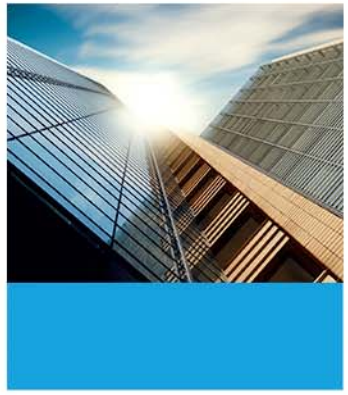



# Renewable Energy and Carbon Accounting

**Justin Brant, GHG & Sustainability Practice**

*November 1, 2017*

http://energy.cadmusgroup.com/sustainability

# Overview

- Scope 2 Accounting Overview
- Challenges with Scope 2 Accounting
- Enbridge Case Study
- Options to Reduce Scope 2 Emissions
- Carbon Accounting Lessons Learned



CADMUS

**Since 1983** Energy and environmental consulting firm with 550 employees

**33 years** of experience in energy program evaluation

CDP ACCREDITED PROVIDER 2017

Leaders in GHG quantification and reporting

GRI GOLD Community Cadmus Group 2017

Energy industry leaders

Understand energy efficiency and management

Climate risk and resilience expertise

# GHG Emissions Accounting

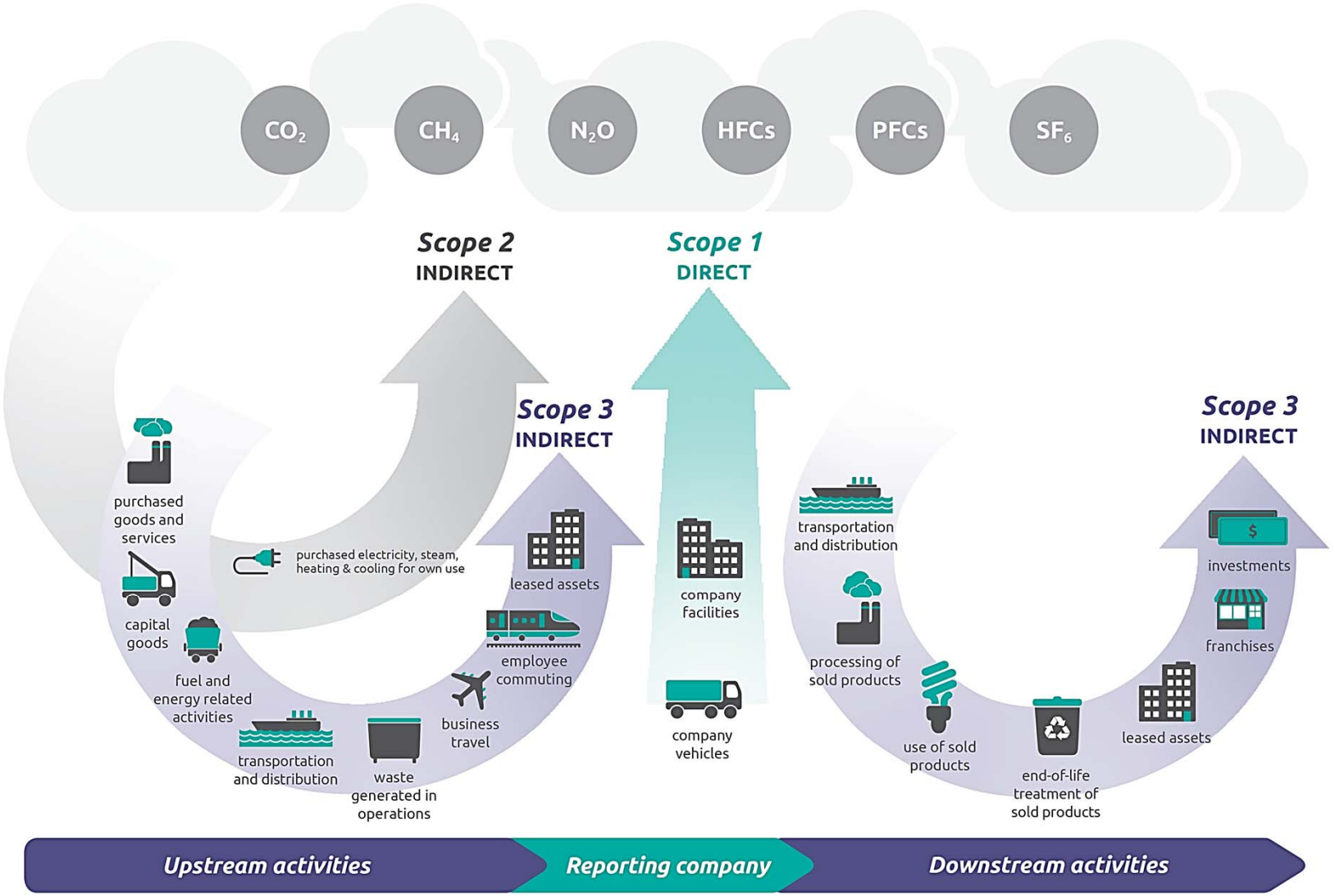
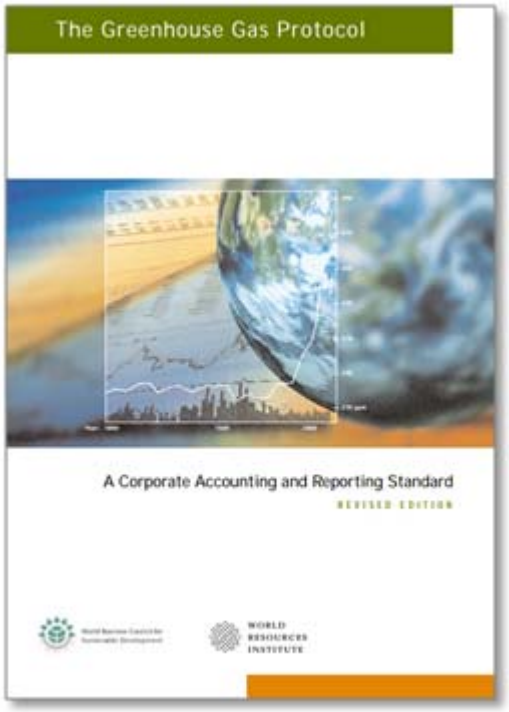



*Image Credit: The Greenhouse Gas Protocol*

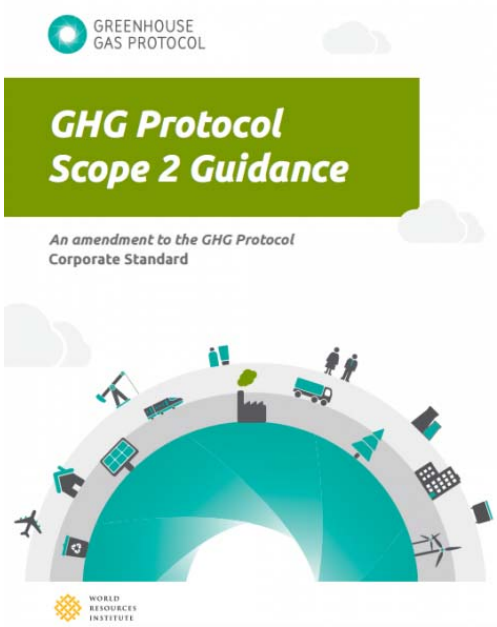
# Reporting Emissions from Electricity

## Corporate Standard




## Scope 2 Guidance

(amendment to CS)



# Scope 2 Guidance Overview

**Provides consistent guidance on how to incorporate various energy agreements and electricity procurement choices into your inventory**

**Provides two methods of calculating your GHG emissions:**

- **Location-Based**
- **Market-Based**

**Companies with operations in a jurisdiction with the means to track renewable energy products shall report using both methods**

Includes operations in U.S., Canada, and Europe

**Emissions reduction targets are set using one of the available methods**

# Dual Reporting of GHG Emissions from Electricity

## Location-Based

Quantify emissions using regional emissions intensity

## Market-Based

Emissions reflect electricity procurement choices

# Emissions Factor Hierarchy

## Location-Based

- Regional/Subnational EF
- National EF

## Market-Based

- Energy Certificates/Contracts (e.g., RECs, GOs, PPAs)
- Supplier-Specific EF
- Residual Mix EF
- Regional/Subnational EF
- National EF

*EF= Emissions Factor*

# Enbridge Case Study

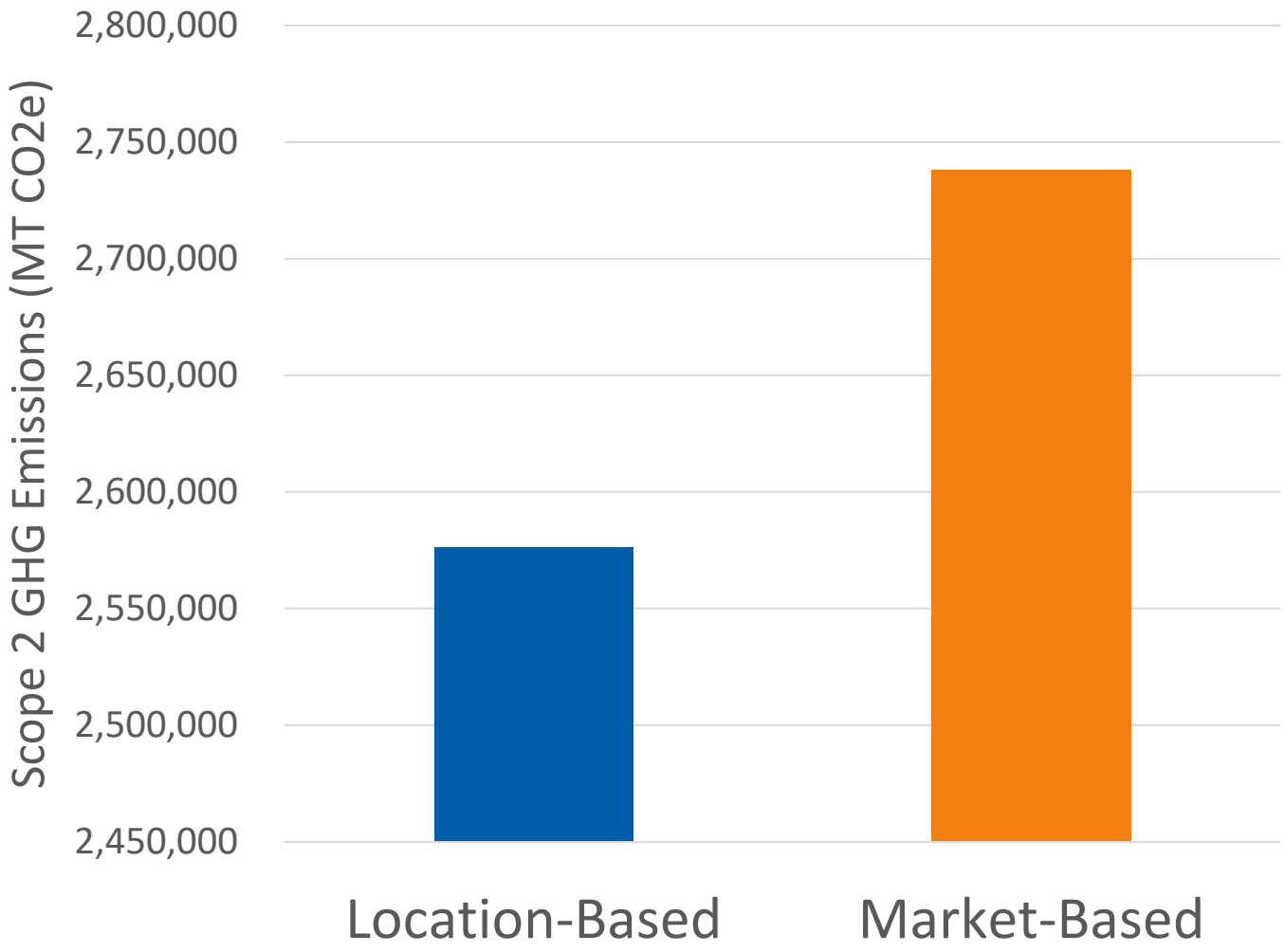
Historically developed location-based GHG inventory

Wanted to account for nuclear and wind power purchases and align with best practices

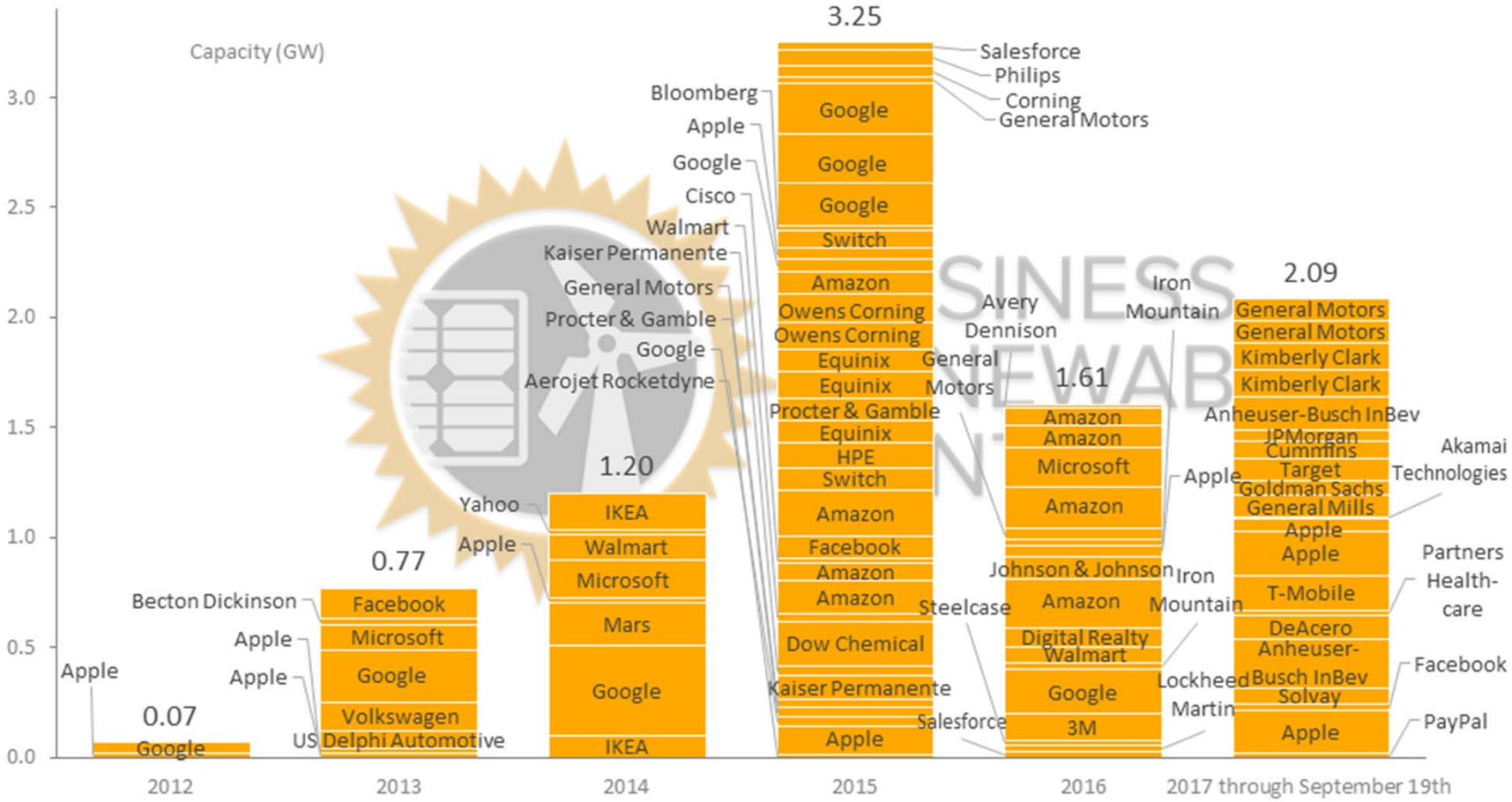
Began with US liquid pipeline operations (150 pumping stations)



# Enbridge Case Study



# Corporate Renewable Energy




Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US and Mexico, 2012-2017. Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. Last updated: September 19, 2017.



For more information, please visit http://www.businessrenewables.org/ or contact BRC@RMI.org

# Options to Reduce Scope 2 Emissions

Switch to electricity provider with cleaner mix, if possible

Bundled green products from utility or electricity supplier

Unbundled clean energy attributes (e.g., RECs or GOs)

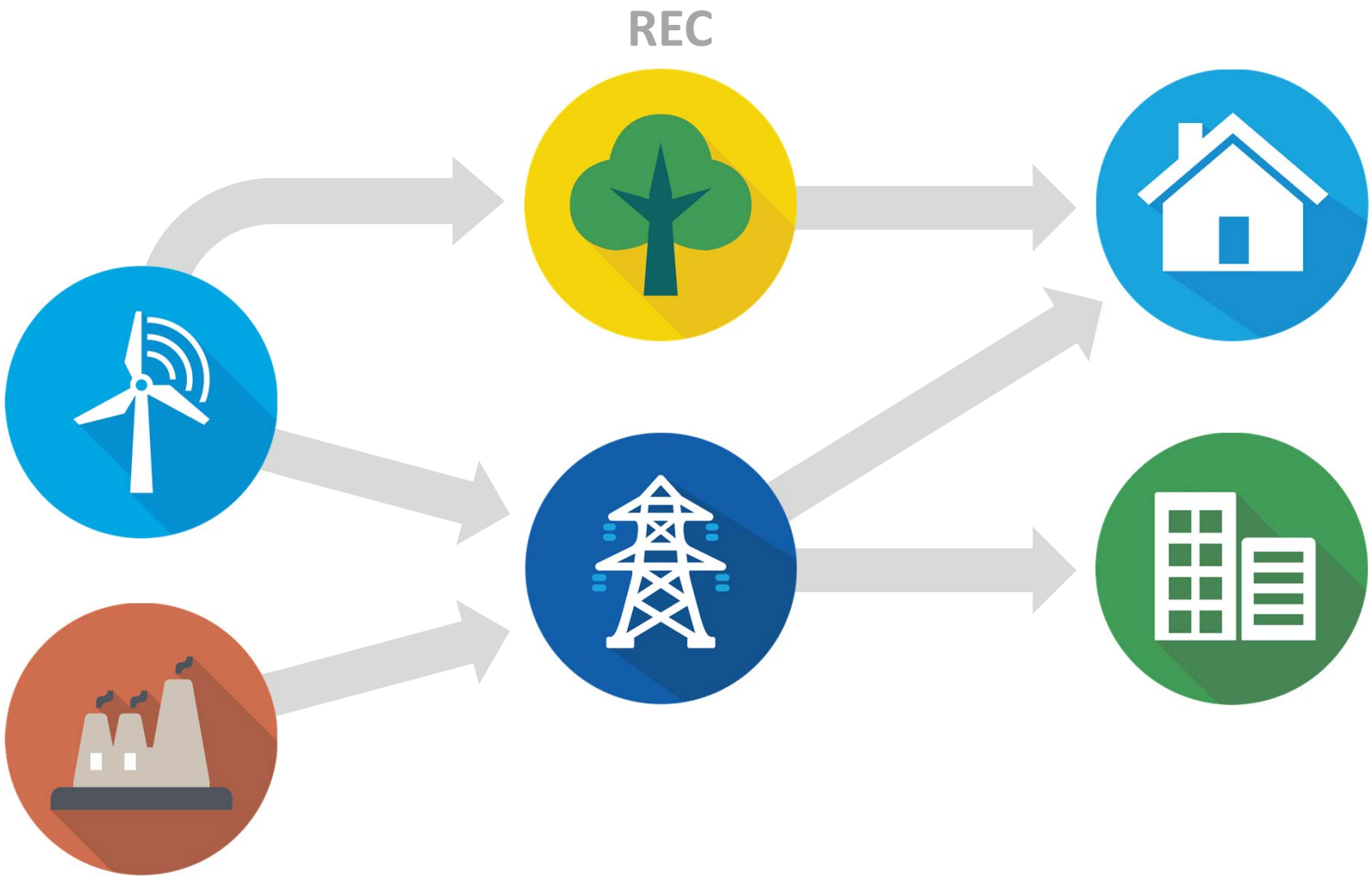
Energy Efficiency

Power Purchase Agreement (PPAs)

Owned onsite renewable generation



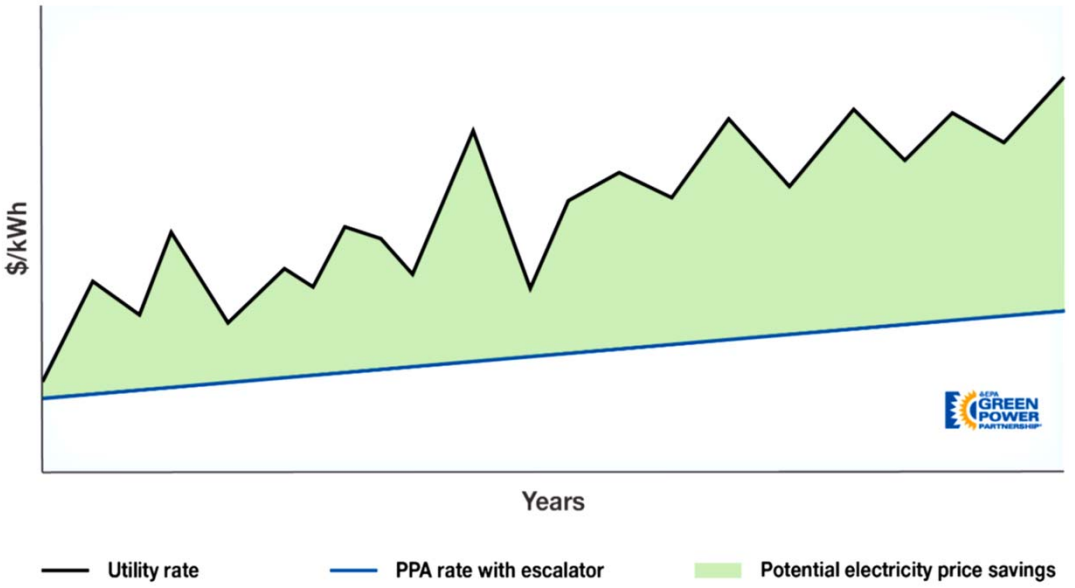
# Clean Energy Attributes



# What is a Power Purchase Agreement?

**Contract between specific consumer and energy generators to purchase electricity and/or RECs**

- Generation can be offsite or onsite
- Generation from renewable energy project directly reduces consumer's purchases from the grid

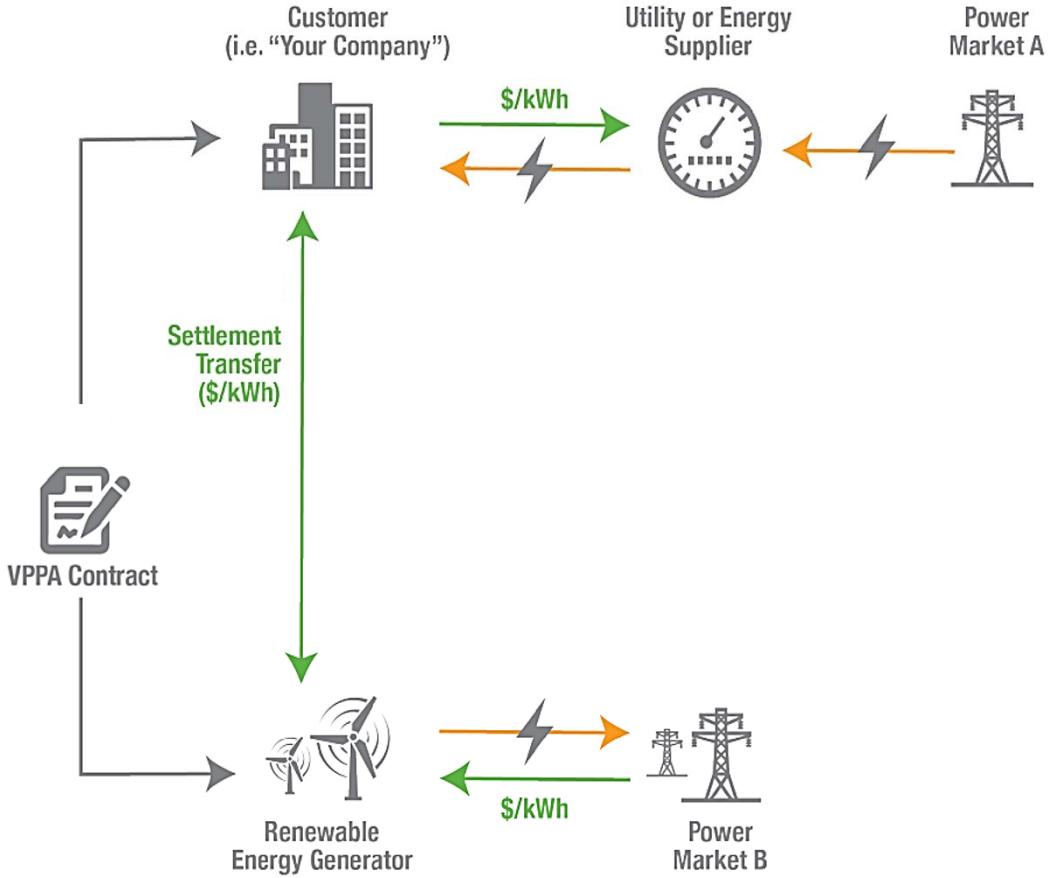



*Source: EPA Green Power Partnership*

# What is a Virtual Power Purchase Agreement?

**Financial agreement between renewable energy generation and buyer**

- Renewable energy project and buyer do not need to be in same grid region
- Acts as a type of price hedge on total electricity spending




*Source: EPA Green Power Partnership*

# Carbon Accounting Lessons Learned

**Maintain ownership of RECs**

**Must use market-based accounting**

**Ensure renewable energy meets GHG accounting requirements**

**Develop corporate energy strategy**



# Maintain Ownership of RECs

Must maintain RECs from PPAs or onsite renewables to include in GHG inventory

If you sell the RECs you cannot account for generation as zero carbon

RECs must be retired, redeemed, or claimed to account for energy as zero carbon

# Must Use Market-Based Accounting

If you have operations in U.S.A, Canada, or Europe must use dual reporting

Base year may need to be recalculated

Emissions reduction targets must use market-based emissions to take credit for renewable energy

# Ensure Renewable Energy Meets GHG Accounting Requirements

Renewable energy production must be in same “electricity market” as consumption

Date of energy generation must be from same calendar year as consumption (+/- 6 months)

If no RECs, agreement should be verified by a third party

# Develop Corporate Energy Strategy

Treat energy like a portion of your supply chain

Assess energy procurement options holistically across organization

Invest in energy efficiency opportunities before renewable energy

CADMUS


# Justin Brant

**Associate, GHG & Sustainability Reporting Practice**

Boulder, CO

303-389-2508

justin.brant@cadmusgroup.com

http://energy.cadmusgroup.com/sustainability

Facebook.com/CadmusGroup

@CadmusGroup

Linkedin.com/company/the-cadmus-group