



## IEA's SDS and NZE2050 Analysis Summary February 2021

Chevron routinely uses long-term energy demand scenarios and a range of commodity prices to test our portfolio (which we believe will be the primary method in which a low-carbon future would impact the Company's financial position and related assumptions), test investment strategies, and evaluate business risks to strive to deliver results under a range of potential futures. We use external scenarios to both inform and challenge our internal views, including scenarios that keep global warming to well below 2° C above pre-industrial levels, as well as scenarios forecasting net zero emissions by 2050. These scenarios assume various facts, including implementation of governmental policies to achieve GHG reductions.

One example of a lower-carbon scenario against which we test our portfolio is the International Energy Agency's (IEA) Sustainable Development Scenario (SDS). The SDS outlines one potential path to 2040 to meet the objectives of the Paris Agreement through assumptions about policies aimed at increasing efficiencies and renewable energy sources to limit energy demand growth. We use their demand projections to create the inputs for our proprietary models to test our portfolio against the new prices generated to meet the SDS level of demand.

**Impact of the SDS scenario.** We test our portfolio against projected prices under the SDS. Given our focus on the most competitive assets in our Upstream portfolio and actions to align Downstream & Chemicals around scaled, efficient, flexible, integrated, and higher-margin value chains, we believe our portfolio (including our LNG assets) should be resilient even under the SDS scenario, although some assets could be exposed if we took no action. Our processes for tracking leading indicators and managing these changes, combined with our asset mix, enable us to be flexible in response to potential changes in supply, demand and physical risk.

- **Short-term impact (0–10 years) Upstream:** Today, much of our Upstream investment is focused on unconventional and brownfield assets. Our LNG assets in Australia will generate earnings and cash in an environment that lacks substantial price growth. In a low-price environment like the SDS, operating costs decline across the portfolio.
- **Short-term impact (0–10 years) Downstream & Chemicals:** Although there is declining demand for transport fuels in the United States, the Downstream portion of our portfolio remains resilient due to actions we have taken over the past decade to enhance refinery competitiveness. Petrochemical demand continues increasing in the SDS, which will help maintain earnings from the chemicals business.

- **Long-term impact (10-plus years) Upstream:** Production and cash generation from our existing assets plus select brownfield investments remain robust into the 2030s, even at the SDS prices. Margins and cash flow settle at levels that ensure there is enough supply to meet the world's continued need for energy through the period. In this environment, we use our portfolio's scale, efficiency, diversity, and flexibility to maintain the business.
- **Long-term impact (10-plus years) Downstream & Chemicals:** Declining demand for all hydrocarbon transport fuels results in margins dropping globally. Refining investments remain curtailed, although select investments, including in petrochemicals, could continue.

***Impact of the NZE2050 scenario.*** The IEA's Net Zero Emissions by 2050 (NZE2050) scenario puts the world (including countries and companies) on a pathway to achieve net-zero emissions by 2050 through different assumptions including a more rapid decline in demand due to an accelerated deployment of low-carbon energy technologies and significant behavioral changes that reduce energy use. Under both the SDS and NZE2050 scenarios, although oil and gas demand may fall below today's share, these commodities will still be required to satisfy global energy demand.

Putting the world on a net-zero 2050 path results in a more rapid decline in demand than depicted in the SDS scenario. For example, in 2030, oil and gas are expected to constitute approximately 50 percent of the primary energy mix in the NZE2050 scenario, compared to 66 percent in the SDS scenario. Oil demand in the NZE2050 scenario is expected to be nearly 25 percent below the SDS scenario levels in 2030, while gas demand is expected to be about 8 percent below the SDS scenario in 2030. Incremental upstream investment remains required in the IEA's NZE2050 scenario as mature field decline outpaces projected demand reductions. The more rapid demand decline in the NZE2050 scenario implies increased market competition for supply and rationalization of refining capacity.

Since the NZE2050 scenario was recently released, certain assumptions such as details on demand profiles by region and fuel that extend beyond 2030 for the NZE2050 scenario are not yet available. These assumptions are needed to fully understand specific energy price and specific portfolio impacts similar to the SDS analysis. For example, unlike the SDS model, which extends its analysis through 2040, the NZE2050 scenario currently only provides demand implications through 2030. Nevertheless, under the NZE2050 scenario, overall market and Chevron portfolio impacts are expected to be similar to those in the SDS scenario described above but on a more accelerated time horizon.

We plan to update our analysis of scenarios as information is released from the IEA.