GREENHOUSE GAS PROTOCOL

Overview of the GHG Protocol
Power Accounting Guidelines

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PCF World Forum Summit

Berlin, Germany - 18 April 2012

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Outline

- How are companies purchasing renewable energy, and why?
- How are companies accounting and reporting these purchasing in their GHG inventories?
- What are the accounting challenges associated with reflecting purchasing instruments?
- How is the GHG Protocol addressing these issues?

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Scope 2 Total = **Consumption** X **Generation-Only Emission Factor of Consumed or Purchased Electricity**

Purchase and apply an offset credit to reduce any scope's emissions

Efficiency

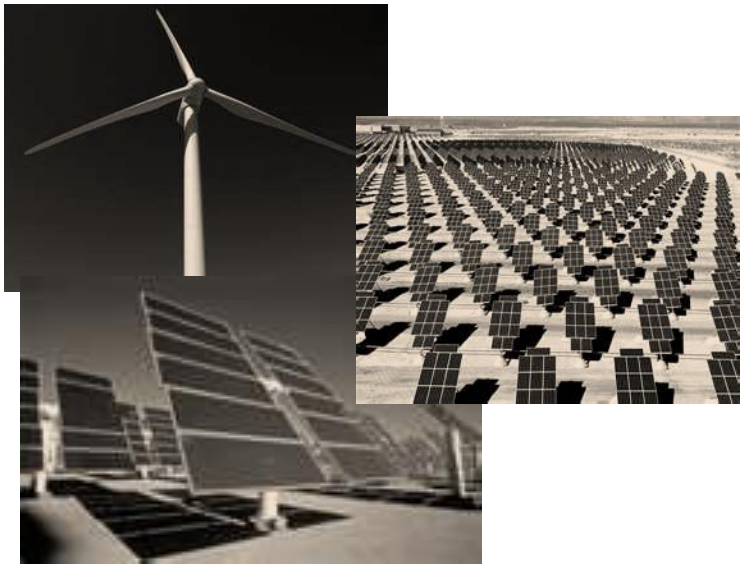
Conservation

Install Onsite RE to reduce grid purchase (any emissions from owned/operated become scope 1)

Factor may change due to no personal efforts of consumers

Large-scale efficiency or on-site RE may impact this, but indirectly

Change the GHG-intensity of the product you're consuming!

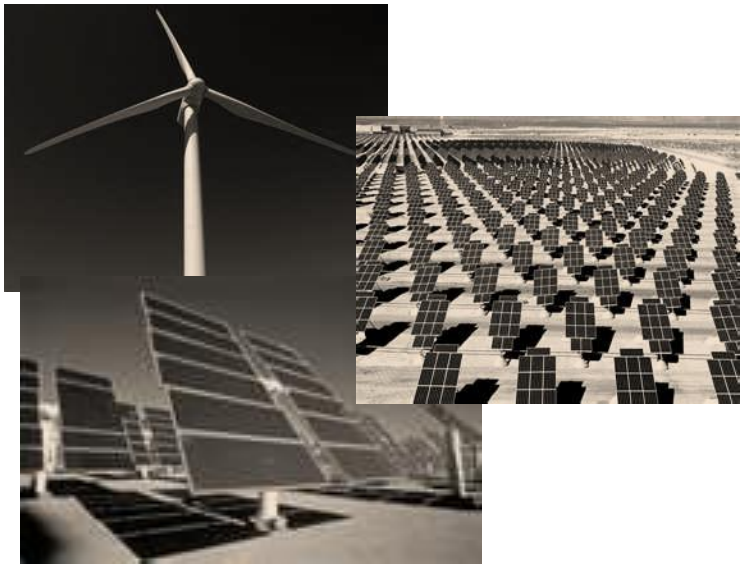


Power Purchase agreements (generator-consumer)

Change to suppliers with GHG-intensive profile (or differentiated product)

WindSource, NatureMade, Ok Power

Purchase tracking instrument reflecting environmental "benefits" of low-carbon energy production



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Renewable Energy Certificates in the US

- **Purposes**: regulatory quota tracking and voluntary support (revenue stream for developers) - 1997

- **Implementation**:
  - Certified primarily by Green-e across US with specific eligibility criteria for voluntary uses, meeting consumer demands
  - Tracking systems in place for RECs across all states
  - Government recognition program - EPA Green Power Partnership

Guarantees of Origins in the EU

- **Purposes**: supplier fuel mix disclosure, accurate tracking

- **Implementation**:
  - Country-specific, may not always be defined with carbon attributes appropriate for accounting
  - Varying popularity as voluntary corporate purchasing instrument separate from physical energy

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Using a grid-average emissions factor to allocate production emissions to end-consumers

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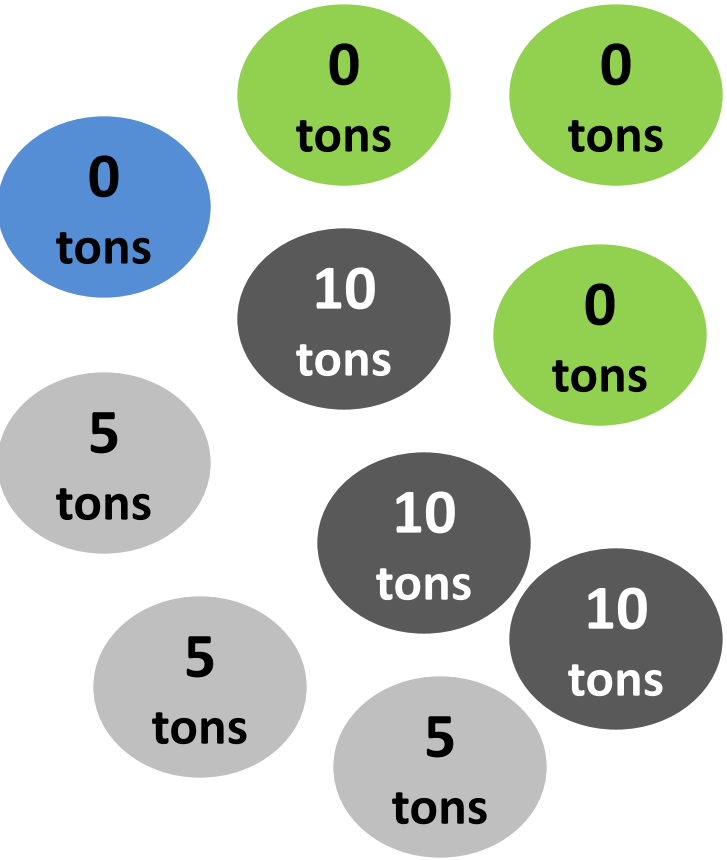
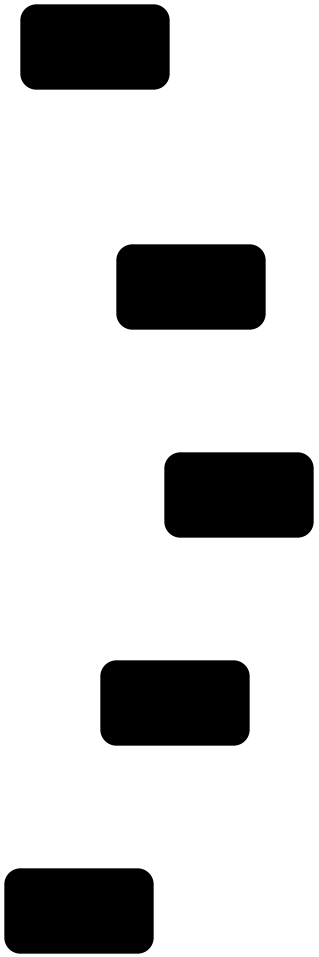
Scope 1



Scope 2



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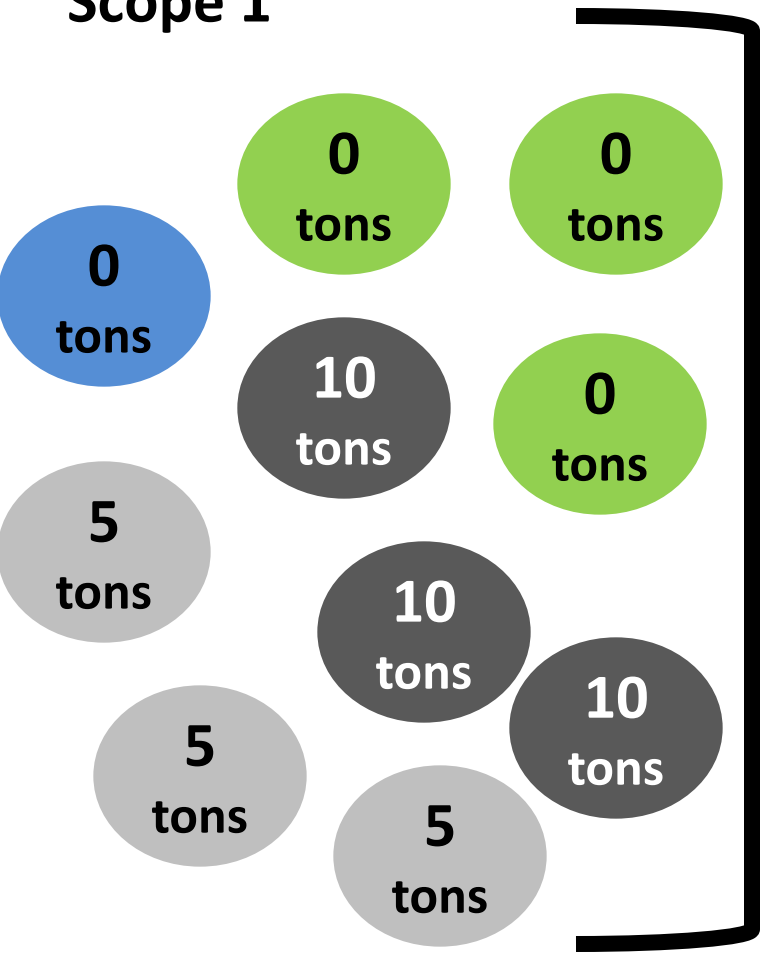
Scope 1



Scope 2

Total system emissions = **45 tons**

Total system energy output = **10 MWh**

Grid average emissions factor = **4.5 tons/MWh**

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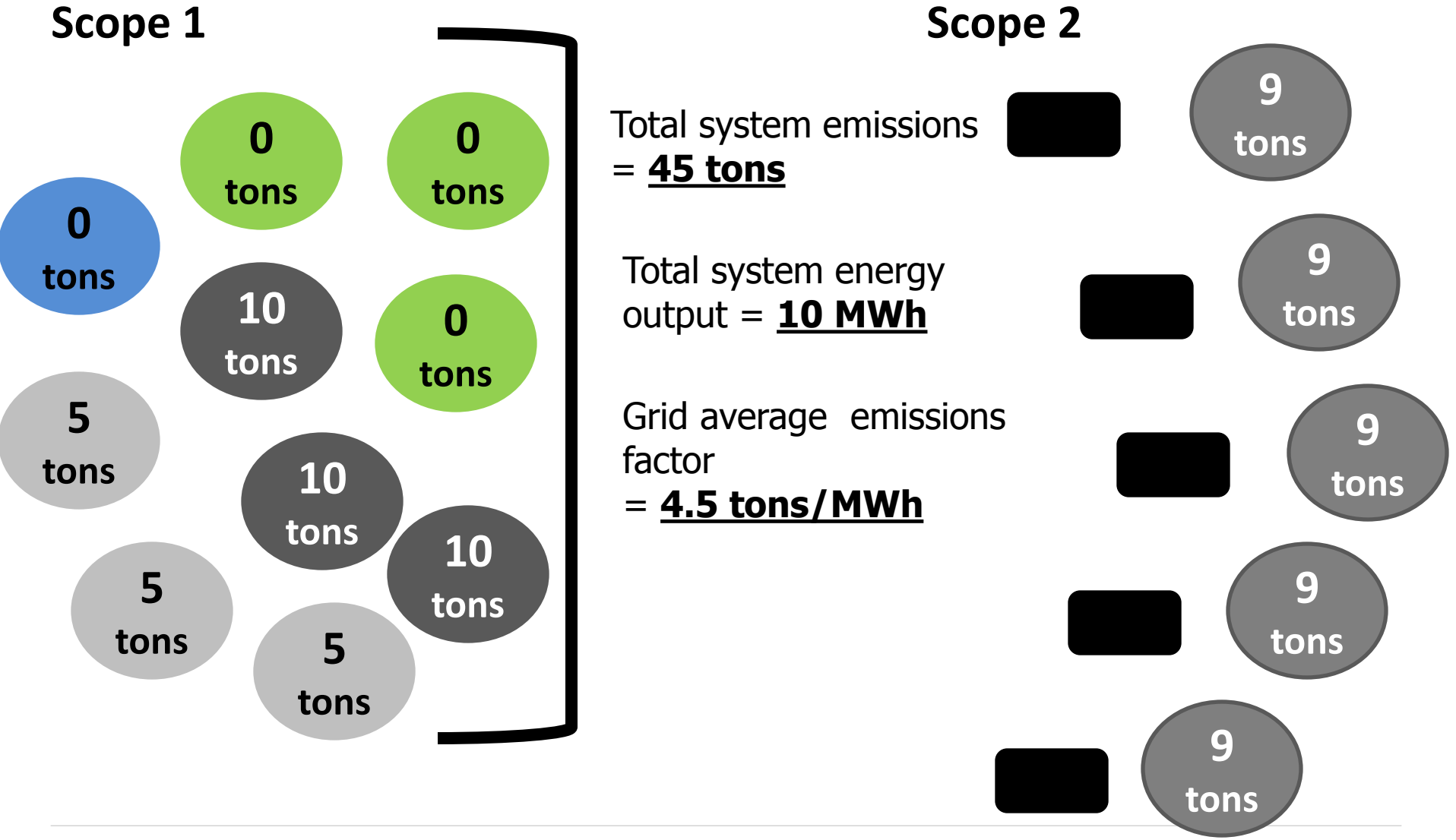

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Using a grid-average emissions factor to allocate production emissions to end-consumers

Using a supplier-specific emissions factor to allocate production emissions to end-consumers

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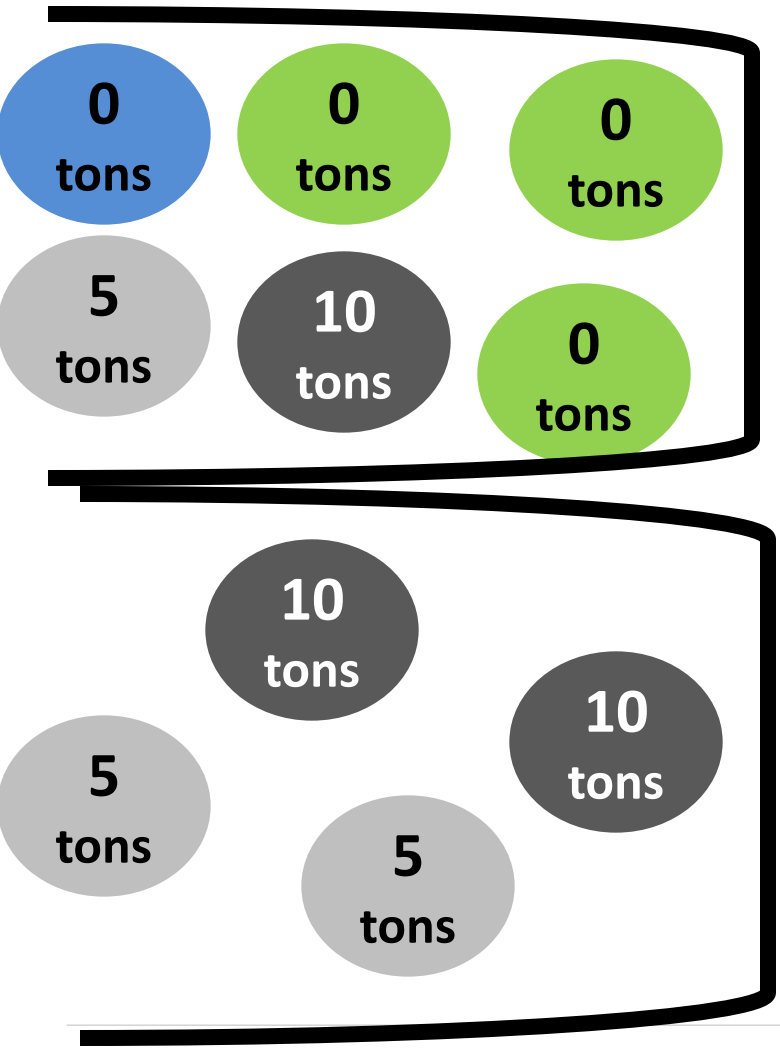
Scope 1



Scope 2

Supplier 1

Total system emissions = **15 tons**

Total system energy output = **6 MWh**

Grid average emissions factor = **2.5 tons/MWh**

Supplier 2

Total system emissions = **30 tons**

Total system energy output = **4 MWh**

Grid average emissions factor = **7.5 tons/MWh**

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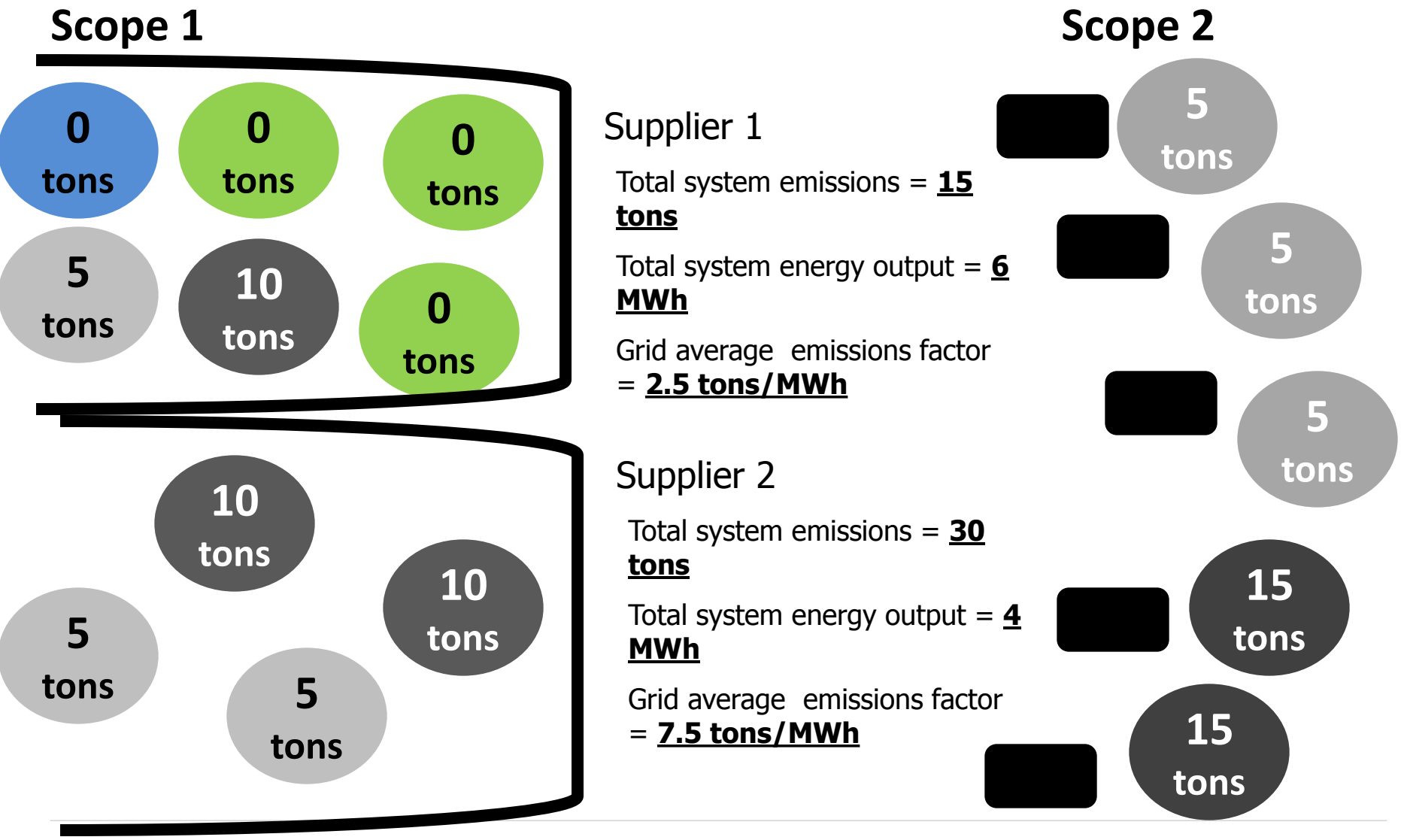

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Using a grid-average emissions factor to allocate production emissions to end-consumers

Using a supplier- specific emissions factor to allocate production emissions to end-consumers

Using a tracking instrument or other contractual mechanism's emissions factor to allocate production emissions to end-consumers

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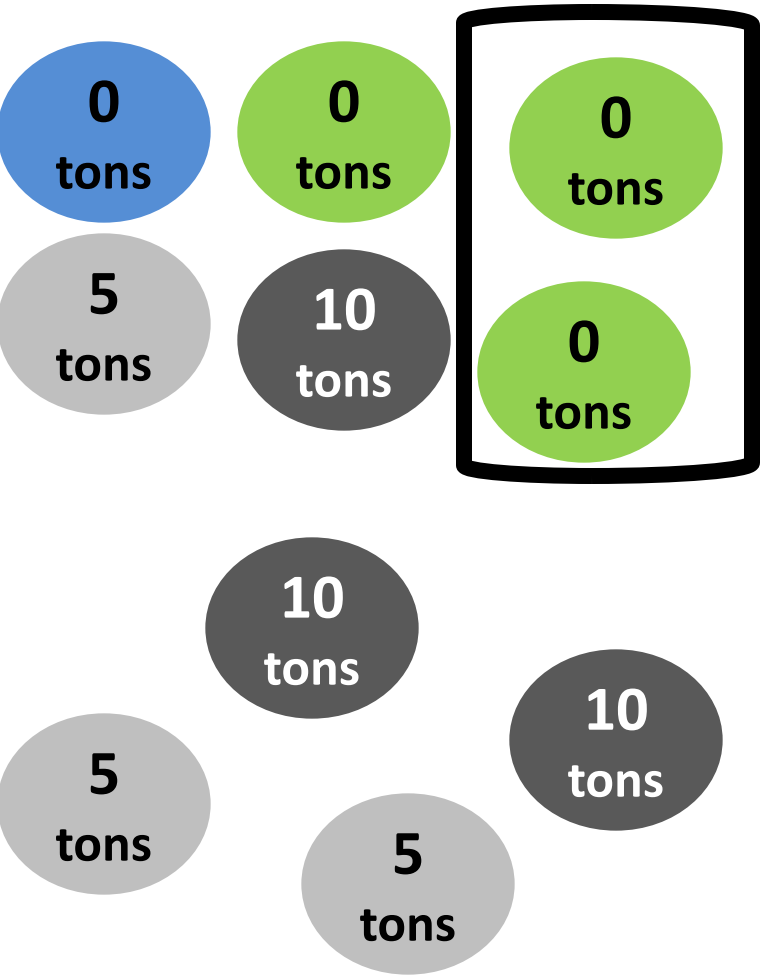
Scope 1



Total product emissions = **0 tons**

Total product output =**2 MWh**

Product's emissions factor = **0 tons/MWh**

Adjusted grid average for remaining grid generation

Total system emissions = **45 tons**

Total system energy output = **8 MWh**

Grid average emissions factor = **5.625 tons/MWh**

Scope 2

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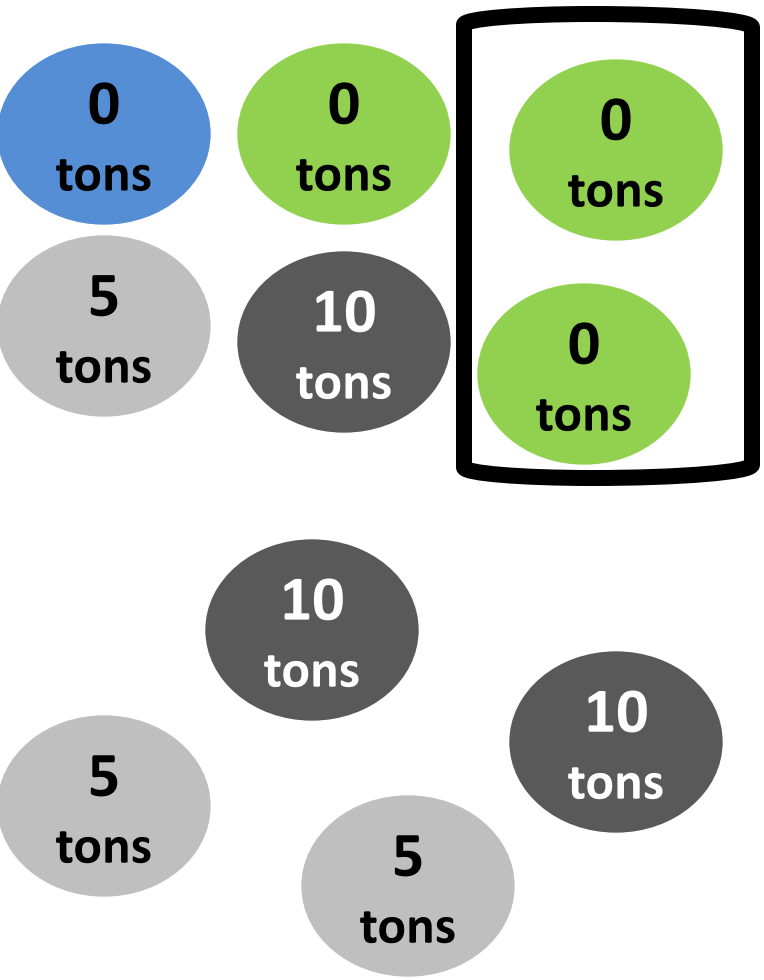
Scope 1



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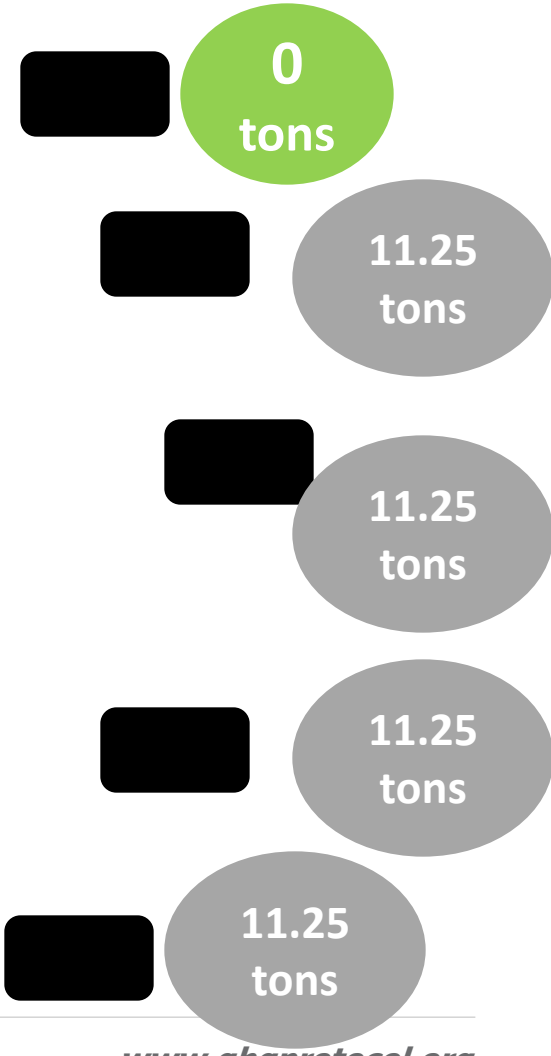

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How does the accounting and reporting work?

100 Mwh consumption
50 MWh RECs purchased (@ 0 tons/MWh)
Adjusted consumption = 50 MWh

Grid average = 0.5 tons/MWh
50 x 0.5 tons/MWh **= 25 tons**

GROSS
(alternative emissions factor)

100 Mwh consumption
100 x 0.5 tons/MWh **= 50 tons**

50 MWh RECs purchased (@ 0 tons/MWh)
Adjusted consumption = 50 MWh
Grid average = 0.5 tons/MWh
50 x 0.5 tons/MWh = **25 tons**

NET ADJUSTMENT
(separate mitigation instrument akin to offsets)

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Company1's performance calculating scope 2 with 3 different emission factors:

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1. **Could a company theoretically use this?**
   Ensuring that the emissions-rate information was for an accounting function (many instruments have other purposes), and that it contains minimum information about attributes

2. **Does the information source function as an emission factor that is accurate, and does not have double counting across scope 2 users?**
   Unique ownership ensured through tracking in registry, serial number, adjusted grid factor information (residual mixes)

3. ***Should* this be used?**
   GHG Protocol principles, stakeholder views , determining parameters for evaluating instrument's appropriateness for inventory disclosure

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For the purposes of calculating a scope 2 inventory, do "contractual" methods produce an inventory that meets the GHG Protocol principles?

- **Accurate** → a contractual means of allocation (purchase vs. consumption profile)
- **Consistent** → logic for products (scope 3)
- **Complete** → full picture of corporate responsibility?
- **Transparent** → clear to outside stakeholders what these instruments mean? Hiding real risks in the energy supply chain?
- **Relevant** → meaningful reflection of company action and performance?

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What are the problems/risks?

- Dynamics of market (supply/demand) determine whether purchasing tool achieves goal of supporting and driving new RE development
    - *Risk of contractual "paper shuffling" exercise, not meaningful change*
- De-prioritizes other actions
- Fairness questioned
- Confusion with offsets
- Contentious decisions of what "counts" or is eligible

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How do additionality and other eligibility questions play in?

Linking instrument to causation for project – project-specific or tests

Regulatory Quota – sometimes ownership question

Financial Support – identify threshold of what other types of support are "enough" (Subsidies, tax credits, FiT?)

Vintage – drive new projects → also difficult temporal element (when does rate become public good?)

Technology – specifying types to achieve enviro outcomes or spur innovation

Environmental Performance – Other impacts beyond GHG's

Geographic Boundaries – Local economic/enviromental benefits

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STAKEHOLDERS

RECS Market Meeting 2012
The power of transparency

CARBON DISCLOSURE PROJECT

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Current discussion draft structure

1. Chapter 1: Background on GHG Protocol accounting principles and the energy supply chain

2. Chapter 2:Survey of instruments and attributes

3. Chapter 3: Accounting procedures and quality criteria
   Capped power sector case study
   Offset- scope 2 case study

4. Chapter 4: Best practices in emission factor choice, calculation and preventing implicit double counting

5. Chapter 5: Eligibility and other policy considerations

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Materials to date and summaries of scoping workshops available on project website

http://www.ghgprotocol.org/feature/ghg-protocol-power-accounting-guidelines

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