

A challenging subject for companies and stakeholders

Stakeholders are increasingly requesting that companies analyze the potential risks to company investments and operations of policy efforts to manage climate change and greenhouse gas (GHG) emissions (such as limiting global warming to 2°C). Similarly, companies are receiving requests to set GHG emissions reductions targets. In both cases, stakeholder organizations are creating recommendations, methodologies, and tools they would like companies to apply. Despite significant company experience managing GHG emissions and with planning, analyses related to both types of requests require deeper scientific understanding at the frontiers of science. As a result, they are technically challenging for companies to undertake and for stakeholders and the public to evaluate.

EPRI study

EPRI has completed a study analyzing and characterizing current scientific knowledge associated with developing or evaluating a company climate policy scenario analysis or GHG goal. The study identifies technical issues and insights relevant to companies, stakeholders, and the public that provide a foundation for informed discussion, analyses, and decisions.

Companies must contend with significant uncertainty

When developing a climate policy scenario analysis or GHG goal, a company must identify the uncertainties relevant to their organization. The EPRI study evaluates the relationship between a global temperature goal and a company (Figure 1). The study finds that significant uncertainty defines the relationship between a temperature goal and emissions pathways. The study also finds uncertainty in whether very low global emissions pathways are attainable, as

well as uncertainty regarding specific policy design features, non-climate-policy drivers, and company-specific circumstances. As a result, broad ranges of GHG emissions pathways, cumulative emissions over time, and annual reduction levels are relevant to companies evaluating their relationship to a global temperature goal, such as the 2°C goal (Figure 2). However, despite large ranges of scenario results consistent with a temperature outcome, the study identifies robust insights (insights found consistently across models and assumptions) that provide a solid decision-making foundation for companies and others. For instance, global emissions must peak and decline to meet global average temperature objectives equal to or more ambitious than a 50% chance of limiting warming to 3°C.

Policy design and technology are important

The specific emissions reduction role of a company, and sector, as well as the feasibility of an emissions pathway, will be determined by policy design and available technologies. For instance, depending on the policy and technology conditions, increasing electricity use beyond baseline levels may or may not be cost-effective for society and consistent with climate goals. The specific features of policies (such as coverage and policy instrument type) are key uncertainties for companies with implications for opportunities, costs, and net environmental outcomes. However, uncertainty related to policy features is not reflected in current global emissions scenario results. Current scenarios assume idealized global economy-wide emissions reduction policies that are unlikely to develop (at least in the near term). Also, as proposed by some, uniform emissions reduction targets across or within sectors (e.g., 80% or 90% respectively in 2050) are unlikely to be cost-effective for a company, customers, or society given differences in emissions reduction options.

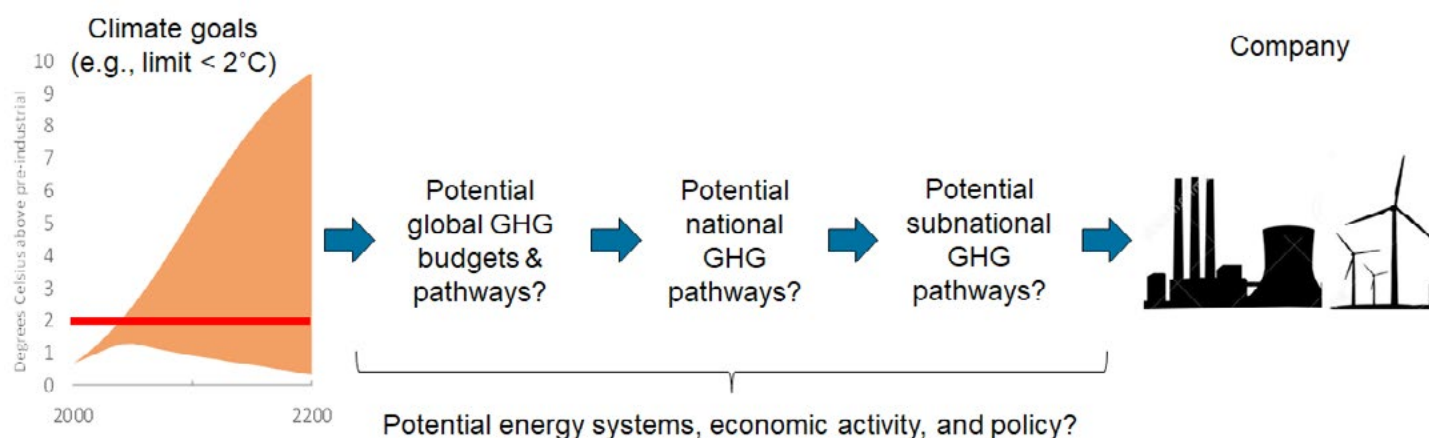


Figure 1. Understanding the relationship between global climate goals and companies is critical.

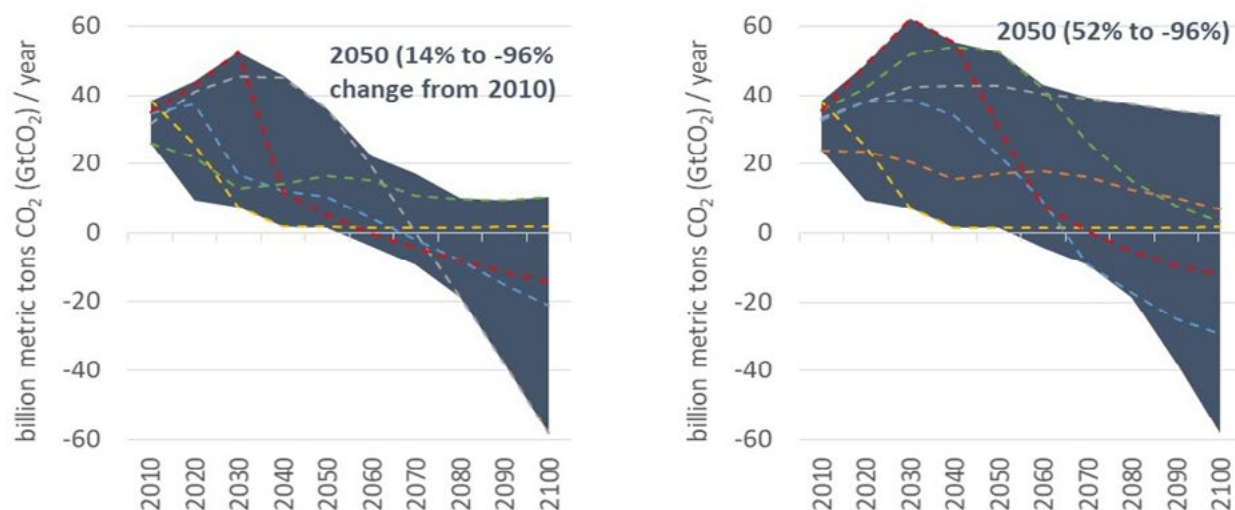


Figure 2. Global CO₂ emission pathway ranges relevant to companies. Left chart: the range for pathways consistent with limiting global average warming to 2°C (over 400 scenarios with a few illustrative pathways shown). Right chart: the range for pathways peaking before 2050 (over 700 scenarios) reflecting uncertainty about the feasibility of pathways. See the study for guidance on how companies may use this information, as well as discussion of pathways without negative emissions.

Climate policy is one of many risks for companies

Climate policy risk needs to be put in context with respect to other company uncertainties such as economic growth, fuel prices and capital costs. Risk assessments also need to take into account current company climate-related policy planning.

Insights for companies and others

The EPRI study derives insights specifically for company climate scenario analysis and emissions reduction goal setting:

- Individual company perspective is essential.
- Analytical approaches and strategies should be based on scientific understanding.
- The role of an individual company in cost-effectively reducing global GHG emissions is highly uncertain, with a broad range of potential GHG outcomes consistent with a temperature goal and not all equally likely.
- It will be difficult to identify a company GHG pathway or target that is cost-effective in all plausible futures.
- What is cost-effective for one company will likely differ from what is cost-effective for others or in aggregate.
- Numerous uncertainties are relevant to company investments and operations. Companies should embrace uncertainty and pursue flexibility to respond appropriately to the future, developing robust strategies that go beyond a specific emissions target.

The study also provides steps for applying its insights, as well as evaluates how existing methodologies address company analysis issues (see Box, below). Methodologies to date have limited consideration of uncertainty, and some suggest uniform GHG targets across companies.

Additional information

See the full study for supporting analyses, detailed discussions, and an executive summary (link and QR code below). The study represents the first of two phases, taking stock of current knowledge, from which new analyses can be undertaken to continue developing the needed scientific resources. For additional information, contact Steven Rose (srose@epri.com) or Morgan Scott (mmsscott@epri.com).

COMPANY ANALYSIS ISSUES

- Emissions scenarios used?
- Uncertainties considered and how?
- Consideration of company-specific context?
- Uniform vs. varied GHG targets across companies?
- Consideration of flexibility options?
- Quantitative comparison of alternatives?
- Evaluation of strategy robustness?



Download the full report at www.epri.com - [Grounding Decisions: A Scientific Foundation for Companies](#)

[Considering Global Climate Scenarios and Greenhouse Gas Goals](#), EPRI report #3002014510, October 2018.

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