Climate Change
Policy Principles

An Overview

Chevron shares the concerns of governments and the public about climate change risks and recognizes that the use of fossil fuels to meet the world’s energy needs is a contributor to rising greenhouse gases (GHGs) in the earth’s atmosphere. We believe that taking prudent, practical and cost effective action to address climate change risks is the right thing to do. Mitigation of GHG emissions, adaptation to climate change and continuation of scientific and technological research should all be considered.

GHGs come from a variety of sources – power generation, transportation, agriculture, land use, manufacturing, and other activities. Fossil fuels – coal, oil and natural gas - release carbon dioxide during production and consumption. Fossil fuels are also the primary source of energy for the global economy and a contributor to a rising quality of life in many parts of the world. Based on current projections of population and economic growth, the world’s demand for energy will increase substantially over the next 25 years. The majority of that energy will be provided by fossil fuels, even as lower-carbon alternatives continue to emerge.

Reducing GHG emissions in the face of rising energy demand presents a formidable challenge to our global society. As we work to address climate change risks, we must create solutions that achieve environmental objectives without undermining growth of the global economy and our aspirations for a better quality of life for all. We offer the following four principles as guideposts for the development of climate change policies.

Principle One:
Reducing greenhouse gas emissions is a global issue that requires global engagement and action.

Principle Two:
Policies should be balanced and measured to ensure long-term economic, environmental and energy security needs are all met, costs are allocated in an equitable, gradual and predictable way and actions consider both GHG mitigation and climate change adaptation.

Principle Three:
Continued research, innovation and application of technology are essential to enable significant and cost-effective mitigations to climate change risks over the long term.

Principle Four:
The costs, risks, trade-offs and uncertainties associated with GHG reduction and climate change adaptation efforts and policies must be transparent and openly communicated to global consumers.
Principle One:
Reducing greenhouse gas emissions is a global issue that requires global engagement and action.

GHGs do not recognize sovereign borders. Climate change risks stem from the cumulative effect of GHG emissions from all nations. By 2025, about one-third of global energy-related GHG emissions are projected to come from OECD* nations and two-thirds from non-OECD nations — the single largest being China accounting for nearly 30 percent of projected global energy-related GHG emissions. With emissions rising fastest in the broader developing world, climate change risks cannot be addressed by actions taken in the developed world alone. Global engagement is required. Unilateral action by any country or jurisdiction could result in unintended consequences that could distort markets, reduce competitiveness of trade-exposed industries and undermine intended environmental objectives — without reducing climate change risks to that country or jurisdiction.

*The Organisation for Economic Co-operation and Development
Principle Two: Policies should be balanced and measured to ensure long-term economic, environmental and energy security needs are all met, costs are allocated in an equitable, gradual and predictable way and actions consider both GHG mitigation and climate change adaptation.

Access to affordable, reliable energy is essential to the growth of strong economies, sustained improvements in the quality of life, and the eradication of poverty. To ensure these benefits for today’s and future generations alike, GHG reduction and climate change adaptation objectives must balance the need for economic growth, environmental stewardship, and energy security.

How the costs of these actions are shared is equally important. GHGs are a function of many activities from manufacturing, agriculture and transport, to supply the world with essential food, goods and services, to how much energy we use to power our homes, drive our cars and otherwise travel for work and leisure.
To reduce GHG emissions while avoiding disruptive economic and social impacts, policies must be developed that allow for multiple solutions, reasonable timeframes for the turnover of infrastructure, equitable sharing of costs across carbon-emitting sectors of the economy and efficient allocation of capital. Markets allocate limited capital in the most efficient and effective way when there are no large-scale subsidies for energy consumption or energy production.

Addressing climate change risks in a meaningful way is a complex, long-term proposition. Along the way and as knowledge evolves, climate change policies require periodic assessment to determine if the intended results are being achieved, if costs and actions are being shared equitably, if global development and economic growth continue, and if energy remains affordable to global consumers.
Principle Three:
Continued research, innovation and application of technology are essential to enable significant and cost-effective mitigations to climate change risks over the long term.

There are large-scale, proven and affordable technologies available today that can be applied to lower or reduce the growth of global GHGs. Natural gas, energy efficiency, and nuclear technologies can be implemented immediately to help reduce GHG emissions while innovative research continues. This also may include unsubsidized wind energy in jurisdictions where large-scale development can be achieved. Government must enable the development and application of these energy technologies by removing barriers to access, streamlining permitting and ensuring responsible and cost-effective regulation.

Energy efficiency is the most immediate and cost-effective source of “new” energy with no GHG emissions. In addition to government support of energy efficiency efforts, the private sector should increase its own efforts to enhance efficiency in everything from manufacturing and transportation to building management and construction.

The two largest energy consumers, China and the U.S., have efficiency improvement opportunities. The United States is not as efficient as other OECD economies. A 20 percent improvement in the United States would save the equivalent of 9 million barrels of oil per day and reduce emissions by the equivalent of 1.4 billion metric tons of CO₂ each year. If China could become as efficient as the United States was in 1970, it would save the equivalent of 23 million barrels of oil per day and reduce emissions by the equivalent of 3.7 billion metric tons of CO₂ each year. In 2010, global energy-related CO₂ emissions were about 30 billion metric tons. India has similar opportunities.
Innovative technologies are created and developed through an ecosystem of free markets, university research, government investment, public-private partnership, entrepreneurial venture capital start-ups, and industrial and individual application of new technologies. The development of multiple solutions and pathways will require sufficient time for government and industry to learn from and to apply the outcomes of the research.

Research, development and deployment of technology should be focused on cost-effective climate change adaptation measures and breakthroughs needed to deliver affordable, lower carbon energy solutions that can be adopted globally, at scale and without subsidies. Associated government policies should be technology neutral and support early stage pre-commercial activity to advance needed technology and cost breakthroughs. Continued global research on climate science is also critically important to further our understanding of the complex relationship between GHG emissions and climate and narrow the uncertainty in predictive models.

Policies that enable these dynamic aspects of science, research, innovation and application of technology to address scale, cost and technological barriers will advance the most cost-effective solutions to climate change risks.

Levelized cost of energy (LCOE), including capital, operating, fuel and carbon costs over the lifetime of a project, calculated as a break-even price for electricity delivered to a high-voltage grid. The market prices used for gas are the Nymex Henry Hub front-month futures contract for the U.S. and World Gas Intelligence’s Japan and All-Asia LNG spot assessments for developing Asia.

Reliability cost includes integration, backup capacity, and additional transmission costs; however, this cost is not known.
Nonfood-based biofuel challenges include high cost, compatibility with refinery gasoline and scalability. Economic hurdles include:

- Using chemical hydrolysis to break down cellulosic materials into sugars for fermenting into ethanol (hydrolysis)
- Developing microbes that can simultaneously ferment multiple types of sugars (fermentation of C5 and C6 sugars)
- Transporting and storing bulky and heavy cellulosic materials (lignocellulose logistics/densification)
- Removing impurities from bio-oil and improving its stability (production of higher-quality pyrolysis oil)

“ICE” (Internal Combustion Engine)
Principle Four:
The costs, risks, trade-offs and uncertainties associated with GHG reduction and climate change adaptation efforts and policies must be transparent and openly communicated to global consumers.

Developing solutions of the scale required by the climate change challenge will be a complex endeavor. It is essential to understand and fully communicate the economic and social costs of various policies and the projected environmental benefits, both in the near term and the long term, so we can agree on solutions that are fair, balanced, effective and affordable to global consumers.