Dynamic Greenhouse Gas Emissions Targets

Intro to Emissions-Neutral Buildings Series: Deep Retrofits

ALBERTA ecotrust

enbix | Retrofit accelerator

Dynamic and static targets

Targets for greenhouse gas (GHG) emissions reductions can be determined in various ways. For example, GHG reductions can vary depending on the reference (or baseline) year against which the reduced emissions are compared. Another factor is whether a target accounts for how the GHG intensity of the electrical grid is projected to change over time (i.e. whether it produces more or less GHG emissions). A ***dynamic GHG target*** reflects these changes, while a ***static GHG target*** is a snapshot in time and stays constant, regardless of grid emissions.

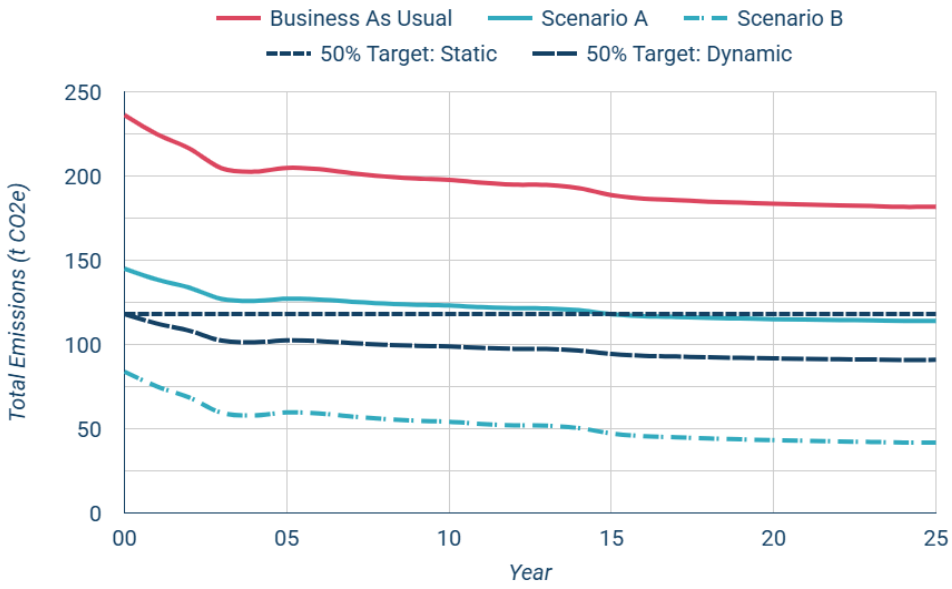
Our changing electrical grid

Federal and provincial government strategies and targets to reduce GHG emissions from electricity production suggest that, over time, the energy generators supplying electricity to our grid will produce fewer GHG emissions per unit of energy (see Canada's Clean Electricity Strategy). We refer to this as the ***decarbonization*** of the electrical grid. Although the speed at which these reductions will happen is unknown, it is expected that emissions will be reduced over time.

What do dynamic and static GHG targets look like?

Example 1:

The chart below illustrates dynamic and static GHG emissions targets for a hypothetical building. If the building has electricity consumption, the dynamic target (dark blue long dash) will vary as the GHG emissions of the electrical grid change. The static target (dark blue short dash) stays flat over time.

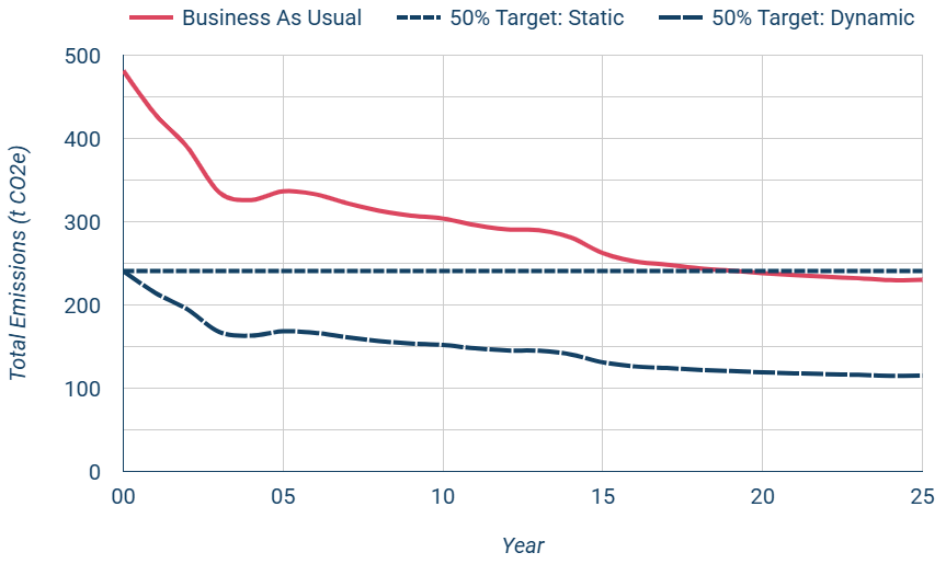


A building owner retrofitting their building might consider various options to reduce their building's GHG emissions. Scenarios A and B illustrate two theoretical retrofit projects that could be implemented in the building in Year 0, resulting in immediate and substantial reductions in GHG emissions. Scenario A (solid light blue) does not achieve either target in the near term, but eventually reaches the static target due to grid decarbonization. Scenario B (dashed light blue) achieves both targets in the near- and long-term.

Key takeaway: When using a dynamic target, your target emissions lower as grid emissions are reduced over time.

Example 2:

When a large portion of a building's energy use is electricity (rather than natural gas), a static GHG reduction target can be met due to electrical grid decarbonization alone, with no change to the amount of energy used by the building. This is one reason why it is important to specify whether static or dynamic GHG targets are used.



Things to consider

Many financiers require the use of dynamic GHG targets, so it's important to be clear about which type of target you are using. Discuss dynamic and static targets early in your project to ensure all parties involved are in agreement on which targets will be used.