



## PLASTIC TO PLASTIC CHEMICAL RECYCLING

ADELA PUTINELU, HEAD OF POLICY

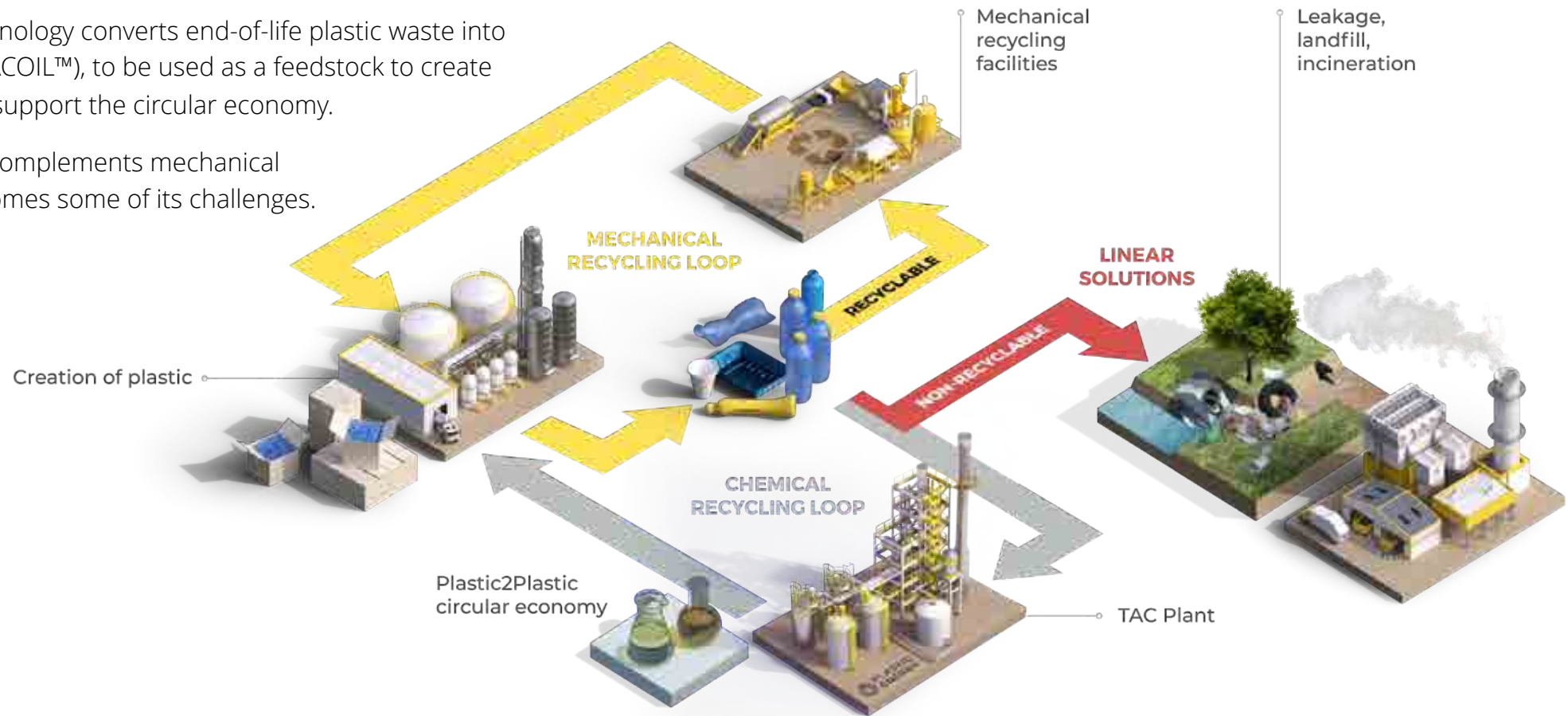
ISCC, 17 NOVEMBER 2022



# CHEMICAL RECYCLING PROVIDES A SOLUTION

Plastic Energy's technology converts end-of-life plastic waste into hydrocarbon oils (TACOIL™), to be used as a feedstock to create recycled plastics to support the circular economy.

Chemical recycling complements mechanical recycling and overcomes some of its challenges.



# PLASTIC ENERGY – WHO WE ARE



## INDUSTRY LEADER IN CHEMICAL RECYCLING

Convert end-of-life plastic waste into  
hydrocarbon oils



## PATENTED TECHNOLOGY

We have been developing our patented TAC™  
process for over 10 years



## INDUSTRIAL PLANTS & OPERATIONAL EXPERIENCE

2 industrial and commercial plants  
operating for the past 6 years



## PLASTIC2PLASTIC™ PROCESS

Only company to have validated and  
certified the Plastic2Plastic™ process for a  
circular economy of plastics



## PARTNERSHIPS

Long-term partnerships with  
major industry players



# PLASTIC ENERGY – WHO WE ARE

## CERTIFICATIONS



Since 2019, our Almeria and Seville plants have been certified through ISCC PLUS following the mass-balance approach



Our Seville plant qualified for the RSB standard in December 2020, and we are the first end-of-life plastics chemical recycler to achieve RSB certification.



## AWARDS



CEO Carlos Monreal recognised as a Top 40 Power Player in the Chemical Industry (2020, 2021, 2022)



Recognised as One to Watch in the Circular Economy category



Recognised for leadership in innovative transformative technologies



Received 3 Awards: Innovative Product, Sustainability and Best Overall



Achieved four stars in the Circular Economy category



FINALIST

# OUR FEEDSTOCK AND PRODUCT

## FEEDSTOCK

- Mixed post-consumer plastic waste
- No need to wash or separate by colour or polymer type



LDPE  
HDPE  
PP  
PS



PET  
PVC  
EPS  
Category 7



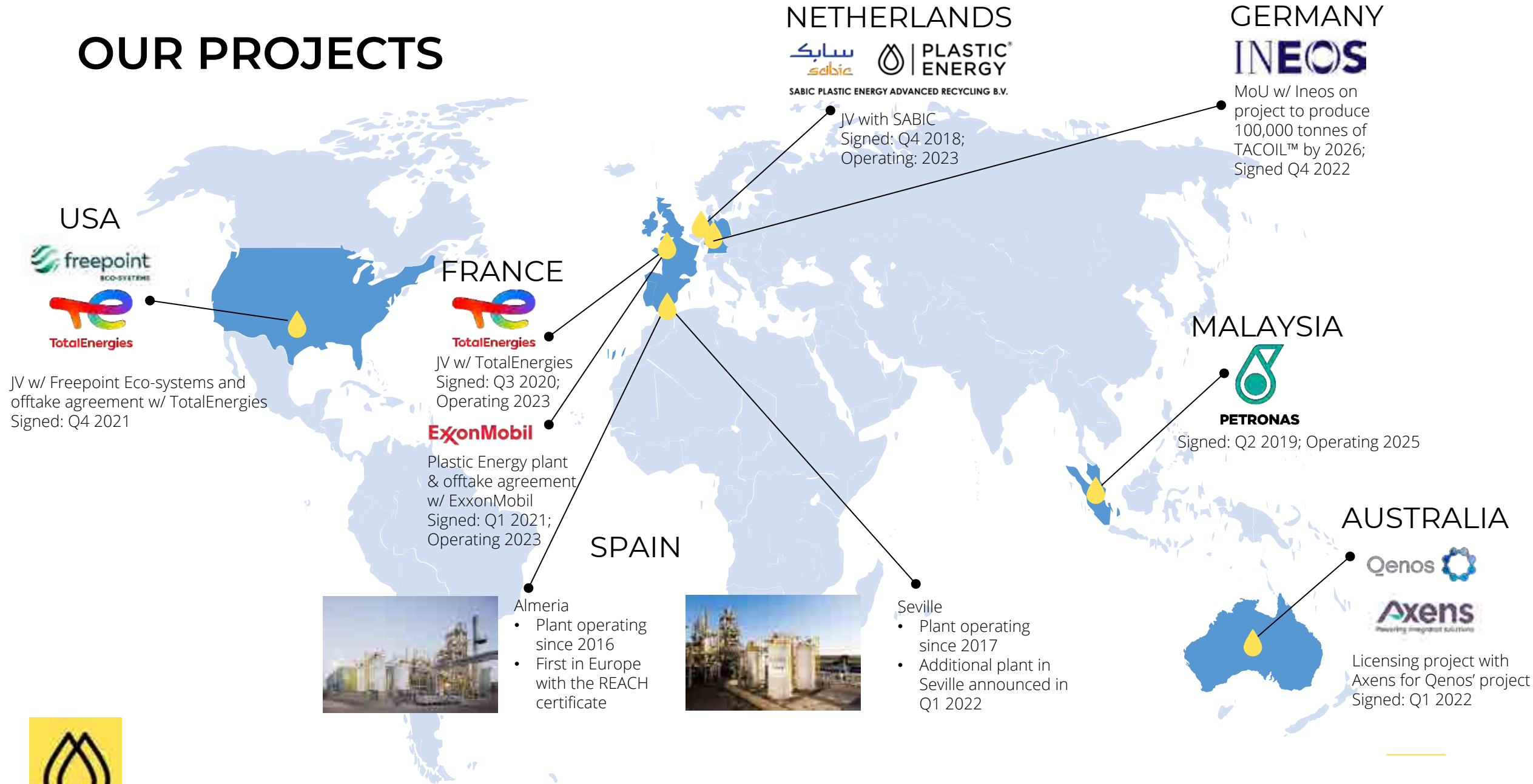
## PRODUCT

- Hydrocarbon vapours condensed into an oil called TACOIL™
- Output replaces fossil oil in petrochemical crackers





# OUR PROJECTS



# FOOD-GRADE PACKAGING WITH RECYCLED CONTENT FROM OUR TACOIL™



- i. Commercialisation of Magnum ice cream tubs and Knorr pots made with recycled content on the European market



- ii. Philadelphia cream cheese packaging in Europe will be made with recycled materials starting in 2022



- iii. In 2021 Vinventions launched its Blue Line of wine closures made from recycled plastic



- iv. In 2020 REN Clean Skincare used recycled resins in its packaging for Evercalm Global Protection Day Cream



- v. The Tupperware® Eco+ Straw Set was the brand's first product to use sustainably sourced food-safe material made out of recycled plastic



- vi. Full closed loop example using post-consumer plastic from Tesco which was turned into cheese packaging



# SUSTAINABILITY

## SUSTAINABILITY REPORT AND LCA

In 2020 we conducted an ISO compliant third party LCA:

- 65% less emissions incineration with energy recovery
- 55% less emissions than producing plastic from fossil origin
- Further LCA for newer generation plants is under way

Highlights from this year's sustainability report include:

- Renewable electricity sourced for Almeria and Seville plants
- Chemical Week award for closed-loop project with SABIC, Sealed Air, Tesco for Bradburys cheese packaging among other nominations





# CHEMICAL RECYCLING

## INDUSTRY SET FOR GROWTH IF ENABLING POLICY CONDITIONS ARE IN PLACE

NOT a silver bullet, a mix of downstream & upstream policies are needed

- Harmonised & credible mass balance accounting framework
- Level playing field for all recycling technologies to move waste up on the waste hierarchy
- Better communication of the benefits (for circularity & contact-sensitive)
- Demonstrate transparency & sustainability & value chain collaboration
- Consensus on principles is emerging (CGF, WWF, WRAP) & complementarity with chemical recycling

### Opportunities

- Importance of EPR schemes, recycled content targets & taxes on virgin plastic
- Drive to minimise waste exports & landfill & EfW/incineration
- Gap in supply & demand for recycled plastics & significant food-grade demand



# EUROPEAN UNION

## KEY POLICY & LEGISLATIVE FILES

### EU Packaging and Packaging Waste Regulation

- EC proposal expected end November 2022
- Three tier recycled content targets including for contact sensitive plastic packaging
- Mass balance regulatory recognition & technology neutral approach is needed
- Recycling at scale, recyclability & design for recycling to include mechanical and chemical recycling

### EU Waste Framework Directive

- Member states do not implement existing provisions
- Future revision needs to be in line with PPWR to drive higher quality collection & sorting & higher volumes

### Member state level

- Taxes on virgin plastic packaging (Spain, Italy, UK & others expected) & mass balance



# CIRCULAR ECONOMY & INDUSTRIAL DECARBONISATION

## PLASTICS AND OTHER HARD-TO-ABATE SECTORS

### EU needs to reverse current trends on plastics

- 2/3 post-consumer plastics & 84% of all plastics end up in landfill & incineration (2020, Plastics Europe, Material Economics)
- This generates 38 Mt CO<sub>2</sub> or same as 15 million cars every year
- Plastics & chemicals among hard-to-abate EU industrial sectors

### Solutions exist but need rapid scaling

- Circular feedstocks contribute to decarbonising plastic production
- Innovation is key for both mechanical and chemical recycling technologies as is the case for other industrial sectors





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