

# LOW CARBON ENERGIES

14 September 2023 Venice

### LOW CARBON ENERGIES AND TECHNOLOGY FIELD TRIP



# INTRODUCTION

### Giuseppe Ricci Jon Rigby

14 September 2023 Venice

### DISCLAIMER



- This document contains forward-looking statements regarding future events and the future results of Eni that are based on current expectations, estimates, forecasts, and projections about the industries in which Eni operates and the beliefs and assumptions of the management of Eni. In addition, Eni's management may make forward-looking statements orally to analysts, investors, representatives of the media and others. In particular, among other statements, certain statements with regard to management objectives, trends in results of operations, margins, costs, return on capital, risk management and competition are forward looking in nature. Words such as 'expects', 'anticipates', 'goals', 'projects', 'intends', 'plans', 'believes', 'seeks', 'estimates', variations of such words, and similar expressions are intended to identify such forward-looking statements. These forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties, and assumptions that are difficult to predict because they relate to events and depend on circumstances that will occur in the future. Therefore, Eni's actual results may differ materially and adversely from those expressed or implied in any forward-looking statements. Factors that might cause or contribute to such differences include, but are not limited to, those discussed in Eni's Annual Reports on Form 20-F filed with the U.S. Securities and Exchange Commission (the "SEC") under the section entitled "Risk factors" and in other sections. These factors include but are not limited to:
- Fluctuations in the prices of crude oil, natural gas, oil products and chemicals;
- Strong competition worldwide to supply energy to the industrial, commercial and residential energy markets;
- Safety, security, environmental and other operational risks, and the costs and risks associated with the requirement to comply with related regulation, including regulation on GHG emissions;
- Risks associated with the exploration and production of oil and natural gas, including the risk that exploration efforts may be unsuccessful and the operational risks associated with development projects;
- Uncertainties in the estimates of natural gas reserves;
- The time and expense required to develop reserves;
- Material disruptions arising from political, social and economic instability, particularly in light of the areas in which Eni operates;
- Risks associated with the trading environment, competition, and demand and supply dynamics in the natural gas market, including the impact under Eni take-orpay long-term gas supply contracts;
- Laws and regulations related to climate change;
- Risks related to legal proceedings and compliance with anti-corruption legislation;
- Risks arising from potential future acquisitions; and
- Exposure to exchange rate, interest rate and credit risks.
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### LOW CARBON ENERGIES & TECHNOLOGIES FIELD TRIP

AGENDA

#### **14 SEPTEMBER** Transfer from Venice to Porto Marghera 08.00 Welcome & refreshments 09.00 09.15 Introduction 09.45 Biorefining 10.45 Break 11.00 Agri Feedstock Initiatives 11.30 Q&A session Transfer to canteen and lunch 12.00 Tour of the biorefinery 13.30 Satellites and closing comments 14.30 15.00 Q&A Session End of event & tour to the bunker 15.30

### ENI'S ULTIMATE GOAL

### OUR TRIPLE MANDATE: SUSTAINABILITY, ENERGY SECURITY & VALUE CREATION



66 To prov

... To provide effective answers to the energy trilemma and contribute to providing abundant, affordable and environmentally sustainable energy, Eni has developed an innovative business and financial model that allows us to solve the problem of capital allocation, striking the right balance between investments and returns.

Claudio Descalzi, CEO Eni





### OUR APPROACH TO THE ENERGY TRILEMMA





### ENI AT A GLANCE

#### NATURAL RESOURCES

Decarbonizing and value enhancing our upstream portfolio



EXPLORATION 750 MBOED discovered in 2022 700 MBOED targeted in 2023



**O&G PRODUCTION** 

**1.6 MBOED** in 2022 **1.63-1.67 MBOED** in 2023



STRONG FINANCIALS

E&P portfolio breakeven at **~\$20/BBL** GGP 2023 EBIT **€2.7-3.0 bln** 

### **ENERGY EVOLUTION**

Growing profitably while transforming



PLENITUDE

>3 GW RES CAPACITY by end 2023
>7GW by end 2026
10 MLN CUSTOMERS
13,000 CHARGING POINTS



#### **BIO REFINING CAPACITY**

1.1 MTPA growing to >3 MTPA by 2025 and >5 MTPA by 2030

#### TRADITIONAL REFINING CAPACITY

**0.7 MBOE/D**\*



**FINANCIALS** 



CAPITAL DISCIPLINE 2023 <€9BLN



CASH FLOW FROM OPERATIONS

> **€15.5-16 €BLN** 2023 at \$80/bbl



#### STRONG BALANCE SHEET

**15% leverage** (10-20% target range)



70 YEARS OF INNOVATION HISTORY FOUNDED IN 1953

### 32K NUMBERS OF STAFF AT THE END OF 2021

62 COUNTRIES WE WORK IN

1995 LISTED SINCE 1995 E NYSE ENI MIB

### **OUR TRANSITION**

TECHNOLOGY





INNOVAT

OPEN

TECH LED BUSINESS GROWTH



BREAKTHROUGH TECHNOLOGIES E.G. FUSION

# TOWARDS A NET ZERO ENERGY BUSINESS

Bio and CCUS crucial in delivering our emissions targets





Production plateauing and gas share growing to 60% by 2030

#### BIOENERGY

Capacity to reach >5 MTPA by 2030

(>20% CAGR 2022-2030)



#### RENEWABLES

Capacity to reach >15 GW by 2030

(~30% CAGR 2022-2030)



CCS

CO<sub>2</sub> volumes stored to reach 30 MTPA by 2030



FUSION

SPARC net energy pilot plant in 2025

ARC first industrial fusion power plant by early 30s

### **ENERGY EVOLUTION**

Our key pillars

### STRENGTHENING OUR OFFER OF LOW CARBON PRODUCTS AND SOLUTIONS

TO REACH NET ZERO TARGET IN 2050

#### CONTINUING TRANSFORMATION OF TRADITIONAL BUSINESSES

TO LEAD BIOREFINING AND SUSTAINABLE CHEMISTRY BY LEVERAGING PROVEN INDUSTRIAL CONVERSION SUCCESS EXPERIENCE

### FOCUSING ON AMBITIOUS TARGETS WHILE WORKING IN A VERY VOLATILE MARKET

BOOSTING BIOREFINING CAPACITY AND RENEWABLE GENERATION

#### BALANCING OUTWARD AND INWARD FORCES

FINANCIAL INDEPENDENCE TOGETHER WITH ENI CORE VALUES, COMPETENCE AND RESOURCES



GENERATING VALUE WHILE TRANSFORMING

**HIGHER GROWTH** 

2X

**EBIT** OVER THE 4YP

IMPORTANT CASH GENERATION

>20%

OF GROUP CFFO BY THE END OF PLAN

# **ENERGY EVOLUTION**

A global portfolio of transforming businesses





### PORTO MARGHERA INDUSTRIAL SITE



An example of industrial reconversion

### OUR HISTORY AND REBIRTH...



#### START UP OF VENICE REFINERY



#### RECONSTRUCTION



#### **VENEZIA BIOREFINERY**



### ...WHAT'S NEXT?



# BACK UP

### **COMPANY BUSINESS STRUCTURE\***





### **TODAY'S SPEAKERS**





#### Giuseppe Ricci - Energy Evolution

He was appointed Chief Operating Officer of Energy Evolution on January 1, 2021. He joined Eni in 1985 initially working in the study and development of new refining processes at the Sannazzaro refinery, In 2000 he became responsible for Refining Processes Development. He took over in 2004 as director of the Gela Refinery, a challenging assignment both from a managerial perspective and in terms of the refining cycle and plant complexity. In 2006 he was appointed managing director of the refinery.

In June 2010 he was made Senior Vice President of the Industrial Sector for Refining & Marketing, holding also chairmanship of Gela and Milazzo.

In 2012 he took on the delicate role of Eni's Executive Vice President HSEQ.



### **Stefano Ballista -** Eni Sustainable Mobility

He is currently CEO and Chairman of Eni Sustainable Mobility.

He has been with Eni for 15 years and in 2016 he became CEO of Enipower and SVP Business Unit Power Eni S.p.A.. During his experience, he led the Gas Business Unit Eni S.p.A., rising to the position of Managing Director Eni Trading & Shipping at the end of 2018. Following the new-organisation of Eni Trading & Shipping, he became Managing Director of Eni Trade & Biofuels and Head of the Portfolio Management & Supply Department of Eni S.p.A.

Over the years, he has held various positions on the Board of Directors of Eni's subsidiaries and investee companies.



### Raffaella Lucarno - Biorefining & Supply

She had worked in refinery sector for 18 years, 5 years in a different company, holding various positions till 2021 when she concluded her experience as Sannazzaro refinery manager. In 2022 she passed to R&D department, as Business Partner for Energy Evolution that means to acknowledge the business needs in order to address the technological paths, manage strategic activities and set up new initiatives properly, in the field of bio feedstock/bioprocesses/bioproducts, hydrogen and e-fuels, and renewables. In 2023 she passed to Eni Sustainable Mobility, with the full responsibility of biorefining sector including the supply activities. Since March 2023 she has also taken the responsibility of Biomethane business.



#### Jon Rigby – Investor Relations & Strategic Analysis

Jon joined Eni in 2022. He has extensive professional experience in capital markets and the energy sector built over many years handling energy market research and transactions.

Previously, He was a Managing Director at UBS where he led European oil and gas research, was the bank's global coordinator for the sector and was also responsible for European and US integrated oil and gas coverage.



#### Luigi Ciarrocchi - CCUS, Forestry & Agro-feedstock

He joins Eni in 1990. He currently holds the position of Director of CCUS, Forestry & Agro-Feedstock. In 1992 he begins his international career, moving first to the UK as a Petroleum Engineer and then to Nigeria and Congo as an Operations Manager. In 2006 he moves to Croatia as MD of Eni Croatia, while in 2007 he moves in Pakistan. He returns to Eni's HQ in 2008 initially as VP of Management Coordination of Turkmenistan, Iran, Saudi Arabia and China, and then as SVP Management Coordination Far East and Pacific. In 2014 he is appointed Chairman and CEO of Tecnomare S.p.A. In 2015 he becomes Head of the "Gela Area Development Initiatives" Program. In 2020 he held the position of Director of Italian Upstream Activities. He is president of Assorisorse since July 2018.



### Federico Maria Grati - Agroenergy Services

He has 20+ years experience in the bio-energy sector and circular economy. Before Eni, he worked as general manager in AgriGeorgia – a Ferrero Group subsidiary – focusing on sustainable and socially responsible food origination through circular economy.

He has joined Eni in 2020 in the Sustainability function, developing initiatives within the framework of Local Development Projects in agriculture. In 2021, he has been appointed as Head of the new-born function Agroenergy Services (AGROS), with the responsibly of developing and managing agribusiness projects finalized to production of vegetable oils for Eni bio-refineries. AGROS is active in Italy, Kenya, Congo, Ivory Coast, Mozambique, Angola, Rwanda and is preparing operations with a global footprint.

### LOW CARBON ENERGIES AND TECHNOLOGY FIELD TRIP



# BIOREFINING

### Stefano Ballista Raffaella Lucarno

14 September 2023 Venice

### **Eni Sustainable Mobility**

A Multi-energy, Multi-service Company: Creating the Leading Future Mobility

#### **BIOENERGY**

2<sup>nd</sup> in HVO production in Europe & 3<sup>rd</sup> largest operator globally for bio capacity 22 biogases plants



Eni Agri-hubs provides biofeedstock integration

Eni Trade & Biofuels for biofeedstock & product trading

A WINNING PROPOSITION **BACKED BY TECHNOLOGICAL** COMPETITIVE EDGE

DRAWING ON STRENGTHS TO ENHANCE PERFORMANCE

**GROWTH OPPORTUNITY** AND ATTRACTIVE RETURNS



3.000 available vehicles ~ 1.5 mln clients subscribed

#### **TARGETING SCOPE 3 EMISSIONS REDUCTION** LOWEST CARBON FOOTPRINT FEEDSTOCK

FUTURE OPTIONS TO UNLOCK AND CRYSTALLIZE FURTHER VALUE FROM THE COMPANY



# **BUSINESS ENVIRONMENT**

### SAF and RD demand will upsurge in the next decades...

SAF and RD as key pillars for decarbonization

### WORLD LIQUID BIOFUELS DEMAND | Mton/y



Source: Eni elaborations on data from third parties

### ...with a focus in Europe, North America and Asia...



**Short/Medium term** market concentrated in Europe / N. America **Long term** growth expected also in Asia especially for SAF

### WORLD RENEWABLE DIESEL / SAF DEMAND | MTON/Y



# ...boosted mainly by strong policies support

Renewable diesel/SAF proposed targets and regulation will drive demand increase



#### IN PLACE

**Clean Fuel Regulations** -15% Fuel Carbon intensity 2030



**B.C. LCFS** -30% Fuel Carbon intensity 2030

**Renewable Fuel Standard (RFS2)** Annual volume obligations and D4 RINs

Blender Tax Credit (BTC) 1 \$/gal RD / 1.25-1.75 \$/gal SAF

**Clean Fuel Production Credit (CFPC)** (from 2025) Up to 1 \$/gal RD / 1.75 \$/gal SAF

#### Low Carbon Fuel Standards (LCFS)

-20% Fuel Carbon intensity 2030 California
-20% Fuel Carbon intensity 2030 Oregon
-20% Fuel Carbon intensity 2034 Washing

Indonesia 5% SAF 2025 (dom. airlines) 35% biodiesel from 2023

Norway 17% biofuels 2023

30% SAF 2030

Pure biofuels mandate 300 kton 2023, 1 Mton 2030

**RED III directive** 

29% renewable fuels in transport 2030

**Refuel EU aviation** 

6% SAF 2030, 70% 2050

#### **Fuel UE Maritime**

-6% Carbon Intesity 2030 -80% Carbon Intesity GHG 2050

+ single countries regulations

# Many players have decided to invest in new capacity...



HVO/HEFA<sup>1</sup> capacity will more than double by 2026, mainly thanks to N. America projects



LATIN AMERICA Mton/y

7



#### **EUROPE** Mton/y



ASIA PACIFIC Mton/y







<sup>(1)</sup> = Hydrotreated vegetable oils (HVO) or hydroprocessed esters and fatty acids (HEFA) are produced via hydroprocessing of oils and fats.



Source: Eni elaborations on data from third parties. Processing capacity

### ...but there is still room for further investments in 2030

Big gap between demand and supply in 2030, even including main announced projects





### WORLD RENEWABLE DIESEL/SAF SUPPLY vs DEMAND | Mton/y



\* = E-fuels, Alcohol-to-Jet , Gasification/Fischer-Tropsch \*\* = 90% greenfield units, 85% brownfield units

8

### HVO/HEFA sustainable feedstock availability

Novel vegetable oils support the rising biofuels demand

### POTENTIAL HVO/HEFA SUSTAINABLE FEEDSTOCK AVAILABILITY 2050 | MTON/Y



(\*) = Amount of agricultural residue usable for the production of HEFA, with a potential upside of up to 660 Mton/y through the use of other technologies Source: Eni elaborations and Mckinsey Clean skies for tomorrow



# OUR GROWTH PLAN

## Eni sustainable mobility distinctive elements ...

Investing in our strengths to drive business and earnings growth





120125



#### 3<sup>rd</sup> largest HVO/SAF operator in the world, 2<sup>nd</sup> in Europe and 1<sup>st</sup> among energy majors Almost 10 years of successful biorefining operations and conversion track record

#### Co-developer for innovative Ecofining<sup>™</sup> process

Continous improvement through ongoing joint collaboration with UOP. SAF production boost. Supply flexibility (pre-treatment enhancements)

Global presence with distinctive supply, extensive trading and commercial capabilities as opposite to a more localised traditional R&M business

#### Upstream vertical integration with equity feedstock through Agri-hubs providing higher control vs market through direct access to

derisked, traceable feedstock

#### Downstream vertical integration leveraging on:

- wholesale/retail (5.300 stations) and chemicals (Versalis) as captive outlets for bioproducts, stabilizing margins
- globalisation of the bioproducts market, thanks to the expansion of the biorefining system (North America, Asia)

#### Eni global energy player with diversified geographic scope (60+ countries), diversified presence in the energy value chain

(e.g. chemicals, CCUS, e-mobility, H2). Significant R&D and strategic agreements in place

**AGRI-HUBS** VERTICAL

INTEGRATION

**VERTICAL INTEGRATION** WITH DOWNSTREAM

> BEING PART OF "ENI WORLD"

### ...and strategic drivers/targets for a world-class biorefiner

Focusing on key levers for value creation



CONTRIBUTING TO NET-ZERO ABSOLUTE EMISSIONS TARGET AT 2050

#### Agri-hubs security of supply vs W&R M&A eni 🐜 VS Alternative Supply Vertical Integration Chain Options Strategy **NOVEL VEGETABLE OILS** HORECA / MEAT PRODUCER waste generation **PLANTING SEEDS SUPPLY + SERVICES** (e.g. mechanization, training) UCO/ANIMAL FATS farmer cooperatives, PRODUCERS local collection **COLLECTOR / RENDERER** small farmers, agro-industries HARVEST volumes bulk up/ Agri-hubs **OIL EXTRACTION AGGREGATORS / TRADER** trading activities Full value chain **control** $\checkmark$ SECURITY OF SUPPLY Partial value chain control: waste out of ownership Low price volatility Higher price volatility (waste prices) **PRICE VOLATILITY** V.I. W&R Low development costs **High M&A prices** with risk of losing volumes/resources COSTS INORGANIC Up to carbon neutral or negative Up to 90% **GHG SAVING** NOVE Socio-economic development of LOCAL CONTENT/ local communities. Open opportunities for organic **NEW INITIATIVES** W&R collection (e.g. Kenya) 13

## Eni vertical integration strategy

# On top of agri-hub, biorefineries supported by trading

Worldwide presence and strategic positioning



#### TRADING KEY DATA

#### MANAGING FLEXIBILITY

with cost competitive feedstock supply & strong marketing capabilities

#### FEEDSTOCKS PORTFOLIO

~200 suppliers with a total capacity of >4.3 Mton/y

#### A GLOBAL SUPPLY & TRADING TEAM based across 4 continents

**CONTRACTED STORAGE CAPACITY** Europe, Far East, Africa ~125,000 cbm

1 Mton bio feedstocks and products traded



**3** Trading Desks (London, Singapore, Houston)

# Maintaining leadership in biorefining capacity

Roadmap to >3 Mton/y by 2025 and >5 Mton/y by 2030



# Eni sustainable mobility growing bio-product portfolio 🥥



Focus on high-value added products optionality in a flexible production system

### HVO DIESEL



Pure HVO already available in 500 retail stations

Arctic diesel from 2024

Invested to improve cold properties to target other markets (e.g. Northern Europe)



Partnerships to target new or niche markets (e.g. ships, rail, diesel power gens, data centers)

### HVO NAPHTHA



Integration with Versalis crackers and JV with international chem partners



Gasoline blending optionality



Autoconsumption optionality to improve product GHG saving



### Enilive

A new name and logo to mark the transformation



# Marketing: evolution from service station to mobility hub

Customer value resilience and downstream vertical integration

From fuel distribution to mobility hub by integrating new energy vectors, smart mobility services, quality catering (Alt "stazione del gusto") and many attractive services for our Customers





# A world-class player in biorefining

Attractive growth potential with a well-controlled cost profile





Bio throughput to almost triple over the plan driving growth in profitability Marketing provides a steady EBITDA contribution **Average ROACE (2023-26): ~20%** 

Retrofitting, economy of scale and maturing technology to benefit CAPEX

ORGANICALLY SELF-FUNDING SELECTIVE M&A FITS WITHIN OVERAL GROWTH STRATEGY



# BASICS OF BIOREFINING

## **Biorefining value chain**

Enhancing value across processes





A wide variety of raw materials such as:

- vegetable oils
- tallow
- waste or used cooking oil (UCO)
- wastes or residues such as nonfood-grade vegetable oils, animal fats, sludge palm oil mill effluent (POME)



Pretreatment unit is necessary to remove impurities such as phosphorous, metals, polyethylene, nitrogen and chlorine-containing components that are naturally present in some raw materials Ecofining<sup>™</sup> is proprietary technology to converts cooking oil, tallow and non-edible vegetable oils to produce biofuels

**ECOFINING** 



Hydrotreated vegetable oil (HVO) is a newly developed renewable diesel that uses renewable feedstocks via the hydrotreatment process
# Ample and flexible feedstocks

Raw materials for Ecofining™ technology

Wide range of waste and by-products from oil and fats processing

#### Eni biorefinery Palm Oil free

Significant future role of waste & residue, rotational crops and crops cultivated in marginal lands

In house R&D competence center fully equipped for testing of new feedstocks and for process optimization and development

### WASTE GREASES

- Used Cooking Oil\*
- Yellow Grease

#### **BY-PRODUCTS**

- PFAD\*
- POME\*
- Tall Oil
- Technical Corn Oil
- SBEO\*



#### ANIMAL FATS

- Tallow \*
- Choice White Grease (pork)
- Poultry Fat

### **PLANTS OILS**

- Palm\*
- Rapeseed/Canola
- Soybean\*
- Carinata\*
- Camelina
- Jatropha

**ALGAS** 

OILS

AND MICROBIAL

- Tobacco Oil
- Salicornia
- Castor oil

### **UNRIVALLED R&D**

Unique bio crude assay database with more than 400 characterized feedstocks

## **Biomass Pre-Treatment Processes**

Enhancing our feedstock processing flexibility





The main purpose of degumming section is to remove, adding water and acid, hydratable and nonhydratable gums (phospholipids, proteins, carbohydrates, nitrogen compounds, chlorides and insoluble impurities) from crude vegetable oils and fats.

Bleaching is a complex physical and chemical process employed in the pretreatment of vegetable oils and fats. The objective of bleaching is to reduce the levels of colored pigments (carotenoids and chlorophylls) and removes residue traces of phosphatide, soap, phospholipid contaminants, Nitrogen, metal and other impurities, as these elements are wellknown catalyst poisons.

# Ecofining process ™



#### CLEANUP PRETREATMENT

Catalytic Hydrodeoxygenation is a chemical process which is specifically used for the production of biofuels by upgrading its quality.

The main reactions are Deoxygenation and Saturate the double bonds, producing linear paraffins and byproducts (Biopropane, H2O and CO2).

These hydrocarbons have a high cetane number but poor cold flow properties.

Catalytic hydroisomerization is an effective approach that transforms linear paraffins into branched ones or isoparaffins, thereby improving cold flow properties.

In the case of the vegetable oil diesel, isomerization needs a balanced action of hydroisomerization. Lastly, a dedicated separation section to split vegetable oil in biofuel fractions: HVO GPL HVO Naphtha

HVO Jet

HVO diesel

Remove oxygen Linear paraffins Biopropane, H<sub>2</sub>O and CO<sub>2</sub> are by products

Isomerization improves cold properties of Diesel

Final stage to split products

# **Biorefinery products**

A premium, sustainable portfolio



## HVOlution | 🐜

HVOLUTION: CHARACTERISTICS OF ENI'S HVO<sup>1</sup> MADE FROM OUR ECOFINING TECHNOLOGY

#### 100% of renewable component

a mixture of stable non-hygroscopic paraffins & free of aromatics & polyaromatics (compounds with environmental impact)

#### Mixable with fossil diesel fuel in till 100%

Instead, max 7% allowed by EU standards for the traditional biodiesel (FAME<sup>2</sup>)

#### Usable as a drop-in fuel

as it is compatible with existing engines & infrastructure (no extra investments required)

#### **Excellent engine qualities of the product**

due to the high cetane number & the absence of aromatics

#### **BIOFUELS IN COMPARISON**

HVO	FAME	
<b>High stability &amp; total</b> <b>absence of deposits</b> O <sub>2</sub> replaced by H <sub>2</sub>	<b>High fouling power</b> formation of deposits due to presence of O <sub>2</sub>	
<b>High energy content</b> (+15% in terms of MJ/kg)	Low energy content	
High cetane number & lower density	Lower cetane number	
Usable in purity with no mixing limits	<b>Usable only if mixed</b> (7% blending wall)	
Excellent cold weather performance (cloud point up to -30°C)	Cold performance depending on raw materials used (cloud point from -5 to +15°C)	
Excellent oxidation stability	Poor oxidation stability	
0% polyaromatics		

Sulphur ppm <1



# Venice Biorefinery Case-study

Venice biorefinery conversion model

#### 2007 2012 2013 2014 2018 2022 >2023 License Project Shut down Biorefinery on-Biomass Palm oil phase New projects Ecofining™ announced & of petroleum stream with Treatment Unit out technology engineering refinery & start HVO start-up production started works for conversion start-up Ц (\$) \$ VALUE OF **FLEXIBILITY &** STAGED **OPERATIONAL OPERATIONAL** STAGED **ASSETS & FIRST MOVER** CAPACITY APPROACH ACHIEVEMENT **APPROACH** ACHIEVEMENT **KNOW HOW EXPANSION** transformation transformation

### MILESTONES AND TIMELINE

INTEGRATING ECONOMICAL, SOCIAL AND ENVIRONMENTAL SUSTAINABILITY



TURNING A LOWER-PROFITABILITY CONVENTIONAL ASSET INTO A SUCCESSFUL WORLD-FIRST BIOREFINERY

MAXIMISED REUSE OF EXISTING ASSETS AND REDUCED EMISSIONS IN A COMPETITIVE TIME-TO-MARKET

CONTINUOUS TRANSFORMATION AND TECHNOLOGICAL IMPROVEMENT

WINNING CIRCULAR ECONOMY EXAMPLE TO REPLICATE ELSEWHERE IN DOWNSTREAM





The calculation of emissions over the entire life cycle shows that even in the long term, a 100% HVO vehicle is comparable to an electric or hydrogen car.



MAIN EMISSION SOURCES IN LCA PERSPECTIVE

On the basis of the Ricardo study, the Commission stated that the ICE engine is more polluting than the BEV/FCEV engines; this evaluation assumes the use of a blend of fossil diesel and alternative fuels with low 'GHG savings'

### Using the same evaluation framework as Ricardo, but considering an ICE car powered by 100% HVO the emissivity values would be in line with BEV / FCEV engines, both in the short and long term

27 SOURCE: Ricardo Energy&Environment, Determining the environmental impacts of conventional and alternatively fueled vehicles through LCA, Final Report for the European Commission, DG Climate Action (2020) FCEV = Fuel Cell Engine Vehicle; BEV = Battery Electric Vehicle; ICE = Internal Combustion Engine.; LCA = Life Cycle Assessment; HVO estimate based on ENI's elaboration on Ricardo's data.



# CONCLUSIONS AND FINAL REMARKS

# **CONCLUDING REMARKS**

### WELL POSITIONED TO CAPITALISE ON HVO/SAF MARKET UPSURGE

### A WORLD-CLASS BIOREFINING PLAYER WITH TECHNOLOGY-BACKED COMPETITIVE ADVANTAGES

### DISTINCTIVE VERTICAL INTEGRATION BOTH ON SUPPLY AND DOWNSTREAM TO OFFER SIZEABLE UPSIDE

# UNIQUE OPPORTUNITY WITH SOLID GROWTH PROFILE AND ATTRACTIVE RETURNS



enilive



# ANNEX

## **VENICE BIO-REFINERY**



#### **Increasing capacity**

from 400 to 600 kton/y at 2025 with new steam reforming & Ecofining upgrading Enhancement of

**biomass pretreatment** with creation of new

degumming sections HVOs (Diesel, Naphtha, LPG)

**New products** 



#### € 250 mln

Capital invested in biorefinery conversion and other development project at July 2023





WORKING INTEREST

### **Strategic highlights** Synergy with existing assets (utilities, logistics, ...)

Increase decarbonized products production focusing mainly on biojet

Feedstock flexibility

## **GELA BIO-REFINERY**



700 kton/Y

# B

**Feedstock flexibility** with pre-treatment upgrade (degumming)

Products

Biojet, Arctic diesel, HVOs (Diesel, Naphtha, LPG)



### € 450 mln

Capital invested in biorefinery conversion and other development project at July 2023



WORKING INTEREST

#### Strategic highlights

Synergy with existing assets (utilities, logistics, ...)

Product flexibility (biojet)

Feedstock flexibility

## **CHALMETTE BIO-REFINERY**



Eni Capacity



production & Pre Treatment units

Respectively based on Ecofining™ & Desmet-Ballestra technology



Products HVOs (Diesel, Naphtha, LPG)

SAF (under evaluation)



Eni contribution \$ 835 Mln plus additional up to \$ 50 Mln subject to milestones achievement



JV - WORKING INTEREST

#### Strategic highlights

1 and 12 molt - Alberta lagram

Strategically located on Mississippi river close to Gulf of Mexico with wide range of optionality both for feedstock supply & products marketing

Perfect fitting partnership with PBF and platform for possible future joint initiatives in North America

# LIVORNO BIO-REFINERY



WORKING INTEREST

### Strategic highlights

Synergy with existing assets (utilities, logistics, ...)

Vertical integration (50% slate Agroenergy feedstock from Natural Resources)

## **PENGERANG BIO-REFINERY**

UNDER STUDY



~230 Kton/y Eni Capacity



Renewable Fuel production based on Ecofining™

Pre Treatment unit

**Products** SAF and HVOs (Diesel, Naphtha, LPG)



JV

#### Strategic highlights

Strategic location close to Singapore on major international aviation and shipping routes, with easy access to Asian market expected to grow (esp. in SAF)

Full flexibility both in terms of processing feedstocks and production will grant margins maximization

Perfect fitting partnership with leading players in fuel market (Petronas) and biofeedstock (Euglena, algae)

# **DAESAN BIO-REFINERY**

UNDER STUDY





C Chem

JV

#### Strategic highlights

Strategic location within the existing LG Chem industrial complex in Daesan ensuring reduced CAPEX and improved time to market

Full flexibility both in terms of processing feedstocks and production will grant margins maximization

Perfect match between ESM and LG Chem: Eni to supply 100% of bio-feedstocks and to offtake 100% SAF, while LG Chem will offtake HVOs to produce bio-polymers

# **Abbreviations and Acronyms**



#### HEFA

Hydroprocessed Esters and Fatty Acid

#### HVO

Hydrotreated Vegetable Oil

#### ILUC

Indirect Land Use Change

#### LCA

Life Cycle Assessment

#### SAF

Sustainable Aviation Fuel

# **Fundamentals of Chemical reactions in Eco-fining**



### Ecofining stage 1- Hydrotreating Stage: deoxygenation and decarboxylation



Vegetable oils mainly consist of triglycerides with typically 1-2% free fatty acid content

In the stage 1 Deoxygenation and Decarboxylation reactions of vegetable oil involves, producing linear paraffins but also gaseous byproducts including biopropane (C3H8), carbon dioxide (CO2), in varying degrees depending on the source feedstock

### **Ecofining stage 2- Isomerization/ Cracking Stage**



### LOW CARBON ENERGIES AND TECHNOLOGY FIELD TRIP



# AGRI FEEDSTOCK INITIATIVES

Luigi Ciarrocchi Federico Maria Grati

14 September 2023 Venice

# ENI UNIQUE MODEL OF AGRI FEEDSTOCK

Vertical integration of agribusiness for bio refining



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### THE VALUE OF OUR INTEGRATED VALUE CHAIN

**SECURITY OF SUPPLY** Stable volumes of bio feedstock

**COMPETITIVE AND STABLE COST** Vs market price and volatility of bio feedstock

**QUALITY** Low carbon emissions (carbon neutrality target), eligibility for BioJet production

**TIME TO MARKET** Fast track approach and program aligned with bio refining expansion

**CIRCULAR ECONOMY** Animal feed, fertilizers, bio-economy, industrial symbiosis

**SUSTAINABILITY** Socio economic development, just transition



# HVO/HEFA BIO FEEDSTOCK AVAILABILITY

Novel vegetable oils support the rising biofuels demand

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(\*) = Amount of agricultural residue usable for the production of HEFA, with a potential upside of up to 660 Mton/y through the use of other technologies Source: Eni elaborations and Mckinsey Clean skies for tomorrow \* The estimate considers to valorize 1% of the degraded land available globally 13.00

## A DISTINGUISHING MODEL

#### AGRICULTURAL PRODUCTION



SMALL FARMERS CULTIVATION OF NON-FOOD CORPS ON DEGRADED LAND

> AGRO PROCESSING & AGRO-FORESTRY RESIDUES AND FOOD REJECTS

LARGE FARMERS

COVER CROPS AFTER CEREAL PRODUCTION

#### AGRI HUB (OIL EXTRACTION PLANTS)



VEGETABLE OIL FEEDSTOCK FOR BIO REFINERIE

**BY PRODUCTS** ANIMAL FEED AND FERTILIZERS





### AGRICULTURAL SUPPLY CHAIN

Cultivation entrusted to farmers (access to land)

Land and crops **not in competition** with food production

Promotion of best agricultural practices and **carbon farming** 

Access to market & socio-economic development in rural areas

### INDUSTRIAL PLANTS

**Food security** with animal feed & fertilizer

Local content and transfer of **industrial know-how** 

**Capacity building** targeting the best agricultural practice

# AGRI FEEDSTOCK DESIGN AND DEVELOPMENT

A global value chain across geographies



# **INNOVATION AND R&D**

Our added value



#### SCOUTING NOVEL FEEDSTOCK

R&D on **unexploited biomass** 

**Evaluation of technologies** for treatment / pre-treatment

Valorization of **by-products** after oil extraction

#### DEVELOPMENT NEW CROPS

**R&D on innovative oil crops** for biofuel production

Agronomic trials in all target geographies

Production of improved **planting seeds**, **breeding** 

### SUSTAINABLE SOURCING VALUE CHAIN

**Digitalization** (AI, drones) of the agricultural value chain to ensure traceability and certification

Extension services for farmers, **derisking facilities** 

Human Rights, labour standards









World BANK GROUP

## SUSTAINABLE BIOMASS

No competition with the food value chain

#### NOVEL VEGETABLE OILS



CASTOR DEGRADED LAND non-food crop drought resistant, suitable for inter-cropping, high oil content, sinergies with carbon farming



### COVER CROPS

intermediate crops after primary production cycle: camelina, brassica c, sufflower, other. Animal feed as by-product



#### AGRO-FORESTRY

Trees planted by farmers in agricultural areas, in synergy with carbon offset program. Stimulate land regeneration

### RESIDUES



FOOD AND AGRO INDUSTRIES

processing industries, and ginneries; circular economy and industrial symbiosis

#### FORESTRY RESIDUES residual oilseed from plantations or

plantations or spontaneous trees; synergy with cooperatives and large agribusiness



#### OTHER BIO FEEDSTOCK

residues from animal husbandry, fishing and other agro-industrial processing; UCO and organic wastes

### CERTIFIED RAW MATERIALS

Whole value chain certified according to European highest standards (ISCC EU)

Agricultural production not in competition with food production nor with forest ecosystems

Traceability of agricultural production

Gurantee of labour human rights according to ILO standards

### CONTINOUS IMPROVEMENT

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Security of supply for **planting seeds** (mother fields)

Carbon farming, **biochar**, regenerative agriculture



## **CULTIVATION ON DEGRADED LAND**



The Agri-Energy program in Kenya





EXAMPLE OF DEGRADED LAND (2022)

EXAMPLE OF LAND CULTIVATED WITH CASTOR (2023)

### **KENYA AGRI-ENERGY PROGRAM**



# OUR PORTFOLIO

Global presence with a diversified portfolio





#### AGRI-FEEDSTOCK FIRST OIL

**2022** Kenya **2023** Congo, Italy, Ivory Coast, Mozambique

#### **KEY SELECTION CRITERIA**

**COUNTRY OF PRESENCE (LEGACY)** Upstream presence and know how

LAND AVAILABILITY Degraded land, monocultures

AGRICULTURAL VOCATION Agribusiness, small farmers

**RESIDUES AVAILABILITY** Food industries, plantations

**BUSINESS ENVIRONMENT** Industrial and regulatory

## **PROJECT KPIs AND TARGETS**





### PRODUCTION

2026

> 700 thousand tons vegetable
oil for biorefining

>> 1 million tons animal feed and fertilizers

### FARMERS

~ 700 thousand families of farmers involved with opportunity for long term, stable additional revenues



CULTIVATED LAND

~ 1 million hectares regenerated and valorized

# **CARBON INTESITY OF ENI BIOFUELS**

Targeting lowest emissions



\* Standard GHG saving values for HVO defined by EU RED II Directive

\*\* HVO reference carbon saving certified by ISCC EU

\*\*\* Verified estimation, under development

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#### **REFERENCED AND PROVED FIGURES**

Validation of the Eni distinguishing model thanks to EU Funded projects by academic/R&D partners

### ----Bio4A

Bio-Jet produced by Eni from cover crops and carbon farming in EU (+110% carbon reduction vs diesel)

### 🌀 віке

HVO produced by Eni from castor in degraded areas and carbon farming in Kenya (+114% carbon reduction vs diesel)

# **CONCLUDING REMARKS**

SECURING SUPPLY OF QUALITY FEEDSTOCKS IN A HIGHLY COMPETITIVE MARKET

OFFERING COMPETITIVE AND STABLE COST AGAINST MARKET VOLATILITY

TO PRODUCE SAF AND OTHER LOW EMISSION BIOFUELS

WITH THE UPSIDE TO SUPPLY-CHAIN CARBON INTENSITY REDUCTION THROUGH CARBON FARMING >700 K TON 20/30%

Target 2026

2030

>> ]

M TON

- 30%



### LOW CARBON ENERGIES AND TECHNOLOGY FIELD TRIP



# SATELLITES AND CLOSING COMMENTS

Giuseppe Ricci Jon Rigby

14 September 2023 Venice

# THE SATELLITE MODEL

### Addressing the Challenges of Capital & Energy Markets

### Our distinctive approach

Unlocking value through dedicated satellite companies



Striking right balance between investments & returns through access to specialized capital & financial structure optimization

#### Our satellites

#### VÅR ENERGI

Initially created in 2018. Acquired XOM assets in 2019. IPO in 2022 with follow on placing. 63% Eni ownership. Participated in Neptune transaction in 2023. #2 independent E&P

#### PLENITUDE

Formed in 2021 from Eni gas e luce. Announced intention to float in 2022. Confirmed in negotiations with a strategic investor as a prelude to moving towards IPO when markets allow

#### **AZULE ENERGY**

Formed in 2022 combining Angolan operations of Eni and bp into a 50:50 JV that is the country's largest independent producer. Secured \$2.5 bln of debt financing

#### ENI SUSTAINABLE MOBILITY

Incorporated in Jan 2023 as a vertically integrated developer of biorefining, biomethane and seller of mobility products. Intent to move forward towards a monetisation within the 4YP period

#### OTHER OPPORTUNITIES

Additional E&P opportunities where scale and capital profile are suitable; CCUS; Versalis, new and emerging technologies



#### KEY FEATURES OF THE SATELLITE MODEL

Accesses and matches capital New pools of capital; avoids dilutive flow of internal cashflows

#### Adds visibility on value

Important where businesses have a wide range of return/growth/risk characteristics and significantly different investor appetite

#### Governance

Balances access to the resources of Eni with value of independence

#### A dynamic activity

Eni continues to generate new opportunities that will feed further satellite structures

# THE VALUATION OPPORTUNITY

Generating visibility on valuation

### ENI MULTIPLE 1

EV/EBITDA

### **ENI EARNINGS BY SEGMENT**

2022 - Post-tax segmental income



<sup>3</sup> <sup>1</sup> EV/EBITDA sourced from Bloomberg 2022 segmental income based on EBIT plus income from investments and associates less tax for income generating segments



## FOCUS IN: ADDRESSING THE VALUATION OPPORTUNITY

#### Eni shares

Impacted by ESG concerns, macro volatility, perception of long-term challenges to business model

#### E&P

Low costs organic growth, leading explorer, time to market and dual exploration de-risks capital; 2022 NPV<sub>10</sub>€82BIn

#### GGP

Unique,infrastucture and market position, capital light cashflows

#### Downstream

Transformation to high growth, competitive returning, globally relevant bio-refining can command premium multiples

#### Plenitude

Materially scaled, high growth business with unique advantage of its customer base and a strong track-record of execution also supports an attractive multiple

# CCUS, AN EMERGING OPPORTUNITY

## Value and capital proposition Sleipner **HyNet Ravenna CCS** Bacton **ENI MAIN PROJECTS** UNDER DEVELOPMENT **IN OPERATION UNDER EVALUATION** ni's Storage sites

MAIN PROJECTS		
COUNTRY	GROSS STORAGE CAPACITY	PROJECT
UK	200 MTONS	HYNET NORTH WEST
UK	330 MTONS	BACTON - HEWITT
ITALY	500 MTONS	RAVENNA CCS



#### **KEY FEATURES**

**Emerging business opportunity** Target to store 30MTPA by 2030 in depleted reservoirs

T&S operating regulated market RAB based business model

#### Exploit existing infrastructure

Large portfolio of real estate. Deferred decommissioning of depleted fields for additional cost optimization

#### Competitive portfolio

Close to industrial emitters in Liverpool Bay and Thames Estuary in the UK and Po Valley in Italy. Neptune transaction would add further prospects

#### Value and capital proposition

No existing income stream. Investment opportunity with clear long-term capital/risk-return profile

# SHAREHOLDER DISTRIBUTION

A priority commitment funded from organic cashflow

### A SIMPLIFIED POLICY

Target ~25-30% OF CFFO Via a combination of dividends and buyback

The **first priority for CFFO**. Balances distribution with re-investment

A clear commitment – recurring CFFO pre-working capital

### **GROWING DIVIDEND**

Scope to raise dividend as underlying business grows & share count reduces

### ENHANCED DISTRIBUTION

€0.94 2023 DPS 7% increase vs 2022; distributed quarterly

### €2.2 BLN 2023 BUYBACK

Commenced in May; completion by April 2024; scope to accelerate and expand if CFFO outlook improves

### SHARING VALUE

### ~12% YIELD

Competitive policy 4 year return ~40% of market capitalisation<sup>1</sup>

**RESILIENT** At bottom of the cycle

Dividend fundable at ~\$55/bbl Balance Sheet, timing and business flexibility underpins buyback

**FLEXIBLE BY DESIGN** 

**35% of upside** to buyback where CFFO exceeds the plan

#### ONE OF THE HIGHEST REMUNERATION YIELD IN THE SECTOR (remuneration yields 2023, estimated %)





5 Remuneration data exclude disposal plans; Share prices closing as of 31 August 2023. Eni yield calculated on announced dividend and share buyback. <sup>1</sup>Payout based on Feb-23 planning scenario.



## LOW CARBON ENERGIES FIELD TRIP

### Venice 14 September 2023

- An emerging, material, high growth, and globally relevant earnings stream
- Confirm EBITDA of €1.5BIn for Sustainable Mobility by 2026.
   New ~20% ROACE guidance for Plan period
- Confirm biorefining capacity target of >3MTPA by 2025 and >5MTPA by 2030
  - Raised outlook for SAF output to >0.5MTPA by 2026, >1MTPA by 2030 with upside to 2MTPA
  - Agri-hubs a significant differentiator. Raised agri-hub supply target to >>1MTPA by 2030
  - New agreement signed with LG Chem for potential biorefinery in South Korea
  - New EBITDA and capex splits provide additional visibility
- Sustainable Mobility Ideally for a satellite combining standalone and group competencies and resources; accessing new pools of capital; differentiated valuation
- Satellite model intrinsic to our success and shareholder value as energy markets and capital markets evolve. A dynamic strategy
- Shareholder returns a priority

