

Carbon Emission Pledges & Corporate Decarbonization Initiatives: Introductory Remarks

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The Net-Zero Movement

- More than $\frac{2}{3}$ of all Fortune 500 companies have by now pledged to reduce their **Corporate Carbon Footprints (CCF)** to zero!
- Common **Net-zero Ambition**:
“*XYZ will be carbon-neutral (net-zero) by 2050*”
- **Immediate Questions**:
 - How do firms measure their carbon footprint?
 - What motivates these net-zero pledges? More "green-washing"?
 - How costly are net-zero pledges?
 - What public policy support
Ex: carbon pricing, tax credits, contracts for cost difference...
is required in order to have a **business case** for comprehensive decarbonization?

Recent Examples of Net-Zero Pledges

The Utility Xcel

- 80 Mt CO₂ in 2020 (Scope 1)
- **Goal:** Sell 100% renewable electricity by 2050
- **Milestone:** 80% reduction by 2030 (relative to 2005 baseline)
- No stated goals regarding the sale of natural gas (Scope 3)

Recent Examples of Net-Zero Pledges

United Airlines

- Direct (Scope 1) emissions: 42 Mt CO₂ in 2019
→ 98% from jet fuel combustion
- **Goal:** Carbon neutrality by 2050
- Investments: Sustainable Aviation Fuels
- Offset program started through investment in Direct Air Capture company → 1point5

Recent Examples of Net-Zero Pledges

Schlumberger (SLB)

2019 Emission Baseline Inventory

(All emissions stated in metric tons of CO2e)

Scope 1 & 2

2.35 million



Fuel
1.7 million



Electricity
0.65 million

Scope 3

44.4 million



Purchased goods & services
6.3 million



Upstream transportation & distribution
0.6 million



Upstream leased assets
1.1 million



Employee commuting
0.1 million



Investments
3.4 million



End of life treatment
0.6 million



Capital goods
0.1 million



Fuel and energy related activities
0.1 million



Business travel
0.2 million



Use of products



Downstream leased assets
31.8 million

Recent Examples of Net-Zero Pledges

Schlumberger (SLB) - Decarbonization Goals

Relative to 2019 levels:

- **By 2025:** 30% reduction in Scope 1 and 2
- **By 2030:** 50% reduction in Scope 1 and 2
30% reduction in Scope 3
- **By 2050:** 100% reduction, with minimal reliance on offsets
Example: Biomass Energy CCS → BEECS

Recent Examples of Net-Zero Pledges

Google

- Scope 3 covers employee travel and commuting
- **Claim:** Carbon Neutral since 2007
- **Claim:** Has already eliminated all legacy emissions by 2020

Google's justification for this claim...

Corporate Carbon Footprints (CCF)

$$\text{CCF} = \text{Gross Emissions} - \text{Offsets}$$

Gross Emissions:

- Include Scope 1, 2 **and 3** in *Gross Emissions*?
- Can Scope 3 emissions be **measured**?
Example: Aircraft is delivered to an airline....
- **Data collection and verification** challenges
- Ultimately only direct (Scope 1) emissions matter?
 - Outsource carbon intensive activities?

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Offsets:

- **Voluntary Carbon Markets** trade a wide range of offsets
- $\approx 80\%$ growth rate in 2022
- McKinsey: Median offset price in 2022 was below \$5/ton of CO₂
 - "Low-hanging fruit" or simply "junk" offsets?
- Some high-end "removal offsets" traded for \geq \$600/ ton of CO₂