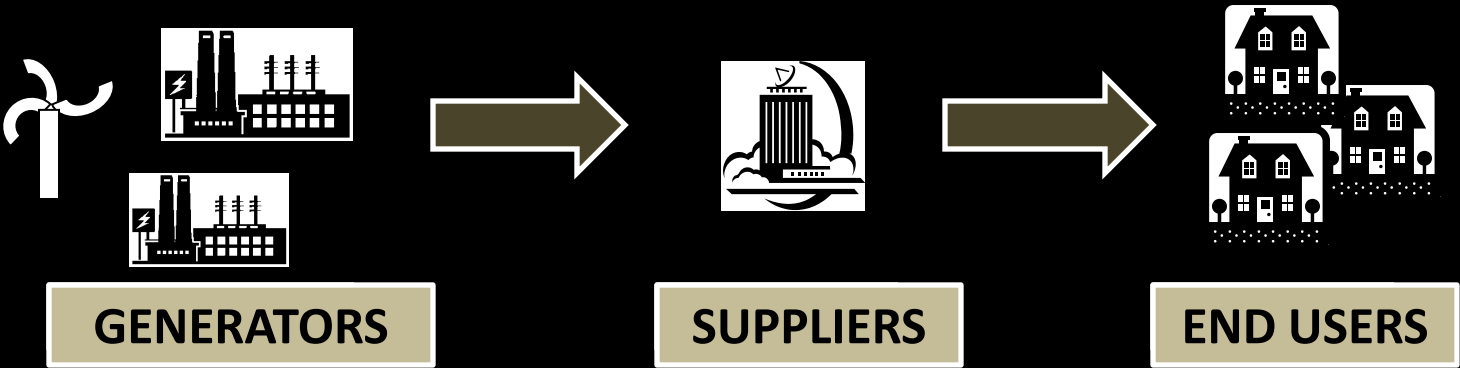
World Resources Institute

Outline

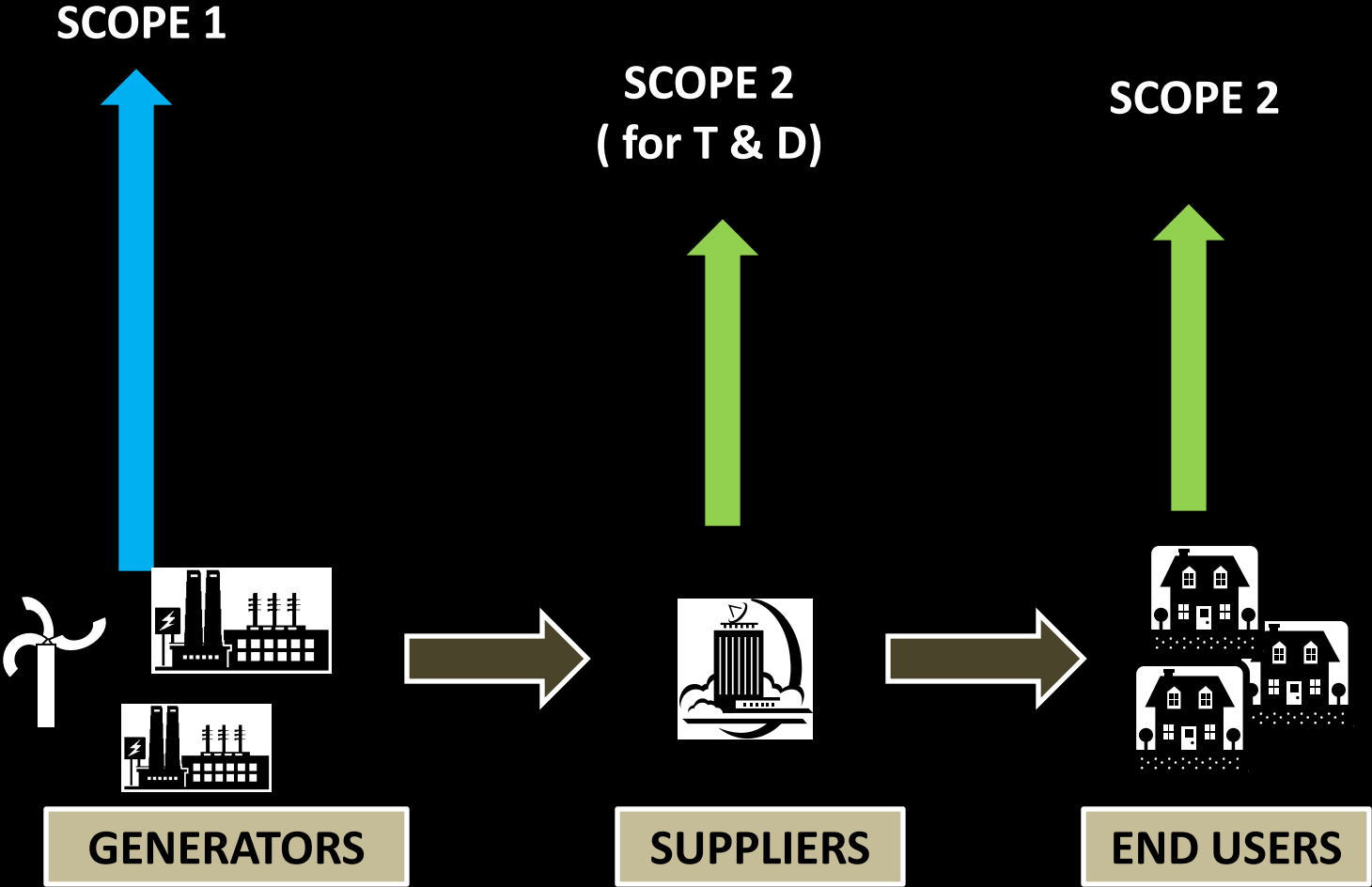
- The GHG action reference map
- Emission rates from RE projects
- Avoided emissions from RE projects
- Green tariffs



Energy Supply Chain (generic)



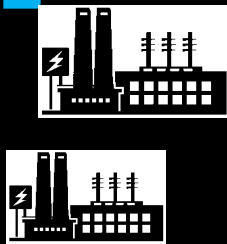
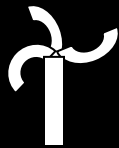
Energy Supply Chain (generic)



Example energy policies within the energy supply chain

EMISSIONS CAP on
POWER SECTOR

SCOPE 1



GENERATORS

RENEWABLE
ENERGY
STANDARD



SCOPE 2
(for T & D)



SUPPLIERS



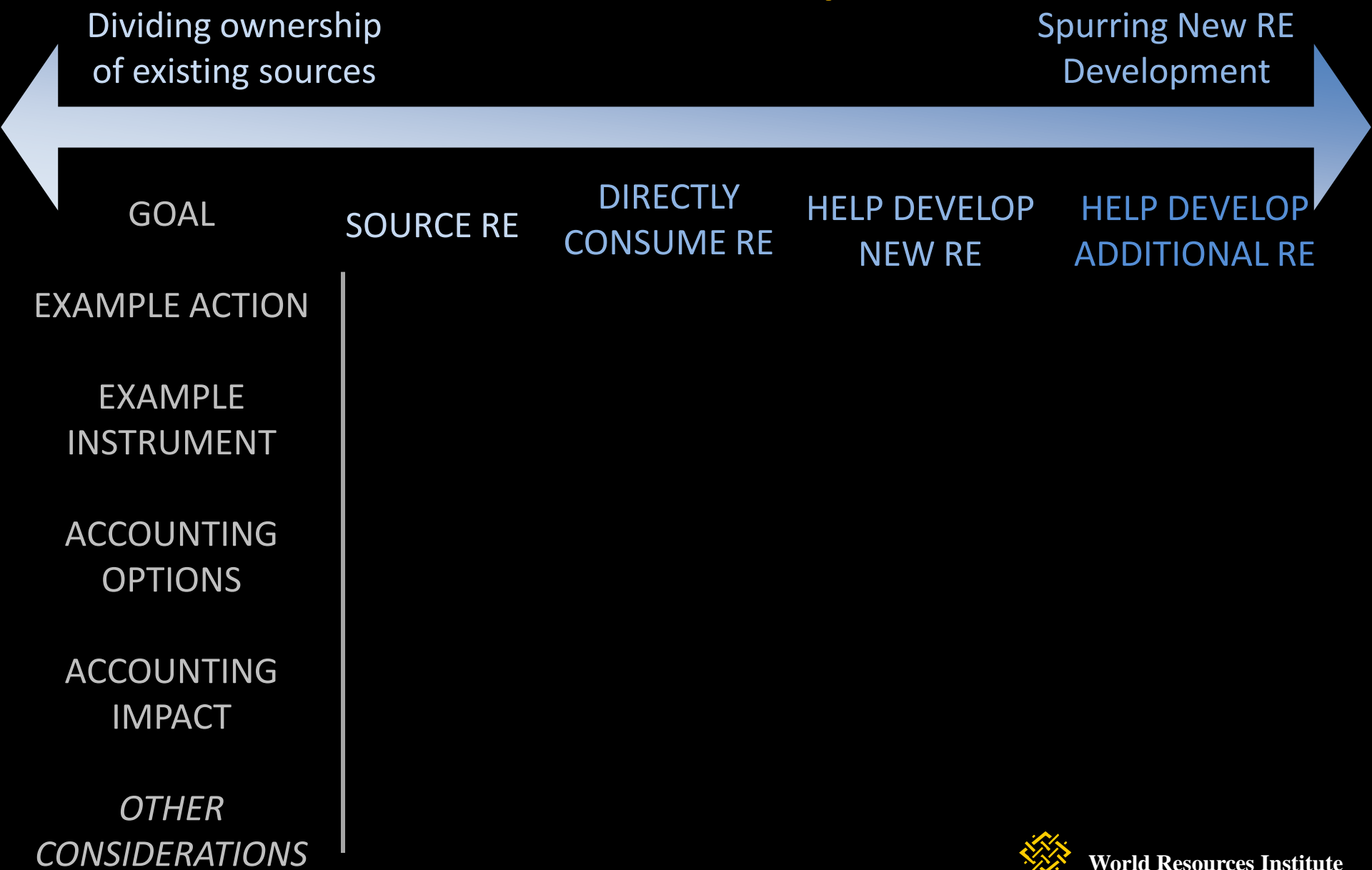
SCOPE 2



END USERS



GHG Action Reference Map

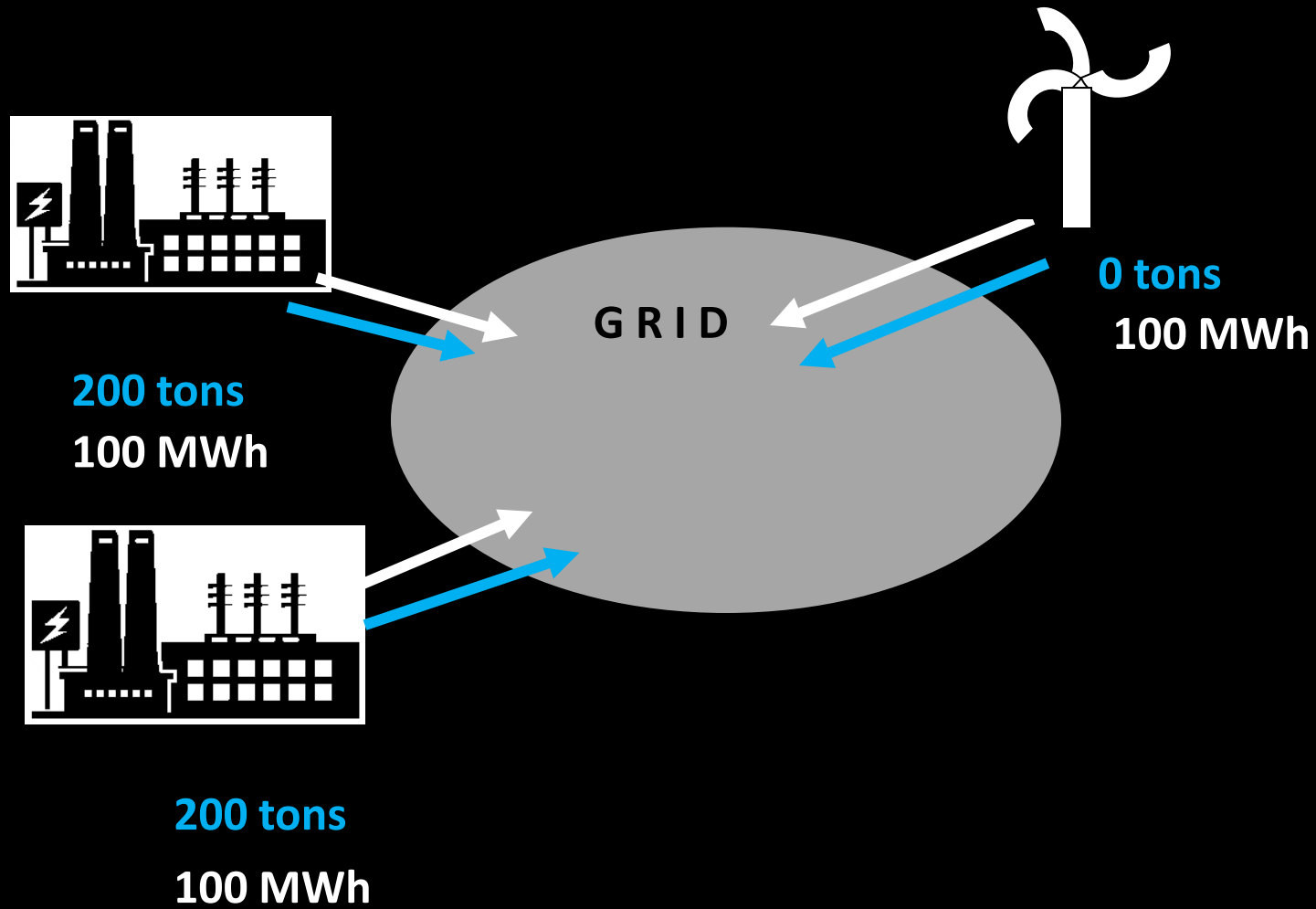


Outline

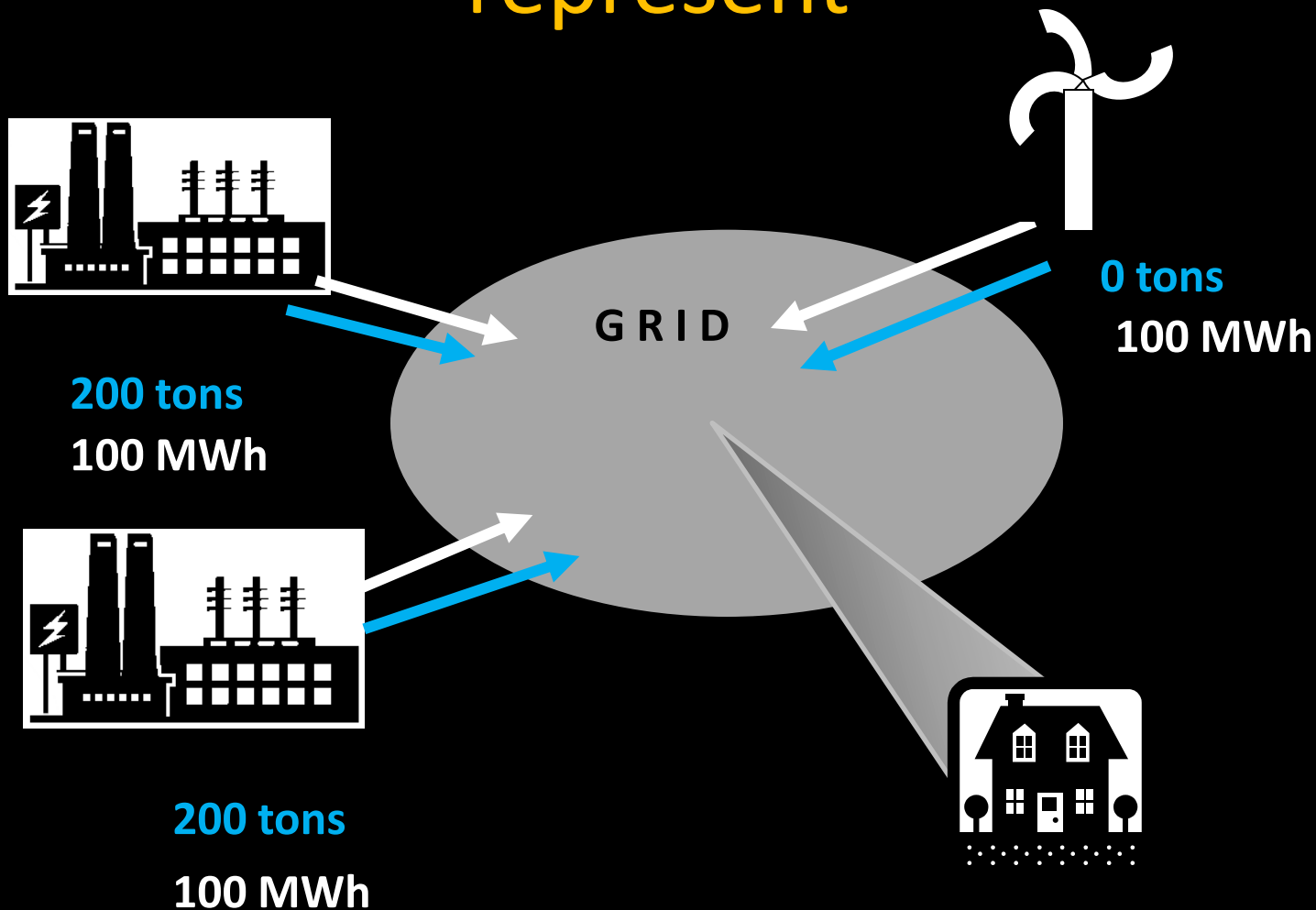
- The GHG action reference map
- Emission rates from RE projects
- Avoided emissions from RE projects
- Green tariffs



Grid emissions diagram

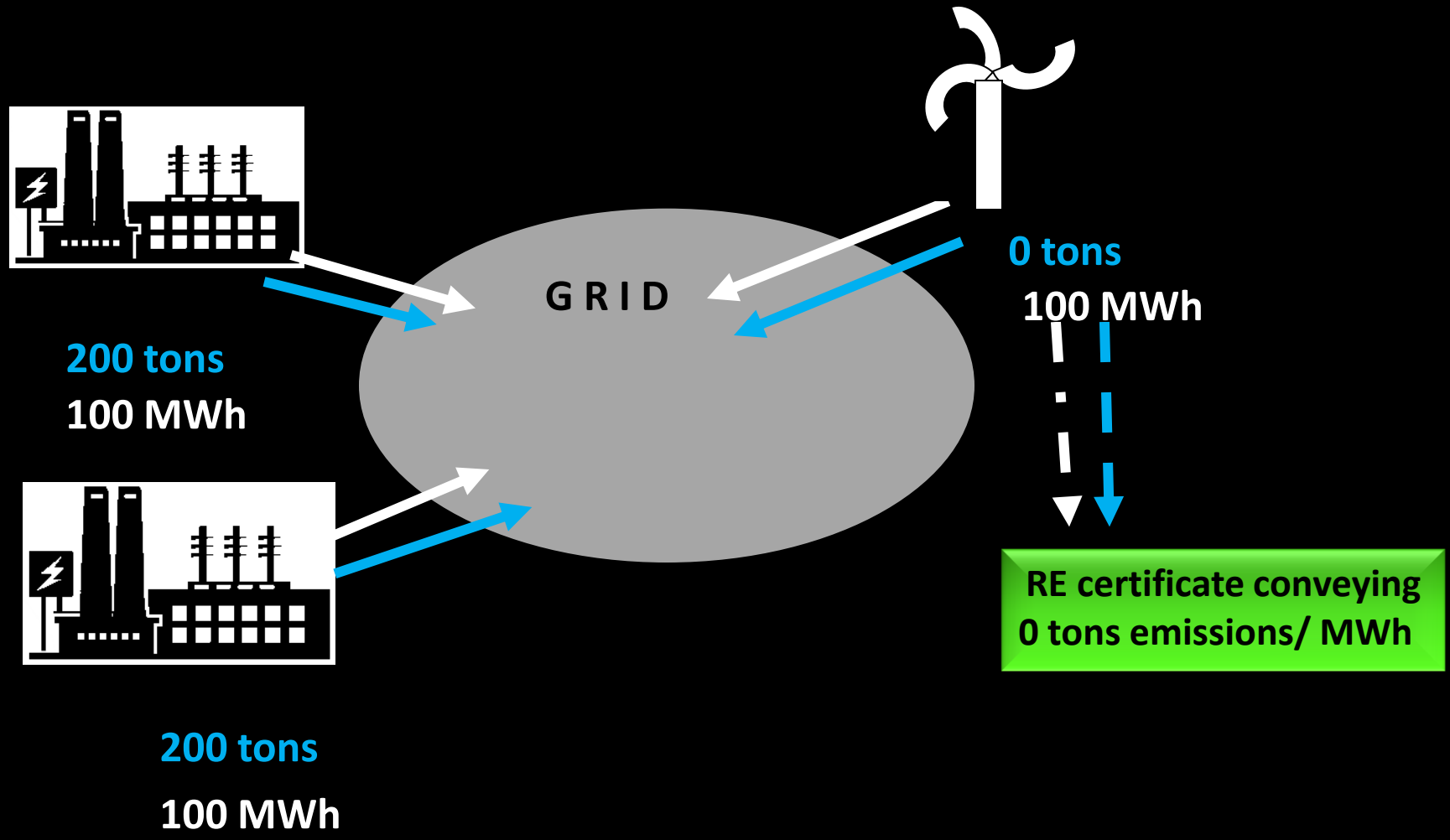


What average grid emission factors represent



Grid avg EF: $\frac{400 \text{ tons}}{500 \text{ MWh}} = 0.8 \text{ tons/MWh}$

RE certificates conveying emission rates



Possible corporate accounting procedure for alternative emission rates

Activity Data	Emission Factor	Total Emissions
---------------	-----------------	-----------------

Total emissions calculated with standard grid average mix

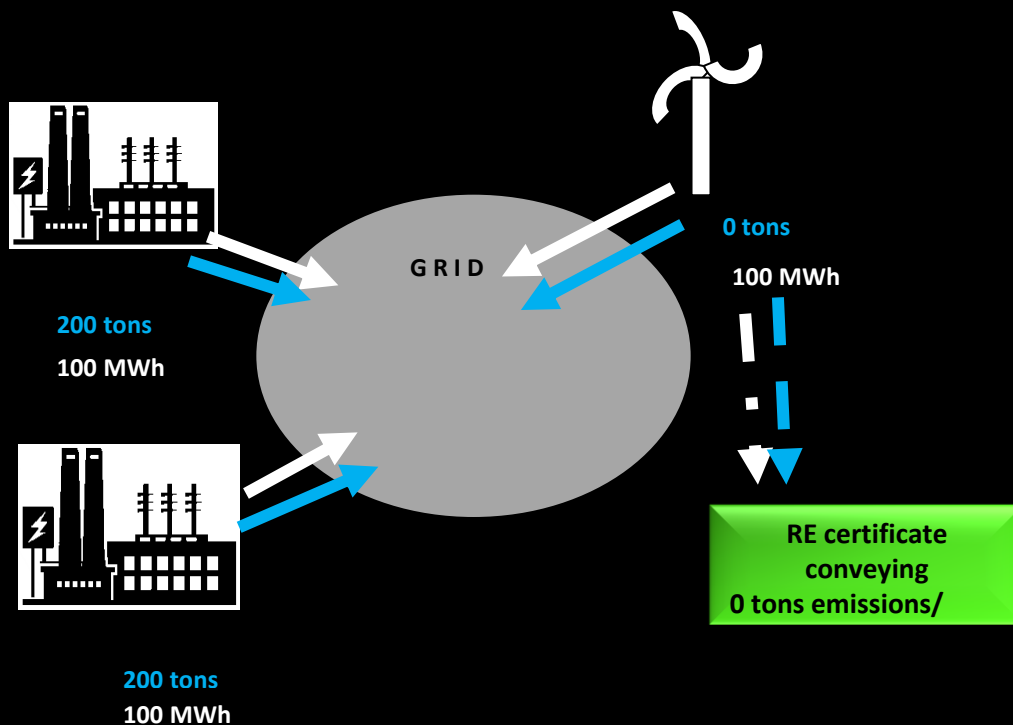
100 MWh	0.5 tons CO ₂ e/MWh	50 tons CO ₂ e
---------	-----------------------------------	---------------------------

“Adjusted” emissions with 100 MWh of zero-emissions green power

100 MWh	0 tons CO ₂ e/MWh	0 tons CO ₂ e
---------	---------------------------------	--------------------------



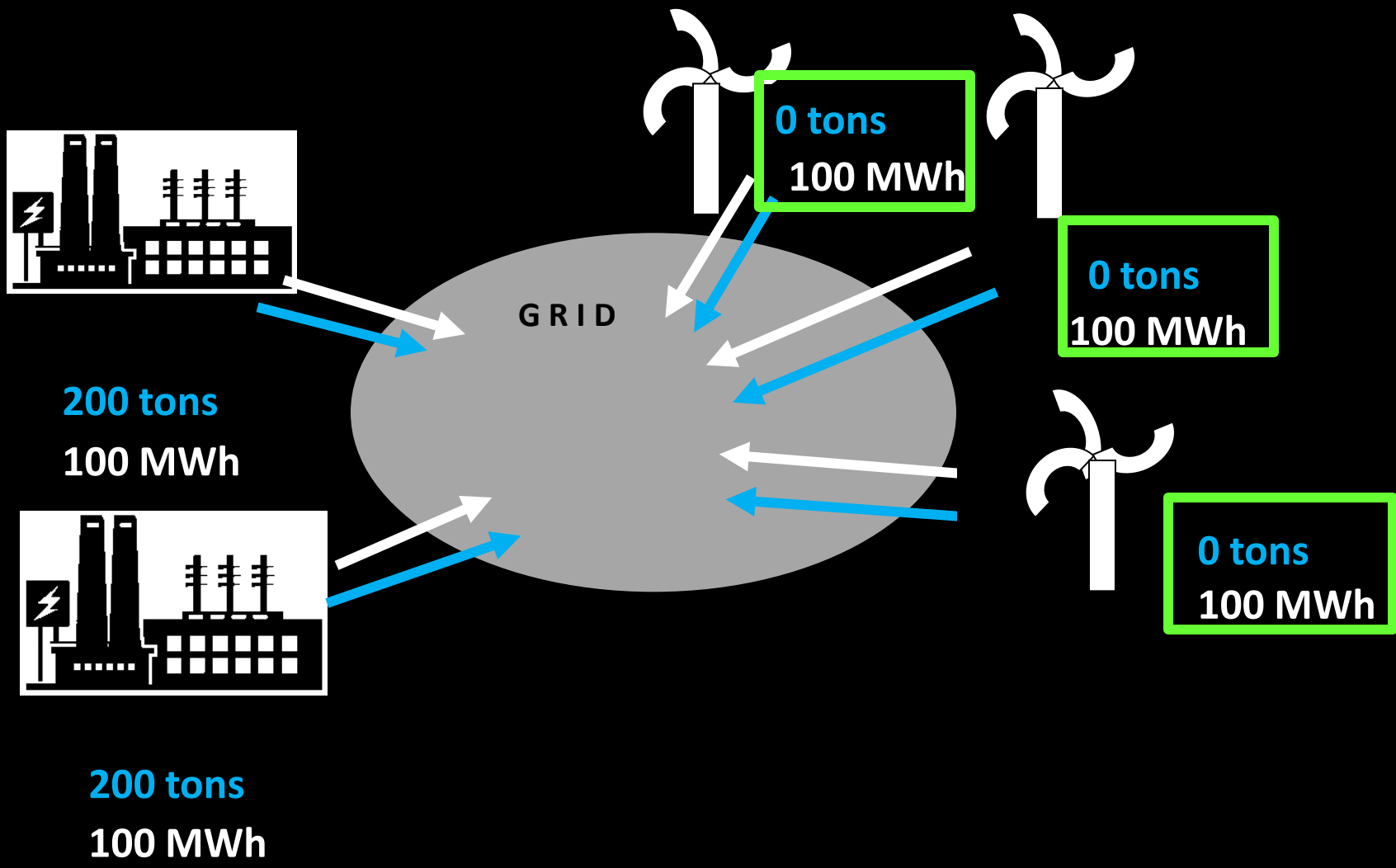
Three conditions necessary to support accounting



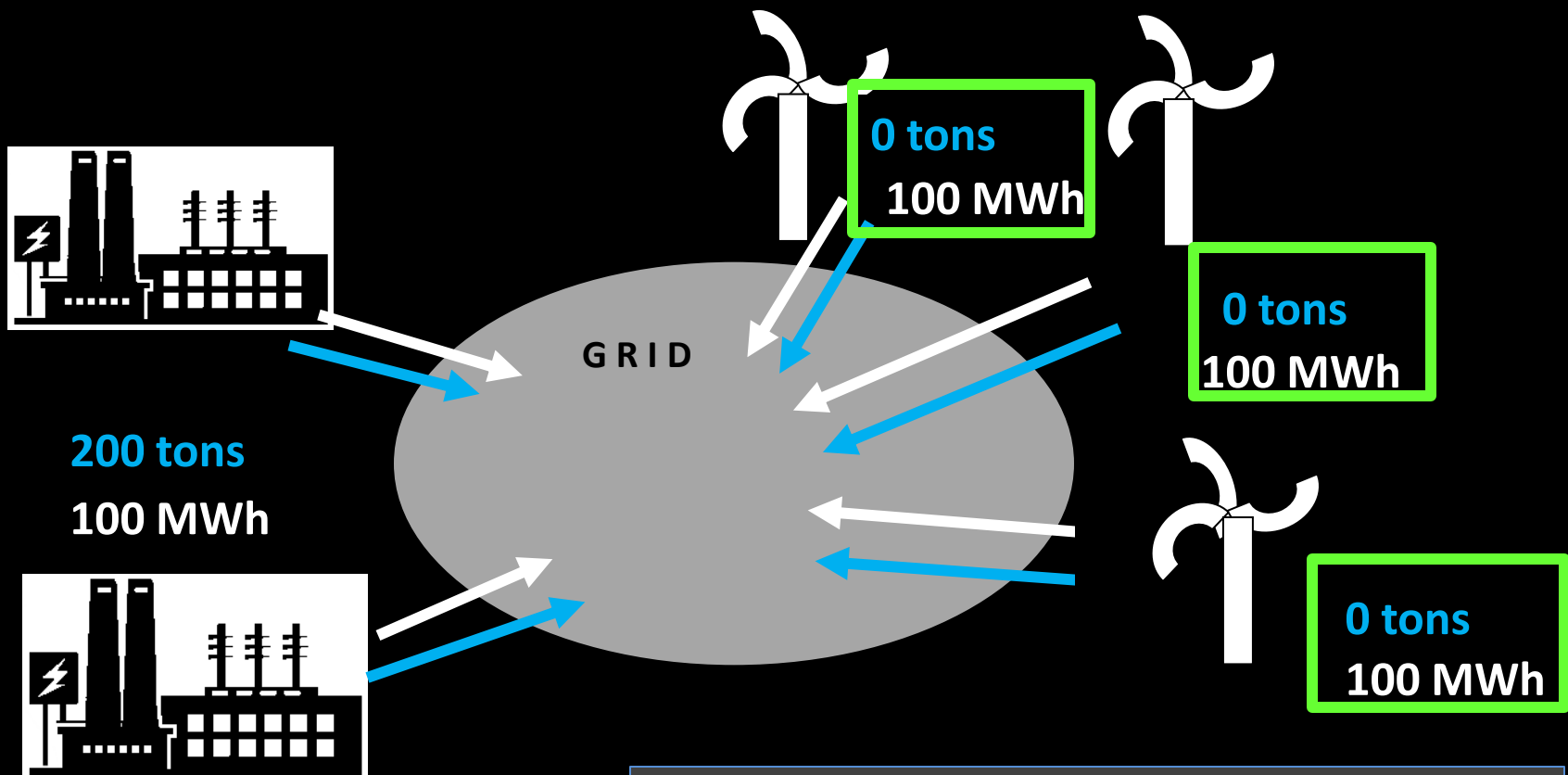
1. Clear ownership
2. Adjustment of grid Efs
3. Role for additionality



Adjusting Grid Average Emission Factors



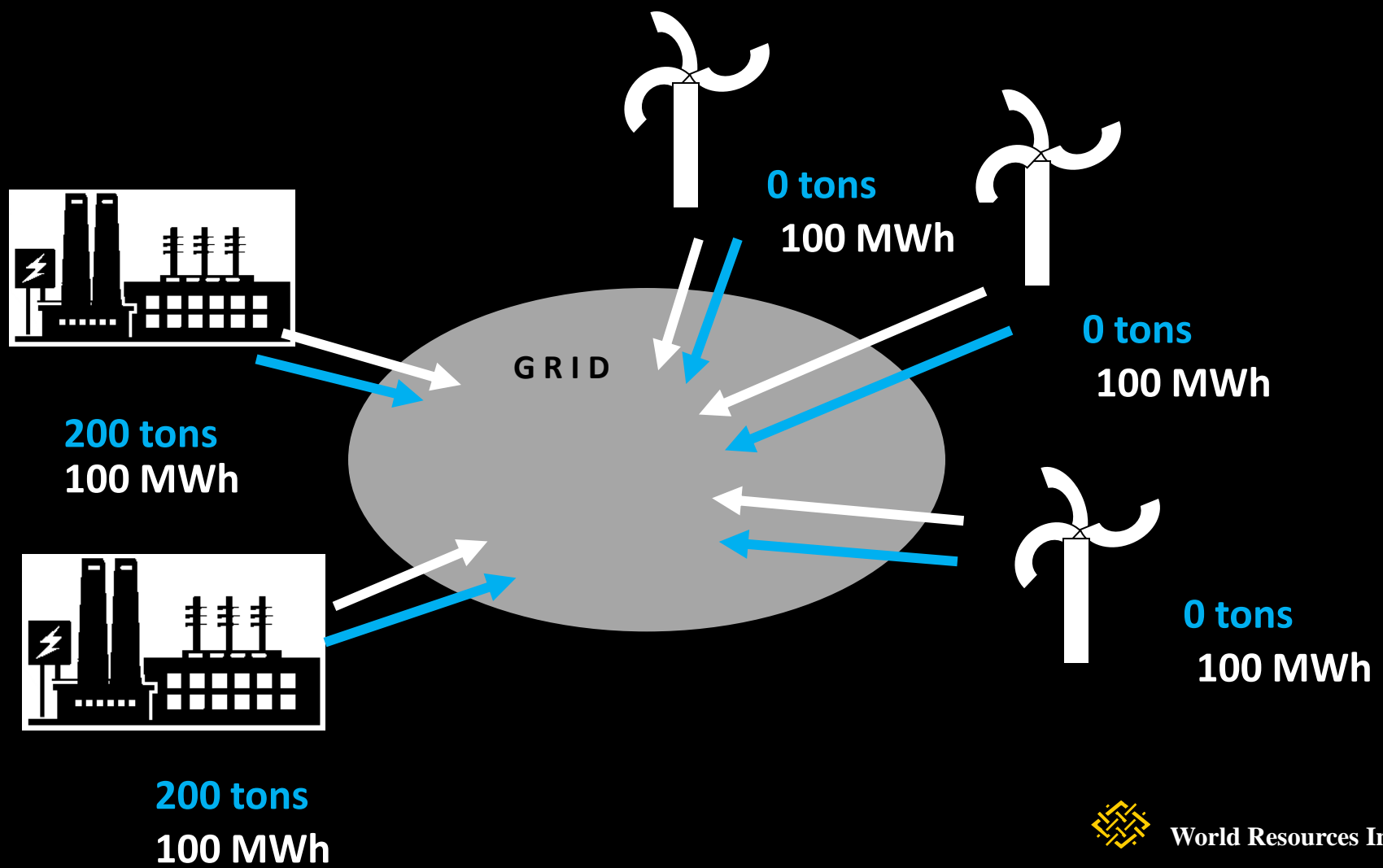
Example grid average EF adjustment



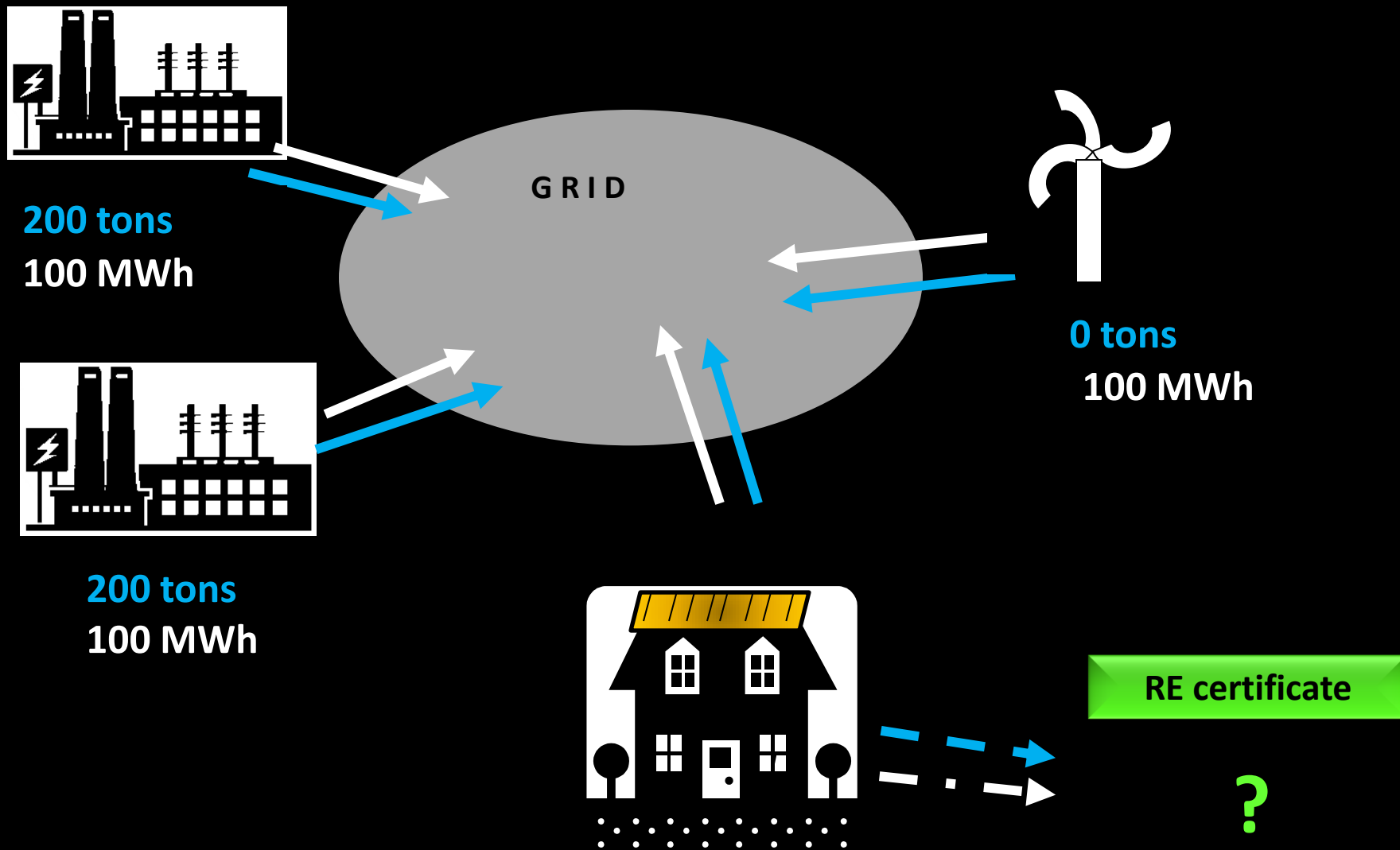
Grid avg EF: $\frac{400 \text{ tons}}{500 \text{ MWh}} = 0.8 \text{ tons/MWh}$

Adjusted grid avg EF: $\frac{400 - 0 \text{ tons}}{500 - 300 \text{ MWh}} = 2 \text{ tons/MWh}$

Additionality – two approaches



Treatment of emission rates from on-site RE generation



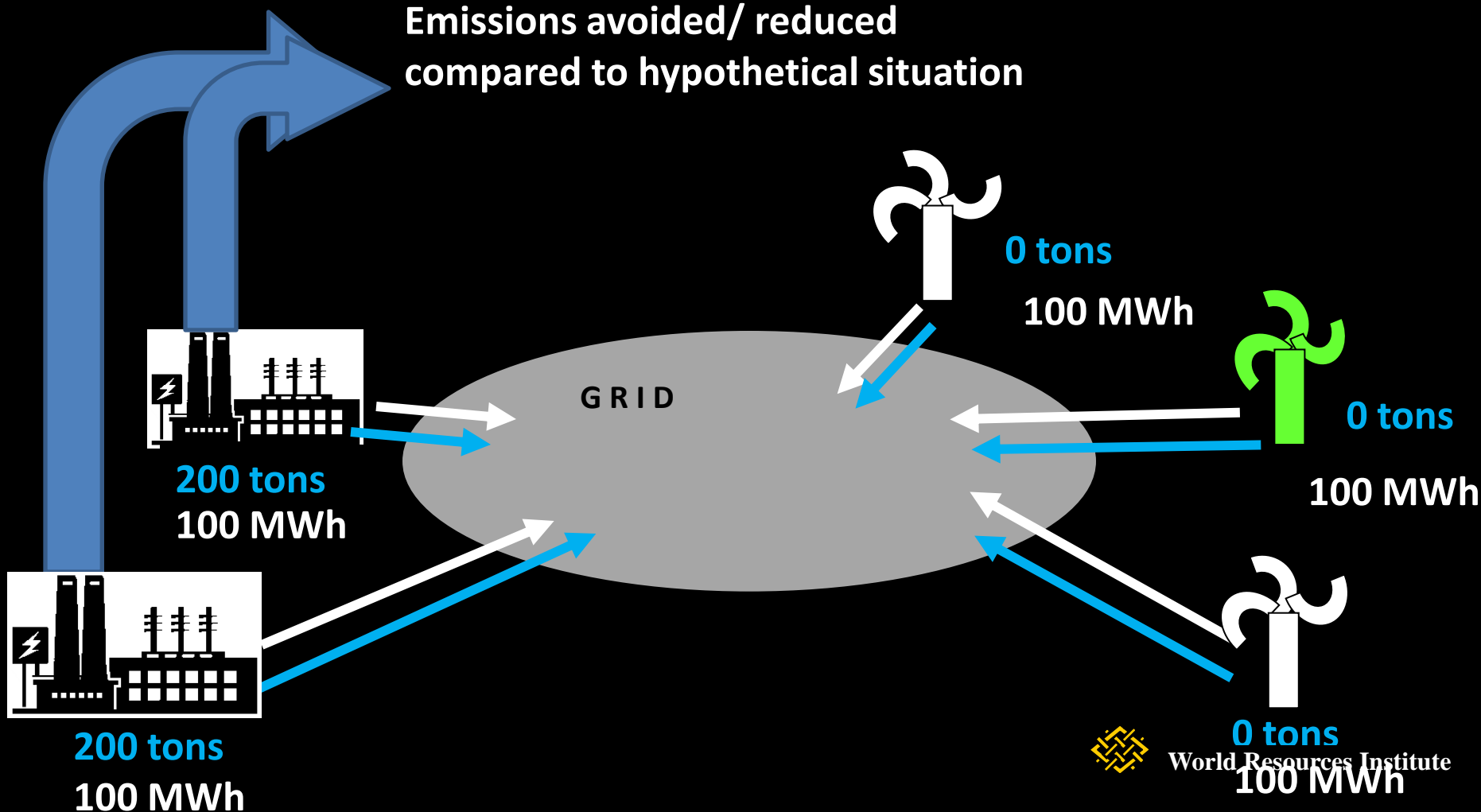
Outline

- The GHG action reference map
- Emission rates from RE projects
- Avoided emissions from RE projects
- Green tariffs

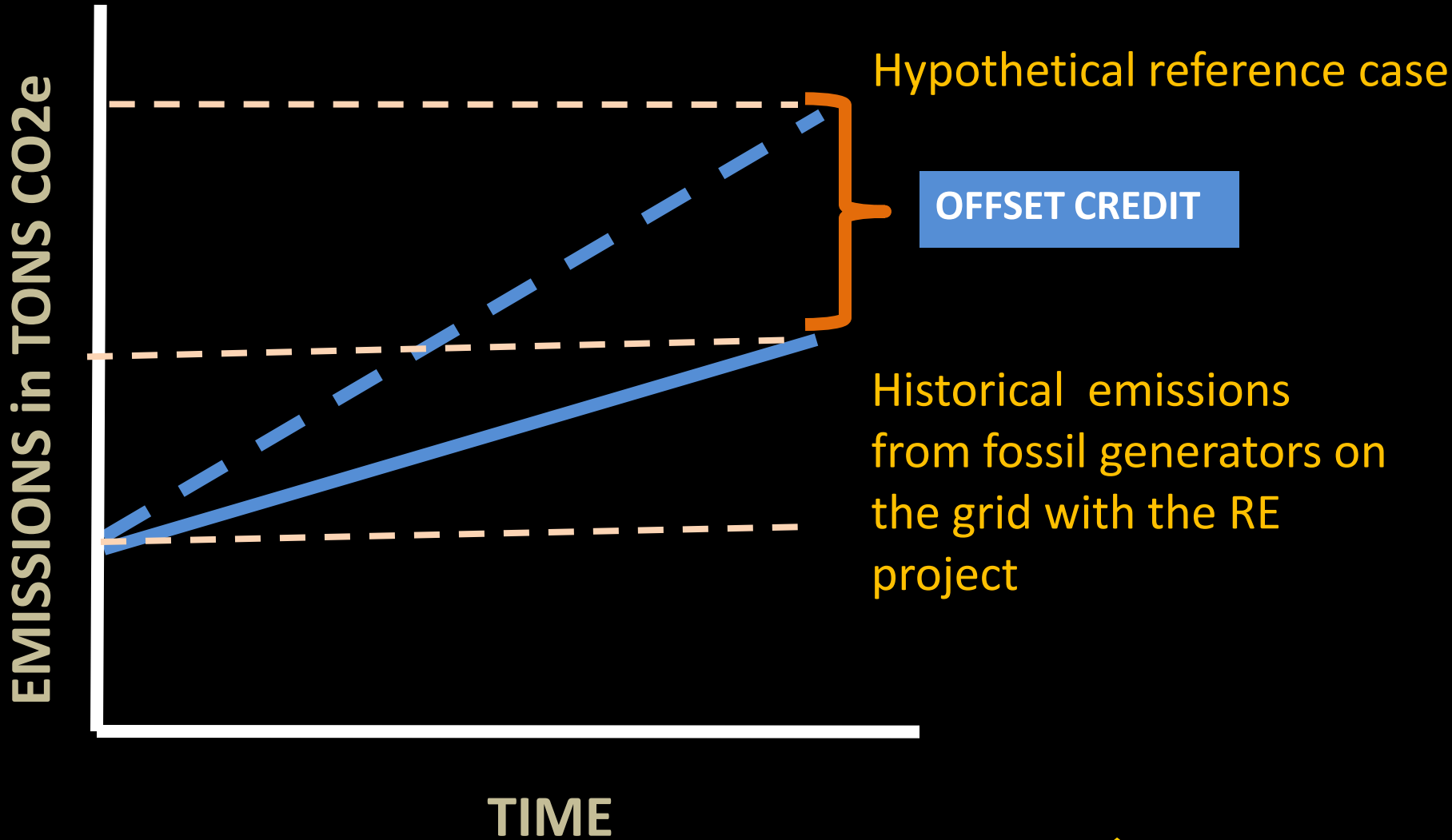


Diagram of what avoided emissions represent

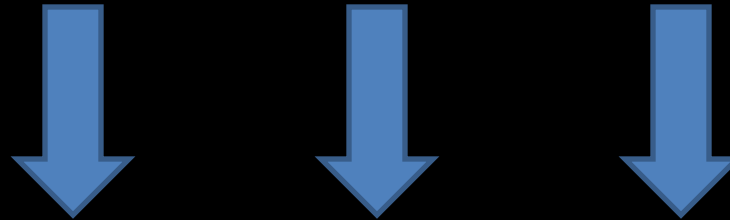
Emissions avoided/ reduced compared to hypothetical situation



Offset quantification illustration



Possible corporate accounting procedure for offset credits



Total emissions = 30 tons CO₂e + 50 tons CO₂e + 125 tons CO₂e = **205 tons CO₂e**

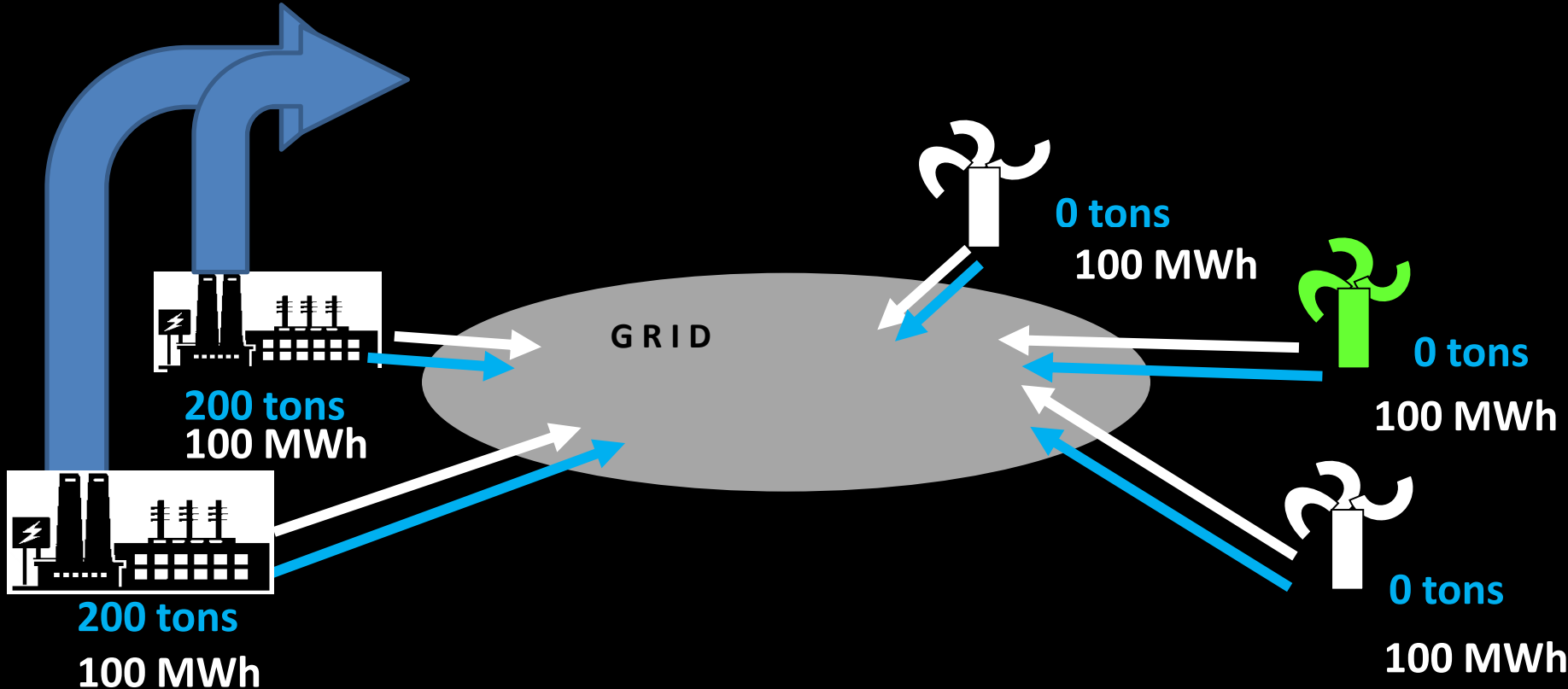
Offsets for all scopes' total 205 tons of offsets

Offsets for specific scopes' total
30 tons of offsets
50 tons of offsets



“Double counting” concerns

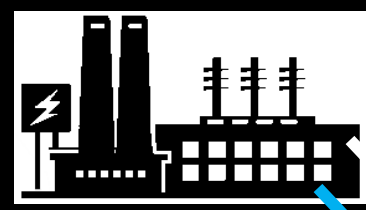
- Emissions rate
- Ownership of the offset
- Fossil generators’ scope 1



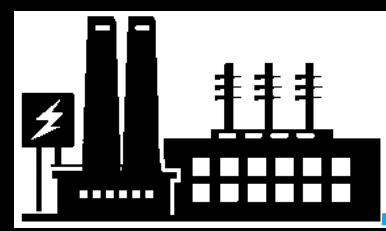
Power sector with an emissions cap

Cap set at emissions quantity x

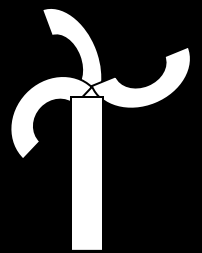
EMISSION ALLOWANCES



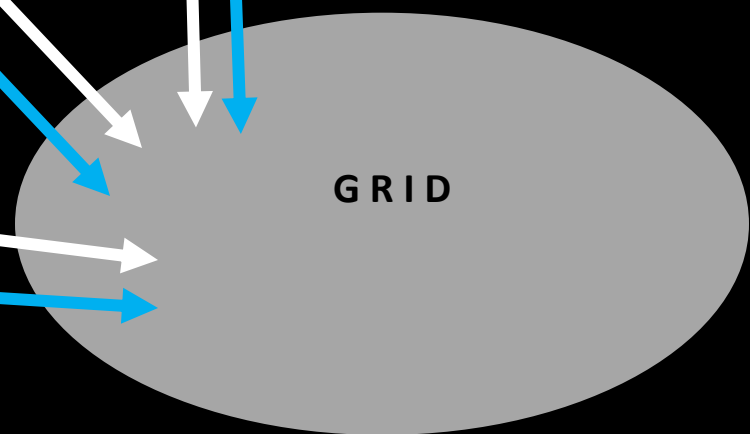
200 tons
100 MWh



200 tons
100 MWh



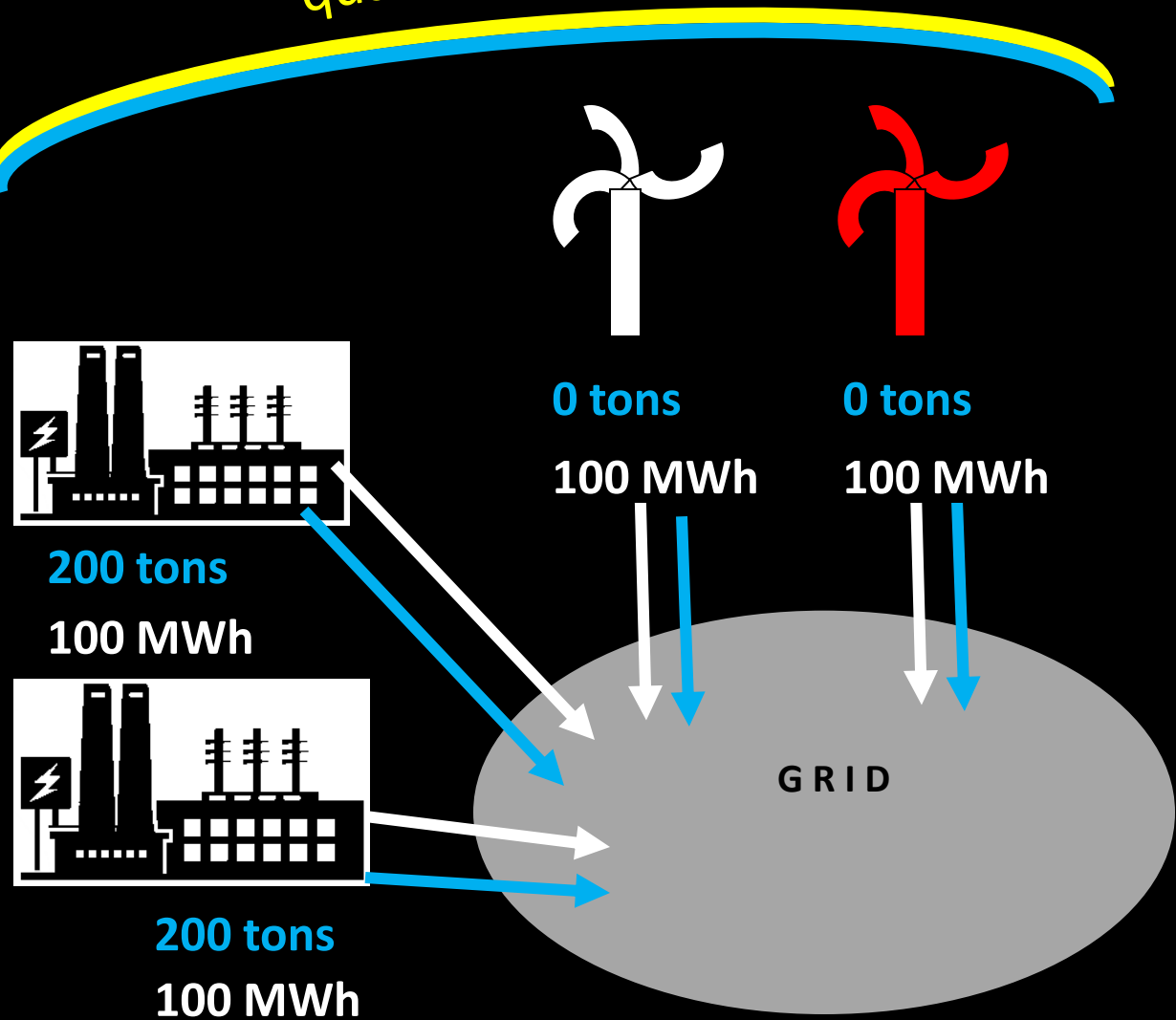
0 tons
100 MWh



New RE within an emissions cap

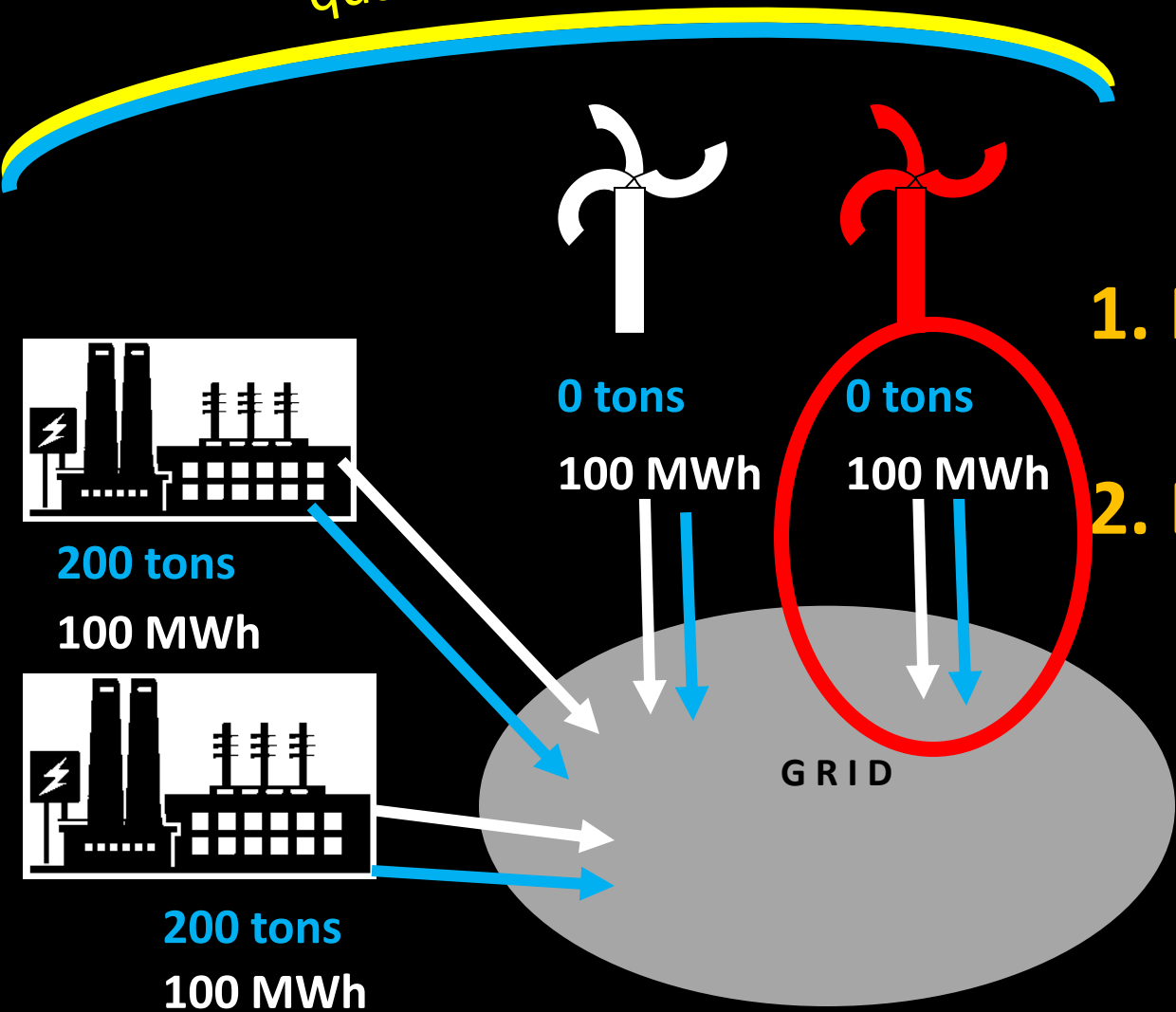
Cap set at emissions quantity x

EMISSION ALLOWANCES
EMISSION ALLOWANCES
EMISSION ALLOWANCES



Accounting components

Cap set at emissions quantity x



- 1. Retired allowance
- 2. Emissions rate

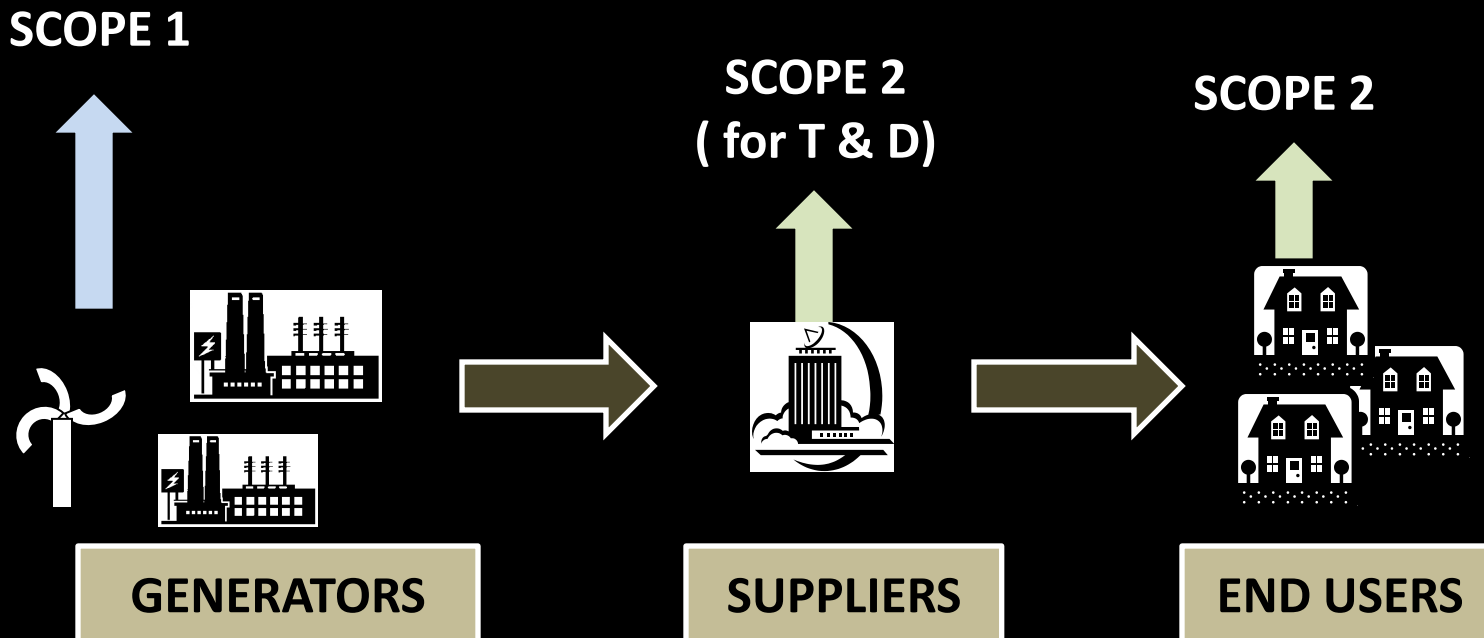
Outline

- The GHG action reference map
- Emission rates for RE projects
- Avoided emissions
- Green tariffs



Green tariff categories

- (i) The energy supplier puts investment towards new renewable capacity
- (ii) The energy supplier changes the physical mix of their supply
- (iii) The energy supplier purchases renewable energy contracts or tracking instruments
- (iv) The energy supplier obtains offsets



Clarifying Questions?



Session I: Accounting for Emission Rates from RE Projects

Outline

Three conditions:

- Clear System for Tracking and Conveying Ownership
- Role for additionality?
- Adjustment of grid-average EFs.
- Application to on-site RE generation
- The current UK position
- Questions for group discussion



2. Role for Additionality?

	Approach	Implications
No	Any RE installation may sell its emissions profile	<ul style="list-style-type: none">• Emissions profile may be conveyed with any RE tracking certificate• Purchase does not directly change GHG intensity of the grid



Explicit additionality criteria

Regulatory surplus: Is the project mandated by any existing law, policy or statute?

Financial barriers: Does it face capital constraints that revenues from instrument sales can address?

Common practice: Is the project activity commonly employed?

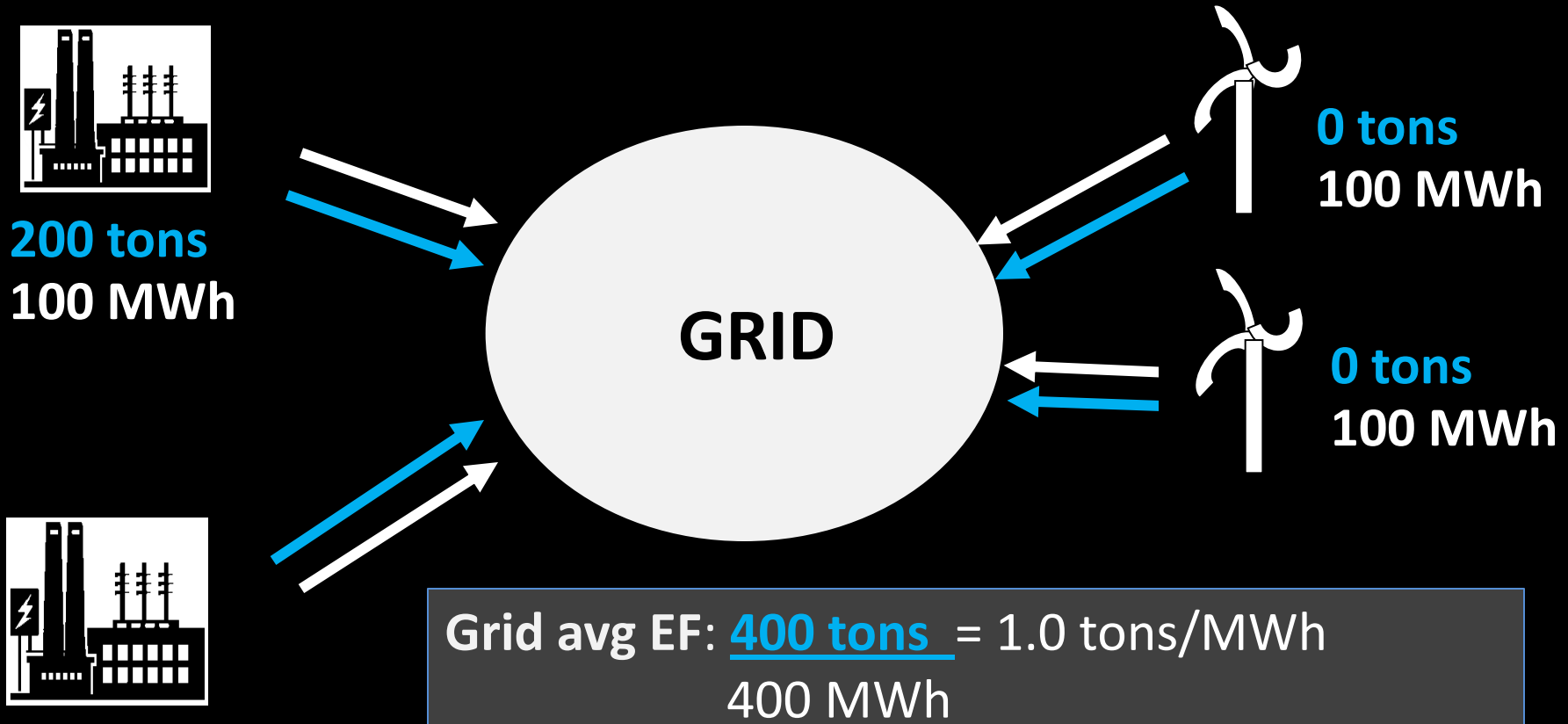


Role for Additionality?: Challenges

1. Are the simple additionality criteria sufficient?
2. What time horizon to apply, and what happens after this time horizon?
3. The RE instruments would not embody any avoided emissions



3. Adjusting Grid Average Emission Factors



200 tons
100 MWh

Adjusted grid: $\frac{400 - 0 \text{ tons}}{400 - 200 \text{ MWh}} = 2 \text{ tons/MWh}$
average EF



3. Adjusting Grid Average Emission Factors

Why?

1. Addressing consumer concerns:

- Do RE purchases convey exclusive rights to the emissions profile?
- Are RE purchases consequential?

2. Designing a system prepared for the market's growth



3. Adjusting Grid Average Emission Factors

How?

1. Who would make the adjustments? EF publishers, utilities, regional energy tracking systems?
2. Is it possible to adjust EFs on an adequate timescale?



Outline

Three conditions:

- Clear Ownership
- Role for additionality?
- Adjustment of grid-average EFs.
- Application to on-site RE generation
- The current UK position
- Questions for group discussion



Application to on-site RE generation

	GHG profile retained	GHG profile sold
Energy not sold to grid	No adjustment to grid EF	
	Lower scope 2	Seller can adjust scope 2 emissions
Energy sold to grid	Adjust grid EF	



The Current UK Position

The UK Government's guidance on measuring and reporting GHG emissions sets out the criteria for claiming an emissions reduction from renewable electricity:

- Organisations should account for all electricity purchased for own consumption from the National Grid or a third party at the 'Grid Rolling Average' factor (irrespective of the source of the electricity) in scope 2
- Organisations should account for electricity generated from owned or controlled renewable sources backed by REGOs at zero emissions in Scope 1
- Organisations may also report an emissions reduction in their reported net figure for any renewable electricity they have generated and exported to the National Grid at the Grid Rolling Average factor. The amount reported in this way should not exceed their actual electricity use.
- Organisations should account for any subsidy received from generating electricity (e.g. ROCs) in a supporting narrative.

Discussion Questions

1. What are organizations' experiences with using RE instruments as contractual EFs?
2. What are the implications of additionality requirements?
3. What are the technical challenges in implementing grid-adjustment?
4. What are organizations' experiences with accounting for on-site projects?
5. What are other advantages and disadvantages, and the prospects for this approach?



Session II: Accounting for Avoided Emissions from RE Projects

Session II Outline

Double Counting concerns with RE avoided emission claims

1. Emissions rate
2. Ownership of the offset
3. Fossil generators' scope 1

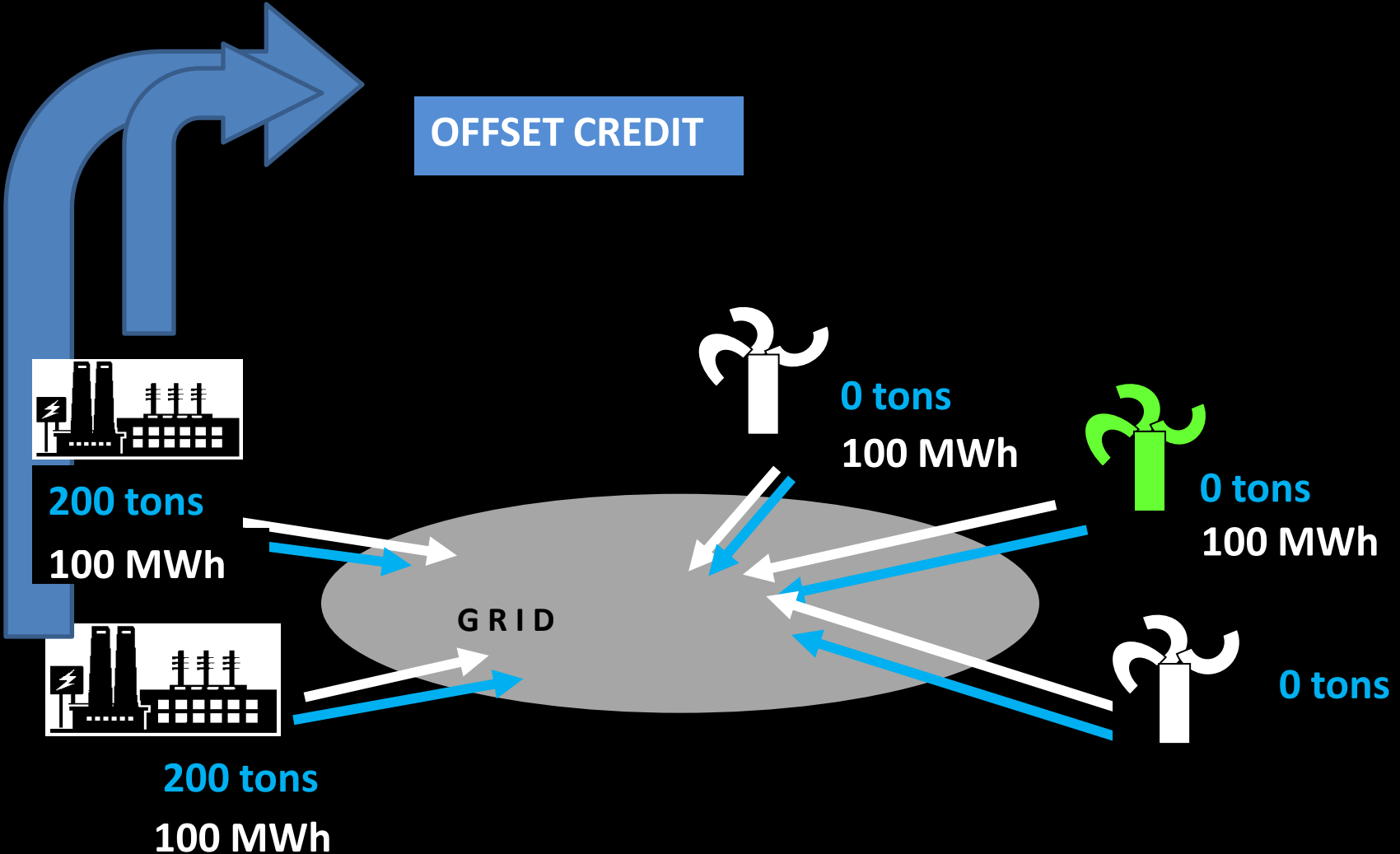
Avoided emissions in a capped power sector

Discussion questions



“Double counting” concerns

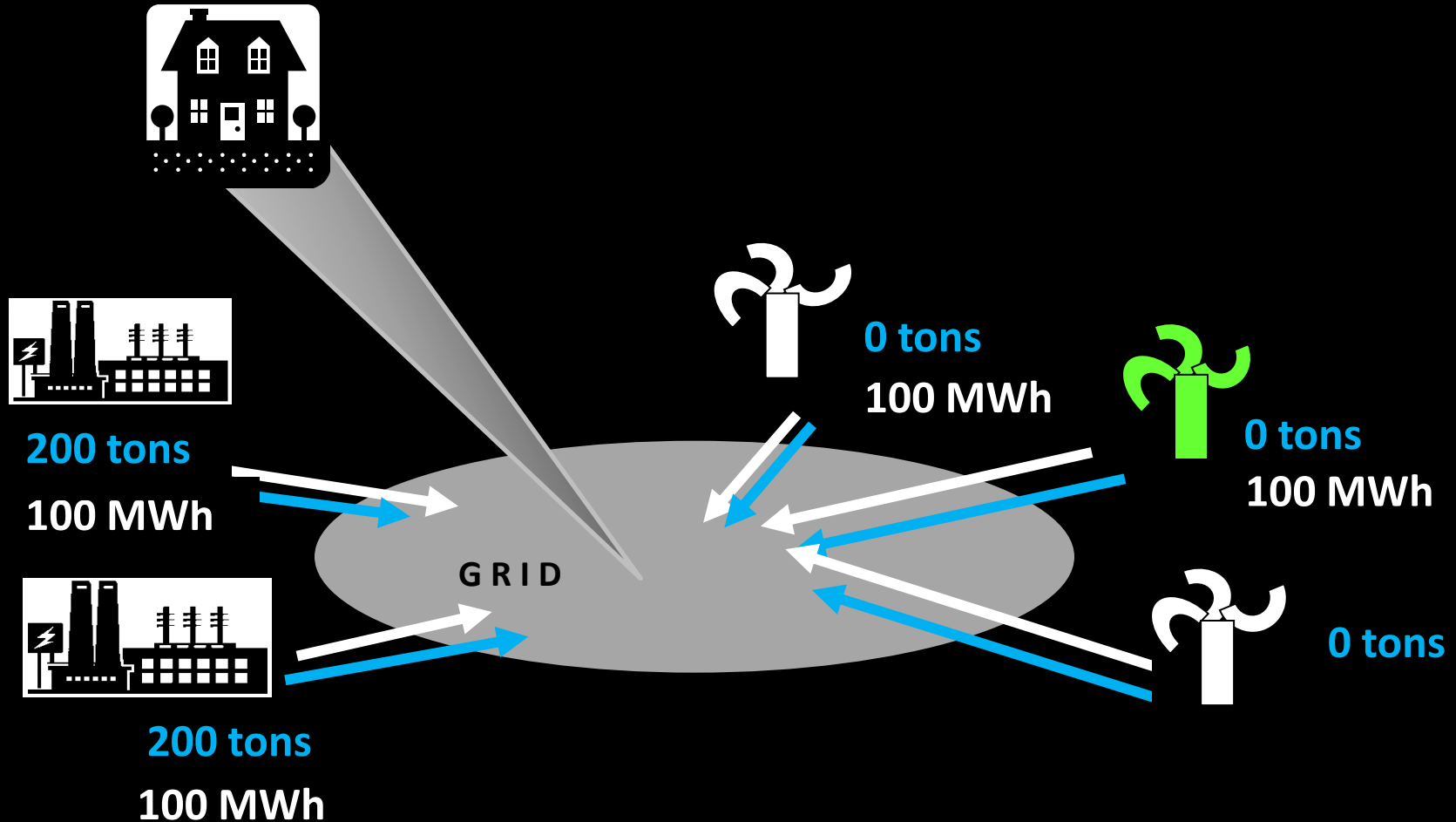
- Emissions rate



“Double counting” concerns

- Emissions rate

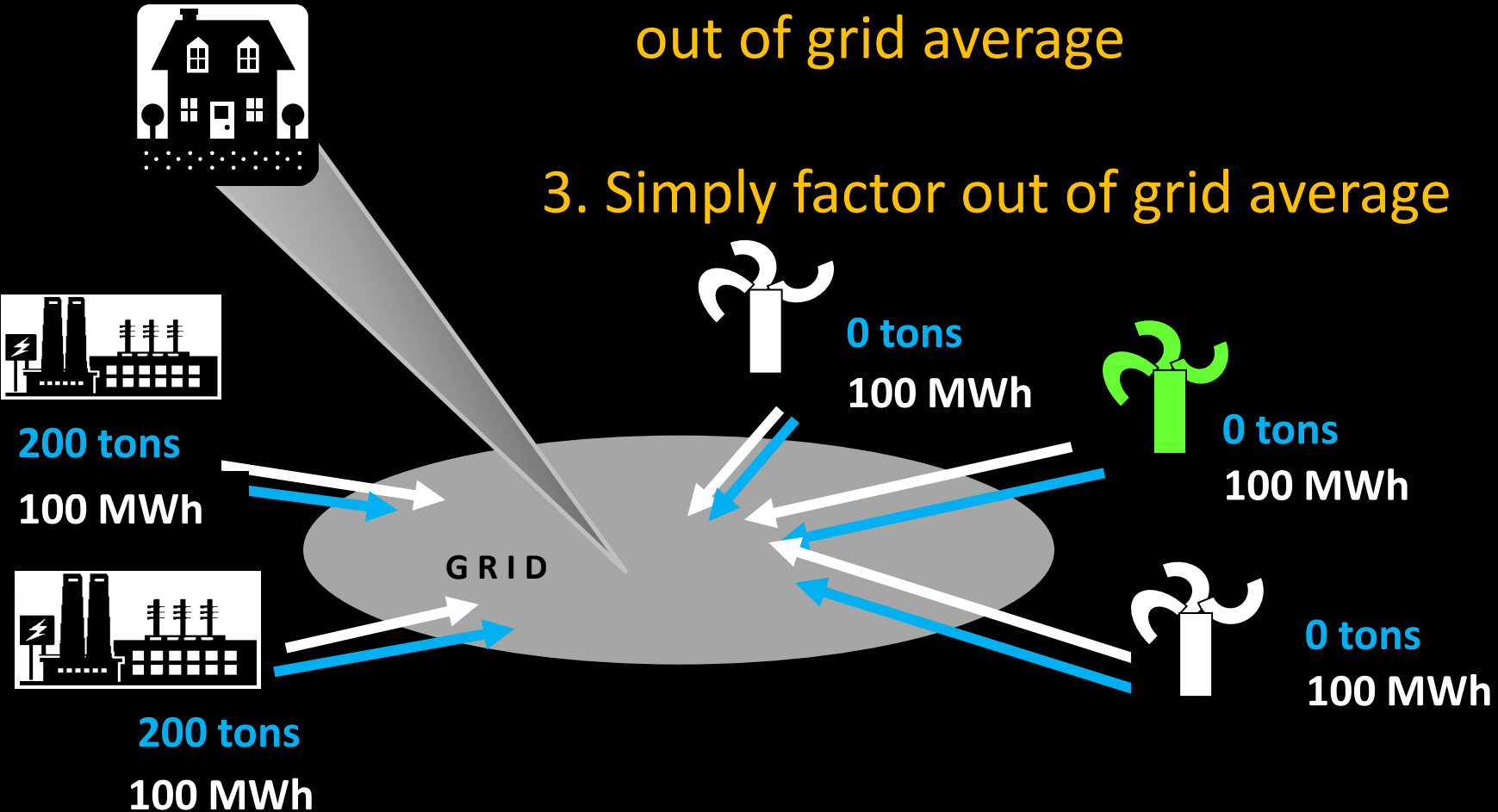
1. Keep in grid average



“Double counting” concerns

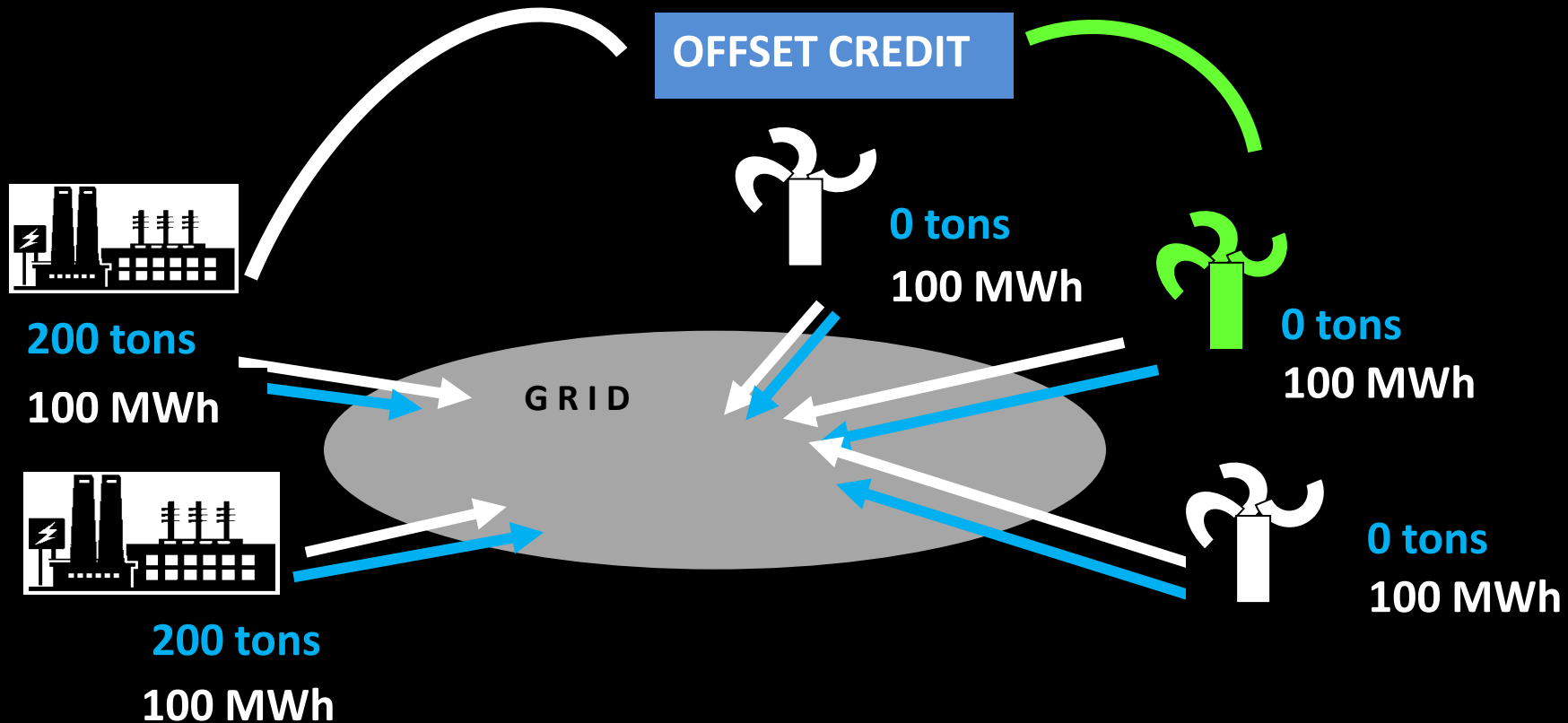
- Emissions rate

- 1. Keep in grid average
- 2. Sell off as RE certificate & factored out of grid average
- 3. Simply factor out of grid average



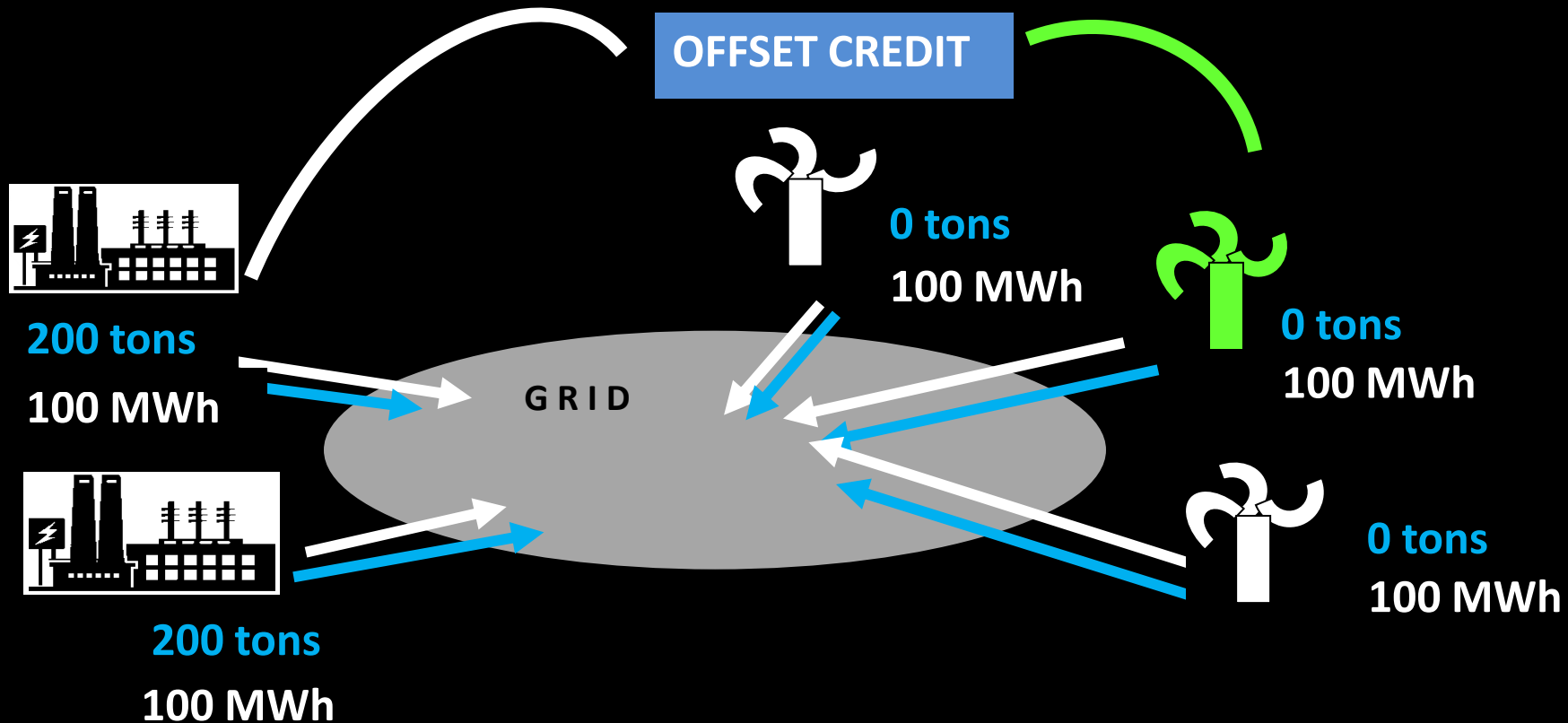
“Double counting” concerns

- Emissions rate
- Ownership of the offset

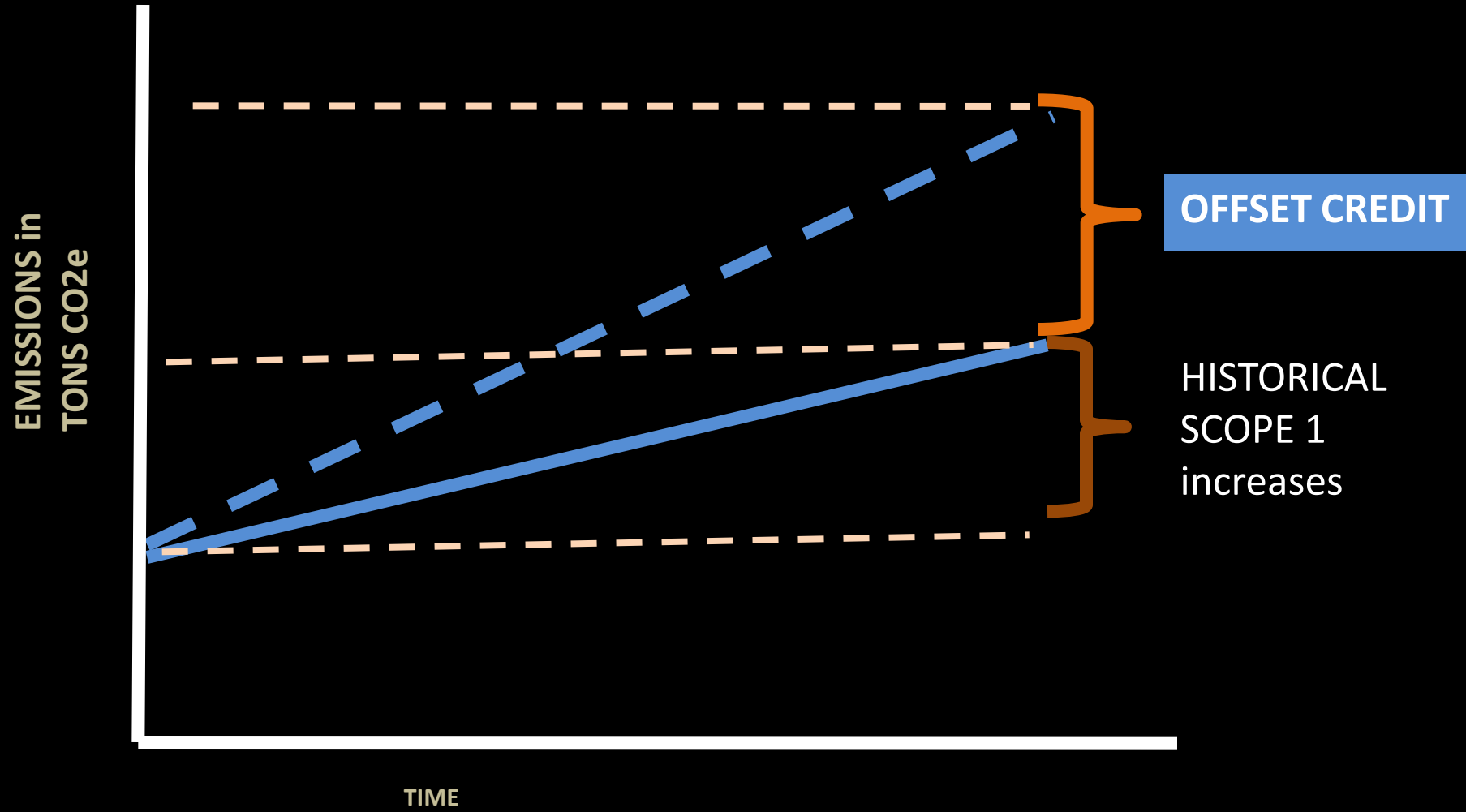


“Double counting” concerns

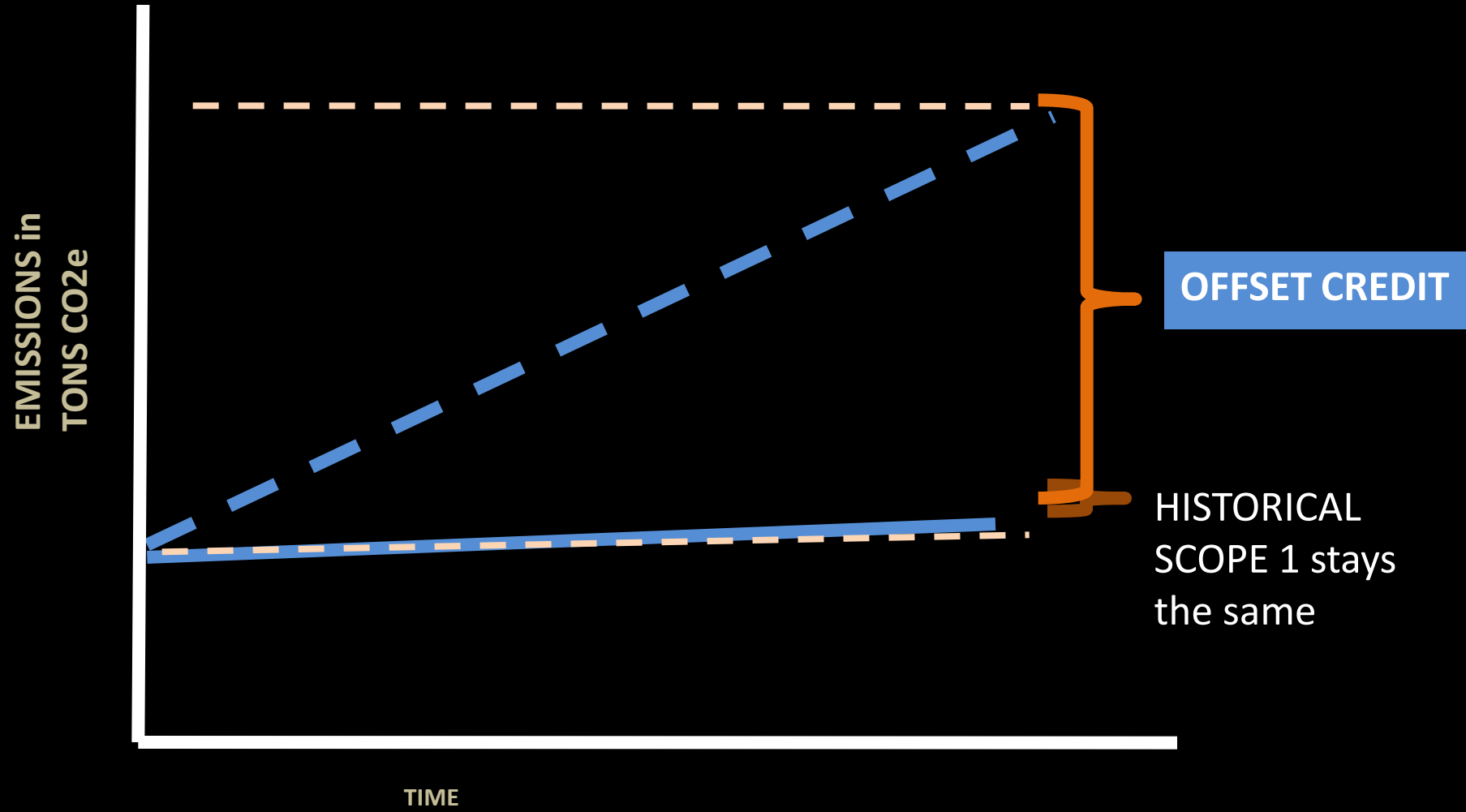
- Emissions rate
- Ownership of the offset
- Fossil generators’ scope 1



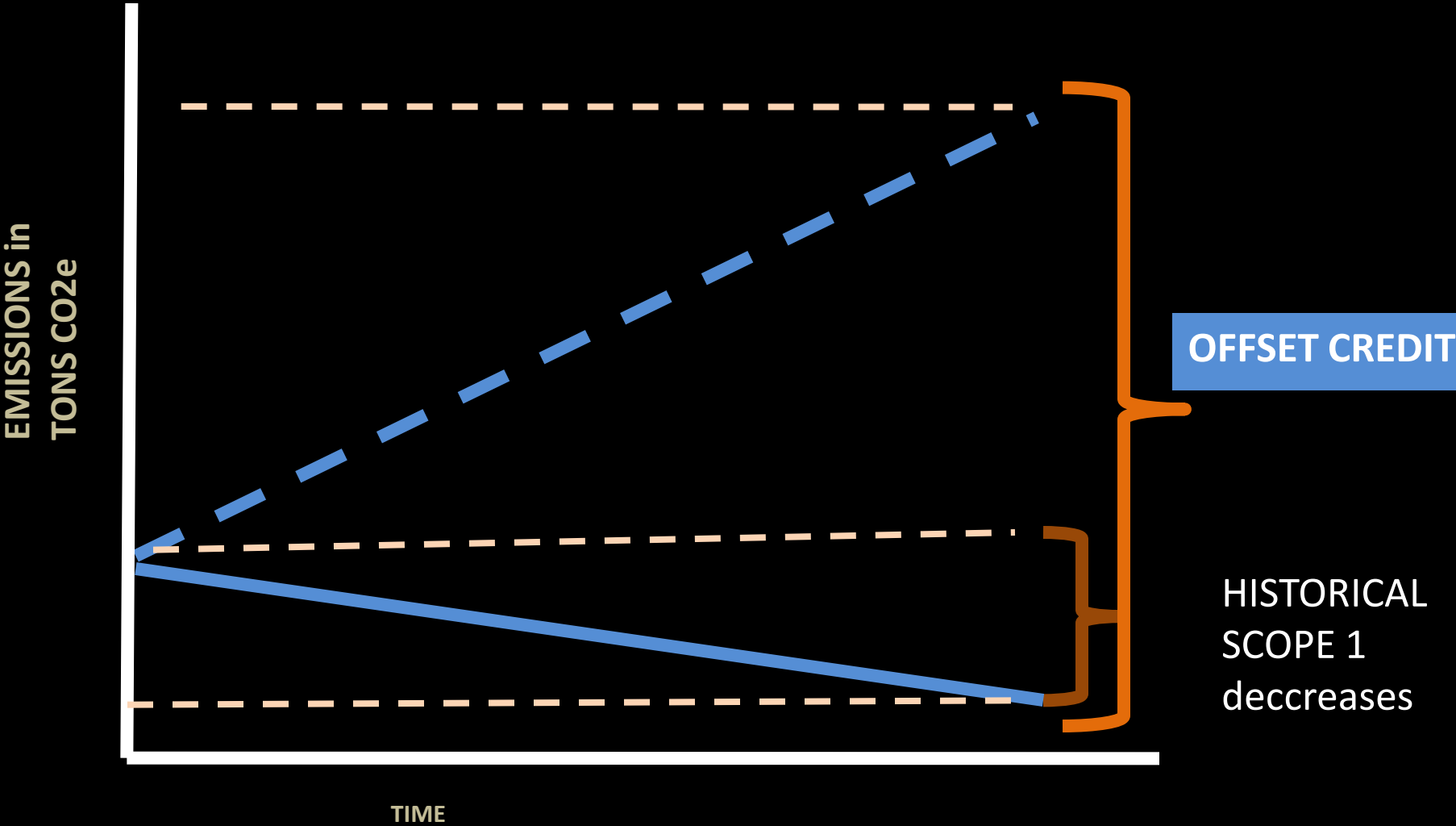
Scenario 1: generators' historical scope 1 increases



Scenario 2: generators' historical scope 1 stays the same



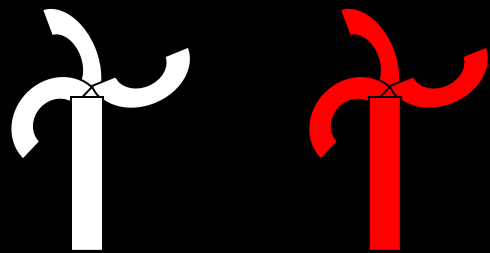
Scenario 3: generators' historical scope 1 decreases



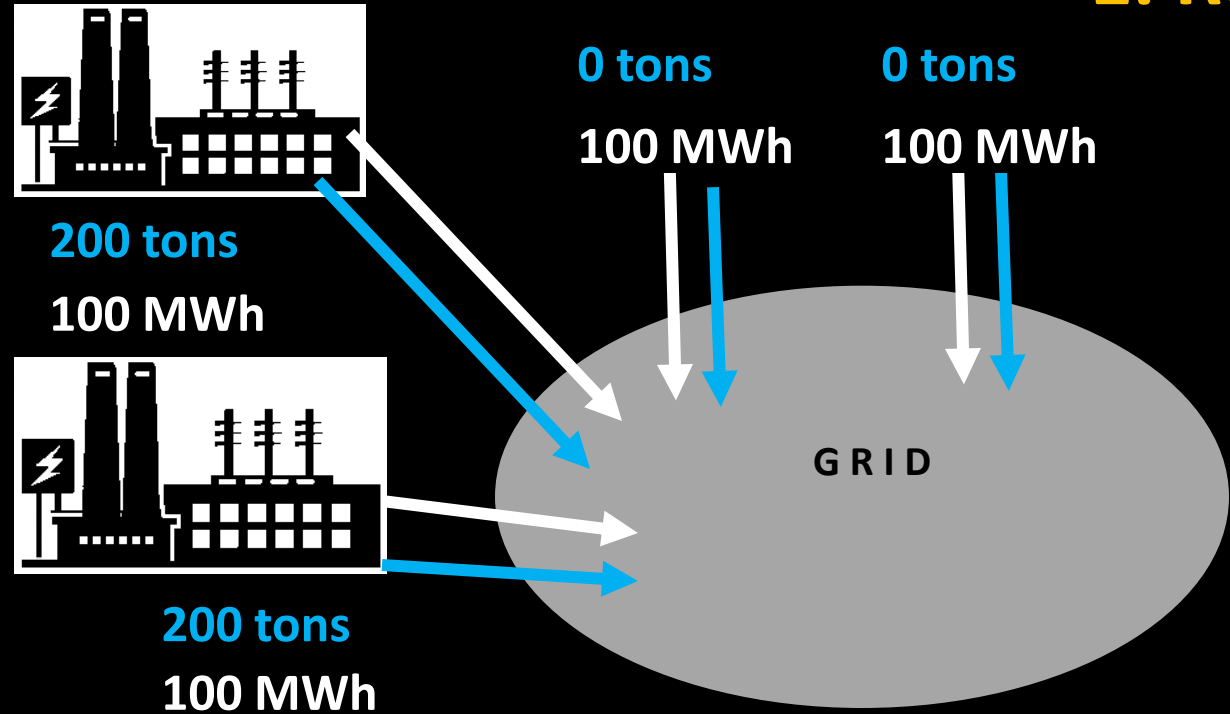
Accounting components

Cap set at emissions quantity x

EMISSION ALLOWANCES



1. Retired allowance

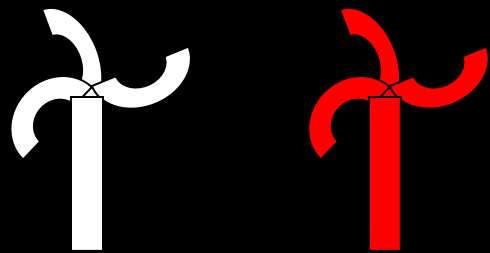


Accounting components

Cap set at emissions quantity x

EMISSION ALLOWANCES

EMISSION ALLOWANCES

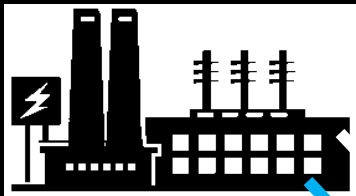


0 tons
100 MWh

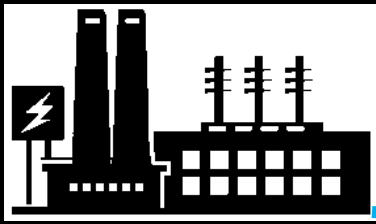
0 tons
100 MWh

1. Retired allowance

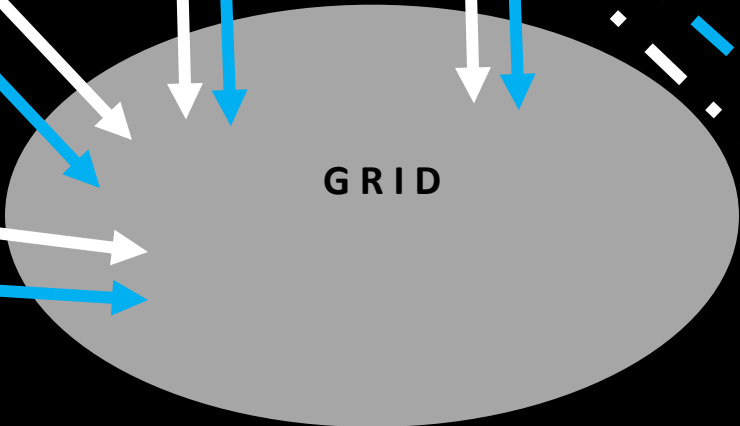
2. Emissions rate



200 tons
100 MWh



200 tons
100 MWh



RE certificate conveying
0 tons emissions/ MWh



Session II: Accounting for Avoided Emissions from RE Projects

Discussion Questions

- What are organizations' experiences with this approach?
- Have organizations estimated avoided emissions from their energy contracts, on-site generation installations, or other projects using project-level methodology?
- What do consumers expect with regards to the emission rate from RE offset projects? Should this be available for sale as an emission factor, or retired?
- Have organizations treated retired allowances from cap and trade schemes as a GHG mitigation instrument?

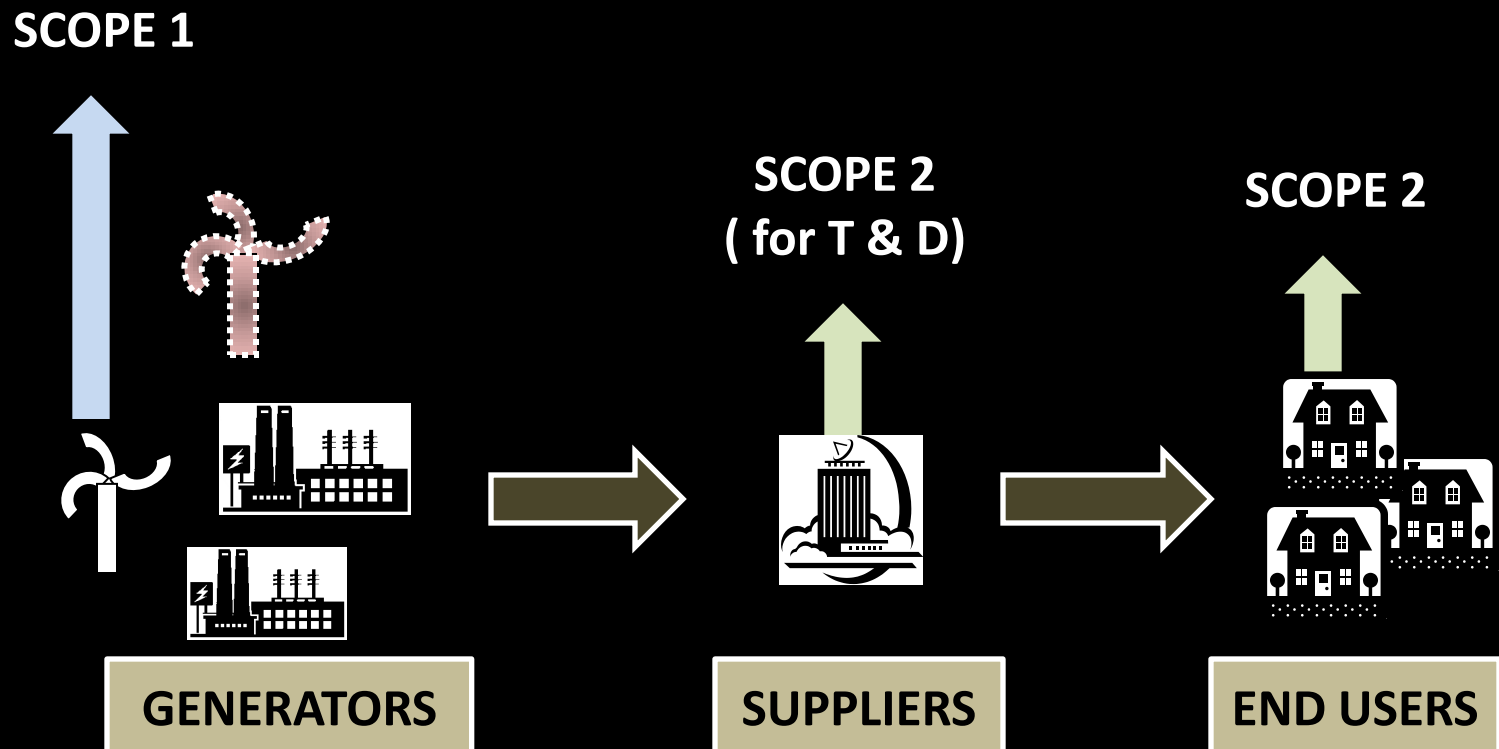


Session III: Accounting for Green Tariffs



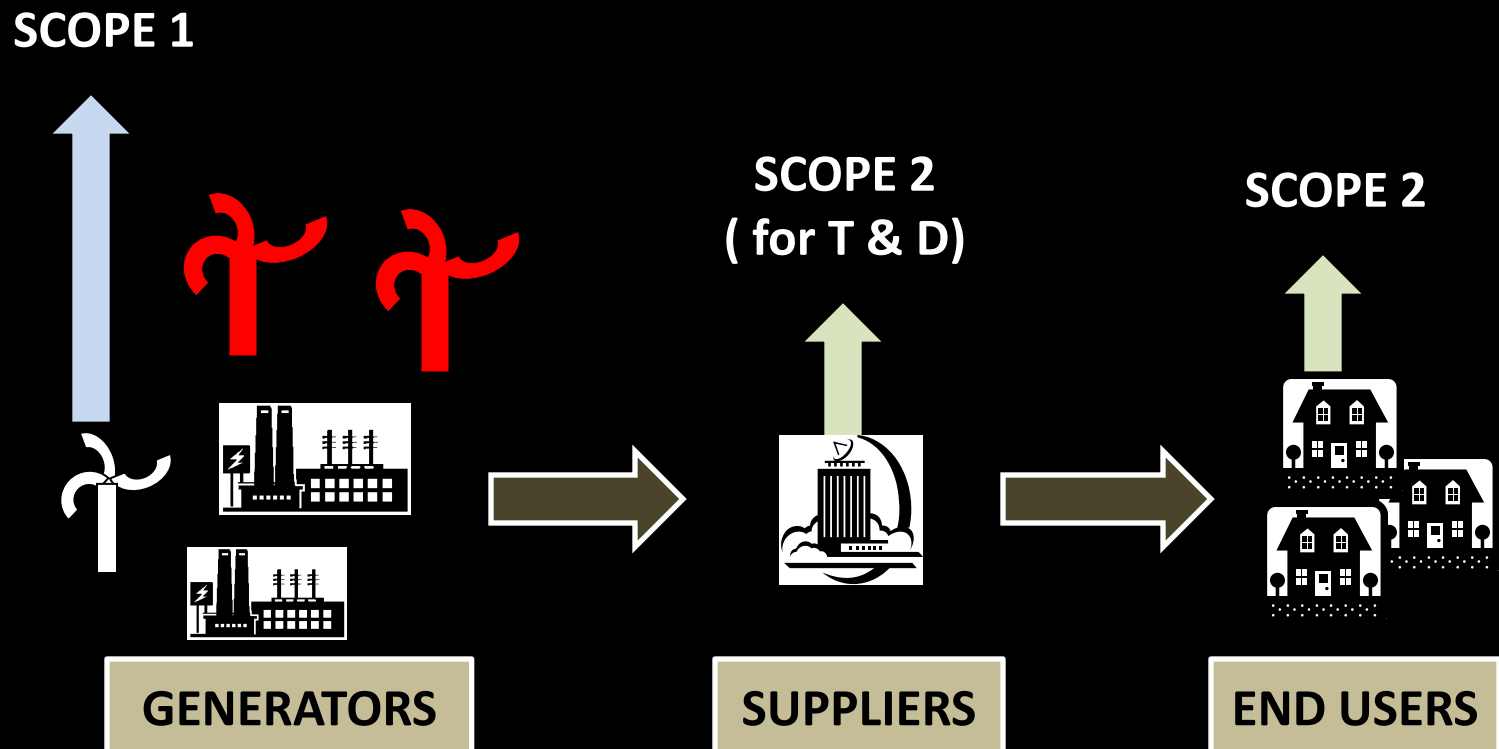
Green tariff categories

(i) The energy supplier puts investment towards new renewable capacity



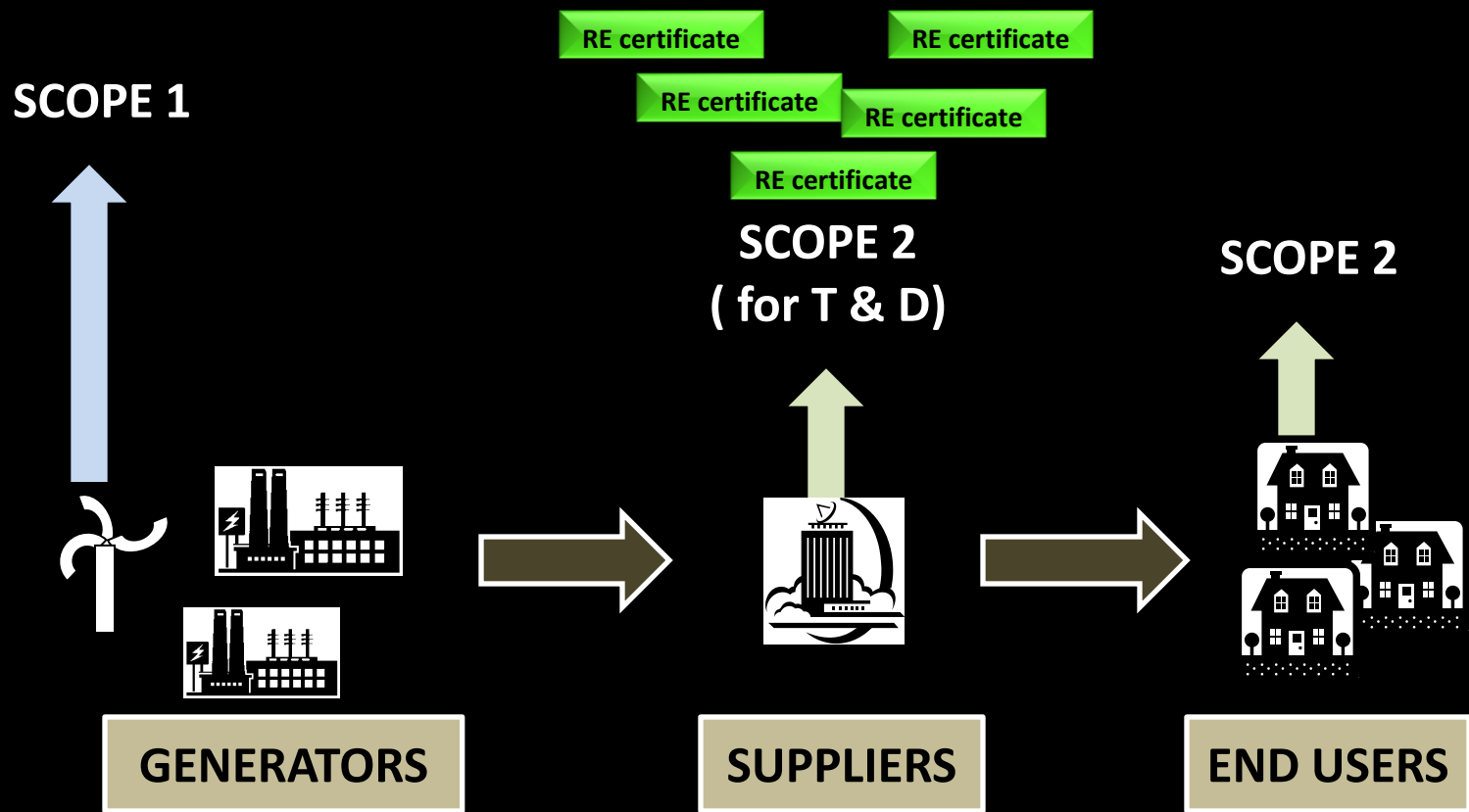
Green tariff categories

- (i) The energy supplier puts investment towards new renewable capacity
- (ii) The energy supplier changes the physical mix of their supply



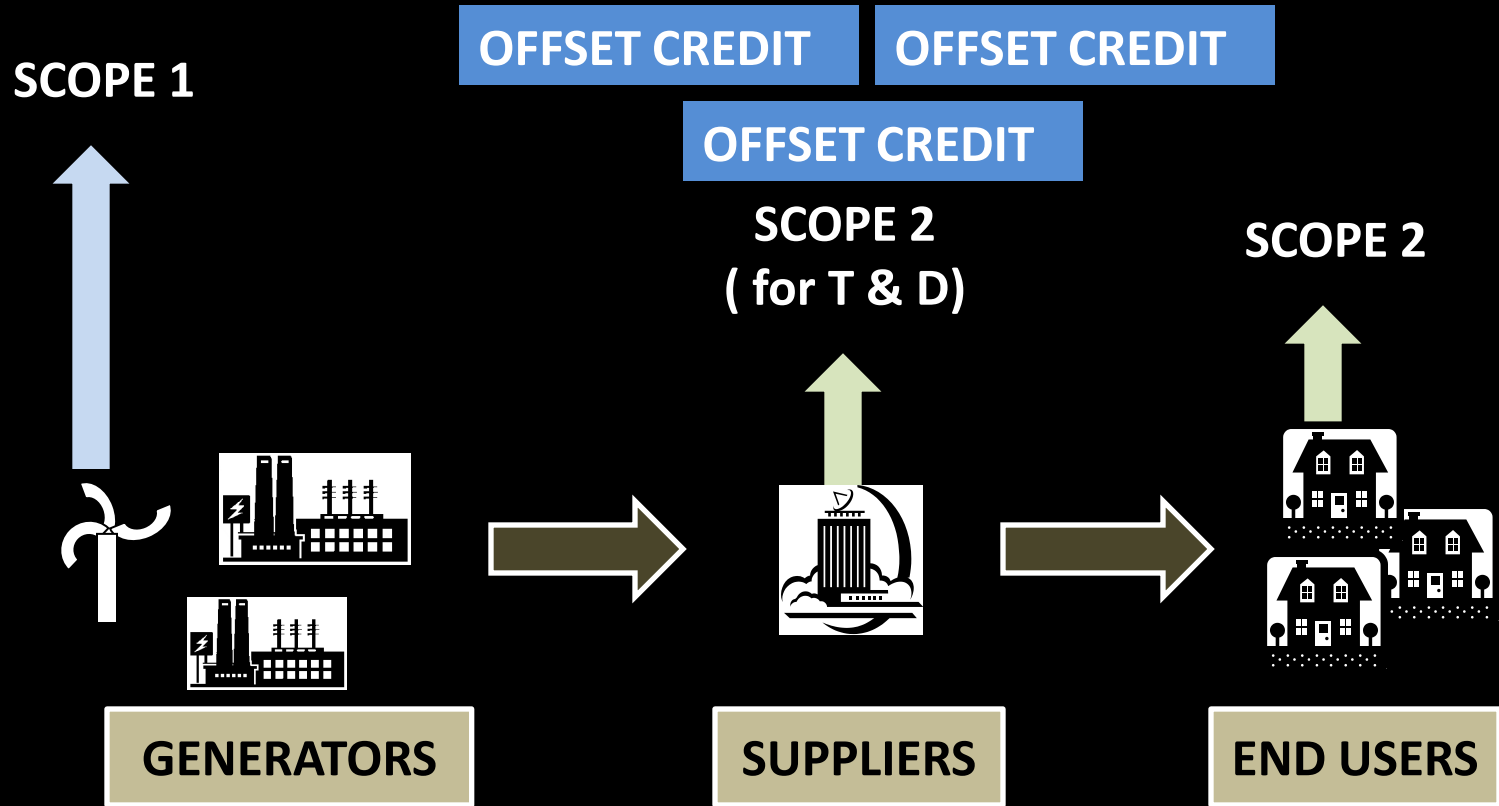
Green tariff categories

- (i) The energy supplier puts investment towards new renewable capacity
- (ii) The energy supplier changes the physical mix of their supply
- (iii) The energy supplier purchases renewable energy contracts or tracking instruments



Green tariff categories

- (i) The energy supplier puts investment towards new renewable capacity
- (ii) The energy supplier changes the physical mix of their supply
- (iii) The energy supplier purchases renewable energy contracts or tracking instruments
- (iv) The energy supplier obtains offsets



Current UK Position

The UK Government's guidance on measuring and reporting GHG emissions sets out the criteria for claiming an emissions reduction from a green tariff.

- SMEs can report a reduction in their net emissions figure where they use a green electricity tariff accredited under the Green Energy Supply Certification Scheme.
- This guarantees that electricity will be matched by renewable electricity; and that the tariff will also deliver additional environmental benefits, such as carbon offsetting, investment in additional voluntary activities;
- Large organisations can claim an emissions reduction where:
 - they use a green electricity tariff equivalent to that required under Ofgem's green supply guidelines, and
 - there is an additional carbon saving achieved through the purchase of a green tariff that would not have happened otherwise. The only measure of additionality which qualifies is Kyoto-compliant carbon credits.

Session III: Accounting for Green Tariffs

Discussion Questions

- What are organizations' experiences with green tariff programs?
- Are there tariff arrangement categories not listed here?
- What are the other accounting implications of the different program categories outlined?
- What supplier information would helpful to make more transparent?

