



Designing and Evaluating GHG Performance Metrics

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Goal Setting Process

- 1. EPA works with Partner to complete their GHG inventory**
- 2. Partner assesses GHG reduction opportunities**
- 3. Partner proposes a GHG reduction goal**
- 4. EPA evaluates the proposed goal**

EPA & Partner Announce Climate Leaders GHG Reduction Goal



Goal Setting Criteria

Goals must be:

- ◆ **Corporate-wide**
- ◆ **Based on most recent base year for which data is available**
- ◆ **Achieved over 5 - 10 years**
- ◆ **Expressed as an absolute GHG reduction or as a decrease in GHG intensity**
- ◆ **Aggressive compared to the projected GHG performance for the Partner's sector**



Key Performance Indicators

Key Performance Indicators help an organization define and measure progress towards goals

◆ **A KPI must:**

- ✦ reflect the organization's goals
- ✦ be key to its success
- ✦ be quantifiable (measurable)

◆ **Usually long-term w/ consistent definition**

There is no perfect KPI for GHG management – all involve compromises

- ✦ **Must be a good measure of GHG emissions & activities**

Defining Key Performance Indicator for GHG Management

- ◆ **Goals may be expressed as an absolute GHG reduction or as a decrease in GHG intensity**
 - ✦ **Absolute GHG reduction** goals compare total GHG emissions in the goal year to those in the base year. Total emissions becomes the key performance indicator.
 - ✦ **GHG intensity goals** allow a company to account for increases or decreases in production over time. The ratio of GHG emissions over an appropriate normalizing factor becomes the key performance indicator to measure GHG intensity.

Defining Key Performance Indicator for GHG Management

◆ **Absolute targets - advantages**

- ✦ Generally simple to set
- ✦ Identify a total quantity of GHGs released to atmosphere at a specific time – environmentally certain
- ✦ Transparent – no need for complex calculations

◆ **Absolute targets – issues**

- ✦ Difficulty meeting target if significant growth
- ✦ Easier to meet target if declining production – possibly without undertaking significant mitigation measures

Defining Key Performance Indicator for GHG Management

◆ **Intensity targets - advantages**

- ▶ Measure GHG trends independent of trends in production levels
- ▶ May allow comparison of company performance to other similar companies or to best practices

◆ **Intensity targets – issues**

- ▶ Measure is independent of production growth, so emissions to atmosphere can be significantly higher
- ▶ Intensity targets need to reflect GHG-emitting activities
- ▶ Developing appropriate normalizing factor can be difficult for companies that produce a variety of products

Defining Key Performance Indicator for GHG Management

- ◆ What is an appropriate normalizing factor?
 - ✦ Typically measured in physical units (e.g. tons of steel)
 - ✦ May also be measured in economic units (\$ revenue)
- ◆ Physical metrics more accurately track annual trends in emissions or energy intensity
- ◆ Economic metrics may show greater variability
 - ✦ Changes in market prices of products
 - ✦ Changes in relative prices of products (value added)
 - ✦ Global commodity/currency price swings

Defining Key Performance Indicator for GHG Management

- ◆ Carbon Intensity Indices may be suitable for companies that produce a variety of products

- ◆ **CII =**
$$\frac{(100 * E_{tot})}{(P_1 * E_{1b}/P_{1b}) + (P_2 * E_{2b}/P_{2b})}$$

E = emissions, P = production

- ◆ Advantages: flexible; tracks production better than economic metric; able to correct for changing mix of products
- ◆ Disadvantages: more complex, may not always be comparable across sector

Defining Key Performance Indicator for GHG Management

Issues to consider in creating CII

Data Needs

- ◆ Need accurate intensity for each production process for base year
- ◆ Need accurate measure for each level of production in goal year

Accuracy vs. Complexity

- ◆ Ideally, metric would encompass all production types
- ◆ Realistically, may bundle similar intensity production
 - ✦ Annual scale changes are important to capture
 - ✦ Potential production shifts over goal period important to capture

What to Measure

- ◆ Input vs. Output – will have effect on material efficiency

Defining Projected GHG Performance for Partner's Sector

- ◆ **Goals must be aggressive compared to the projected GHG performance for the Partner's sector**
- ◆ **Performance benchmarks are effective ways to set aggressive goals**
 - ✦ Methodologies allow continuous improvement
 - ✦ Substitute for uncertain additionality tests
 - ✦ Robust methodology/robust models
 - ✦ Better (& more deaggregated) data will lead to better benchmark comparisons

Defining Projected GHG Performance for Partner's Sector

- ◆ **Climate Leaders uses variety of projections & models to create performance benchmarks**
 - ✦ Commercial & Industrial: NEMS & BLS
 - ✦ Electric Generators: IPM
 - ✦ Others for industrial process emissions, mobile sources
- ◆ **Work with Partners to ensure “good fit”**
- ◆ **These discussions often lead to much better understanding of sector opportunities and challenges and more aggressive goals**

Improving Corporate GHG Performance

- ◆ **You cannot manage what you do not measure!!!**
- ◆ **If well designed and implemented:
GHG management systems lead to improved corporate GHG performance**
 - ✦ Detailed ghg inventory – identifies opportunities
 - ✦ IMP – institutionalize process
- ◆ **Public voluntary commitments lead to improved corporate GHG performance**
 - ✦ Institutionalizes commitment at all levels of organization

Congratulations!

- ◆ GM & Baxter have achieved initial Climate Leaders goals
- ◆ 37 out of 68 Climate Leaders Partners have set aggressive GHG reduction commitments and we're working on many more for summer PSA