Greenhouse Gas Protocol Mitigation Goal Standard

Exercises

Exercise 1: Match goal type with correct description

Solution: The goal types are matched with the correct description in Table 1.

Table 1: Match goal types with correct description

Goal type		Description
Base year emissions goal		**4.** Reduce, or control the increase of, emissions by a specified quantity relative to a base year. For example, a 25% reduction from 2010 levels by 2030.
Fixed-level goal		**3.** Reduce, or control the increase of, emissions to an absolute emissions level in a target year. One type of fixed-level goal is a carbon-neutrality goal, which is designed to reach zero net emissions by a certain date.
Baseline scenario goal		**2.** Reduce emissions by a specified quantity relative to a projected emissions baseline scenario. A baseline scenario is a reference case that represents future events or conditions most likely to occur in the absence of activities taken to meet the mitigation goal. For example, a 30% reduction from baseline scenario emissions in 2030.
Base year intensity goal		**1.** Reduce emissions intensity (emissions per unit of another variable, typically GDP) by a specified quantity relative to a base year. For example, a 40% reduction from 2010 base year intensity by 2030.

Exercise 2: Choose goal type

Table 2 provides information for an example country. The description for each goal type is given in Table 3. Using the information in Table 2, design a mitigation goal of each type and note it in the space provided in Table 3.

Table 2: Data for an example country to inform mitigation goal development

Data input	Example
Base year	2010
Target year	2030
Percent reduction	20%
Emissions in 2010 (all sectors)	1,000 million t CO_2e
GDP in 2010	1,000 million USD
Projected baseline emissions in 2030	2,000 million t CO_2e
Projected GDP in 2030	3,000 million USD

Actual emissions in 2030 (all sectors)	800 million t CO_2e
Actual GDP in 2030	2,400 million USD
Offset credits retired in 2030	50 million t CO_2e
Offset credits sold in 2030	100 million t CO_2e

Table 3: Descriptions for each goal type for reference along with example goals

Goal type	Description
Base year emissions goal	Reduce, or control the increase of, emissions by a specified quantity relative to a base year. For example, a 25% reduction from 2010 levels by 2030. Base year emissions goal for example country:
Fixed-level goal	Reduce, or control the increase of, emissions to an absolute emissions level in a target year. One type of fixed-level goal is a carbon-neutrality goal, which is designed to reach zero net emissions by a certain date. Fixed-level goal for example country:
Baseline scenario goal	Reduce emissions by a specified quantity relative to a projected emissions baseline scenario. A baseline scenario is a reference case that represents future events or conditions most likely to occur in the absence of activities taken to meet the mitigation goal. For example, a 30% reduction from baseline scenario emissions in 2030. Baseline scenario goal for example country:
Base year intensity goal	Reduce emissions intensity (emissions per unit of another variable, typically GDP) by a specified quantity relative to a base year. For example, a 40% reduction from 2010 base year intensity by 2030. Base year intensity goal:

The exercise answers here are based on an example NDC with a BASE YEAR goal. The goal is based on emissions in 2010 and for the target year 2030. A 20% emissions reduction from 2010 levels by 2030. But participants can select their own goal and follow the remaining exercises based on the goal selected.

*[For the purposes of subsequent exercises, we will assume a **Base Year** goal.]*

Exercise 3: Select goal boundary

Given the emission profile and mitigation potentials in the table below, identify which sectors should at least be covered by the goal.

Sector	Emissions 2010	Projected emissions 2030	Mitigation potential 2030	Included?
Energy	350 million tCO_2e	650 million tCO_2e	450 million tCO_2e	**Included**
IPPU	150 million tCO_2e	200 million tCO_2e	70 million tCO_2e	Excluded
AFOLU	400 million tCO_2e	900 million tCO_2e	500 million tCO_2e	**Included**
Waste	70 million tCO_2e	200 million tCO_2e	150 million tCO_2e	Excluded
Others	30 million tCO_2e	50 million tCO_2e	30 million tCO_2e	Excluded
Total	**1,000 million tCO_2e**	**2,000 million tCO_2e**	**1,200 million tCO_2e**	

Mitigation potential is one of the factors that could be considered to determine goal boundary. Which other considerations could lead to the selection of a different boundary?

- Development priorities, co-benefits, and cost considerations could influence the boundary. The waste sector, for example, offers usually low-cost mitigation with large sustainable development benefits.
- National and international political considerations could further influence the boundary setting. Broader, comprehensive boundaries could enable a larger variety of international support for countries eligible for such support.

Exercise 4: Estimate base year emissions

Based on the sectors selected in exercise 3, calculate the base year emissions for the goal in 2010.

Sector	Emissions 2010	Emissions included
Energy	350 million tCO_2e	350 million tCO_2e
IPPU	150 million tCO_2e	
AFOLU	400 million tCO_2e	400 million tCO_2e
Waste	70 million tCO_2e	
Others	30 million tCO_2e	
Total base year emissions within boundary		**750 million tCO_2e**

Exercise 5: Calculate allowable emissions

Based on the base year emissions given in Table 2, calculate allowable emissions for the goal identified in Exercise 2. The equations for calculating allowable emissions for each type of goal are given in Table 4.

Table 4: Calculating allowable emissions in the target year

Goal type	Allowable emissions in the target year (Mt CO_2e) =
Base year emissions goal	Base year emissions (Mt CO_2e) – [Base year emissions (Mt CO_2e)) x Percent reduction]
Fixed-level goal	Absolute quantity of emissions specified by the goal level (Mt CO_2e)
Baseline scenario goal	Projected baseline scenario emissions in the target year (Mt CO_2e) – [Projected baseline scenario emissions in the target year (Mt CO_2e) x Percent reduction]
Base year intensity goal	*Allowable emissions intensity in the target year (t CO_2e/level of output)* = Base year emissions intensity (t CO_2e/level of output) – [Base year emissions intensity (t CO_2e/level of output) x Percent reduction]

Solution based on a base year emissions goal of **20%** reduction below base year by 2030

Equation:

Allowable emissions = Base year emissions – (Base year emissions x Percent reduction)

Allowable emissions = 1000 million tCO_2e - (1000 million tCO_2e x 0.20)

= 1000 million tCO_2e - 200 million tCO_2e

= 800 million tCO_2e

Exercise 6: Calculate accountable emissions

Based on the data provided in the table below, calculate the accountable emissions in the target year.

Equation:

Accountable emissions = Target year actual emissions

+ Offset credits sold in the target year

– Offset credits retired in the target year

Data input	Example
Target year actual emissions in 2030	800 million t CO_2e
Offset credits sold in 2030	100 million t CO_2e
Offset credits retired in 2030	50 million t CO_2e

Accountable emissions = 800 million t CO_2e

+ 100 million t CO_2e

– 50 million t CO_2e

= 850 million t CO_2e

Exercise 7: Evaluate goal achievement

Based on the results from exercises 5 and 6, please assess, if the goal was achieved or not.

If…	Then…
Accountable emissions ≤ Allowable emissions	**Goal is achieved**
Accountable emissions > Allowable emissions	**Goal is not achieved**

850 million t CO_2e > 800 million t CO_2e ➡ Goal is not achieved

Exercise 8: Report goal achievement

Complete the following section of table 4, Structured summary: Tracking progress made in implementing and achieving the NDC under Article 4 of the Paris Agreement (decision 5/CMA.3, Annex).

Assessment of the achievement of the Party's NDC under Article 4 of the Paris Agreement (para. 70 of the MPGs):
Restate the target of the Party's NDC:
Information for reference point(s), level(s), baseline(s), base year(s), or starting point(s):
Final information for the indicator for the target year/period, including the application of the necessary corresponding adjustments consistent with chapter III, annex, decision 2/CMA.3 (Corresponding adjustments) and consistent with future decisions from the CMA (para. 23(l), annex to decision 2/CMA.3):
Comparison:
Achievement of NDC: *[yes/no, explanation]*

Assessment of the achievement of the Party's NDC under Article 4 of the Paris Agreement (para. 70 of the MPGs)	
Restate the target of the Party's NDC	20% emissions reduction from 2010 levels by 2030
Information for reference point(s), level(s), baseline(s), base year(s), or starting point(s)	Base year emissions: 1,000 million t CO2e Base year: 2010
Final information for the indicator of the target year/period, including the application of the necessary corresponding adjustments consistent with chapter III, annex, decision 2/CMA.3 (Corresponding adjustments) and consistent with future decisions from the CMA (para. 23(l), annex to decision 2/CMA.3)	Target year emissions: 800 million t CO2e Credits sold: 100 million t CO2e Credits retired: 50 million t CO2e
Comparison	850 million t CO2e > 800 million t CO2e
Achievement of NDC	No, the NDC target has not been achieved