



# **HYDROGEN – FROM NICHE TO SCALE**

Linda Boukhelifa, Technology Manager Hydrogen Supply Chain, Storage & Mobility

Shell Plc

**November 22, 2023**

# Cautionary note

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this presentation “Shell”, “Shell Group” and “Group” are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this presentation refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as “joint ventures” and “joint operations”, respectively. Entities over which Shell has significant influence but neither control nor joint control are referred to as “associates”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

This presentation contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “aim”, “ambition”, “anticipate”, “believe”, “could”, “estimate”, “expect”, “goals”, “intend”, “may”, “objectives”, “outlook”, “plan”, “probably”, “project”, “risks”, “schedule”, “seek”, “should”, “target”, “will” and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell’s Form 20-F for the year ended December 31, 2020 (available at [www.shell.com/investors](http://www.shell.com/investors) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this presentation and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 22<sup>nd</sup> November 2023. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

We may have used certain terms, such as resources, in this presentation that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov).

**TO BE USED IF SHELL’S CLIMATE TARGET IS DISCUSSED:** Shell’s operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, Shell’s operating plans, outlooks, budgets and pricing assumptions do not reflect our net-zero emissions target. In the future, as society moves towards net-zero emissions, we expect Shell’s operating plans, outlooks, budgets and pricing assumptions to reflect this movement.

**TO BE USED IF SHELL’S NET CARBON FOOTPRINT IS DISCUSSED:** Also, in this presentation we may refer to Shell’s “Net Carbon Footprint”, which includes Shell’s carbon emissions from the production of our energy products, our suppliers’ carbon emissions in supplying energy for that production and our customers’ carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell’s “Net Carbon Footprint” is for convenience only and not intended to suggest these emissions are those of Shell or its subsidiaries.

**PLEASE NOTE: IF SHELL SCENARIOS, THE SKY 1.5 SCENARIO, AND/OR NON-GAAP MEASURES ARE TO BE DISCUSSED OR MENTIONED, ADDITIONAL DISCLAIMER LANGUAGE IS REQUIRED. PLEASE VISIT THE MEDIA RELATIONS DISCLOSURE PAGE ON THE NEW CORPORATE RELATIONS PORTAL FOR FURTHER GUIDANCE AND REQUISITE DISCLAIMERS.**



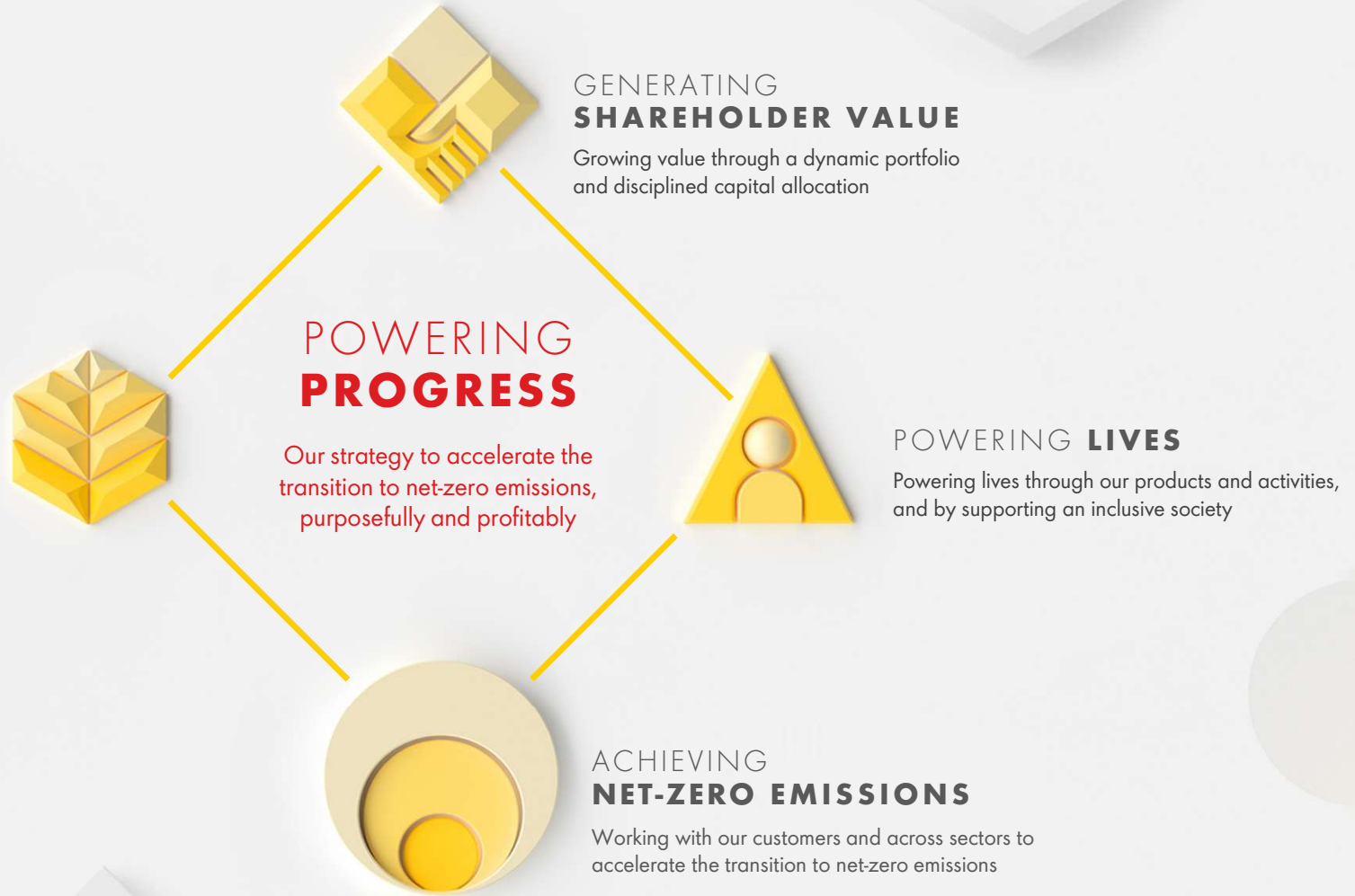
## OUR **PURPOSE**

To power progress together by providing more and cleaner energy solutions

### RESPECTING **NATURE**

Protecting the environment, reducing waste and making a positive contribution to biodiversity

UNDERPINNED BY  
OUR **CORE VALUES**  
AND OUR FOCUS  
ON **SAFETY**



# Building on our experience with LNG we want to create a market for hydrogen

Shell has long been a pioneer in Liquefied Natural Gas (LNG) – helping create the market

## Challenge

How to supply gas to people who are too far from gas fields, where pipelines are impractical or uneconomical

**1964**

Shell shipped 1st commercial LNG cargo starting today's global trade

**1972**

Brunei LNG began operations. It was the first LNG plant in the West Pacific and is now one of the world's leading suppliers of LNG

**2019**

Shell's Prelude floating liquefied natural gas (FLNG) facility shipped its first LNG cargo to customers in Asia

**Now**

The global trade in LNG increased to 380 million tonnes during 2021

**Future**

We anticipate Decarbonised gas and LNG will strengthen their role in the energy transition

## Challenge

How to leverage Hydrogen's high energy density/low emissions properties to help the world reach net zero emissions

**2011**

First Shell hydrogen refuelling station opens

**2021**

Europe's largest PEM hydrogen electrolyser, begins operations at Shell's Energy and Chemicals Park Rheinland

**2022**

HySTRA world's first LH2 shipping demo; 20MW electrolyser at Zhangjiakou City; ~50 H2 refuelling stations at Shell-branded outlets

**Now**

Shell is actively playing its role in helping establish a global hydrogen economy

**Future**

Large-scale production of hydrogen from renewables

In the same way, our intent is to be a leading player in the global hydrogen market

# Active in project and technology development across full value chain

## Full value chain integration & optimisation

