

GREENHOUSE  
GAS PROTOCOL

**Measuring and managing electricity  
emissions**

*Mary Sotos, Associate at World Resources Institute*

# *GHG Protocol Scope 2 Guidance*

*An amendment to the GHG Protocol  
Corporate Standard*

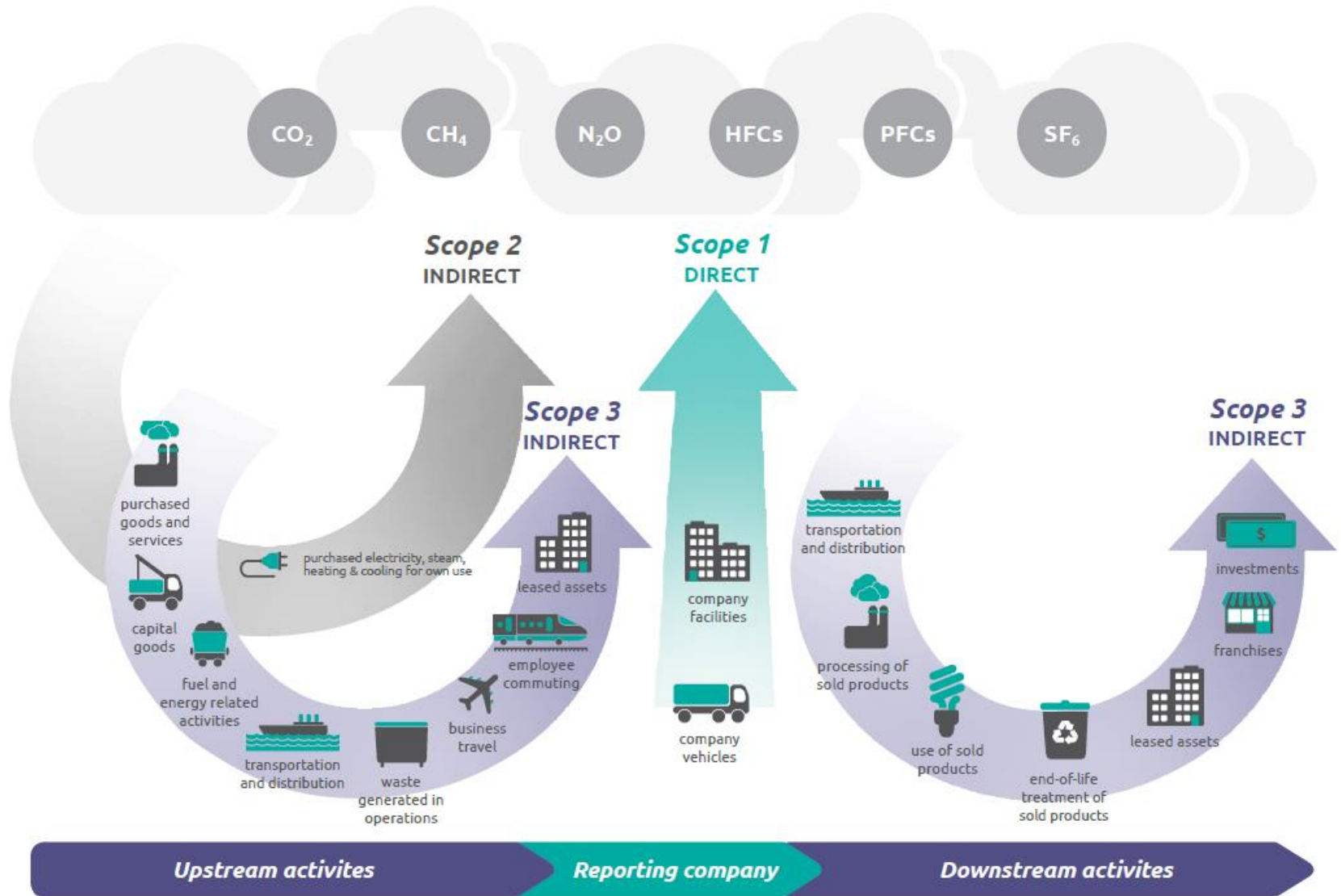


**40%**  
global  
emissions

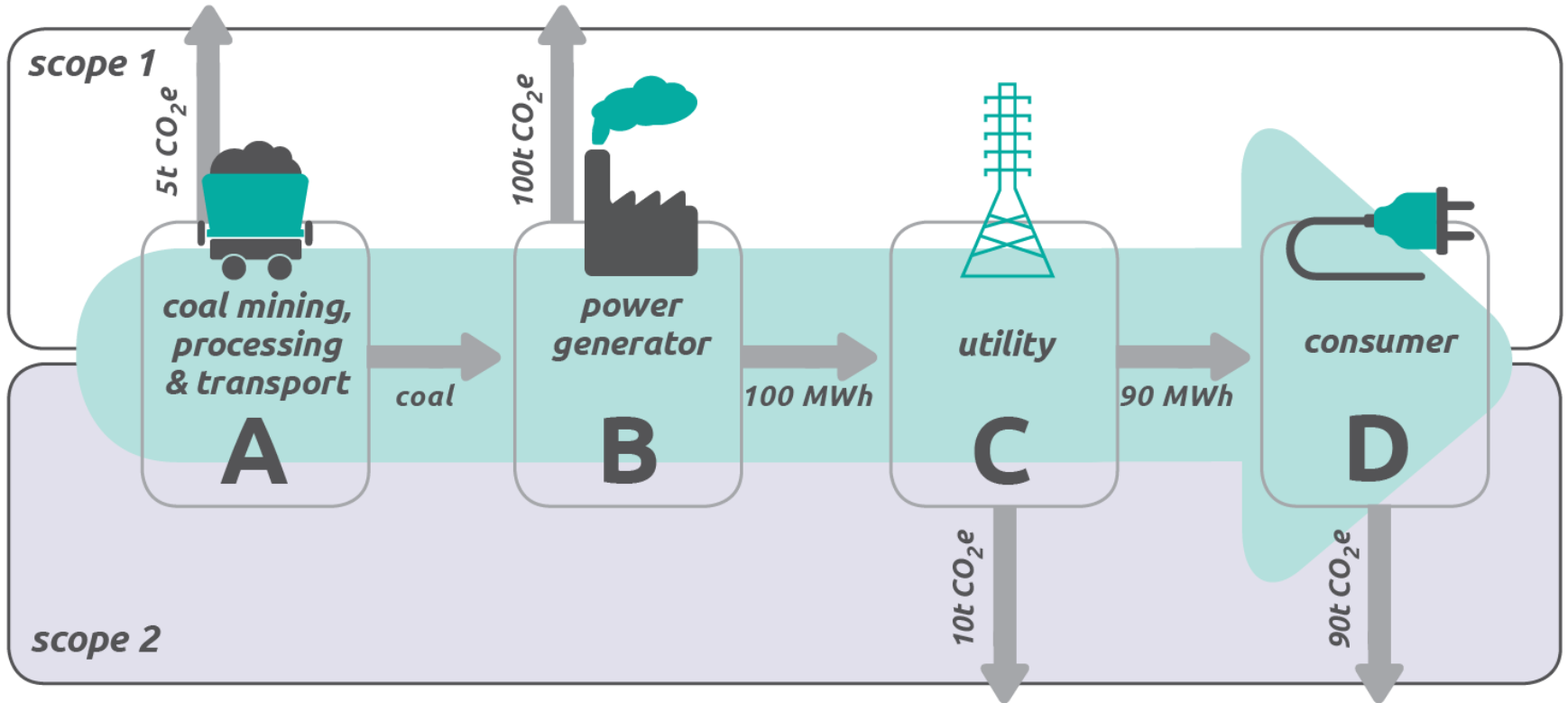
**50%**  
electricity use  
by business

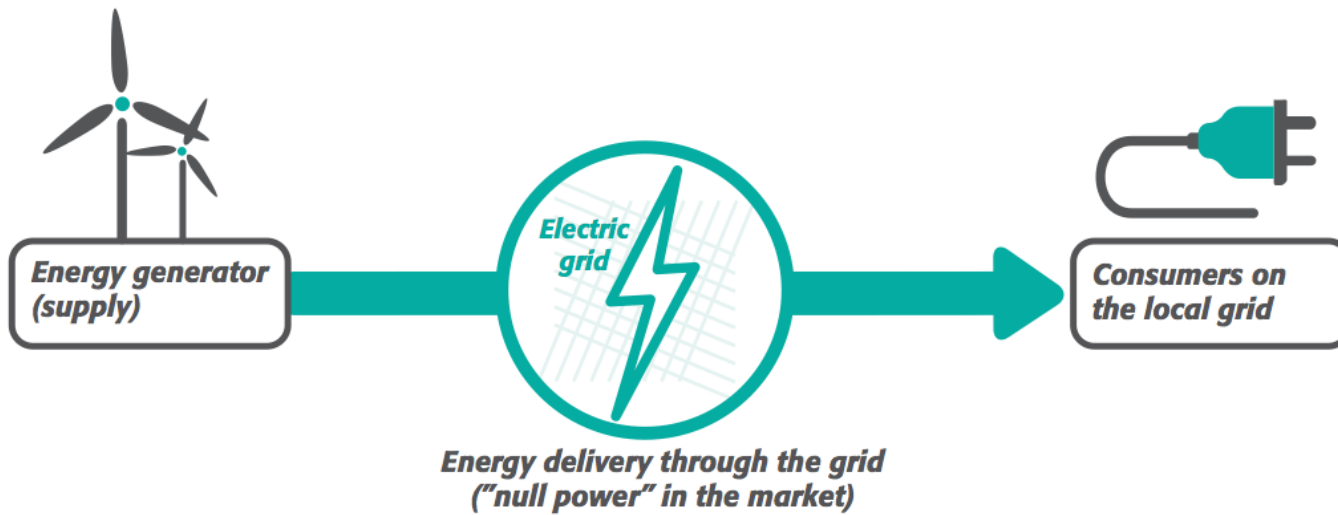
**60%**  
Fortune 100  
have set clean  
energy and GHG  
reduction targets

**Measuring electricity  
emissions matters!**

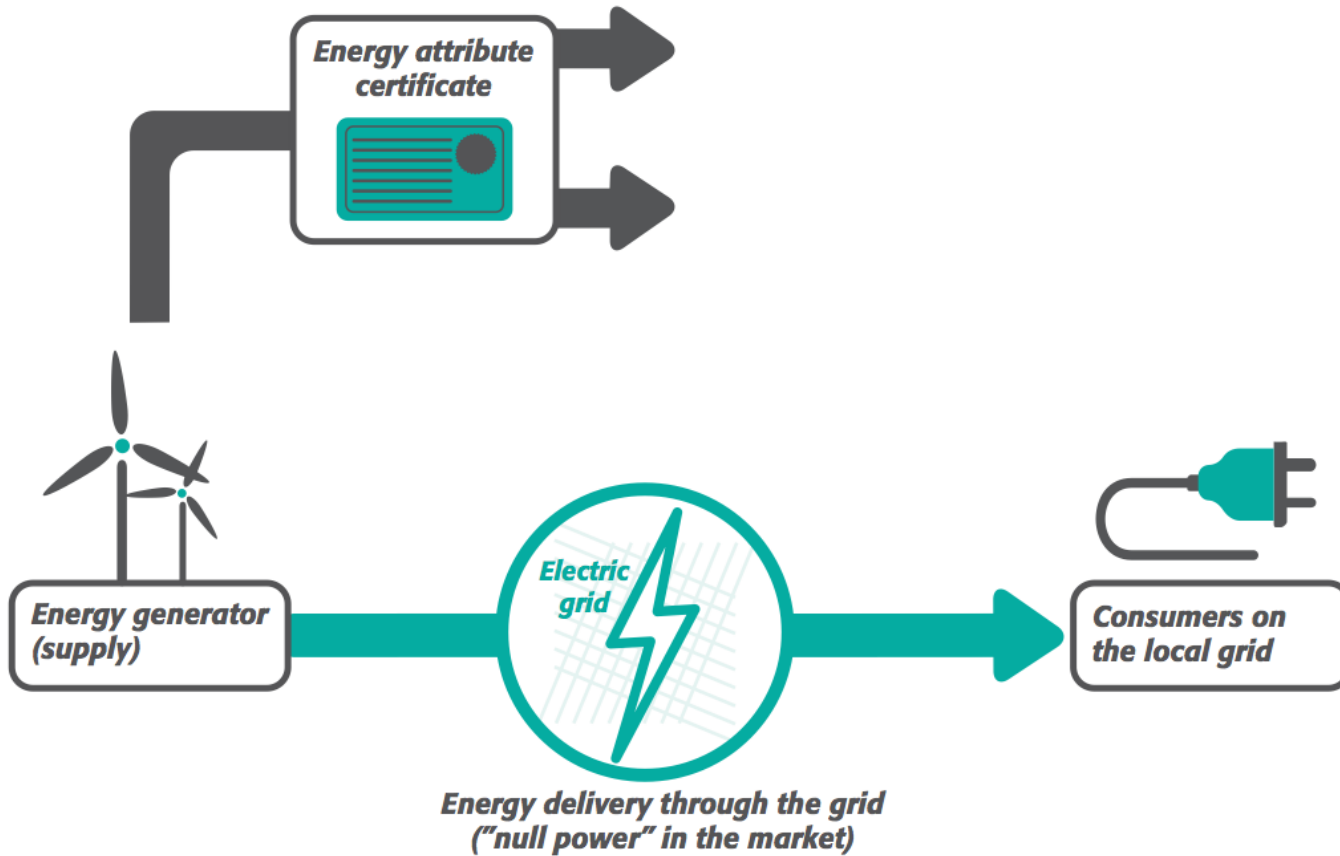


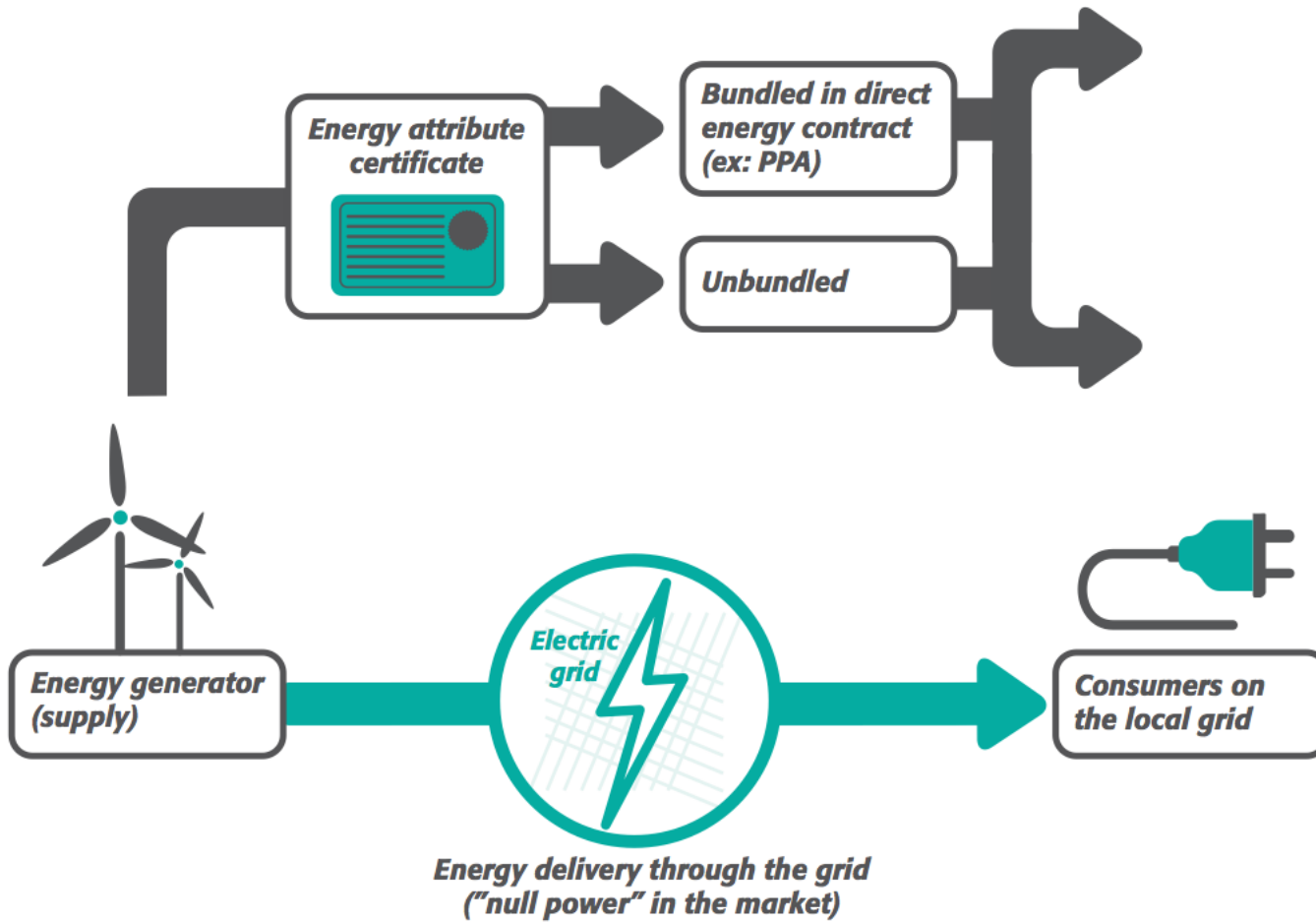
## Emissions across an electricity value chain



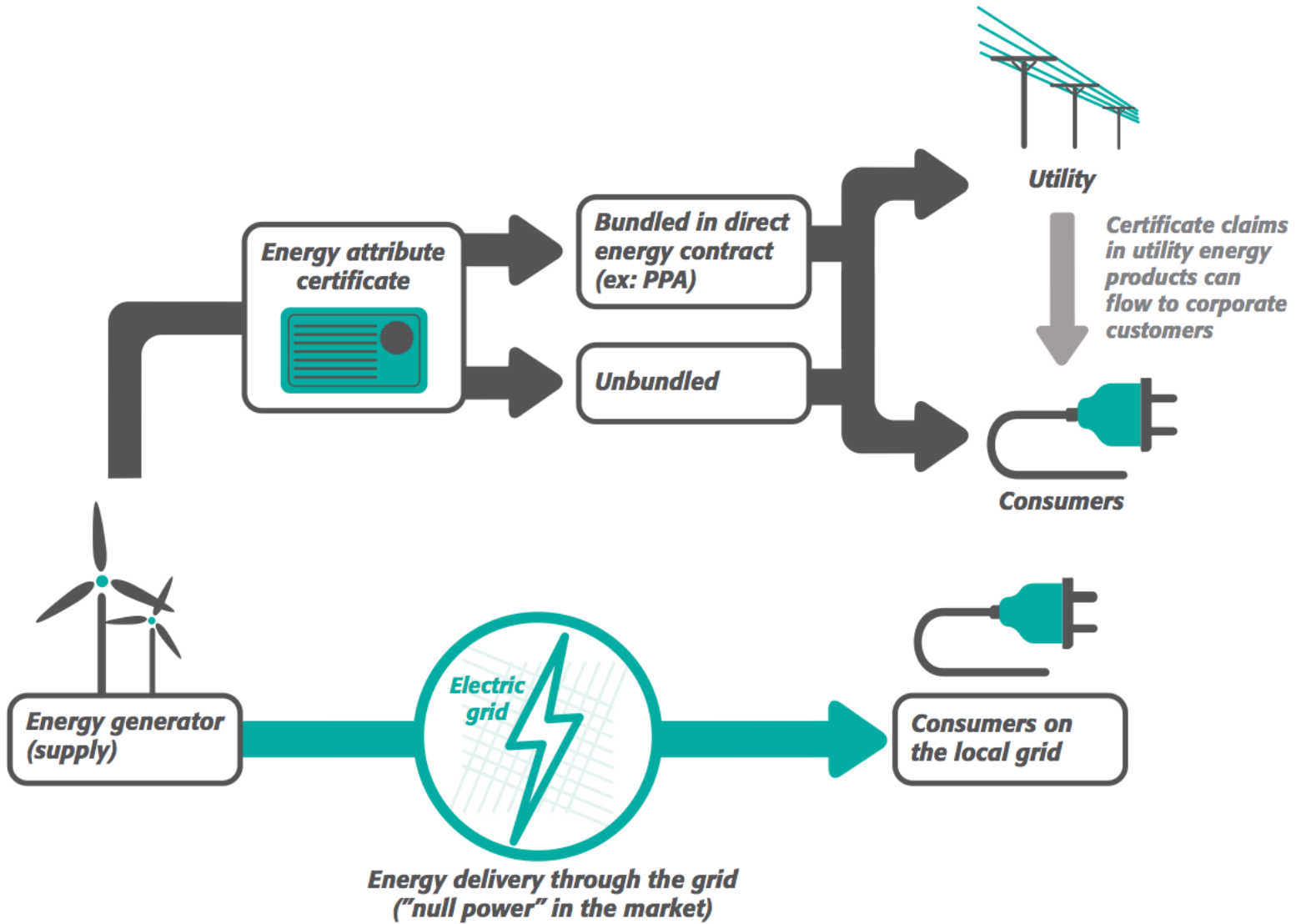


# Attributes



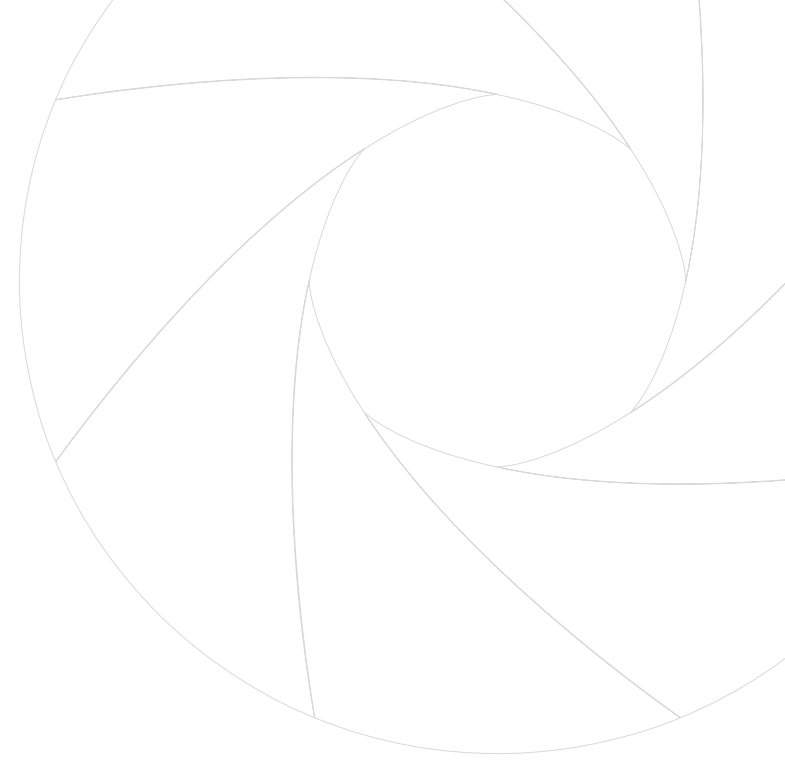






$$\text{Scope 2 Emissions} = \text{Activity Data} \times \text{Emission Factor}$$

**MWh** **mt CO<sub>2</sub>e / MWh**



# **New Accounting and Reporting Requirements**

## Big changes

- Previously, reference to different energy emissions data: supplier-specific, grid average, contracts, RECs
- Now, two scope 2 totals, not one
  - New terms for *methods* with different data
- Renewable energy treated as *zero emissions factor*, not “reduced” or “avoided” emissions
- Base year will be from one of two required methods, so in most cases recalculation not needed

**For companies with operations only in markets without choice in electricity product or supplier**

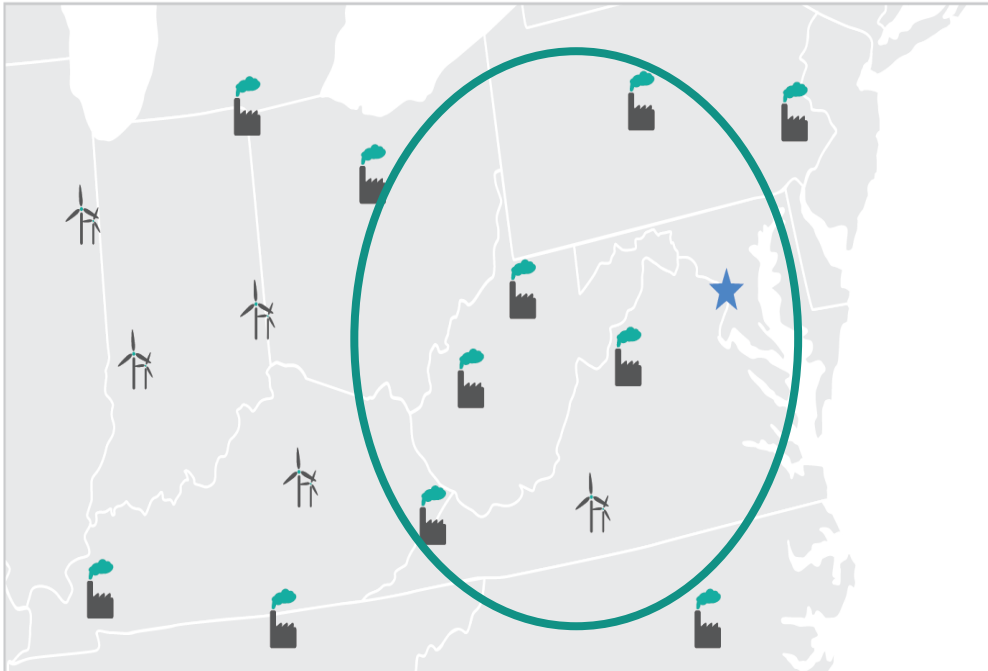
**No change.**

Only one scope 2 total will be reported based on the location-based method.

# **For companies with operations in markets with choice in electricity product or supplier:**

1. Dual reporting
2. Scope 2 Quality Criteria
3. Recommended additional disclosures

# Location-based method

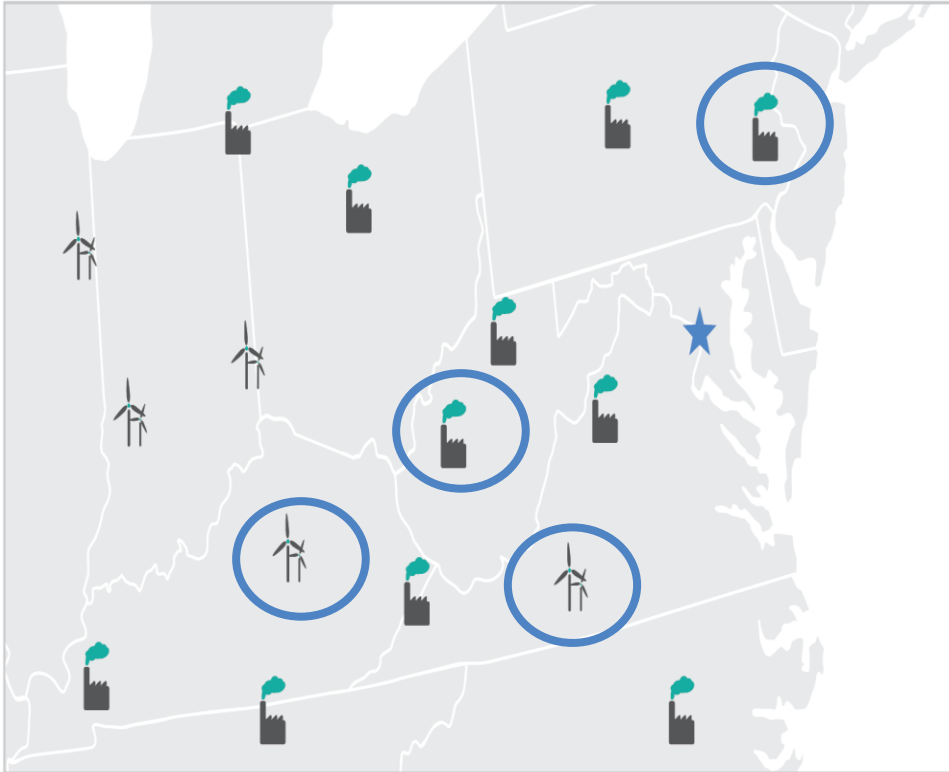


(map not representative)

## Location-based method emission factor hierarchy

1. Regional or sub-national emission factors
2. National production emission factors

# Market-based method



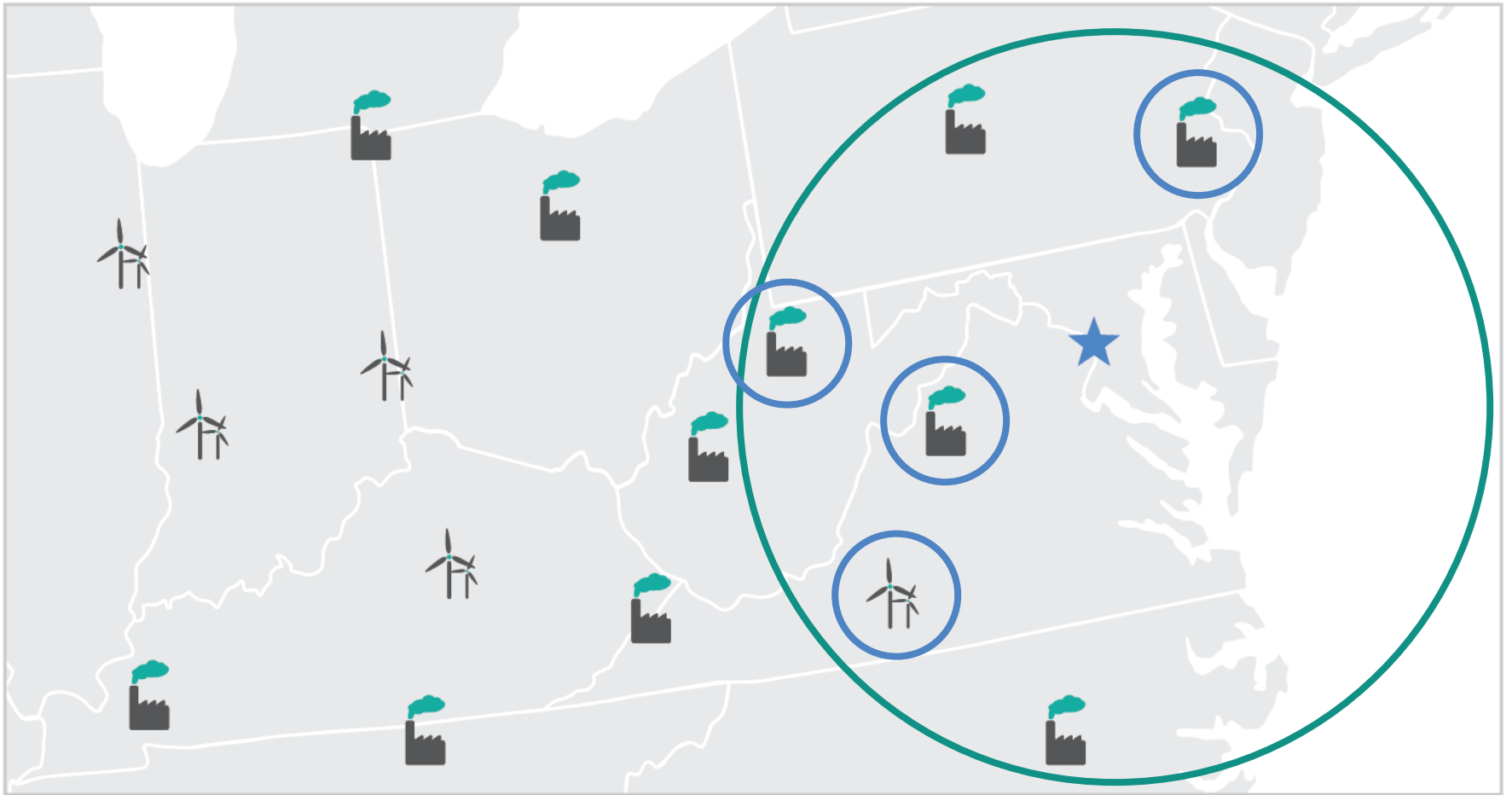
(map not representative)

## Market-based method emission factor hierarchy

1. Electricity attribute certificates or equivalent instruments
2. Contracts for electricity, such as PPAs
3. Supplier/Utility emission rates
4. Residual mix (sub-national or national)
5. Other grid-average emission factors (sub-national or national)  
*see location-based data*



## Residual Mix



(map not representative)

| Country      | Location-Based Total (mtCO2e) | Market-Based Total (mtCO2e) | Instrument Types                                 |
|--------------|-------------------------------|-----------------------------|--|
| USA          | 650                           | 0                           | RECs to cover 100% of consumption                |
| Norway       | 100                           | 500                         | Residual mix                                     |
| China        | 800                           | 800                         | N/A  |
| India        | 850                           | 400                         | Collaborative solar PPA to cover 50% consumption |
| Mexico       | 400                           | 0                           | PPA to cover 100% of consumption                 |
| <b>TOTAL</b> | <b>2,800 mtCO2e</b>           | <b>1,750 mtCO2e</b>         |  |

# Scope 2 Quality Criteria

## **Contractual instruments shall:**

1. Convey GHG information
2. Be an exclusive claim
3. Be retired
4. Match up to inventory period
5. Be sourced from same market as company

## **Utility emission factors shall be:**

6. Calculated based on delivered electricity

## **Direct purchases shall:**

7. Convey GHG claims to the purchaser

## **Using any instruments requires:**

8. Adjusted residual mix, or disclose its absence

## Choices by all players in the market can have an impact

Jurisdictional  
policy

Certification  
schemes

Utility/  
supplier  
labels

Corporate  
policy and  
decisions

### Companies can:

1. Contract directly with new low-carbon energy projects
2. Work with electricity suppliers for new projects
3. Establish “eligibility criteria” for corporate procurement
4. Provide incremental funding or donations

- **Download the Guidance, Executive Summary, other materials at:**  
**[http://www.ghgprotocol.org/scope 2 guidance](http://www.ghgprotocol.org/scope_2_guidance)**

Thanks!

Mary Sotos

[Mary.sotos@wri.org](mailto:Mary.sotos@wri.org)

202-729-7627