

A silhouette of a person running is centered in the upper half of the image, set against a dramatic sunset sky with horizontal cloud streaks. The runner is in mid-stride, holding a water bottle. The background shows dark, silhouetted hills or mountains.

Investor Presentation

Full Year 2023 Results

March 2024

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1. Full year 2023 financial and non-financial highlights



Key themes / highlights 2023



Well capitalised



Continued progress in execution of strategy



Nearing the inflection point






Key business highlights 2023


Well capitalised and continued good progress in the execution of its strategy

2023




Avantium Renewable Polymers

- ✓ Reached total of 15 offtake agreements for PEF/FDCA Flagship Plant, with new signings including Henkel, Kvadrat and PANGAIA
- ✓ First technology license agreement signed with Origin Materials
- ✓ € 64.5 million financing package secured from shareholders and lenders
- ✓ Commissioning activities FDCA Flagship Plant have started in Q1 2024; start of production expected in H2 2024



Avantium Renewable Chemistries

- ✓ Successful execution of several trials in the Ray pilot plant, demonstrating the technology's readiness for scale-up to a Ray flagship plant
- ✓ Secured a conditional grant award of €53 million from the Dutch National Growth Fund



Volta Technology

- ✓ Awarded a €1.5 million grant for participation in HICCUPS programme
- ✓ Two strategic collaborations secured with SCG Chemicals and Norsk Hydro



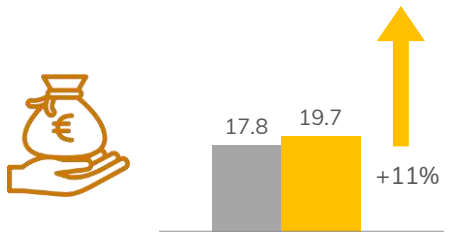
R&D Solutions

- ✓ Promising results from new growth strategy focusing on R&D solutions for sustainable chemistry
- ✓ Proven revenue stream, with €13.5 million revenues in 2023

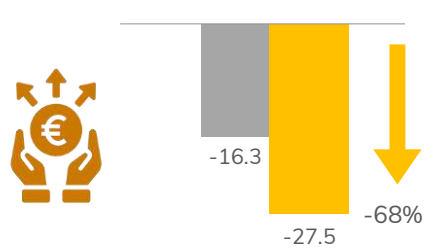


Financial highlights full year 2023

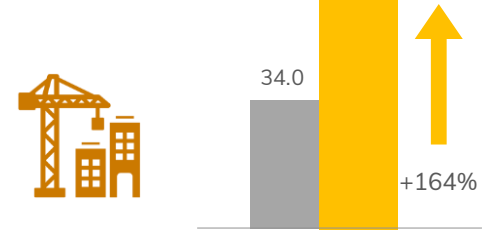
Revenue (€ millions)



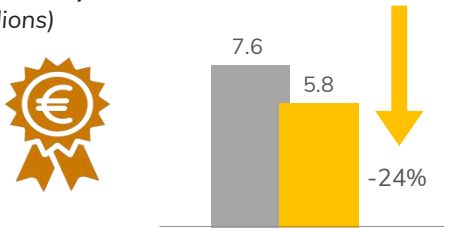
EBITDA (€ millions)



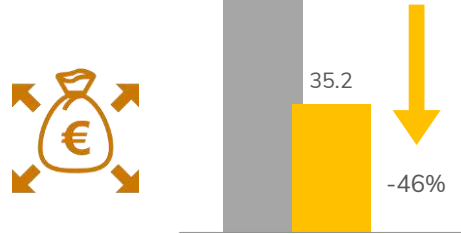
Investments (€ millions)



Other Income (grants) (€ millions)

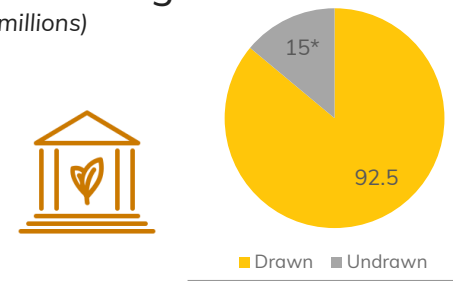


Cash Position* (€ millions)



* Excludes undrawn debt

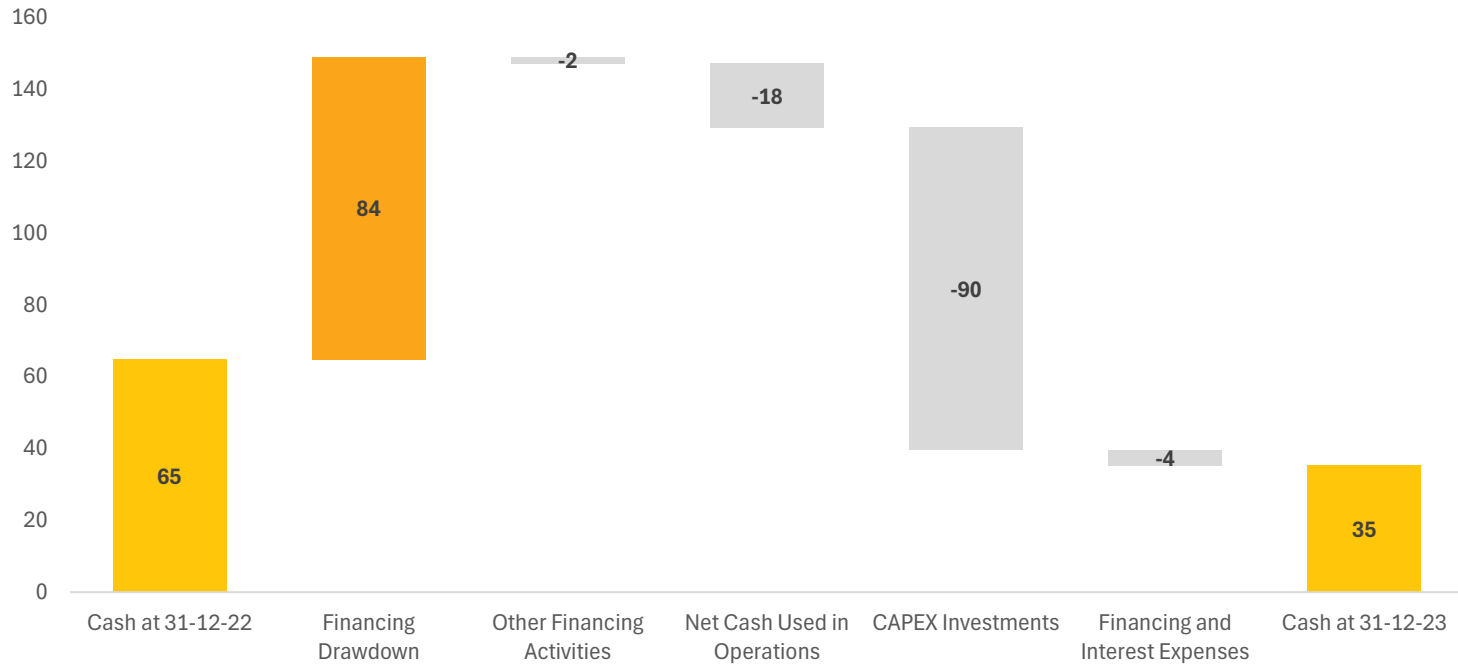
Borrowings (€ millions)



* Reflects additional €15 million from the Debt Financing facility agreement, which was secured in January 2024

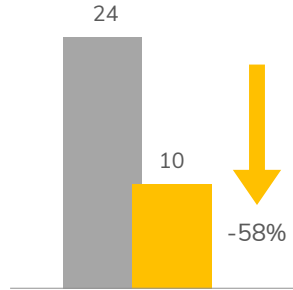
Note: In preparation of the financial statements, the company has recognised restatements for the Financial Year 2022. More information can be found in Avantium's 2023 Annual Report.

Cash flows 2023 (€ millions)

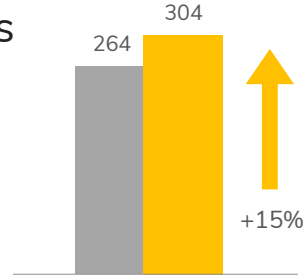


Non-financial highlights full year 2023

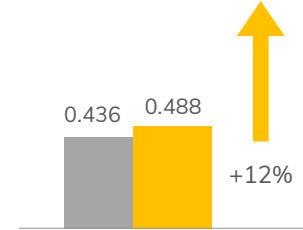
Newly
Granted
Patents



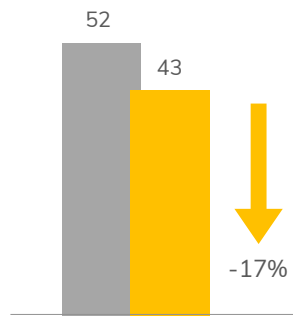
Number of
Employees



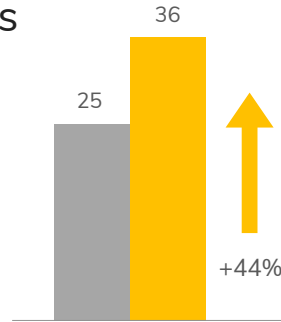
Scope 1
Emissions
(tonnes CO₂e)



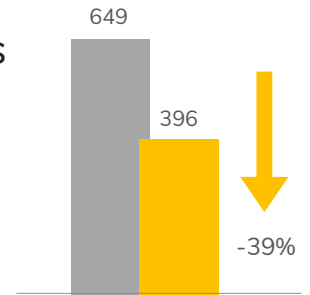
Newly
Reported
Inventions



Nationalities
Employed



Scope 2
Emissions
(tonnes CO₂e)



■ FY 2022 ■ FY 2023



Committed to sustainability – highlights 2023

Chain Reaction 2030



Solar powered headquarters and lab



Scope 3 emissions baseline assessment completed



Celebrating diversity & inclusion



Sustainability Steering Board linked to Chain Reaction 2023



Weekend of Science: encouraging the next generation



External recognition

Working towards a fossil free chemical industry by 2050





Avantium RNP Flagship Plant - Delfzijl



2. Strategy & Ambition

Addressing the plastics pollution problem

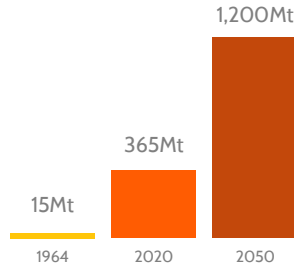
Plastics pollution:
a real problem...



PET / Plastics
GHG¹ Emissions

Plastic end-of-life
pollution

...the problem is
getting bigger...



Global plastics production will
triple by 2050

...and it can't be solved
only by recycling

11% Low recycling rate

65-95% Limited recovery rate through
recycling depending on technologies

26% High share of hard-to-recycle
plastics / multi-material packaging

Constant need for new virgin
plastics unless we find a
circular alternative

Note: (1) Greenhouse Gas

Sources: OECD statistics on plastics use by polymer projections, 2023; OECD, Plastic leakage and greenhouse gas emissions are increasing, 2019; CIEL, Plastic & Climate: The hidden costs of a plastic planet, 2019; OECD, Global plastics outlook, 2022; Eriksen et al, A growing plastic smog, now estimated to be over 170 trillion plastic particles afloat in the world's oceans, 2023; PlasticsEurope Market Research Group and Consultic Marketing & Industrieberatung, World plastics production, 2016; RECORD, Chemical and physico-chemical recycling of plastic waste, 2022, 177 p, n°21-0919/1A; ScienceDirect, Recycling of multi-material multilayer plastic packaging: Current trends and future scenarios, 2022; Avantium and Nova Institute, PEF – A Sustainable Packaging Material for Bottles - ISO Certified LCA of Avantium's PEF products, 2022



Accelerating shift to bio-plastics

1

Increasing consumer pressure, demanding sustainable solutions



2

Increasing regulatory support plant-based plastic and recycling



3

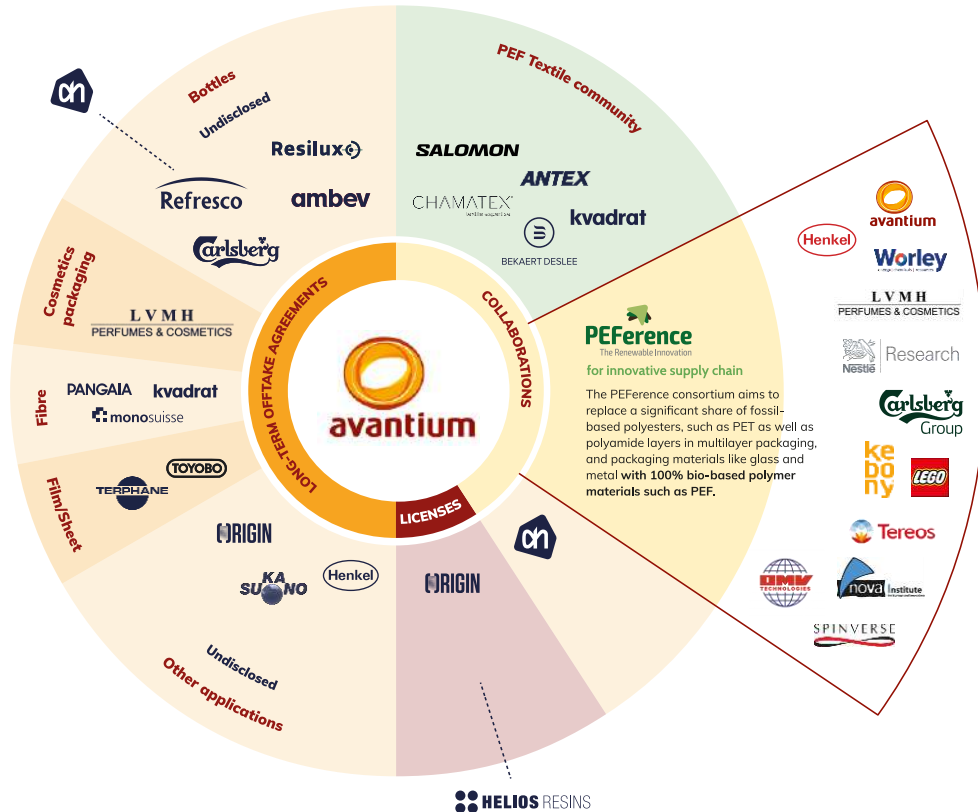
Major brands setting ambitious targets but struggling to meet them

20-50% reduction of virgin fossil-based plastic by 2025-2030¹



Note: (1) Summary illustrative targets

Driving renewable & circular polymers



Avantium
at the centre of
the eco-system

15

Offtake Agreements

1

Technology License
Agreement



Market traction through wide range of applications





Commercial-stage company in renewable & circular polymers

Mission

To bring to the market new, cost competitive renewable polymer materials with superior performance characteristics, contributing to reducing carbon emissions, plastic pollution and our dependency on fossil resources

Ambition

Be a €100m+ revenue & EBITDA positive company by 2026, with 500kta of committed capacity for sustainable polymers¹

ESG at the heart

SDG-linked targets



Chain Reaction 2030



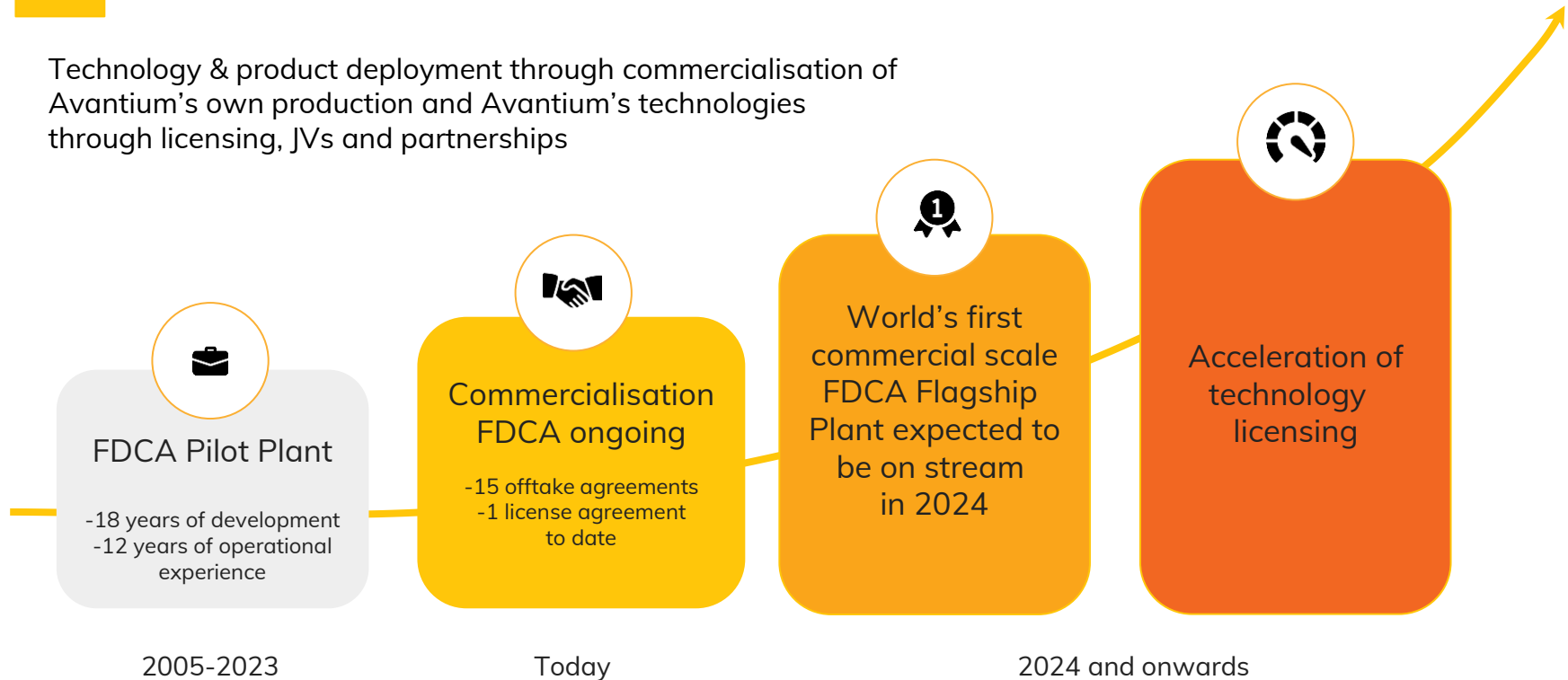
External recognition



Note: (1) Revenue based on contractual income, not considering the possible impact of IFRS 15; Running a fully operational FDCA Flagship Plant and selling multiple licenses will lead to Avantium reaching an inflection point. Under such conditions, management's ambition is that the Company could generate €100 million in revenues and be EBITDA positive in 2026.
Sources: Smithers, The future of high barrier packaging films to 2024, 2021; Smithers, The future of global flexible packaging to 2026, 2021; Smithers, The future of rigid plastic packaging to 2026, 2021; Thermoformed Packaging Market to 2025, 2018 ; PCI Wood Mackenzie, Abstract report global Multilayer PET bottles industry to 2024, 2016 ; Allied Market Research

Reaching the inflection point

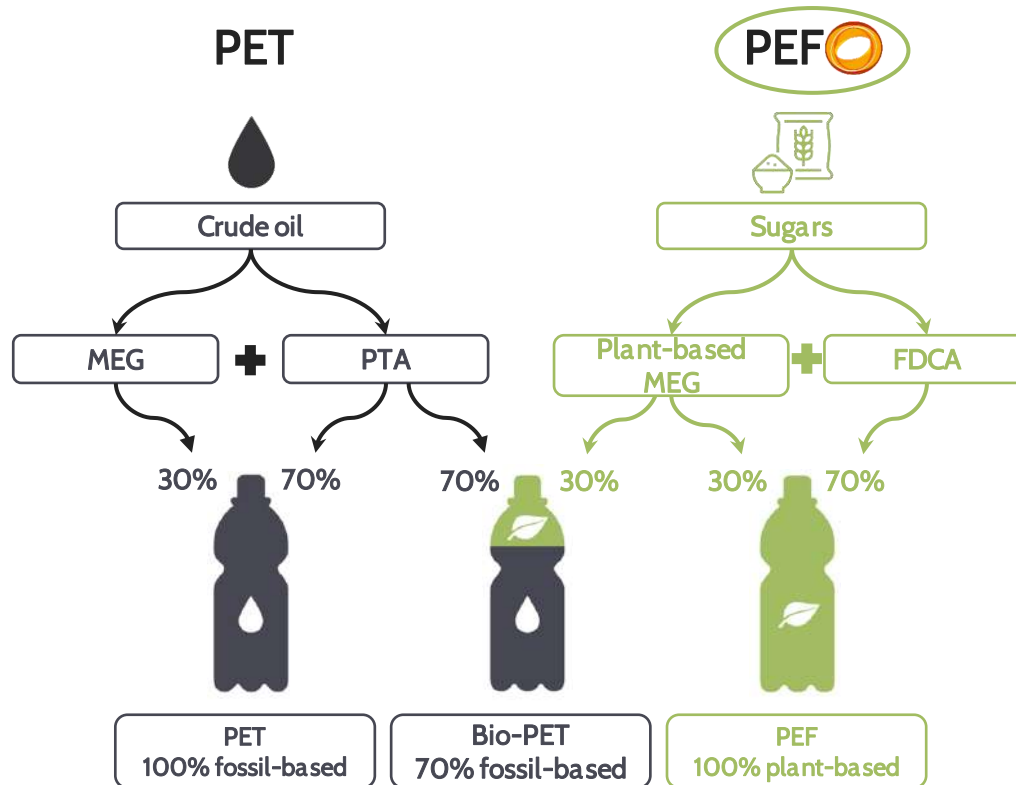
Technology & product deployment through commercialisation of Avantium's own production and Avantium's technologies through licensing, JVs and partnerships



3. FDCA / PEF



PEF: made from our focus product FDCA



Compared to PET

PEF is a renewable, circular plant-based polymer material

Low carbon footprint

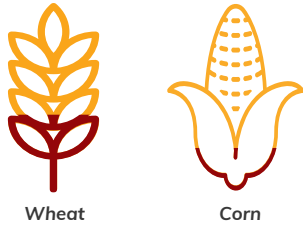
Superior technical properties

Enhanced recyclability

Cost competitive


FDCA – feedstock agnostic, utilising Gen 1 and 2 feedstocks

FDCA Flagship Plant is using Gen 1 feedstock:
starch – an abundant & low value co-product



Starch is part of the low value co-products
Glucose/Fructose from starch



 **Avantium's FDCA Flagship Plant** 
Regionally & commercially available
Sugar surplus, no competition with food supply 

Current Gen 2 feedstock

 **Origin Materials licensed facility** 
Commercially available 

Future Gen 2 feedstock options

 **Avantium's Dawn Technology** 
Avantium DAWN pilot plant 




PEF sustainable and superior alternative for PET

A more sustainable product...



100% bio-based feedstock

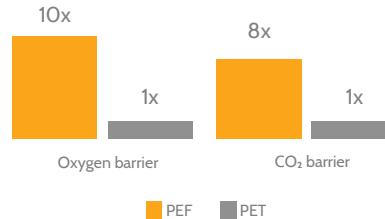


Recyclable



Circular

...with superior properties...



...providing distinctive value proposition

- ✓ Up to 20% weight reduction
- ✓ Longer shelf life leading to food waste reduction
- ✓ Larger range of applications and ability to replace glass, aluminium, etc.
- ✓ Enhanced recyclability as mono-material packaging or by replacing hard-to-recycle polymers (e.g. nylon) in multi-material packaging

✓ EPBP¹ interim approval on multilayer PET/PEF and monolayer PEF bottles in the PET recycling stream



✓ APR² Critical Guidance Recognition on compatibility with standard PET recycling practices



Notes: (1) The European PET Bottle Platform is a voluntary initiative of industry organisations representing waste collectors, plastic recyclers, PET material producers and brand owners; (2) The Association of Plastic Recyclers, non-profit organisation focused exclusively on improving recycling for plastics

Sources: Avantium and Nova Institute, PEF – A Sustainable Packaging Material for Bottles - ISO Certified LCA of Avantium's PEF products, 2022; University of Aberdeen, PEF plastic synthesised from industrial carbon dioxide and biowaste, 2020; Journal of Ecological Engineering, Energy Inputs on the Production of Plastic Products, 2022; RECORD, Chemical and physico-chemical recycling of plastic waste, 2022, 177 p, n°21-0919/1A; Avantium, The Journey of Avantium's PEF towards Commercialisation, 2021





PEF can be used in a very broad range of applications

Bottles



Beer, Juices, Waters, Soft Drinks

Competing materials: Glass, Aluminium, PET, Multi-layer

>50 million ton/year¹



Fibers



Textile, Upholstery, Car Tires, Industrial Fibers

Competing materials: PET, Nylon, Cotton

>40 million ton/year¹



Films & More



Food Packaging, Non-Food Packaging

Competing materials: Glass, Aluminium, PET, Multi-layer

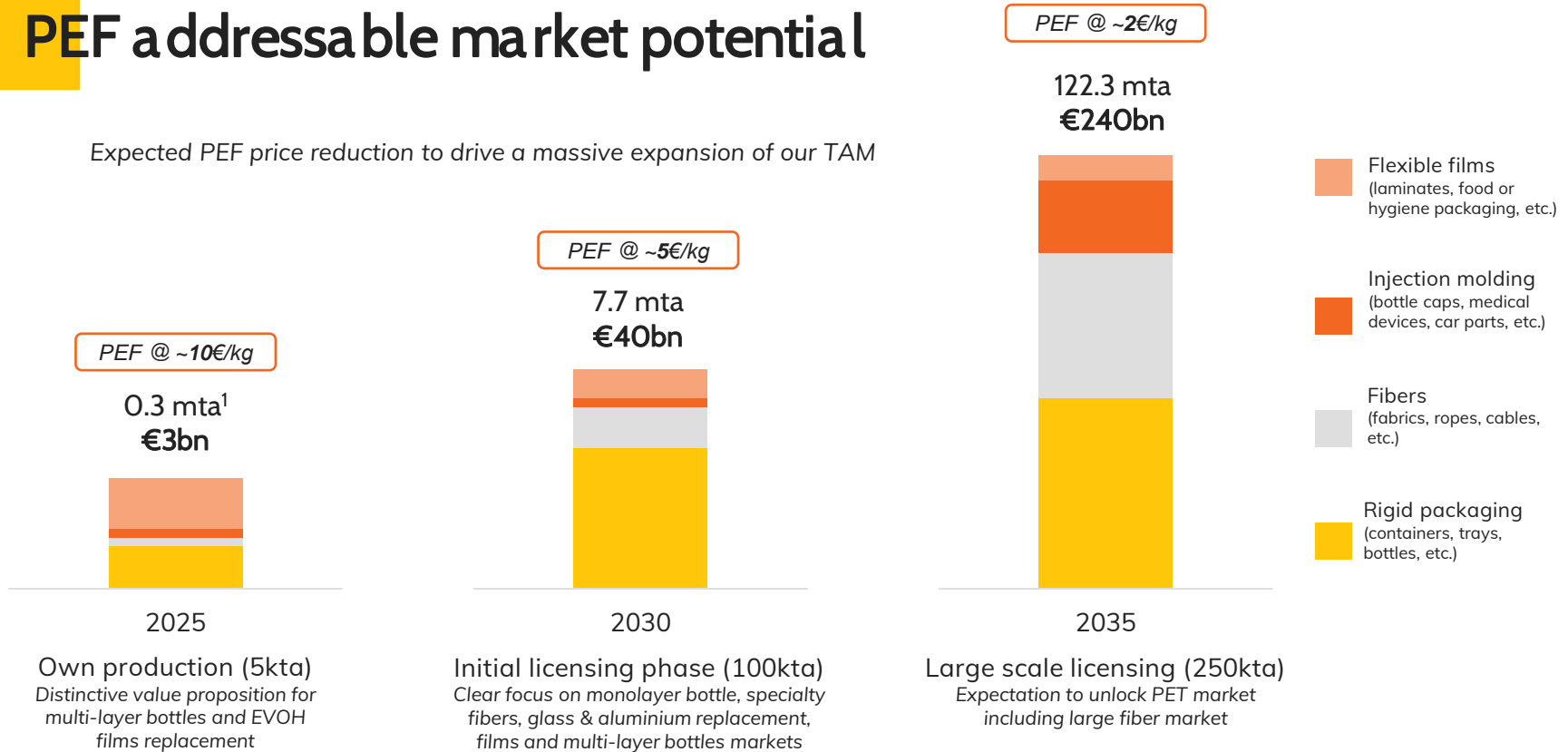
>25 million ton/year¹



Notes: (1) estimated volume reflects Total Addressable Market (TAM) in 2035
Sources: Smithers, The future of high barrier packaging films to 2024, 2021; Smithers, The future of global flexible packaging to 2026, 2021; Smithers, The future of rigid plastic packaging to 2026, 2021; Thermoformed Packaging Market to 2025, 2018 ; PCI Wood Mackenzie, Abstract report global Multilayer PET bottles industry to 2024, 2016 ; Allied Market Research

PEF addressable market potential

Expected PEF price reduction to drive a massive expansion of our TAM



Notes: (1) Million Metric Tons Annually, chart is not to scale

Sources: Smithers, The future of high barrier packaging films to 2024, 2021; Smithers, The future of global flexible packaging to 2026, 2021; Smithers, The future of rigid plastic packaging to 2026, 2021; Thermoformed Packaging Market to 2025, 2018 ; PCI Wood Mackenzie, Abstract report global Multilayer PET bottles industry to 2024, 2016 ; Allied Market Research





PEF is both sustainable and price-competitive at scale

100kta

Competing with aluminium and glass at €5.0/kg PEF



PEF Bottle
33cl – 13.5g
PEF material cost¹
€0.07 = ~7% of end price



Glass Bottle
33cl – 200g
Glass material cost¹
€0.13 = ~13% of end price



Aluminium Can
33cl – 13g
Alu material cost¹
€0.03 = ~4% of end price

250kta

Competing with mono-material PET at €2.5/kg PEF



PEF Bottle
50cl – 17.5g
PEF material cost²
€0.044 = ~3.7% of end price



rPET Bottle
50cl – 22g
rPET material cost²
€0.055 = ~4.6% of end price



PET Bottle
50cl – 22g
PET material cost²
€0.037 = ~3.1% of end price

PEF reducing Global Warming Potential

↓ **88%** vs. glass

↓ **74%** vs. aluminium

↓ **61%** vs. PET

Notes: (1) a 33cl bottle made with PEF at €5.0/kg sold at €1.00, a 33cl glass bottle sold at €1.00 and a 33cl aluminium can sold at €0.67; (2) Assuming PEF at €2.5/kg, rPET at €2.5/kg and PET at €1.7/kg, and a 50cl sold at €1.20. Sources: enzymatic rPET, Company's estimates; Glass, Food grade rPET & PET prices, BusinessAnalytIQ.com, average Europe & USA Aug.22-Aug.23; Aluminium prices, markets.businessinsider, average Aug.22-Aug.23, NAPCOR, Beverage Container LCA Report 2023, 2023; Nova Institute

First-of-a-kind FDCA Flagship Plant on stream in 2024

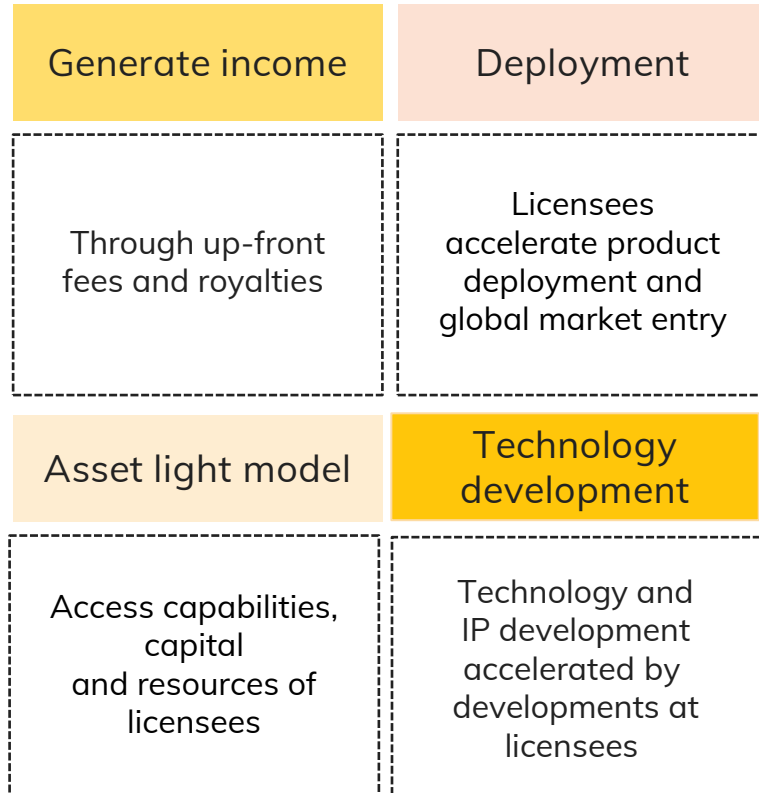
- Sale of PEF & FDCA at commercial scale
- Prove technology at 5kta scale
- 10-year feedstock supply partnership with Tereos
- Commissioning expected to start in Q1 2024
- FDCA production expected on stream in H2 2024
- Further accelerate licensing deployment



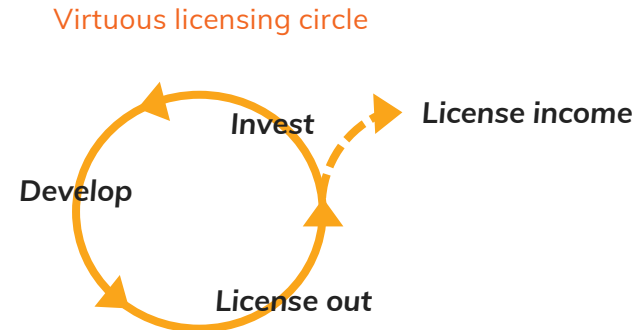


4. Licensing

Licensing the FDCA / PEF technology

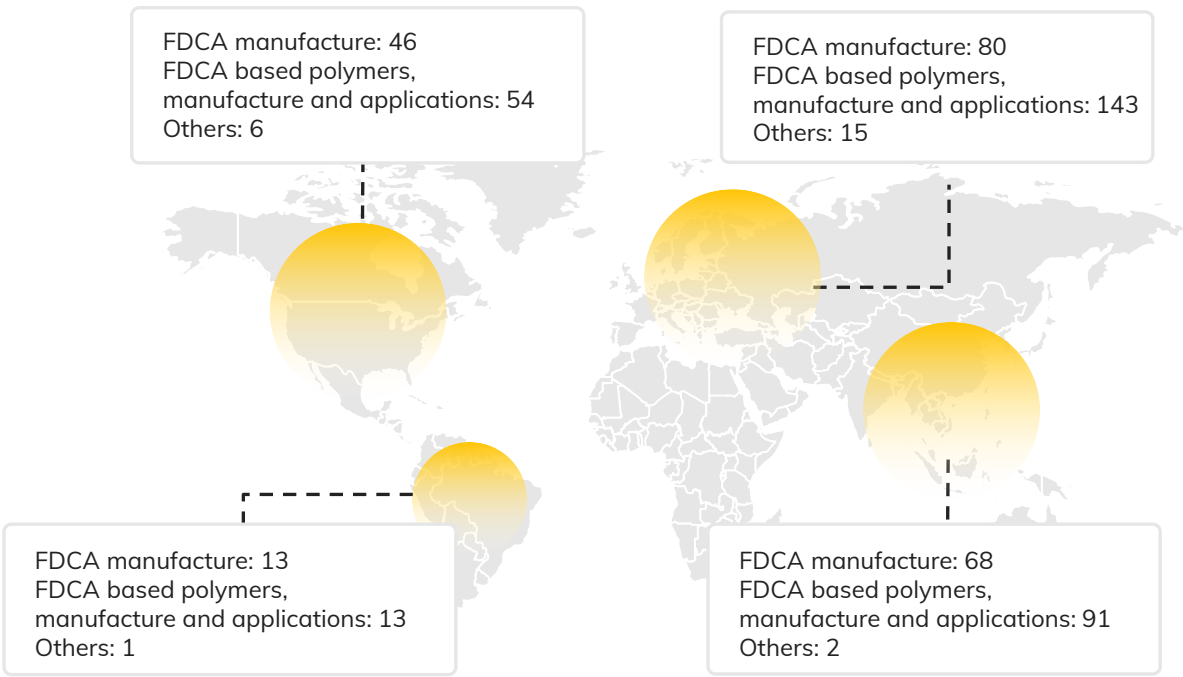


- Avantium to license out technology and IP
- Technology licensing deemed to offer optimal combination of risk and reward
- Licensing closely aligned with our capabilities and capacities
- Multiple licensee market model preferred by converters / brand owners





Owning necessary IP for production and licensing of FDCA and its high value applications



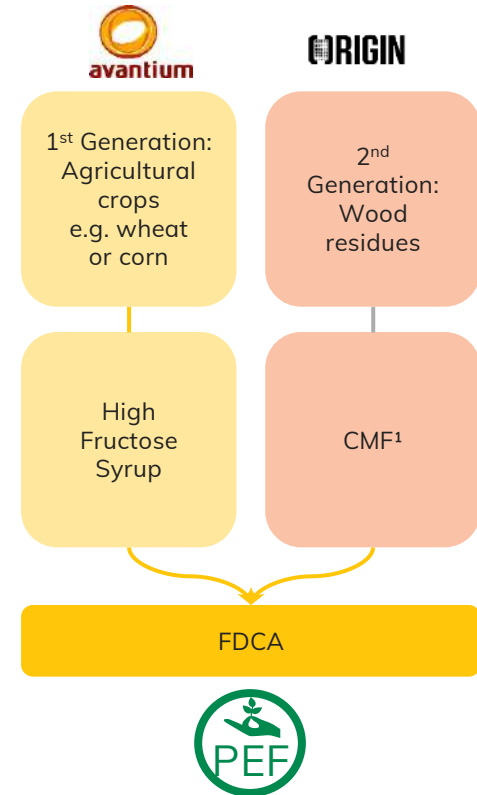
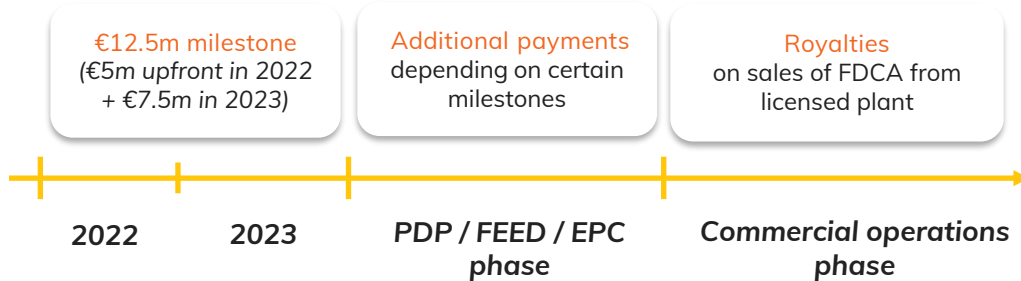
- Avantium has 166 patent families¹ containing 998 rights
- Actively managing IP portfolio including review of third-party patent positions
- Dedicated team of in-house patent attorneys
- Figures include patents and patent applications

Note: (1) Includes not yet published families while geographic overview excludes these

First license agreement signed with Origin

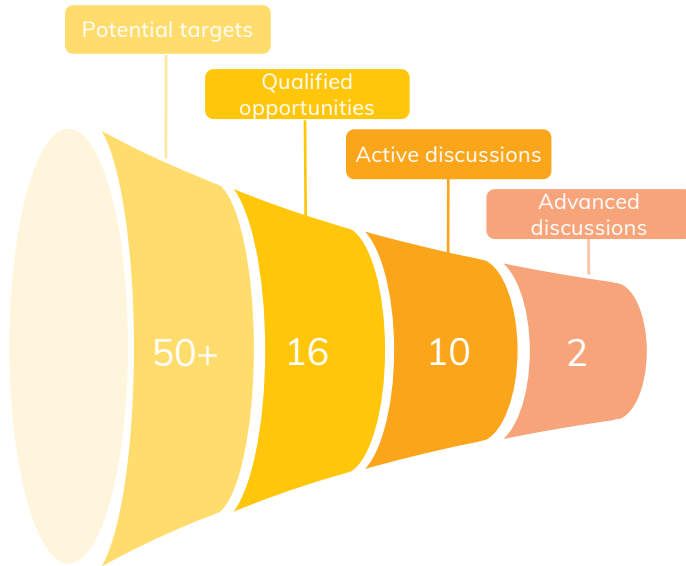
- Non-exclusive technology license agreement for conversion of Origin-produced CMF derivatives into FDCA at a 100 kta scale facility
- Avantium and Origin already secured capacity reservations for the future plant, for example from Terphane

Technology license agreement model with Origin



Note: (1) Chloromethylfurfural - and derivatives such as methylfurfural (MF) and others.

Global FDCA licensing opportunities for Avantium



Potential pipeline of technology licenses¹

Technology licensing target customers

- Feedstock suppliers
- Chemical companies
- PET (/polymer) producers

Key considerations on licensing

- Proximity to feedstock
- Proximity to existing production infrastructure (brownfield)
- Local market proximity & size
- Local regulations & incentives

Note: (1) Data as presented during the Capital Markets Day 2023, held on 13 December 2023

We can almost touch it...



5. Strategic focus



Reinforcing strategic focus: the FDCA/PEF commercial opportunity

FDCA/PEF technology	Volta Technology (PLGA)	R&D Solutions	Ray Technology (plantMEG/MPG)
Prioritising getting Flagship Plant on stream in 2024 and commercialisation and licensing of FDCA / PEF	Exploring strategic or financial partnerships to fund the next phase of development	EBITDA positive, targeting sustainable chemistry opportunities	Further investments on hold





6. Funding growth & execution

Strong financing fundamentals for long-term success

- ✓ Funding secured through existing and new shareholders
- ✓ Renewable Polymers shareholders and lenders remain committed
- ✓ FDCA Flagship nearing completion with strong commercial traction
- ✓ Promising licensing pipeline



Funding focused on the FDCA / PEF opportunity

Renewable Polymers Business FDCA/PEF technology

Completing
Construction of the
FDCA Flagship Plant

Commissioning and
Start-up of the FDCA
Flagship Plant

Licensing acceleration
– Commercial strength
and pipeline

Avantium

Financial stability, general
corporate and R&D



Focus on financial stability
to execute on our
strategy



Focus on revenue generation

R&D Solutions Business:

Growing revenue from products and services business – pursuing strategic growth opportunities



FDCA/PEF Sales:

avantium

<u>Installed capacity</u>		<u>Average selling price</u>		<u>Annual turnover</u>		<u>Illustrative EBITDA margin</u>
5kta	x	~€9-10/kg	=	~€45-50m		~35-40%

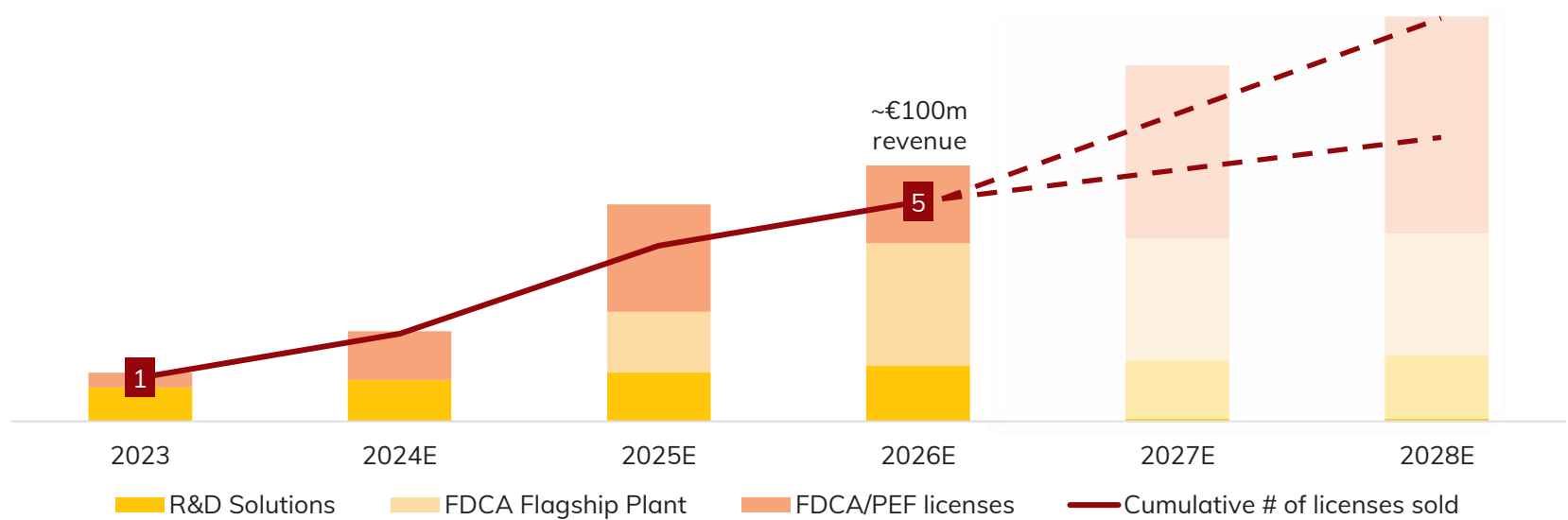
Technology Licenses:

Milestone payments and royalties from multiple technology license agreements



Focus and execution leading to growth

Illustrative financial performance: based on assumption that FDCA Flagship Plant is on stream in 2024 and multiple technology licenses have been sold





7. Key takeaways

Key take aways / Investment highlights



1 Strong commercial traction, with 15 offtakes and 1 technology license to date

2 Most advanced FDCA and PEF player worldwide, contributing to the transition of the chemical industry towards renewable and circular polymer materials

3 Nearing a key inflection point in the transition to a commercial-stage company: 1/ commercial-scale FDCA production start-up expected in H2 2024, 2/ contracted offtake by industry leaders and, 3/ license sales

4 Clear path to revenue growth with the ambition to be a €100m+ revenue & EBITDA positive company in 2026¹

5 Well capitalised to bring FDCA Flagship Plant on stream in H2 2024, accelerate licensing activities by strengthening global commercial capabilities, and continue development of Volta Technology

Note 1: under the assumption that the FDCA Flagship Plant is fully operational and Avantium is successful in selling multiple technology licenses from 2025 onwards

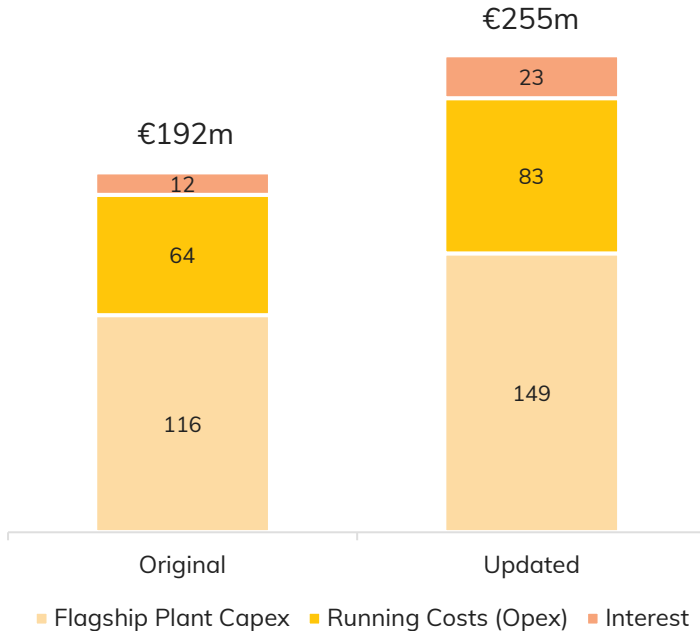




Appendix

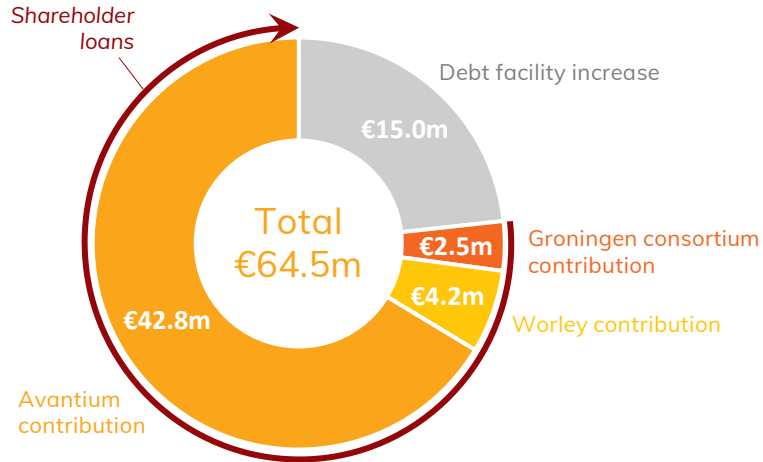


Avantium Renewable Polymers Cost Update



- Interest impacted by unprecedented rise in interest rates
- Running costs impacted by inflation, longer commissioning period, and additional business requirements
- FDCA Flagship Plant CAPEX driven by inflation and supply chain challenges

Financing package Avantium Renewable Polymers



Use of the proceeds

Financing the cost increase of approximately €64.5m

- €33m CAPEX
- €19m OPEX
- €11m interest
- €1.5m contingency