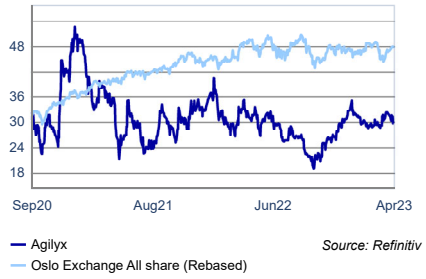
Agilyx

Energy
Norway

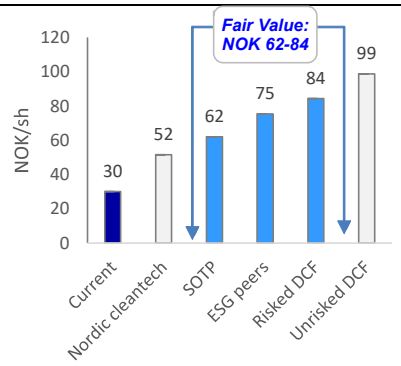
KEY DATA

Stock country	Norway
Bloomberg	AGLX NO
Reuters	AGLX.OL
Share price (close)	NOK 30.00
Free Float	55%
Market cap. (bn)	USD 0.24/NOK 2.56
Website	https://www.agilyx.com/
Next report date	25 Apr 2023

PERFORMANCE



VALUATION APPROACH (NOK PER SHARE)



Source: Nordea estimates

Nordea IB & Equity - Analysts
Elliott Jones
Associate Director

Jørgen Bruaset
Director

Enabling a global circular plastics industry

We initiate coverage of Agilyx with a fair value range of NOK 62-84. Agilyx is an asset-light pureplay offering solutions for transforming plastic waste into virgin-grade products. Its Cyclyx sourcing platform (25% ExxonMobil ownership) sources customised waste feedstock, while its patented and robust conversion technology is backed by technological partnerships. Our modelling implies a ~100% 2022-26 sales CAGR, yielding USD 288m in 2026E (within the company guidance of USD 200-300m), and a 2023-30 sales CAGR of 65% with a 14% EBIT margin in 2030E and almost 60% recurring revenues (net of Cyclyx feedstock sales). Our fair value range is based on risked DCF, SOTP and peer valuation approaches, while on an unrisked basis our DCF points to NOK 99 per share.

Agilyx's offerings unlock solutions to the plastic waste problem

Plastics are vital today, but a 9% total recycle rate means that plastics systems as they stand cause significant pollution and issues with greenhouse gas emissions. Agilyx's ability to both source plastic waste for various types of recycling (Cyclyx) and convert several plastic types into products results in Agilyx being a key enabler of increasing the recycle rate of plastics globally. With strong support from policy and global majors, we see a vast market opportunity ahead (company targets represent 4% of Nordea's estimated total addressable market).

We expect Agilyx to comfortably reach mid-term group targets

We forecast FY 2022 revenues of USD 16m (up more than 3x y/y) from current construction sales and Cyclyx feedstock revenues. Beyond this, we model a 100% 2022-26 sales CAGR (to USD 288m in 2026), driven by >660,000 tonnes per year in capacity in development/construction, 140,000 tonnes per year in operation and >660,000 tonnes sourced per year by Cyclyx in 2026. Longer term, we see a 2023-30 sales CAGR of 65%, with a 14% group EBIT margin. Net of Cyclyx feedstock sales, we forecast almost 60% recurring revenues by the end of the decade.

Fair value range of NOK 62-84 per share

Our risked DCF yields NOK 84 per share (NOK 99 unrisked), while comparison with high-quality ESG players (2025E EV/EBITDA) yields a risked fair value of NOK 75. Our SOTP analysis points to NOK 62 per share, with the conversion NPV of NOK 39 implying no value currently given to Cyclyx by the market. Combined, we see a fair value range of NOK 62-84, with the bottom of the range being twice the current share price.

SUMMARY TABLE - KEY FIGURES

USDm	2018	2019	2020	2021	2022E	2023E	2024E
Total revenue	0	0	4	5	16	40	78
EBITDA (adj)	0	0	-6	-15	-20	-13	-6
EBIT (adj)	0	0	-7	-16	-20	-14	-7
EBIT (adj) margin	n.m.	n.m.	-154.3%	-321.1%	-127.9%	-34.7%	-9.6%
EPS (adj, USD)	n.a.	n.a.	-0.14	-0.22	-0.26	-0.18	-0.10
EPS (adj) growth	n.a.	n.a.	n.a.	-59.6%	-21.0%	31.2%	42.5%
DPS (ord, USD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EV/Sales	n.a.	n.a.	76.6	61.1	14.1	6.0	3.2
EV/EBIT (adj)	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
P/E (adj)	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
P/BV	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
Dividend yield (ord)	n.a.	n.a.	0.0%	0.0%	0.0%	0.0%	0.0%
FCF Yield bef A&D, lease	n.a.	n.a.	-2.9%	-5.9%	-6.8%	-6.8%	-4.0%
Net debt	0	0	-36	-18	-20	-9	-4
Net debt/EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
ROIC after tax	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.

Source: Company data and Nordea estimates

Contents

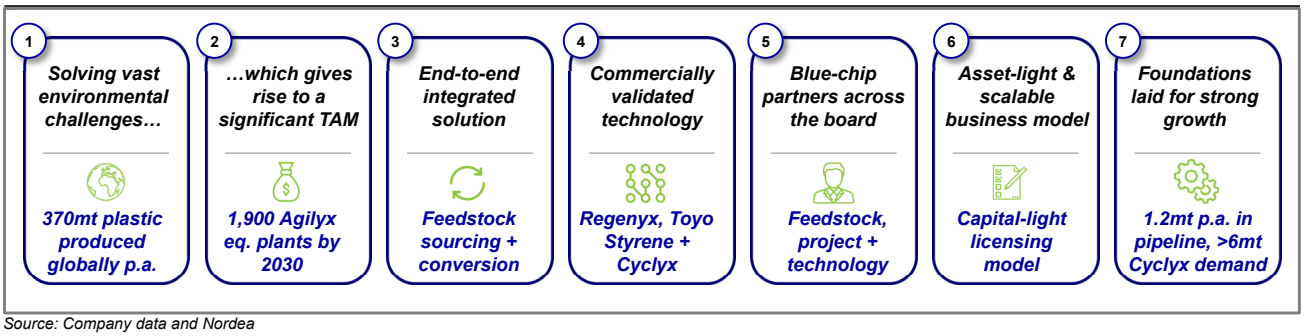
Factors to consider when investing in Agilyx

Agilyx is an asset-light pureplay offering patented solutions for turning waste plastic into valuable, virgin-grade products. Its Cyclyx waste sourcing platform (25% backed by ExxonMobil) sources customised waste feedstock for members, including the top five plastics producers in the world. Further, its robust conversion process is backed by strong technological partnerships. We estimate 2022 revenue of USD 16m, up >3x y/y, driven by facility construction fees and Cyclyx feedstock sales. Our estimated 2022-26 sales CAGR of >100% yields USD 288m in revenue by 2026 (driven by over 660,000 tonnes per year in development/construction and 140,000 tonnes per year in operations on the conversion side and 660,000 tonnes sourced on the Cyclyx side in that year). Longer term, our model equates to a 2023-30 CAGR of 65% with a 14% EBIT margin in 2030 and just below 60% recurring revenue by 2030 (excluding Cyclyx feedstock sales). Our estimates give a fair value range of NOK 62-84 based on DCF, SOTP and peer multiples, which at the bottom of the range is over 2x current levels.

Company background, history and overview

- Agilyx is an asset-light provider of solutions for the transformation of hard-to-recycle, post-use plastics into high-value, virgin-equivalent products.
- Since its inception in 2004, the company has developed a proven, scalable and flexible technology (20 patents, eight generations to date) to convert non-recyclable waste plastics into a range of upcycled products and materials.
- In addition, the company has fine-tuned its business model from build-own-operate to an asset- and capital-light technology licensing strategy.
- The company is listed and headquartered in Norway, and uplisted to the main market of the Oslo Børs after raising USD 15m in equity in late 2022.

AGILYX: VALUE PROPOSITION



Source: Company data and Nordea

Business models – waste sourcing, waste conversion

The company provides two primary offerings to customers:

1) waste sourcing through Cyclyx, which is able to provide customers with customised waste plastic feed at a fraction of the cost versus incumbent methods with the same specifications

2) waste conversion, using the company's robust, patented, proven and flexible technology

- Agilyx provides waste plastic solutions for its clients through two main offerings – waste conversion and waste sourcing.
- **Waste sourcing (Cyclyx):** Agilyx, through its Cyclyx sourcing platform, is able to source, characterise and deliver custom waste feeds to clients at a fraction of the cost versus incumbent methods of feedstock delivery with the same specifications. Cyclyx is supported by ExxonMobil (25% stake), has over 30 members including the top five plastic producers globally, and has already amassed over six million tonnes of annual feedstock demand by the end of the decade from current members.
- **Waste conversion:** Agilyx also holds patented technology for converting waste feedstock into valuable, virgin-grade products. Its technology does not use a catalyst, resulting in a more flexible process, meaning the ability to take on board a variety of conversion pathways (i.e. polystyrene to styrene monomer, mixed waste plastic to synthetic fuels, PMMA to MMA monomer, etc.). The company's technology has been utilised at a facility in Oregon (operational), with another facility currently being constructed in Japan. As with the sourcing side, Agilyx's waste conversion platform includes several partnerships, including with Technip with its "TruStyrenyx" joint-marketed product already resulting in facility announcements.

AGILYX FOCUSES ON TWO BUSINESS SEGMENTS: SOURCING FEEDSTOCK AND CONVERTING FEEDSTOCK TO PRODUCTS

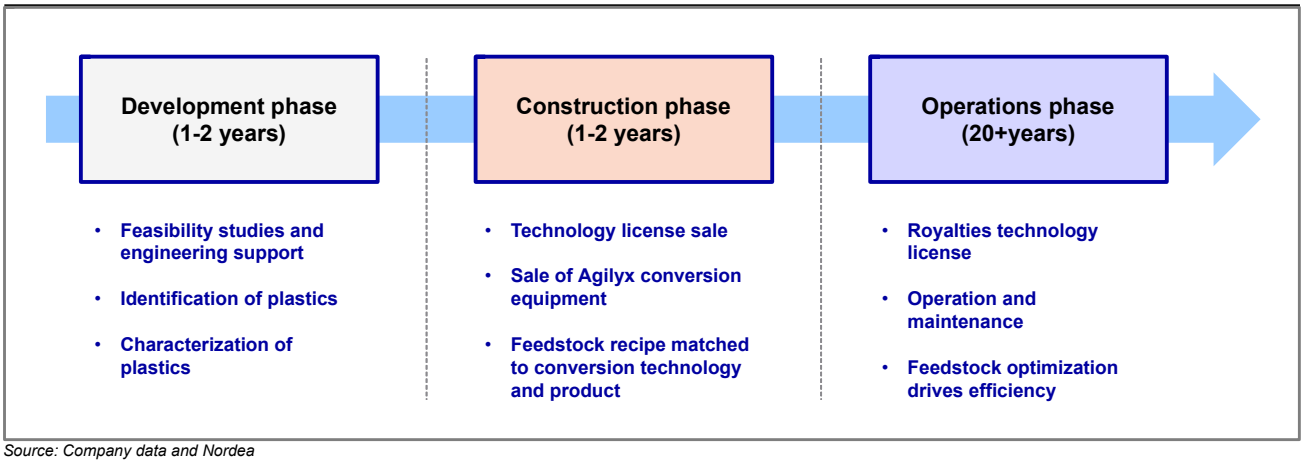
Source: Company data and Nordea

The company utilises an asset-light business model which provides lower exposure to commodity pricing risk as well as eliminating the need to raise vast amounts of capital from the public markets

Execution model – how Agilyx makes money

- As above, Agilyx has evolved from initially being a build-own-operator to an asset-light and capital-light offering across all business segments, with the rationale being: 1) the current model limits direct exposure to commodity pricing risks; and 2) the company is not as exposed to significantly capital-intensive operations, which is a key factor/overhang for several of Agilyx's peers.
- **On the conversion side:** The company will target relationships with credible partners who will provide the facility capex, while Agilyx supports and receives fees through the entire facility lifecycle. This includes the development phase (18 months long, with Agilyx providing feasibility studies and front-end engineering support), the construction phase (where Agilyx will sell key conversion equipment as well as receive technology licence fees) and the operations phase (Agilyx will receive an operational royalty as well as O&M fees).

AGILYX CHOOSES TO UTILISE A CAPITAL-LIGHT, GO-TO-MARKET STRATEGY



Source: Company data and Nordea

AGILYX'S MODEL ENABLES GENERATION OF DIVERSE REVENUE STREAMS, STARTING IN THE DEVELOPMENT PHASE

REVENUE PROFILE			REVENUE DISTRIBUTION				COMMENTS
Phase	**Duration**	**Total (USDm)**	**Year 1**	**Year 2**	**Year 3**	**Year 4-23**	**Considerations**
Development	1.5 years	USD 3-5m	USD 2m	USD 2m	-	-	-
Core Equipment	1.5 years	USD 15-20m	-	USD 8m	USD 8m	-	Revenues on Balance of Plant not included
Operations	20 years	USD 15-25m	-	-	-	USD 1m p.a.	Revenues from Cyclyx not included
Total	**23 years**	**USD 33-50m**	**USD 2m**	**USD 10m**	**USD 8m**	**USD 20m**	-

Note: Illustrative numbers above assume a 100 tonne-per-day mixed waste plastic facility

Source: Company data and Nordea estimates

- **On the Cyclyx side:** The company will receive a royalty on every tonne sourced through the system. Further, the company will sell each tonne to a partner at a feedstock sales price (we assume booked at cost), with Cyclyx also receiving a small additional fee for the process. In addition to these streams, Cyclyx may also receive further revenues for Cyclyx membership, feedstock analysis, takeback programmes and Circularity Centre development.

CYCLYX – SEVERAL POTENTIAL REVENUE AVENUES GOING FORWARD

Source: Company data and Nordea

Strategy and financial targets

The company has mid-term targets for both the conversion side and Cyclyx:

On the conversion side, the company targets 495,000-660,000 annual capacity in development/ construction and 165,000 tonnes in operation by 2026

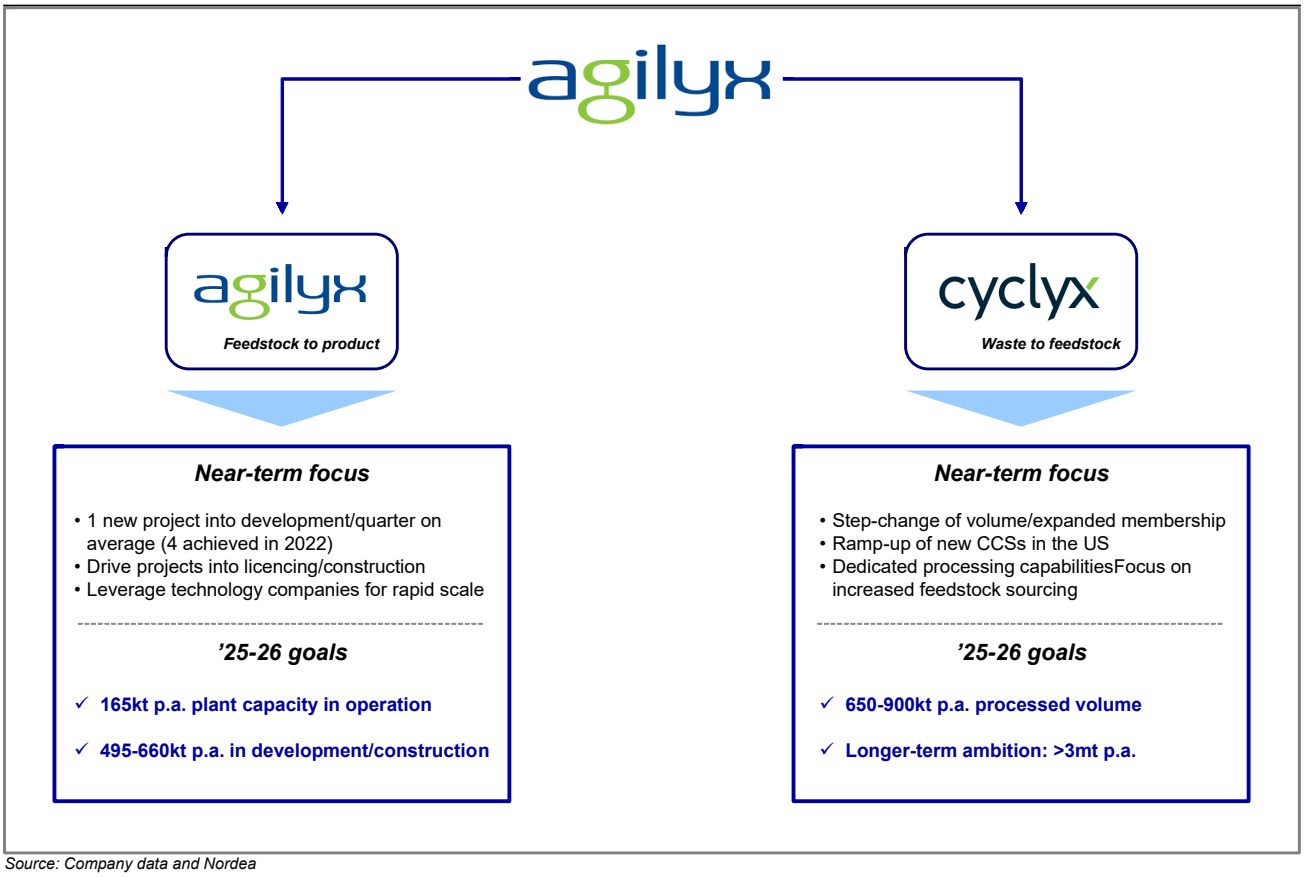
- The company has announced several operational and financial targets to date. At the group level, Agilyx notes the objective of amassing USD 200-300m in revenues in the "mid term" (here, we note that "mid term" is equivalent to 2025-26), which will be driven by both Agilyx conversion and feedstock (Cyclyx) revenues.
- **On the conversion side**, the company aims to bring one project into development per quarter on average, resulting in 165,000 tonnes of annual plant capacity in operation and 495,000-660,000 tonnes per year in development/construction by 2025-26, where it aims to launch one new project into development per quarter on average, while also leveraging Agilyx's technology partners in order to support rapid scale.

For Cyclyx, it targets 650,000 tonnes per year and more than three million tonnes per year in 2026 and 2030...

...leading to USD 200-300m group sales targets by 2025-26

- **On the Cyclyx side**, the company will utilise current and future members in order to reach 650,000-900,000 tonnes of processed volume annually in 2025-26 and more than three million tonnes annually in the longer term, aiming to continue ramping up additional Cyclyx Circularity Centres in development in the US, continue expanding Cyclyx membership, drive "10 to 90" initiatives to increase the breadth of feedstock sourcing, and continue with dedicated processing capabilities to drive efficiency.

AGILYX MEDIUM-TERM GOAL: USD 200-300m IN REVENUE FOR 2025-26



Source: Company data and Nordea

2026E sales of USD 288m, 2023E-30E sales CAGR of 65%

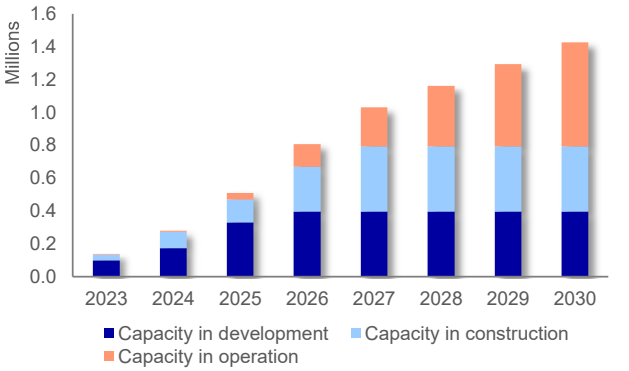
We estimate 2022 sales of USD 16m, with gross margins turning positive in the second half of the year

For the medium term (2026), our modelling yields USD 88m in sales versus the company's target of USD 200-300m

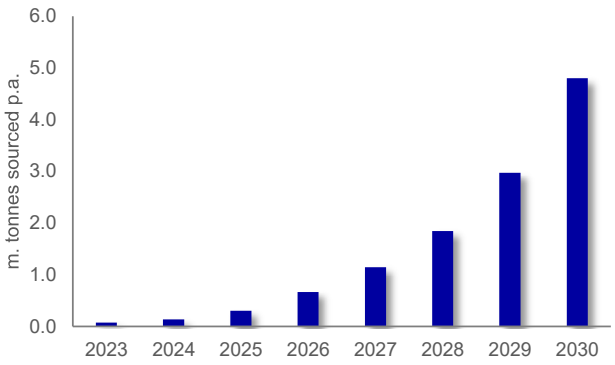
In total, we forecast a 2022-30 sales CAGR of 65% with positive EBITDA in 2025, 15% EBIT margins by 2030 and just below 60% recurring revenues in 2030 (excluding Cyclyx feedstock sales)

- We estimate 2022 revenues of USD 16m (>3x y/y growth), driven by current facility construction revenues (Toyo Styrene) and Cyclyx feedstock sales, with positive gross margins realised in H2 2022.
- In the medium term, we estimate >660,000 tonnes per year of capacity in development/construction and 140,000 tonnes per year in operation on the conversion side, with conversion margins hitting 30% in 2026E (and 36% in 2030E) as more facilities enter the higher-margin later stages.
- On the sourcing side, we expect the Cyclyx Circularity Centre FID to occur in H1 2023, helping to drive a step-change in sourced volumes. Going forward, we model around 660,000 tonnes per year sourced in 2026 (and 4.8 million tonnes in 2030, representing an approximate 20% risking to company-guided longer-term demand already).
- The above results in fully consolidated revenues of USD 288m in 2026E, comfortably within the company-guided USD 200-300m range (11% group EBIT margin, with positive EBIT in 2025E).
- Beyond the medium term, we see an overall 2023-30 sales CAGR of 65% through the decade, with 14% group EBIT margins by 2030 and just below 60% recurring revenues (net of Cyclyx feedstock sales) in the same year.
- We expect to see a lean balance sheet going forward, with no significant additional capital raises (owing to the company's asset-light model).

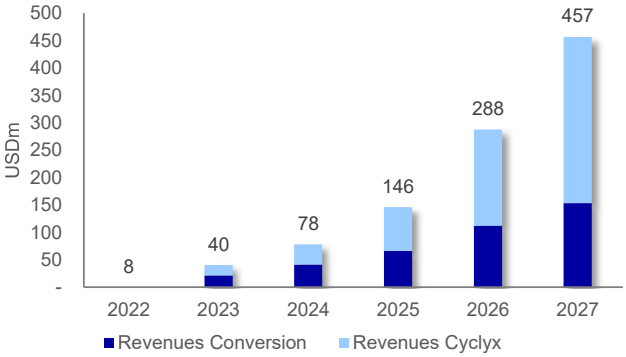
TONNES UNDER MANAGEMENT: CONVERSION FACILITIES



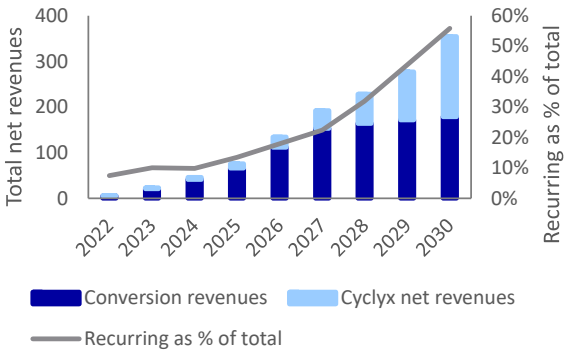
TONNES SOURCED PER YEAR BY CYCLYX



OUR ESTIMATES RESULT IN USD 288m FULLY CONSOLIDATED SALES IN 2026



JUST BELOW 60% RECURRING REVENUES (NET OF CYCLYX FEEDSTOCK SALES) BY THE END OF THE DECADE



Source for four charts: Company data and Nordea estimates

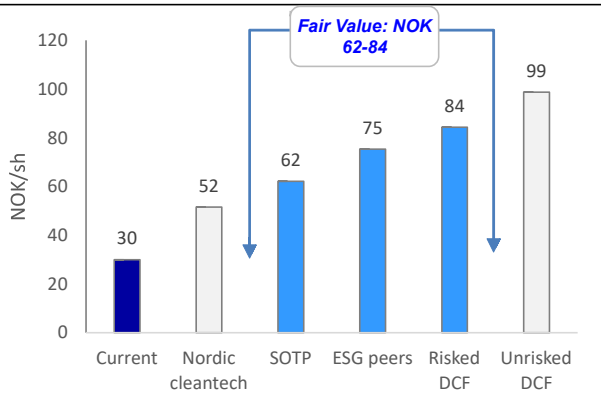
Note: Net revenues = gross revenues minus Cyclyx feedstock sales, which are booked at 0% gross margin in our model

Valuation – fair value range of 62-84 per share

We derive a fair value range of NOK 62-84 per share for Agilyx, using a risked DCF model (10% WACC), ESG peer multiples (EV/EBITDA) and a sum-of-the-parts on Cyclyx and conversion

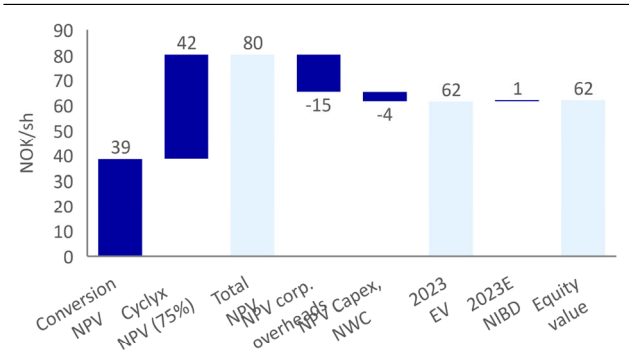
- We construct a discounted cash flow model based on our financial estimates to 2030 for Agilyx, taking into consideration the proportionate nature of the financials. Using a 2% terminal growth rate and a 10% WACC, we arrive at a risked fair value of NOK 84 per share, or NOK 99 per share on an unrisked basis.
- We also compare Agilyx with high-quality (market-leading), EBIT-positive ESG players (an aspirational peer set for Agilyx). Taking the 2025E EV/EBITDA median of 9.7x and applying a meaningful (20%) liquidity/track record discount, we arrive at a fair value of NOK 75 per share.
- Finally, we construct a sum-of-the-parts valuation methodology on the conversion and Cyclyx segments. On the conversion side, an NPV on our facility rollout equates to NOK 39 per share, covering the entire share price today. For Cyclyx, we apply a ~5x EV/sales multiple to 2030E risked sourcing capacity and royalty/feedstock handling fees, resulting in NOK 56 per share for 100% of Cyclyx (NOK 70 if we take company-guided demand of 6 million tonnes in 2030). Taking into account corporate costs/capex, etc., we arrive at a fair value of NOK 65 per share.

AGILYX: VALUATION SUMMARY



Source: Company data and Nordea estimates

CONVERSION VALUE COVERS CURRENT SHARE PRICE LEVEL



Source: Company data and Nordea estimates

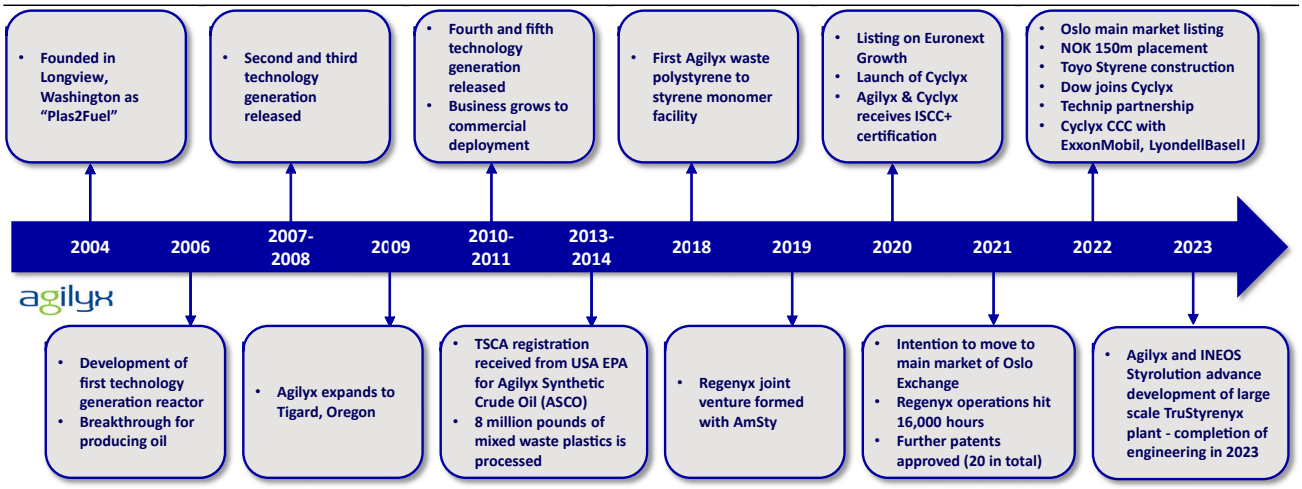
Company overview

Agilyx is a leader in advanced mixed-waste plastic recycling solutions. Since its inception in 2004, the company has developed a proven, scalable and flexible technology (20 patents, eight generations to date) to convert non-recyclable waste plastics into a range of upcycled products and materials. Furthermore, Agilyx has industry-leading knowledge in feedstock supply through Cyclyx, a joint venture with ExxonMobil. The company is listed in Norway, having uplisted to the main market of the Oslo Børs in late 2022, and operates globally.

Company history and background

Agilyx is an Oslo-listed company that provides technology to transform hard-to-recycle, post-use plastics into high-value, virgin-equivalent products. The company has come a long way since its inception 19 years ago, having fine-tuned its business model from build-own-operate to an asset- and capital-light, technology licensing strategy. The company also offers chemical recycling conversion technology and feedstock sourcing capabilities, and holds valuable intellectual property in waste management and sourcing, with a 25% investment from ExxonMobil. The company has a range of partnerships in place on both sides of the business.

AGILYX: COMPANY TIMELINE

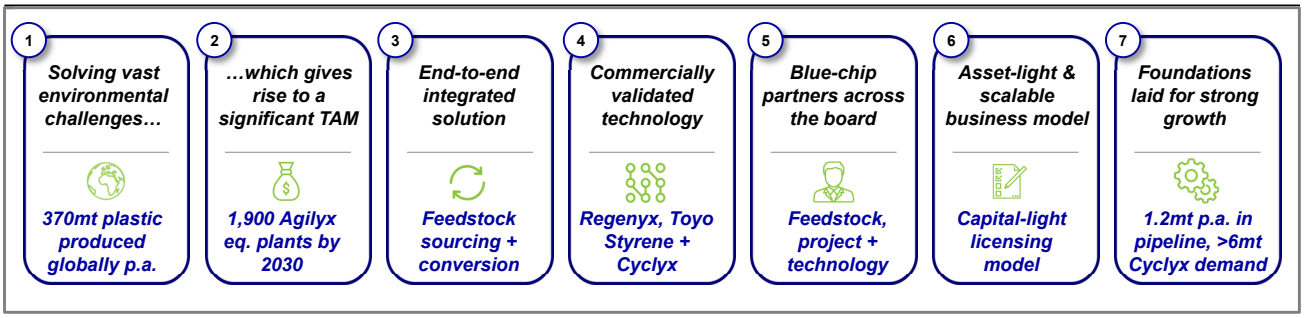


Source: Company data

The company recently uplisted to the main market of the Oslo Børs

Agilyx already has one facility in operation (Regenyx, in the US), as well as another under construction in Japan, and the company has also started to supply feedstock to its partners. In late 2022, the company uplisted to the main market of the Oslo Børs, after raising USD 15m (NOK 150m) through a private equity placement.

AGILYX: VALUE PROPOSITION



Source: Company data and Nordea

Agilyx business segments

Agilyx provides plastics recycling solutions through several key business offerings. The first entails feedstock sourcing and analysis through Cyclyx (backed by ExxonMobil), supplying custom-built feedstock to both the traditional and advanced recycling industries. The second involves licensing, critical equipment supply and provision of technical services for the conversion of plastic waste to high-purity, virgin-equivalent products – in this latter segment, the company is currently on its eighth generation of technology. It already has one facility up and running (Regenyx, in the US) and it has another under construction (Toyo Styrene, in Japan). Both segments boast blue-chip partners and commercial validation, helping Agilyx stand out from its peers, in our view.

Two main business segments – sourcing and conversion

Agilyx has two business segments: sourcing of plastic waste feedstock and conversion of feedstock to products

Agilyx's primary focus is to provide solutions for customers to transform post-use plastic waste into more valuable products. The company delivers on this aim through two entities: 1) the sourcing and provision of plastic waste feedstock to Agilyx, its partners and third parties (known as Cyclyx); 2) the conversion of plastic waste to high-quality, virgin-equivalent products.

AGILYX FOCUSES ON TWO BUSINESS SEGMENTS: SOURCING FEEDSTOCK AND CONVERTING FEEDSTOCK TO PRODUCTS

Source: Company data and Nordea

1) Cyclyx – sourcing and provision of customised feedstock

Via Cyclyx, a joint venture with ExxonMobil, Agilyx offers a solution to source plastic waste feedstock

The first business segment involves the sourcing, analysis and, ultimately, provision of customised feedstock, through Cyclyx, a plastic waste sourcing platform able to deliver custom-built feedstock at the correct specification to downstream partners (including Agilyx) for subsequent conversion. It is a subsidiary of Agilyx that was launched in 2020. The platform was designed to create a circular economy for plastics by leveraging Agilyx's technology and expertise in advanced recycling.

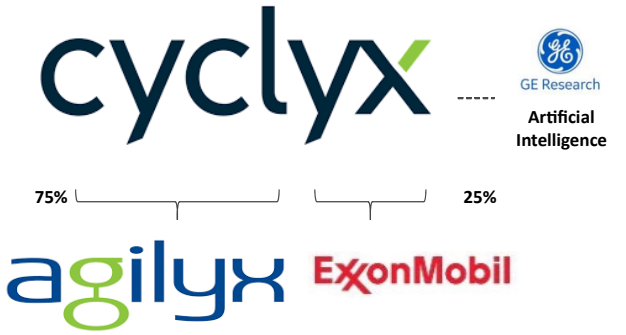
The platform provides customised feedstock for chemical recyclers, but also other industries (such as mechanical recycling)

The platform, a joint venture with ExxonMobil where Agilyx owns 75%, holds the largest waste plastics database in the industry (over 1,000 sources of waste plastics, with 400 additional tested and qualified since the beginning of 2022). The platform aims to source and provide feedstock to Agilyx's customers at a price far below that of existing systems and supply chains, with the company initially noting it could potentially take out five-sixths of the cost for polystyrene pathways (and also significant cost reduction for other conversion pathways such as mixed waste plastic).

TRANSFORMING WASTE PLASTIC TO USEFUL FEEDSTOCK IS A REAL STICKING POINT...

Source: Company data and Nordea

...BUT AGILYX HAS THE SOLUTION, THROUGH THE CYCLYX FEEDSTOCK SOURCING AND MANAGEMENT PLATFORM



Source: Company data and Nordea

Current systems are not always set up for advanced recycling, but Cyclyx starts from a chemical-profile perspective

In general, Cyclyx works in the opposite way to today's convention. By and large, current systems tend to see materials as an object form, extrapolating what they can be used for and then selling them into clean markets. By contrast, Cyclyx starts from a chemical-profile perspective, including the extent to which the waste is contaminated and how this can be managed. This results in a "recipe book" of conversion pathways, using predictive modelling capabilities, containing a list of the waste ingredients required to make each product. The company then engages with customers, matches their desired products to the most suitable conversion pathway, and locks in the required mixture of waste plastic ingredients.

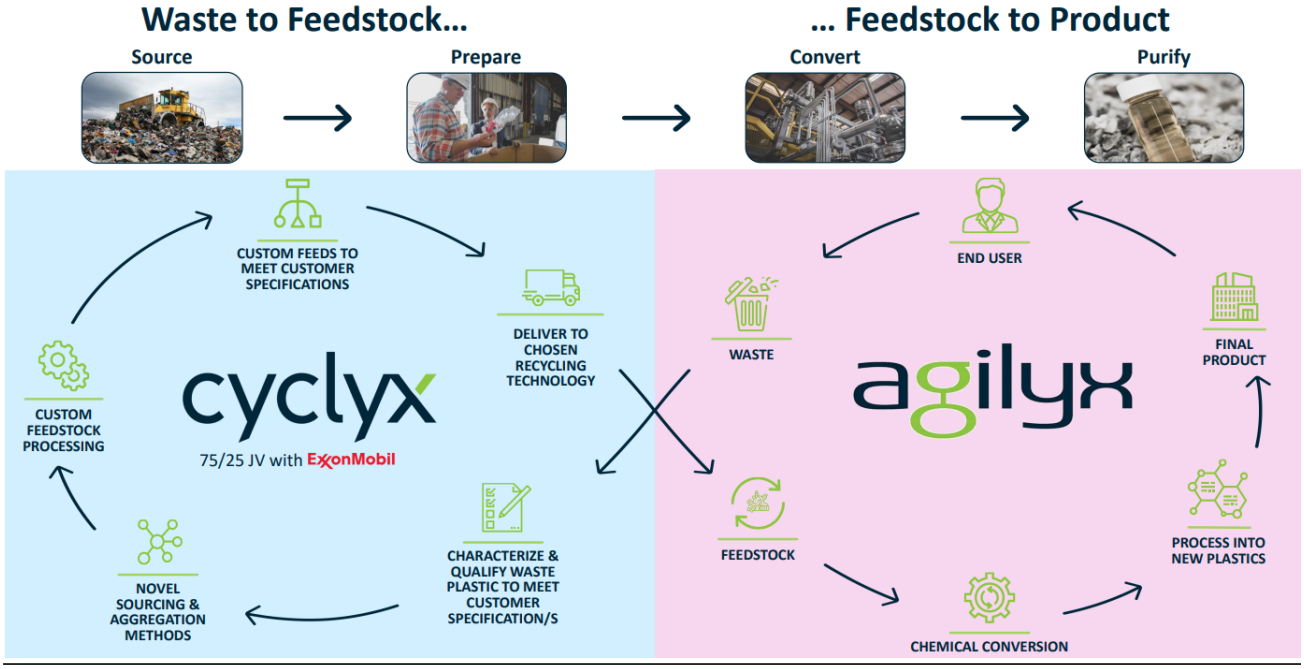
Cyclyx sources waste plastics from more than a thousand sources

After the correct waste plastic ingredients have been identified, Cyclyx can call on over a thousand sources of waste plastic that it has qualified, can design pre-processing systems, and can ultimately deliver the custom feed downstream. This method results in a comprehensive solution for its partners.

This segment delivers tailored solutions to customers

Turning untouched, post-consumer waste plastics into suitable feedstock in an affordable fashion is, in our view, one of the most salient challenges facing the advanced recycling industry going forward. Current systems are not set up for advanced recycling; nor are they adequate for the significant scaling required for mechanical recycling to make more meaningful contributions to increased recycling rates. Cyclyx provides a solution and is thus industry-enabling, in our view.

CYCLYX SOLVES THE PROBLEM OF CONVERTING WASTE PLASTICS INTO VALUABLE FEEDSTOCK



Source: Company data and Nordea

Cyclyx is consortium-based, which ensures beneficial supply chain efficiencies

Cyclyx is consortium-based, facilitating beneficial supply chain efficiencies, while also leveraging the expertise of member companies (the Cyclyx ecosystem scales to almost 150,000 employees if all member companies are included). Cyclyx looks to collaborate with businesses that have the recycling of waste plastics as one of their main strategic initiatives through creating Cyclyx memberships, where interested companies join as non-equity investor members.

The "feedstock-as-a-service" platform has shown strong momentum and continued its impressive progress, with all major plastics producers joining as members, in addition to other global majors (Dow, Sabic, LyondellBasell, Braskem, Ineos, as well as ExxonMobil, which owns 25%). Other sectors look set to provide demand too, such as the life sciences sector (e.g. MilliporeSigma and Corning). These types of customers anchor the industry takeback programmes of single-use lab equipment made from all plastics. To date, the company has signed up more than 30 members across a variety of sectors and is in active dialogue with several hundred potential additional members.

MOMENTUM IN INTEREST FOR CYCLYX CONTINUES TO INCREASE

Date	Cyclyx Announcement
Mar 2023	Vinmar International joins Cyclyx as member
Jan 2023	Savage joins Cyclyx 10 to 90® program to help reduce plastic waste
Dec 2022	Houston Recycling Collaboration launches first Cyclyx 10 to 90® program
Nov 2022	Cyclyx launches 10to90.com, a website to engage the public to increaseplastic recyclability
Oct 2022	Cyclyx signs agreement with ExxonMobil and LyondellBasell for Cyclyx Circularity Centre
Aug 2022	Cyclyx commissions new plastics laboratory in New Hampshire, USA
Feb 2022	Cyclyx signs MoU with ExxonMobil & City of Houston
Jan 2022	Dow joins Cyclyx as consortium's newest member
Jan 2022	Sabic joins Cyclyx as a member
Dec 2021	Cyclyx developing first of its kind plastic recovery facility on Gulf Coast
Nov 2021	Corning joins Cyclyx consortium
Sep 2021	Reynolds Consumer Products joins Cyclyx as member
Sep 2021	Casella Waste Systems joins Cyclyx as founding member
Sep 2021	MilliporeSigma joins Cyclyx as founding member
Sep 2021	Sonoco joins Cyclyx as member
Aug 2021	Ineos Styrolution joins Cyclyx as founding member
Jul 2021	Chevron Phillips joins Cyclyx as founding member
May 2021	North American Plastics joins Cyclyx as member
Apr 2021	Braskem joins Cyclyx as founding member
Apr 2021	Cyclyx receives ISCC PLUS certification for circular recycling pathway
Mar 2021	AmSty joins Cyclyx as founding member

Source: Company data and Nordea estimates

Cyclyx Circularity Centre – vast growth potential for Cyclyx

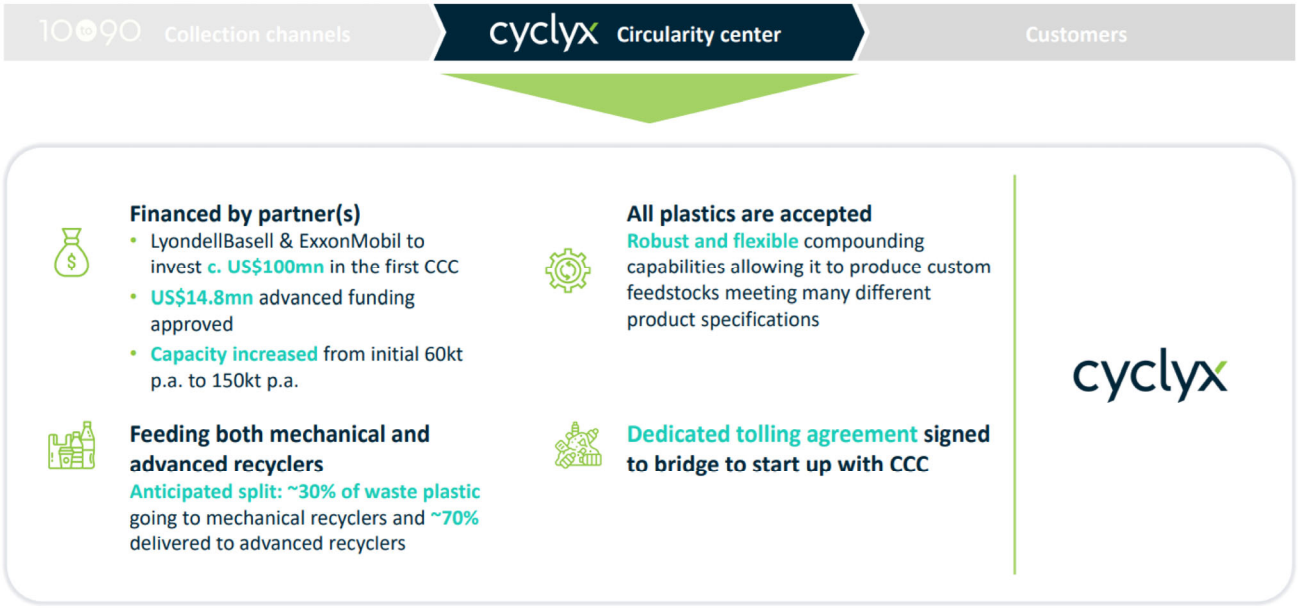
The final investment decision will be made in early 2023 – we estimate total investment of USD 100m

In late 2022, ExxonMobil and LyondellBasell signed an agreement to develop a Cyclyx Circularity Centre in the Houston metropolitan area, in the US. This is a unique plastic waste sorting and processing facility that addresses a critical missing link in the plastic waste supply chain, connecting community recycling programmes to newer and more advanced recycling technologies, as it has the potential to accept a much wider variety of plastic materials. The total investment is estimated to be USD 100m (paid for by Exxon and Lyondell). We expect the final investment decision to be announced shortly (by the end of H1 2023) – a strong trigger for Agilyx, going forward.

The facility will be designed to produce 150,000 metric tonnes of plastic feedstock a year

The company plans commercial start-up for the circularity centre in 2024. The facility will be designed to produce 150,000 metric tonnes – 330 million pounds – of plastic feedstock for mechanical and advanced recycling per year, supplying recycling projects for ExxonMobil and LyondellBasell. As well as providing revenue potential for Agilyx in the short term, we note scaling potential, as both ExxonMobil and LyondellBasell have several other locations in the US that could benefit from having a circularity centre nearby. Beginning with significant demand in place from just these two offtakers, we see strong scaling potential.

CYCLYX CIRCULARITY CENTRE: ENABLING SIGNIFICANT SCALE AND POTENTIAL FOR CYCLYX AND ITS PARTNERS



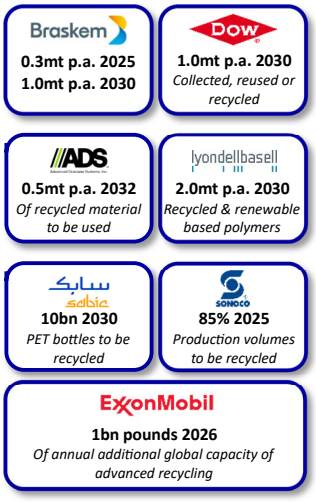
Source: Company data and Nordea

Targets from current Cyclyx members only amount to the equivalent of 40 Cyclyx Circularity Centres by the end of the decade

Attractive standalone growth opportunities for Cyclyx

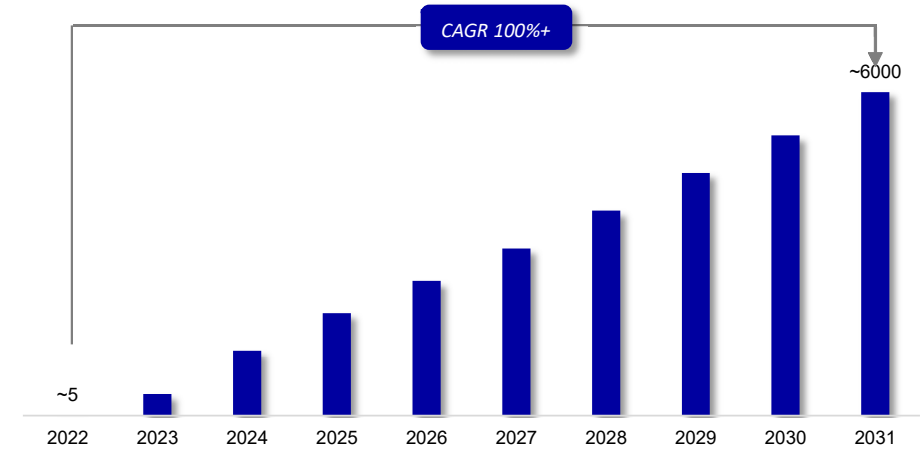
Based on current Cyclyx members' publicly announced recycling targets, we see vast opportunities ahead for Cyclyx. On this point, ExxonMobil targets one billion pounds of advanced recycling by 2026, Dow aims for one million tonnes per year to be collected, reused or recycled by 2030, and Braskem aims for its sales of recycling-based products to increase from 0.3 million tonnes per year targeted in 2025 to one million by 2030; all of these are ambitious targets. Taking just existing customers, demand from these members by the end of the decade would require the equivalent of 40 Cyclyx Circularity Centres, or six million tonnes (100% CAGR from today).

AMBITIOUS COMMITMENTS FROM MEMBERS....



Source: Company data

2031 DEMAND FROM CUSTOMERS IS ONLY ~1% OF THE ADDRESSABLE MARKET (KT PER YEAR)



Source: Company data

2) Plastic waste conversion technology

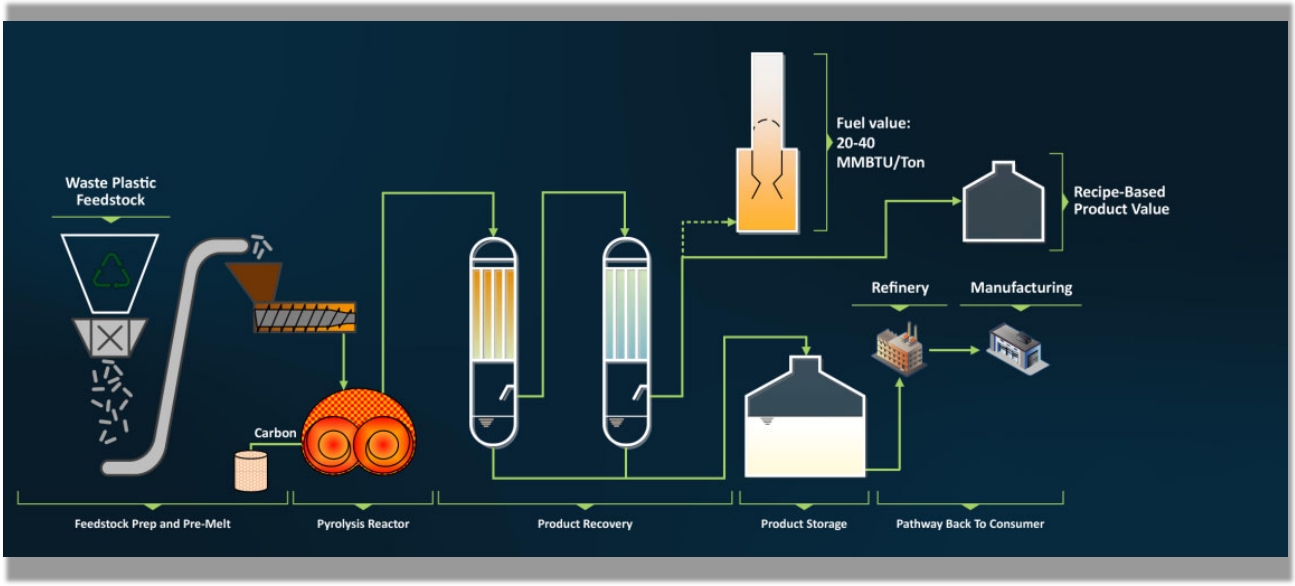
Agilyx's conversion technology utilises pyrolysis, without catalysis, to change waste plastics into valuable products

The second arm of Agilyx's business proposition is plastic waste conversion technology and support for customers/partners. The company's conversion technology is unique in several ways, in large part due to the fact that it is non-catalytic in nature and is reactor-specific, culminating in a solution built for flexibility. This technology, both proven (via its chemical recycling facility in Oregon, US – the first commercial closed-loop plastic-to-plastic facility) and secure (via 20 patents), allows for the use of a broader range of feedstocks, as well as the possibility to undertake any one of several conversion pathways.

Agilyx's flexible technology is a clear differentiating factor, in our view

The company utilises pyrolysis-without-catalysis to convert plastic waste. Catalysts tend to give higher yields, but require a more specific set of parameters, restricting operating conditions and feedstock. Given that plastic waste is inconsistent by nature (non-homogenous), we see this as the key strength of Agilyx's technology. This flexibility allows the company to take more plastic waste, and creates more conversion pathways. Other factors boosting the system's flexibility include the choice of reactor, the dual-screw system within the reactor – which promotes consistent and steady material throughput, and the ability to reverse the screws, which aids in self-cleaning and reduces clogging. Three zones heat the system (outside the jacket and through both screws), providing an optimal amount of optionality and viability, with electricity sending the reactor heat (which can be fed with 100% renewable electricity).

AGILYX: VERSATILE AND PROVEN WASTE PLASTIC CONVERSION PROCESS



Source: Company data

Agilyx has built a system that opens the door to working with a broad range of partners

Combining the above points with very limited pre-treatment, due to the robust nature of the reactor technology and the custom feed from Cyclyx, the company has created a system built for flexibility, paving the road to opportunities with a broader range of partners than ever before. These system processes are also patented, with one of the more recent examples being that Agilyx can now recycle flame retardant-laden polystyrene into high-purity styrene (a conversion pathway that the company believes only it can do, from an end-to-end perspective).

SUMMARY OF PATENTS RECEIVED BY AGILYX

NO.	PATENT SUMMARY
1	System for recycling plastics
2	Systems and methods for recycling plastics
3	Systems and methods for recycling plastic
4	Devices, systems, and methods for recycling plastic
5	Devices, systems, and methods for recycling plastic
6	Methods for recycling plastics and treating pyrolysis vapors
7	Methods for conditioning synthetic crude oil from pyrolysis
8	Methods and systems for conditioning synthetic crude oil
9	Methods and systems for conditioning synthetic crude oil
10	Methods and systems for conditioning synthetic crude oil
11	Methods and systems for conditioning synthetic crude oil
12	Systems and methods for recycling waste plastics, including polystyrene
13	Systems and methods for recycling waste plastics, including polystyrene
14	Systems and methods for recycling waste plastics, including polystyrene
15	Systems and methods for recycling plastic
16	Systems and methods for recycling plastic
17	Systems and methods for conditioning synthetic crude oil
18	Systems and methods for conditioning synthetic crude oil
19	Systems and methods for conditioning synthetic crude oil
20	Systems and methods for recycling waste plastics

Source: Company data

AGILYX'S UNIQUE CONVERSION PATHWAY FLEXIBILITY

Partner	Feedstock	Product
AmSty	Waste Polystyrene	Styrene monomer
Braskem	Waste Polystyrene	Styrene monomer
REGENYX	Polystyrene (previously mixed plastic waste)	Styrene monomer (previously synth. crude)
Lucite International	PMMA	MMA
Virgin	Mixed waste plastic	Synthetic crude oil

Source: Company data

Lifecycle assessment (LCA) studies have shown that Agilyx's depolymerisation of post-use polystyrene reduces CO_2 emissions by 75%, versus polystyrene from virgin raw materials and incineration

The flexible nature of Agilyx's technology means that the company can accept a broader range of waste plastic as feedstock, thus reducing global plastic waste. At the same time, the company is able to improve upon current methods in terms of carbon emissions. The company participated in the Styrenics Circular Solutions LCA, the results of which indicated that Agilyx's conversion technology (known as depolymerisation) reduces CO_2 emissions by ~75%, compared to polystyrene produced from virgin raw materials and incineration. Furthermore, the results showed that depolymerisation as a technology is the shortest recycling process, versus mechanical recycling and dissolution (another advanced recycling method) to achieve virgin food-grade quality materials. This stamp of approval puts Agilyx in the very strong position of tackling the problem of waste plastic and greenhouse gas emissions, resulting in, in our minds, a strong place for green taxonomy in the future.

Strong partners in place for Agilyx's conversion technology

THE LIST OF AGILYX'S FACILITY COLLABORATIONS IS GROWING

Date	Announcement	Partner
Mar-23	Agilyx and INEOS Styrolution advance development of large scale TruStyrenyx™ plant, anticipating completion of engineering in 2023	INEOS STYROLUTION, TruStyrenyx
Dec-22	Kumho Petrochemical partners with Technip Energies leveraging Agilyx Technology	KUMHO PETROCHEMICAL, TEN Technip Energies, TruStyrenyx
Sep-22	Agilyx and a Leading UK based Global Petrochemical Major Sign a Memorandum of Understanding for development of European Chemical Recycling Facility	-
Aug-22	Agilyx and Technip Energies Advance Technology Collaboration and Announce Launch of TruStyrenyx™ for Chemical Recycling of Polystyrene	TEN Technip Energies, TruStyrenyx
Aug-21	Agilyx and Kumho access chemical recycling facility to produce raw material for tires out of post-use plastic	KUMHO PETROCHEMICAL
Apr-21	AmSty and Agilyx announce collaboration to build advanced recycling facility	AmSty
Mar-21	NextChem and Agilyx sign agreement for global deployment of chemical recycling projects based on pyrolysis	NextChem
Feb-21	Virgin Group and Agilyx to form strategic partnership to produce lower carbon fuel	Virgin
Dec-20	Agilyx and Braskem announce collaboration to explore advanced recycling project in North America	Braskem
Dec-20	Agilyx signs agreement with A.Eon converting mixed waste plastics to generate electricity	A·EON
Dec-20	Agilyx and Toyo Styrene advance development of facility in Chiba, Japan	TOYO STYRENE, Lucite International
Oct-20	Lucite and Mitsubishi Chemical Corp advance collaboration with Agilyx	MITSUBISHI CHEMICAL
Sep-20	AmSty, INEOS and Agilyx to build 100TPD facility for post-consumer polystyrene in the USA	AmSty, INEOS STYROLUTION
Sep-20	Trinseo and INEOS announce planned Wingies, France facility utilizing Agilyx technology	INEOS STYROLUTION, TRINSEO

Source: Company data and Nordea

The strengths of Agilyx's conversion technology and its track record have attracted several industry partners, which have publicly announced that they are collaborating with Agilyx to convert plastic waste into a desired product. To date, the company has announced one project in construction and one in operation, covering a variety of conversion pathways and with a mixture of new and existing partners. We highlight some key partnerships below.

AmSty

AmSty, a joint venture owned by Chevron Phillips Chemical and Trinseo, is a leading integrated producer of polystyrene and styrene monomer, offering solutions and services to customers across a variety of global markets. The company is the largest polystyrene producer in the Americas.

AmSty is a major partner of Agilyx. The two formed the Regenyx joint venture in 2018. Regenyx is a chemical recycling facility, converting polystyrene waste to styrene monomer. This facility is significant, to our minds – the waste feedstock is sourced through Cyclyx from over 500 regional suppliers, with the waste then converted to styrene monomer, which AmSty has successfully offtaken for over two years. The facility has received food-grade ISCC PLUS certification, and it racked up 16,000 commercial operating hours in 2021. Furthermore, AmSty is also a repeat customer and has joined Cyclyx as a founding member. This year, it announced plans to build another polystyrene recycling facility in Louisiana, US.

Toyo Styrene

Toyo Styrene manufactures polystyrene resin products, which are utilised in applications such as food packaging, household products and office equipment. Agilyx announced a collaboration to open a ten-tonne-per-day polystyrene-to-styrene monomer facility in 2021, which should result in the payment of running royalties upon commencement of operations, planned for 2024. In 2022, Toyo Styrene entered the construction phase of its Chemical Recycling Facility in Japan, utilising Agilyx technology, marking a key step forward on the path to delivering on its goal of USD 200-300m in revenue by 2025/26.

Virgin Group

The Virgin Group is a leading international investment group and one of the world's most recognised brands, created in 1970. The Virgin Group has expanded into several sectors since its inception, including travel and leisure, financial services, health and wellness, technology and internet-enabled, music and entertainment, media and mobile, space, and renewable energy.

Through their strategic partnership, Virgin Group and Agilyx will use mixed plastic waste to produce synthetic crude oil that will then be refined into a lower carbon fuel. Virgin Group aims to provide lower carbon fuel solutions to the global market; plastic waste that otherwise would be unrecycled can be diverted from landfills. This partnership aims to widen the array of options on the market for lower carbon fuels from the limited range available today. It is Cyclyx which will source the plastic waste used for the fuel in the first facility (with Virgin also utilising Cyclyx in other subsidiaries, such as with Virgin Red). The first mixed-waste plastic-to-fuel location is planned to be located in the US, but there are plans to roll out similar plants in other countries, including in the UK.

INEOS Styrolution

INEOS Styrolution is the world's leading styrenics supplier, with more than 90 years of innovation in materials science, enabling for a closed loop recyclability for styrenics while reducing our carbon emissions. INEOS Styrolution applications can be found in many common products across multiple industries, including automotive, electronics, household, construction, healthcare, packaging, and toys/sports.

The Channahon, Illinois project for INEOS Styrolution is a planned TruStyrenyx facility for polystyrene recycling. TruStyrenyx is a partnership between Agilyx and Technip Energies, with the support of INEOS Styrolution. Following on from a collaboration announced in June 2021, the companies have since cooperated on the development of the TruStyrenyx brand, providing an all-in-one solution for the chemical recycling of polystyrene back into a high purity styrene monomer. The three companies recently announced they will advance the development of a previously announced 100-tonne-per-day (33 kilotonnes per year) TruStyrenyx™ chemical recycling facility. They anticipate completion of engineering in 2023, which will form the basis for a financial investment decision.

AGILYX: IMPRESSIVE LIST OF FACILITY ANNOUNCEMENTS WITH CREDIBLE PARTNERS

Partner	AmSty (Regenyx)	INEOS Styrolution	Toyo Styrene	Mitsubishi Chemical	Braskem	A.Eon	AmSty	Kumho Petrochemical	Virgin Group/Next Chem
Current Project status	Operational	Engineering	Construction	Development	Development	Development	Development	Development	Development
Location	USA	USA	Japan	Europe	Europe	Australia	USA	South Korea	USA
Feedstock	Polystyrene	Polystyrene	Polystyrene	PMMA	Mixed Plastic	Mixed Plastic	Polystyrene	Polystyrene	Mixed Plastic
Product	Styrene monomer	Styrene monomer	Styrene monomer	MMA	Polypropylene	ASCO/Synth gas	Styrene monomer	Styrene monomer	Synthetic crude oil
Plant Capacity	3.3kt p.a.	33kt p.a.	3.3kt p.a.	17kt p.a.	66kt p.a.	17-33kt p.a.	33kt p.a.	33kt p.a.	66kt p.a.
Estimated start of construction *	In operation	2023	In construction	2023	2023	2023	2023	2023/24	2024
Expected start of operations*	>16,000 commercial operating hours	2024/2025	2024	2024/25	2024/2025	2024/25	2025	2025/26	2025/26

Note: Estimated start of construction is based on announcements of development with 1.5-2 years until construction. Expected start of operations is based on 1.5-2 years in construction phase.

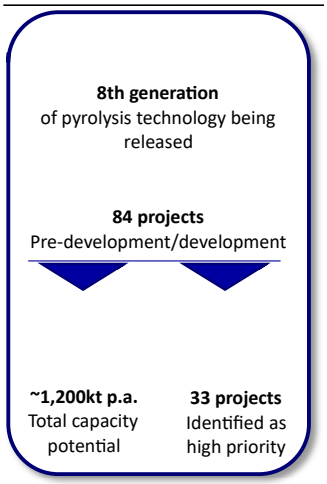
Source: Company data and Nordea

A healthy pipeline supports future growth

Agilyx has identified over 33 projects as high priority

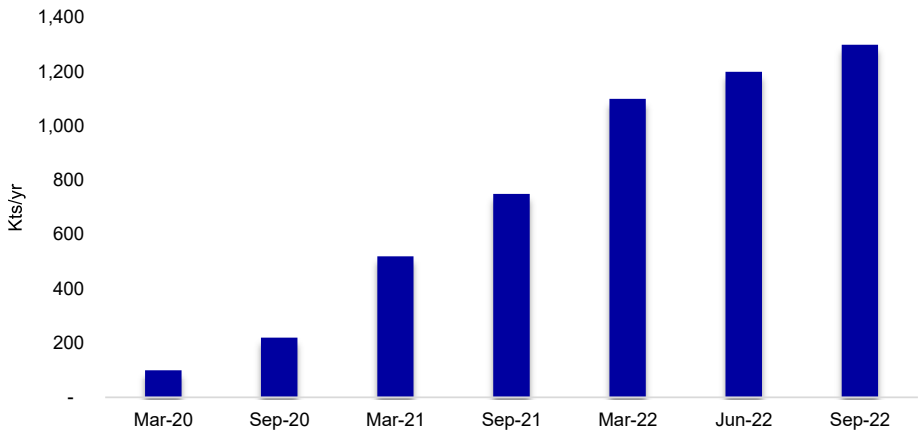
However, in addition to its facility announcements, Agilyx also has a strong and growing business development pipeline, with more than 33 projects globally identified as high priority. Agilyx is now entering a phase of rapid growth, in which the focus is on driving projects into licensing and construction (see our *Business model* chapter for further details). As of November 2022, the pipeline currently includes more than 1,200 metric kilotonnes per year of potential, with customer projects across all its market segments, including polystyrene, polymethyl methacrylate (PMMA) and mixed-waste plastics.

NOW ENTERING THE GROWTH PHASE 2023-30...



Source: Company data and Nordea

TOTAL CAPACITY IN DEVELOPMENT WAS OVER 1,200 KILOTONNES PER YEAR AT END OF 2022



Source: Company data and Nordea

Business model

Agilyx has fine-tuned its business model into an asset-light, capital-light offering on both the conversion side and the Cyclyx side. For the former, the company garners revenue streams throughout the entirety of the facility lifetime (development, construction and operations), with partners providing the facility capex. On the Cyclyx side, the company utilises several avenues (Cyclyx membership, feedstock analysis/sourcing) and royalties on volumes processed for revenue generation. Combined with leveraging technology partners in order to scale quickly, the result is a fully funded business model with high-margin, recurring revenues.

Asset-light, licensing model for conversion facilities

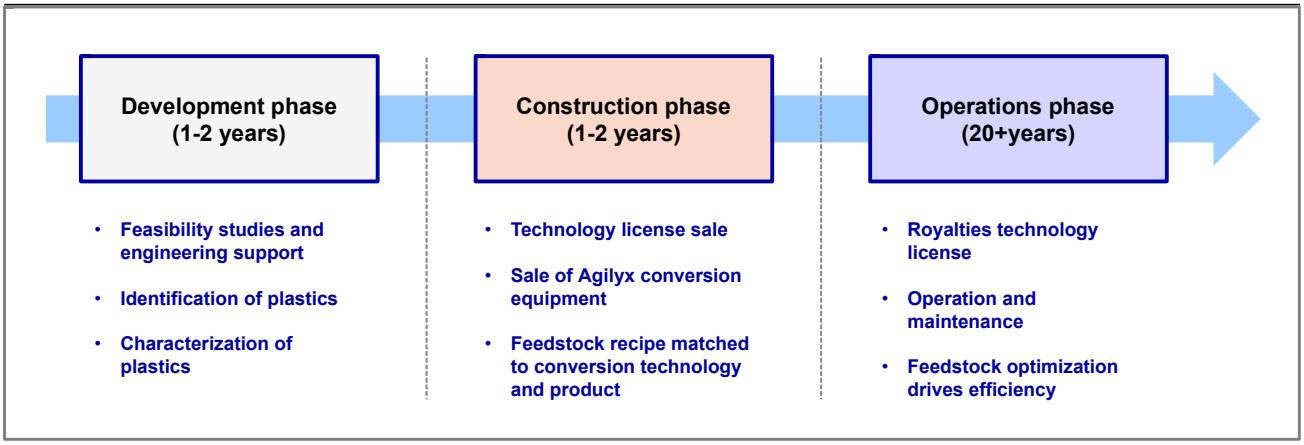
Agilyx has evolved its business model into an asset-light, licence-based offering

We see the business model that Agilyx employs as a differentiating factor. Since its inception 19 years ago, the company has evolved from a build-own-operator into an asset-light, capital-light proposition across its business segments.

As well as differentiating Agilyx from peers, this also results in less financing risk compared to other early-stage cleantech pureplays

The company notes several reasons for this: first, the current model limits its direct exposure to commodity pricing risks. Second, the company is not as exposed to capital-intensive operations, which we see as a key factor for an earlier-stage company and in the current market conditions (several of Agilyx's peers will instead need to come back to the capital markets, which may not result in the cheapest source of funding). On the conversion side, Agilyx therefore targets relationships with credible partners who provide the facility capital required, with the company supporting its partner through the entire lifecycle, including the development phase, the construction phase and finally the operational phase of the facility (see graphic below).

AGILYX CHOOSES TO UTILISE A CAPITAL-LIGHT, GO-TO-MARKET STRATEGY



Source: Company data and Nordea

Agilyx is able to generate a mix of one-off and recurring revenue streams over the course of the facility lifetime

Agilyx is then able to generate a diverse mix of one-off and recurring revenue streams during each one of these phases. The capacity size of each facility is dependent on the conversion pathway (with some end products suiting larger capacities better than others). However, the company frequently points towards a 100-tonne-per-day ('TPD') input capacity for mixed waste plastic and polystyrene facilities as a proxy.

For this, we estimate USD 3-5m in revenues through the development phase (for feasibility studies and engineering support), USD 15-20m during the construction phase (for sale of core equipment) and, finally, USD 15-25m as the facility is operating and converting waste plastic to the partners' desired product (through conversion plant royalties as well as O&M). Note that this does not include royalties or other potential revenues from Cyclyx.

AGILYX'S MODEL ENABLES GENERATION OF DIVERSE REVENUE STREAMS, STARTING IN THE DEVELOPMENT PHASE

REVENUE PROFILE			REVENUE DISTRIBUTION				COMMENTS
Phase	**Duration**	**Total (USDm)**	**Year 1**	**Year 2**	**Year 3**	**Year 4-23**	**Considerations**
Development	1.5 years	USD 3-5m	USD 2m	USD 2m	-	-	-
Core Equipment	1.5 years	USD 15-20m	-	USD 8m	USD 8m	-	Revenues on Balance of Plant not included
Operations	20 years	USD 15-25m	-	-	-	USD 1m p.a.	Revenues from Cyclyx not included
Total	**23 years**	**USD 33-50m**	**USD 2m**	**USD 10m**	**USD 8m**	**USD 20m**	**-**

Note: Illustrative numbers above assume a 100 tonne-per-day mixed waste plastic facility

Source: Company data

Even with conservative pricing assumptions, we see facility IRRs of 12-20% (unlevered) for Agilyx's partners

While a robust model for Agilyx, the process also reflects attractive economics for the partner in question. Taking the illustrative 100 TPD facility, the company estimates that partners can expect 12-20% project IRRs using the below assumptions, noting that the below assumes no premium pricing, nor any government incentives:

- Capex: USD 100m capital cost for Agilyx core equipment and balance of plant
- Capacity: 100 tonnes per day (with facilities ranging from 50 to 250 TPD)
- Utilisation: 330 days per year
- Opex and utility demand: Feedstock cost of USD 110/tonne, 4 MWh electrical demand
- Product yield: In the high seventies (%) (dependent upon several factors)
- Offtake price: USD 1,000/tonne
- Plant fixed costs: annual fixed costs of USD ~4m

The company envisages the announcement of on average one project coming into the development phase every quarter. Combining the above economics with the push for partners to be as green as possible (with an increasing number of global brands pledging ambitious targets for recycled materials in their products), we do not foresee Agilyx having any issues with attracting industrial partners in the near future and thus keeping this target.

ILLUSTRATIVE PROJECT ECONOMICS FOR AGILYX FACILITY (100 TPD, MIXED PLASTIC WASTE)

Facility IRR (USDm)	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Facility capex	-67	-33																			
Of which equity capex	-67	-33																			
Of which debt capex	0	0																			
Repayment of debt		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity input (ktonnes)		16.5	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Capacity output (ktonnes)		12	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Revenue		12	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Opex		-1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
Other fixed costs		-2	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
EBITDA		9	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
D&A		-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
EBIT		4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Net financial items		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBT		4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
																					0.0
Income tax		-1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
Net income		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
FCF	**-67**	**-25**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**
Project IRR %	**14 %**																				

Note: Illustrative numbers only

Source: Company data and Nordea

Several monetisation avenues for Cyclyx

Looking away from the conversion side, the company notes several avenues for asset-light revenue generation on the Cyclyx side too. Cyclyx currently has 30-plus members (including all major plastic producers and large consumer goods companies), each of which will pay a membership fee (which by definition will be very high-margin revenues to Cyclyx). Furthermore, Cyclyx will garner a royalty-based revenue per tonne of plastic flowing through the Cyclyx system. For example, Dow alone has a target of one million tonnes per year to be collected, reused or recycled by 2030, which assuming a USD 25/tonne royalty would imply USD 25m per year if all were to be sourced by Cyclyx. Other potential revenue streams could include feedstock analysis for clients and takeback programmes, while the company notes that future returns could also be made in addition to feedstock royalties associated with Cyclyx Circularity Centres.

CYCLYX – SEVERAL POTENTIAL REVENUE AVENUES GOING FORWARD

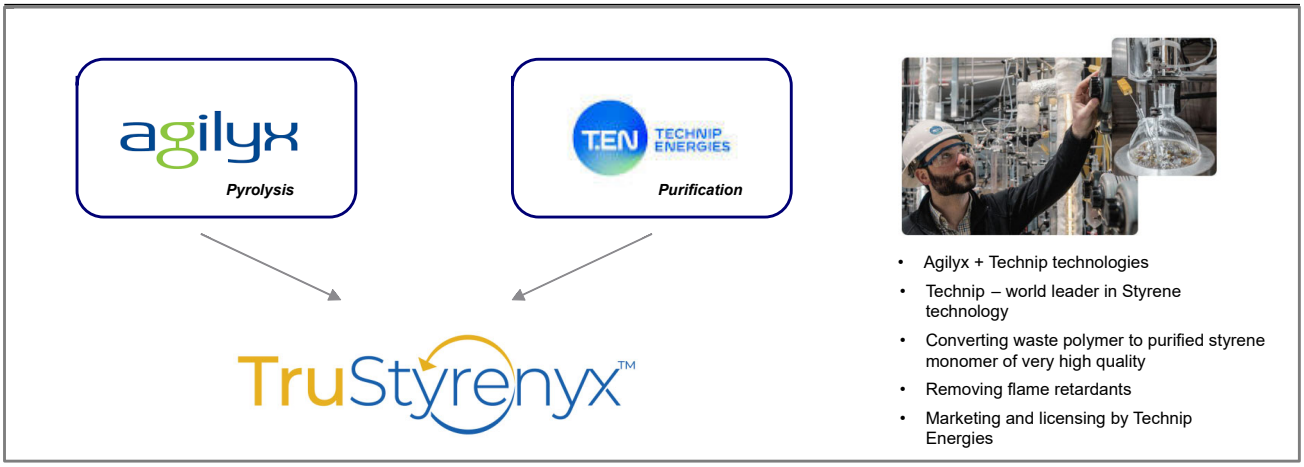
Source: Company data and Nordea

Leveraging technology partners for rapid scale-up

Agilyx's leveraging of technology partners' competencies will help speed up deployment of business models

The company aims to support the scale-up of delivery of the above business models by leveraging the competencies of technology partners. Here, we see strong rationale which includes: 1) commercial validation from blue-chip, industry leading partners; and 2) significant breadth of reach given global sales base of partners. A good example of this is the technology partnership with Technip Energies. Technip is a world leader in Styrene technology, and the announcement includes the combination of Agilyx and Technip's technologies in order to convert waste polymer to purified styrene monomer of "exceptionally high quality". The resulting product is known as "TruStyrenyx", which is marketed and licensed by Technip Energies. This both accelerates and broadens opportunities for Agilyx, while at the same time allowing Agilyx to operate with a lean salesforce going forward in time – to this point, we expect that facilities attached to "TruStyrenyx", such as the Ineos facility, could progress faster than typically expected.

AGILYX WILL LEVERAGE TECHNOLOGY PARTNERS' COMPETENCIES FOR RAPID SCALE-UP



Source: Company data

Company guidance and outlook

Agilyx has announced a range of operational and financial targets to date. On the conversion side, the company aims to bring one project into development per quarter on average, resulting in 165,000 tonnes of annual plant capacity in operation and 495,000-660,000 tonnes per year in development/construction by 2025-26. On the Cyclyx side, the company will utilise current and future members in order to reach 650,000-900,000 tonnes of processed volume annually in 2025-26 and more than three million tonnes annually in the longer term. At the group level, the company aims to translate these targets to USD 200-300m (NOK ~2.1-3.1bn) in revenues by 2025-26.

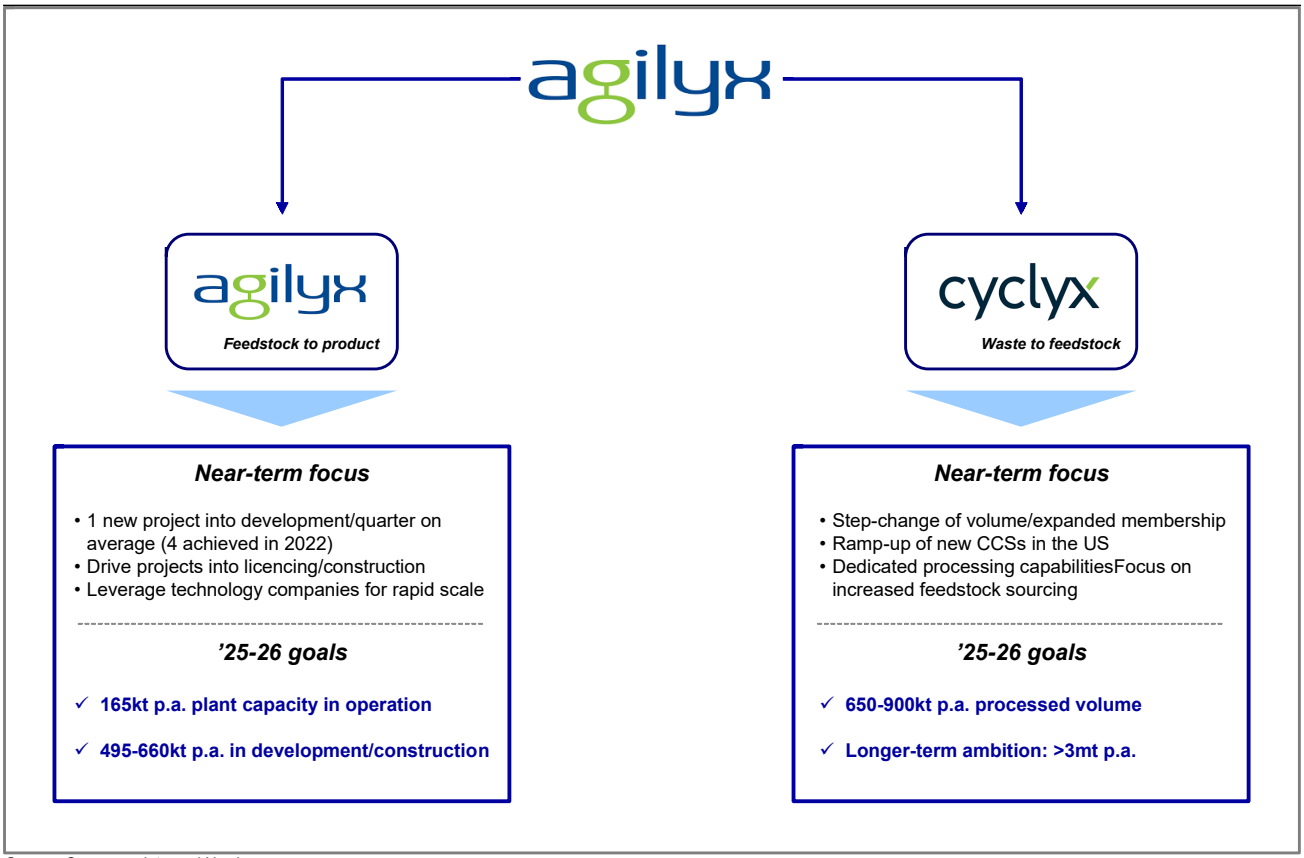
Agilyx has medium-term targets for both the conversion side and the Cyclyx side of the business, implying group revenue targets of USD 200-300m in 2025-26

Company financial and operational targets

The company has announced several operational and financial targets to date. At the group level, Agilyx notes the objective of amassing USD 200-300m in revenues in the "mid term" (here, we note that mid term is equivalent to 2025-26), which will be driven by both Agilyx conversion and feedstock (Cyclyx) revenues. For the conversion segment, the company aims to have 165,000 tonnes of annual plant capacity in operation, as well as 495,000-660,000 tonnes per year in development/construction. To get there, the company maintains its guidance of launching one new project into development per quarter on average (there were four in 2022), while also leveraging Agilyx's technology partners in order to support rapid scale.

On the Cyclyx side of things, the company aims to have 650,000-900,000 tonnes of processed volume annually in the next few years, with a longer-term ambition of over three million tonnes processed volume per year. To achieve this, the company will aim to continue ramping up additional CCSs in development in the US, continue expanding Cyclyx membership, drive "10 to 90" initiatives in order to increase the breadth of feedstock sourcing, and continue with dedicated processing capabilities in order to drive efficiency.

AGILYX MEDIUM-TERM GOAL: USD 200-300m IN REVENUE FOR 2025-26



Source: Company data and Nordea

Agilyx detailed estimates and financials

We see Agilyx rolling out its conversion technology through announced facilities coming into construction in the near term (Toyo Styrene in construction now, with TruStyrenyx facilities following next), with the company hitting >660,000 tonnes in development/construction and 140,000 tonnes annually in operation in 2026. On the Cyclyx side, we model that the company will hit its 2026 targets and that it will have 4.8 million tonnes processed in 2030 (20% risking to company guidance), derisked by just a small portion of member demand. Translating to economics, we forecast USD 288m in fully consolidated revenue in 2026 versus the company's USD 200-300m target, and a sales CAGR of ~65% for 2023-30 (with 2030 EBIT margins of 14%). Stripping out Cyclyx feedstock sales (booked at cost in our model), we expect just below 60% recurring revenues by the end of the decade.

Agilyx conversion technology estimates

Conversion capacity modelling

We assume a typical facility size of 100 tonnes per day, with 18 months' development, 18 months' construction and 20 years of operations

On the conversion side, Agilyx will aid its partners in development, construction and facility operation. We model an average facility capacity of 100 tonnes per day (TPD) (~33,000 tonnes per year). While some conversion pathway facilities such as mixed waste plastic may come in higher, we keep to the low end and also flag that we expect partnerships such as TruStyrenyx to drive progress in the near term – thus we choose 100 tonnes per day for now. Here, we expect each facility to typically take 18 months to develop the project, 18 months to construct the project and then 20 years in operation.

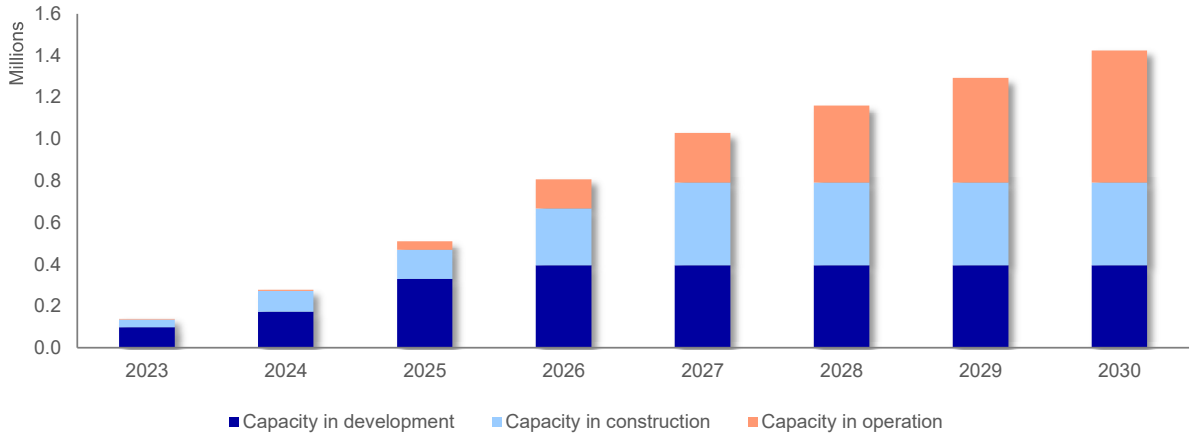
CONVERSION FACILITY CAPACITY MODELLING (TONNES PER DAY)

Conversion capacity	Time	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	>Q12
Development TPD	18 months	100	100	100	100	100	100							
Construction TPD	18 months							100	100	100	100	100	100	
Operations TPD	20 years													100
Total														

Source: Company data and Nordea estimates

In the near term (this half of the decade), we expect the company to continue achieving its target of one project coming into development per quarter, while in the second half of the decade we expect this to increase to two facility-equivalents in development. We also believe that some projects that enter the development phase will not make it through FID, and we therefore build in a "probability of success" factor to account for this. In addition to the nine current announced facilities, our modelling therefore results in around 140,000 tonnes (per year) in operation by 2026, which is a slight delay versus company guidance, albeit made up for in the capacity coming through in development/construction (just above 660,000 tonnes per year versus company guidance of 495,000-660,000 tonnes). For simplicity, our model beyond 2026 keeps the above assumptions steady up to 2030.

CONVERSION FACILITIES - CAPACITY UNDER MANAGEMENT (TONNES PER YEAR EQUIVALENT)



Source: Company data and Nordea estimates

Conversion financials – development phase

We assume a gross development fee of USD 4m (20% gross margin), but we expect the company to forego a portion of this to drive projects through to the construction phase

Translating the above capacity into financials, we start with the mid-point of the company-guided USD 3-5m development revenue (20% gross margin). However, we expect a portion of these fees to be foregone as the company aims to push the projects and partners through from development to the construction phase (i.e. where the bigger-ticket items are). We model three separate segments within the development phase (i.e. different stages of front-end engineering, feasibility studies, etc), with each lasting six months, and assume the development fees are paid in equal portions through these segments.

Conversion financials – construction phase

We assume a construction fee of USD 16m (25% gross margin on sale of key equipment), plus a licensing fee of USD 1.5m per 100-TPD facility

In the construction phase we model the company receiving USD 16m in key equipment sales. Here, we expect the bigger-ticket, long-lead items to be ordered first, therefore we expect the revenue profile to be somewhat skewed to the front. We assume 25% gross margins (given company-specific key equipment being specialised/protected by IP). We also assume a licensing fee (90% gross margin), which we expect to be received the first thing after FID is complete (which is the end of the development phase/beginning of construction phase).

Conversion financials – operations phase

We assume USD 1m operational royalty per year alongside a small O&M fee (10% of royalty, 20% margin)

In the operations phase, we expect the company to receive an annual operational royalty of around USD 1m for 20 years (assumed facility lifetime), for a 100-TPD facility. Given the royalty nature of the revenue stream, we model a 90% margin. We also expect the company to receive fees relating to O&M, as well as sales of new parts – we conservatively assume that this is just 10% of the royalty fee, with a 20% margin.

AGILYX - SUMMARY OF CONVERSION FACILITY ECONOMIC DRIVERS

Facility phase	Revenue streams	Duration	Revenues	Gross margin %
Development	**Total streams**	**1-2 years**	**USD 3-4m**	**-**
	Feasibility Study	0.5 years from start	USD 1.2m	20%
	FEL: phase 1	0.5-1 year from start	USD 1.2m	20%
	FEL: phase 2	1-1.5 years from start	USD 1.2m	20%
Construction	**Total streams**	**1-2 years**	**USD 16-18m**	**-**
	Licensing fee	Straight after FID	USD 1.5m	90%
	Key equipment sales: phase 1	0.5 years after FID	USD 9.3m	25%
	Key equipment sales: phase 2	0.5-1 years after FID	USD 3.3m	25%
	Key equipment sales: phase 3	1-1.5 years after FID	USD 3.3m	25%
Operations	**Total streams**	**20 years**	**USD 20-25m**	**-**
	Operational royalties	From start of operation	USD 1m p.a.	90%
	O&M fees	After 1 year of operation	USD 0.1m p.a.	20%

Source: Company data and Nordea estimates

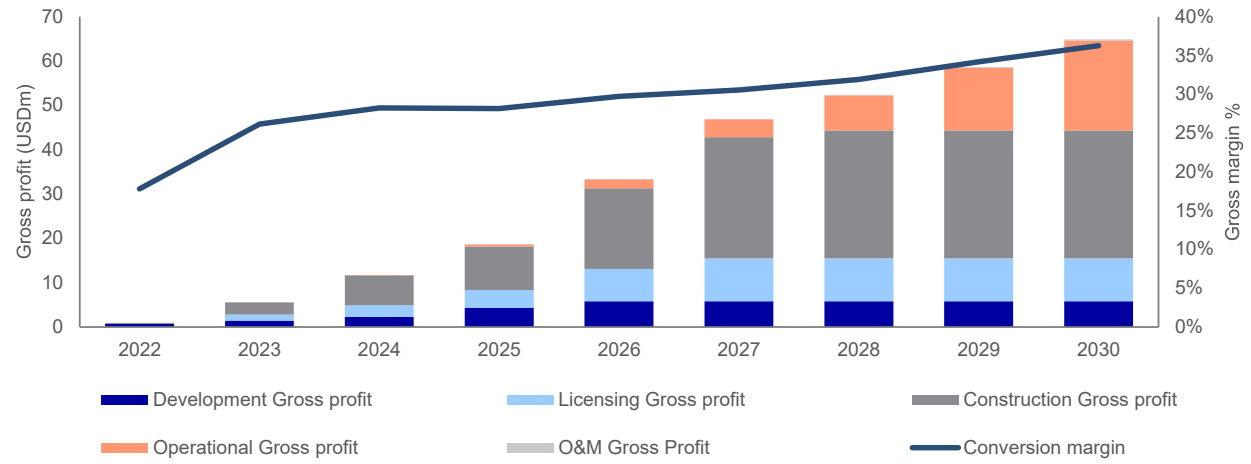
Our modelling results in USD 112m in revenues by 2026 and USD ~180m in 2030, with gross margins rising above 30% by the end of the decade

The combined financials result in around USD 112m in revenues from conversion by 2026, rising to USD ~180m by the end of the decade. In terms of margins, we see a gradual increase as projects are passed through to the higher-margin operational phases, with gross margins rising from 26% in 2023 to 36% in 2030. For the remainder of 2023, we expect Toyo Styrene to be the main driver of conversion revenues in 2030 as it moves through the construction phase, while we then see TruStyrenyx-related facilities (Kumho, INEOS) as the next projects moving through to construction.

CONVERSION FACILITIES - NORDEA ESTIMATED REVENUE PROGRESSION

Source: Company data and Nordea estimates

CONVERSION FACILITIES - ESTIMATED GROSS PROFIT AND MARGIN PROGRESSION



Source: Company data and Nordea estimates

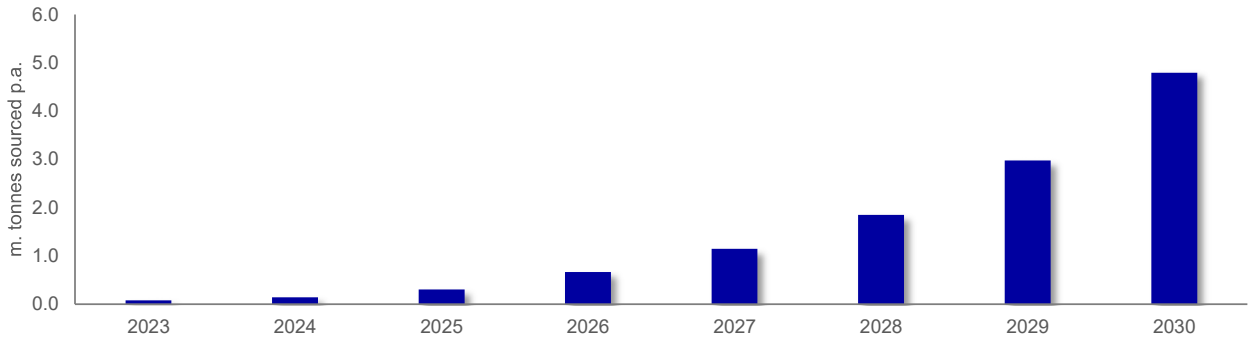
Cyclyx estimates

Capacity sourced

We model Cyclyx reaching 660,000 tonnes sourced per year, and we model 4.8 million tonnes sourced per year by 2030, representing around a 20% risking to company-guided long-term demand today

As previously mentioned, Agilyx will also utilise Cyclyx to source and manage customised waste plastic feeds for its own projects, as well as for other Cyclyx members and third parties (for example through Cyclyx Circularity Centres). The company has announced sourcing targets including at least 650,000 tonnes per year in the medium term, and more than three million tonnes per year in the longer term (2030 +). Looking to current Cyclyx members, ExxonMobil has alone targeted one billion pounds by 2026, while LyondellBassel has pledged two million tonnes per year by 2030. Given that ExxonMobil is a minority investor in Cyclyx and LyondellBassel is a partner for the first Cyclyx Circularity Centre, we deem it fair to assume that a large portion of tonnes sourced will come from Cyclyx. Looking at just a small number of other Cyclyx members (Dow, Sabic, Braskem, etc), we see potential demand above six million tonnes in 2030. Going forward, we conservatively model Cyclyx hitting the lower end of medium-term targets (three Cyclyx Circularity Centre equivalents), reaching around 660,000 tonnes per year in 2026, while we model around 4.8 million tonnes by the end of the decade, representing a 20% discount to forecast demand from a selection of Cyclyx members already in place today.

CYCLYX - ESTIMATED TONNES SOURCED PER YEAR



Source: Company data and Nordea estimates

Translation to financials – several potential revenue streams

We model Cyclyx receiving a royalty of USD 25 per tonne sourced

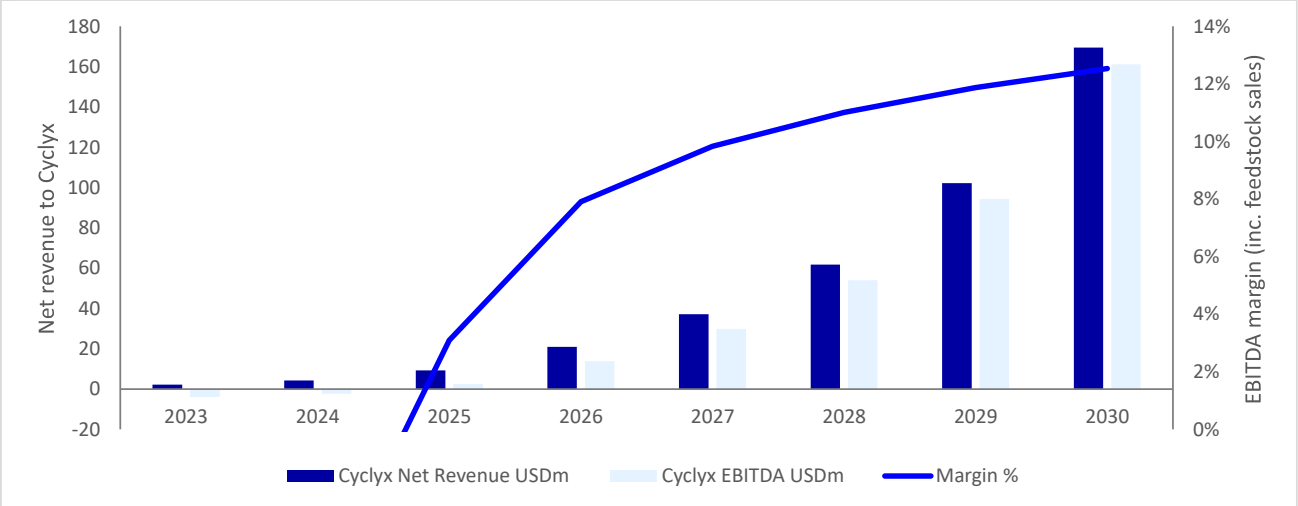
We also expect the company to book feedstock sales at cost

Going forward, we model that Cyclyx will receive a fixed USD 25 royalty on every tonne of feedstock sourced through the Cyclyx system (which we book at a 95% margin). We note that Cyclyx will receive revenues on the sale of Cyclyx feedstock to downstream partners, but we model this at cost (i.e. at a 0% margin). We estimate this revenue per tonne by illustratively assuming that a Cyclyx Circularity Centre garners a 14% IRR with 15% EBIT margins and 30% gross margins. Going forward, we also expect that the company will receive a handling fee for the feedstock, which we model at an initial 3% of feedstock sale, which then gradually rises after 2026. At this stage, we do not include any further revenue streams from Cyclyx membership, takeback programmes or feedstock characterisation.

Taking into account an initial 5% management fee, our modelling results in royalty + management fee revenue of USD 22m in 2026 and USD 175m in 2030

Translating to financials, our modelling results in a fully consolidated Cyclyx revenue contribution of USD 176m (USD 154m from Cyclyx feedstock sales and USD 22m from Cyclyx royalties/handling fees). On a standalone basis, we see Cyclyx alone breaking even on an EBIT basis in 2025.

CYCLYX - NORDEA ESTIMATED FINANCIALS



Note: Net revenue includes royalty fee and handling fee to Cyclyx. Excludes feedstock sales, which we expect to be booked at cost.

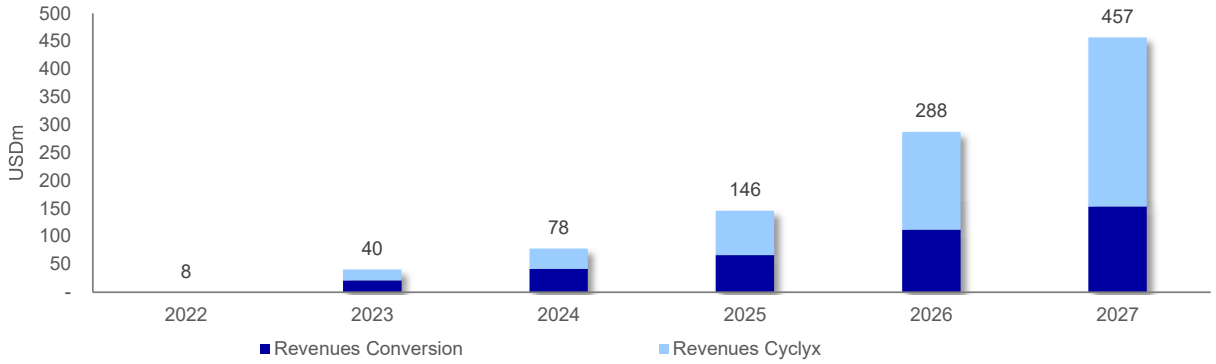
Source: Company data and Nordea estimates

Group financials

We expect the company to meet its USD 200-300m mid-term target

Combining the above financials from the conversion and Cyclyx sides of the business, we forecast that the company will reach USD 288m in sales in 2026, with around 40% coming from the conversion side and 60% from Cyclyx. This is within the company guidance of USD 200-300m and includes several conservative assumptions. Including feedstock sales, this results in gross margins of just below 20% by the middle of the decade.

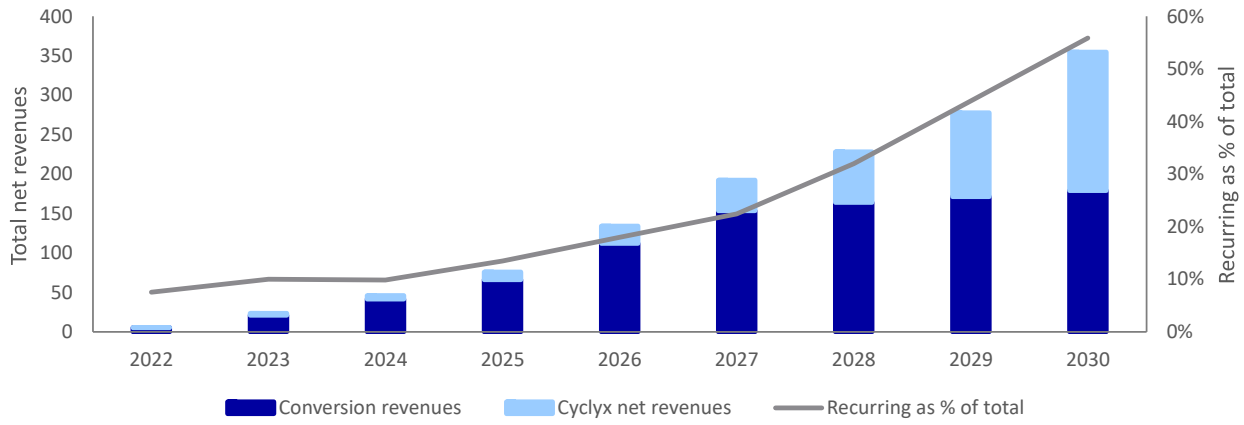
AGILYX GROUP – FULLY CONSOLIDATED SALES ESTIMATES



Source: Company data and Nordea estimates

If we strip out the Cyclyx feedstock sales estimates (which we call "net revenues"), we highlight USD 112m of revenues stemming from conversion by 2026, and USD 22m (fully consolidated) from Cyclyx in the same year. Going forward, this evolves to USD ~180m revenues from conversion and USD 175m from Cyclyx in 2030, which implies just below 60% in recurring net revenues by the end of the decade.

AGILYX GROUP NET REVENUE DEVELOPMENT - INCREASING RECURRING REVENUE EVOLUTION

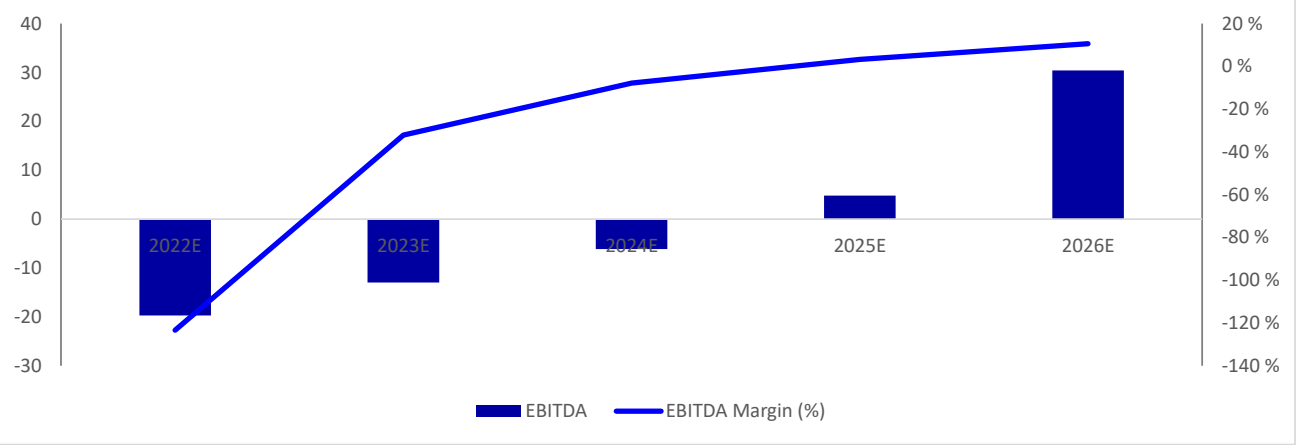


Note: Net revenue includes Agilyx revenues excluding Cyclyx feedstock sales.

Source: Company data and Nordea estimates

Over the nearer term, we expect Toyo Styrene construction as well as feedstock sales to drive 2023 revenues, while we expect the next facilities to come into construction to be TruStyrenix facilities. Down the P&L, we model almost a 30% increase in other/ corporate costs in 2022 and expect a modest increase further forward, as we expect the company to continue to hire as well as invest in R&D. The result is positive EBITDA in 2025 at the group level.

AGILYX GROUP EBITDA AND EBITDA MARGIN ESTIMATES (USDm AND %)



Source: Company data and Nordea estimates

Other financial items

Given that the company is not a build-own-operator, we do not envisage a need for significant future capex injections

In terms of other financial items, we expect a relatively lean balance sheet going forward. In terms of investments, we model the company investing modestly in future IP and R&D centres, but we prudently model a gradual increase in capex spend to account for potential contributions to Cyclyx and future circularity centres. Despite this, we highlight one of the company's strengths as being its asset-light business model, and therefore we do not foresee a need to return to the capital markets in our model. At present, the company does not hold any debt on its books.

Valuation: Fair value range of NOK 62-84

We derive a fair value range for Agilyx of NOK 62-84 per share. This range is based on a risked DCF (10% WACC, 2% terminal growth rate), a peer valuation on our high-quality ESG bucket (EV/EBITDA), and a risked sum-of-the-parts valuation. At the bottom of the range, our SOTP valuation (NOK 62) includes a conversion NPV that covers current share price levels, implying that the market gives little value to Cyclyx. Combined with short-term triggers on the horizon, we see a strong value proposition in Agilyx.

DCF on proportionate financials

Our DCF model points to an unrisked fair value of NOK 99 per share...

We begin our valuation exercise by looking at Agilyx's proportionate financials (i.e. 100% of Agilyx conversion financials and 75% of Cyclyx economics). We construct a DCF model from 2023 out to the end of the decade, whereby we then apply a terminal growth rate of 2%. We then discount cash flows back using a WACC of 10%.

DCF: AGILYX PROPORTIONATE FINANCIALS

USDm	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	TV
EBITDA - conversion	-9	-4	2	16	29	34	40	45	
EBITDA - 100% Cyclyx	-4	-2	2	14	30	55	97	167	
EBITDA - 75% Cyclyx 75 %	-3	-2	2	10	23	41	73	125	
EBITDA - proportionate	-12	-5	4	27	52	76	112	170	
EBITDA margin - fully consolidated	-32 %	-8 %	3 %	11 %	13 %	14 %	14 %	14 %	
EBITDA margin - proportionate	-34 %	-8 %	3 %	11 %	14 %	14 %	15 %	15 %	
D&A	-1	-1	-2	-2	-3	-3	-4	-5	
EBIT - proportionate	-13	-7	3	25	49	72	109	165	
NOPLAT 22 %	-10	-5	2	19	38	56	85	129	
D&A	1	1	2	2	3	3	4	5	
Capex	-3	-4	-4	-4	-5	-5	-7	-9	
Change in NWC	0	0	-1	-2	-1	-2	-3	-5	
Free Cashflow (USDm)	-13	-8	-1	16	35	52	79	120	1541
Discounted Free Cashflow (USDm	-13	-7	-1	12	24	32	44	62	719

Source: Company data and Nordea estimates

...applying a 15% risk weighting, we arrive at our fair value of NOK 84 per share

Taking into account the company's 2023 net cash position, we arrive at an unrisked equity value of NOK 99 per share, which includes a fully diluted number of shares outstanding. We apply a 15% risk weighting (given the early-stage nature of the rollout and other assumptions), thus arriving at a fair value of NOK 84 per share.

AGILYX DCF POINTS TO RISKED FAIR VALUE OF NOK 84 PER SHARE – UNRISKED, THIS RISES TO NOK 99 PER SHARE

Agilyx DCF - summary	NOKm	NOK/sh
2023 Enterprise value	8,895	99
2023 Net debt	-47	-0.5
2023 Equity value	8,942	99
Risked 2023 Equity value	7,601	84
Current share price		30

Source: Company data and Nordea estimates

DCF - KEY VALUATION DRIVERS AND ASSUMPTIONS

Key valuation drivers	
WACC	10 %
T. WACC	10 %
T. Growth	2 %
Tax	22 %
Cyclyx handling fee	3.0 %
No. Shares oustanding	90
DCF risking value	15 %
Cyclyx royalty per tonne (USD/tonne)	25

Source: Company data and Nordea estimates

Comparison with high-quality ESG players

Our basket of high-quality ESG companies points to a 2025E EV/EBITDA median 9.4x...

...taking a meaningful discount and applying to 2030 estimates, we arrive at a fair value of NOK 75 per share

When comparing Agilyx to other companies in the space, we do not find a direct comparison given the dual offering of robust conversion technology and waste sourcing capabilities for advanced and traditional recycling. Given this, we deem it sensible to look to high-quality ESG platforms within the Nordics that have become market leaders in their respective areas. Looking at 2025E EV/EBITDA levels, we note a median multiple of 9.4x. Building in a meaningful (20%) discount to reflect Agilyx's liquidity/early-stage nature and risk profile, and applying this to long-term proportionate Agilyx financials (the year we assume long-term estimates are in place), we arrive at a discounted fair value of NOK 75 per share.

NORDIC HIGH-QUALITY ESG PLAYERS

Company	Mcap. (NOK)	EV/EBITDA		
		2023E	2024E	2025E
Premier ESG players				
Tomra	50,235	18.7x	16.1x	13.5x
Vestas	306,170	24.4x	12.9x	9.4x
Nibe	228,871	26.3x	24.0x	21.2x
Beijer Ref	74,678	19.6x	17.7x	16.6x
Neste	388,765	10.2x	9.7x	9.3x
NKT	22,823	9.0x	5.9x	5.6x
Rockwool	53,288	7.4x	6.2x	6.4x
Mean	**160,690**	**16.5x**	**13.2x**	**11.7x**
Median	**74,678**	**18.7x**	**12.9x**	**9.4x**

Source: Company data and Nordea estimates

VALUATION - FAIR VALUE SUMMARY

Item	Unit	Value
ESG '25 EV/EBITDA	x	9.4x
Liquidity discount	x	25 %
Risked EV/EBITDA multiple	x	7.0x
AGLX 2030 proportionate EBITDA	USDm	166
AGLX 2023 EV - EBITDA	USDm	635
2023E net debt (100%)	USDm	- 3
2023E equity value	USDm	638
Fair value (EV/EBITDA) - unrisked	NOK/sh	101
Fair value (EV/EBITDA) - risked	NOK/sh	76

Source: Company data and Nordea estimates

Looking to other early-stage, pre-EBIT cleantech players, we see several reasons why Agilyx should trade at a premium. First, many of these companies are targeting new markets which need to evolve (for example, hydrogen). Second, we note Agilyx's lack of funding requirements, resulting in lower dilution and capital markets risk. Going forward, we do not include the below comparison with cleantech pureplays in our valuation range and we also note a lack of quality consensus estimates, but we highlight that 2024E EV/sales multiples (7.3x median) for this bucket point to a fair value of NOK 52, or 70% upside to current share price levels.

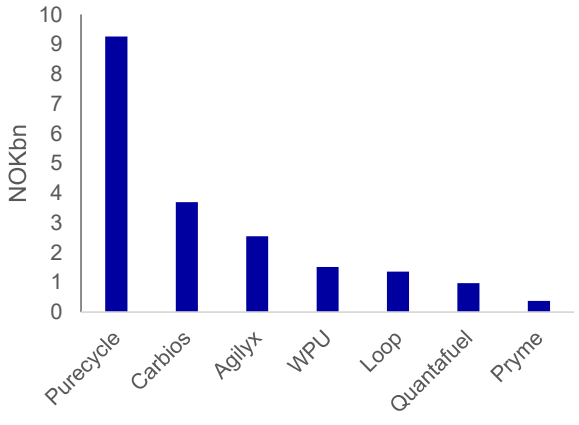
With regard to other advanced recyclers, we do not see any other public companies globally that offer both conversion and sourcing capabilities in-house (for example, Oslo names such as Pryme and Quantafuel do not have an in-house waste sourcing/ customisation solution as of yet and also utilise pyrolysis with catalysis, which restricts conversion pathway flexibility), while most also operate build-own-operate models which require large amounts of capital (and thus returns to the capital markets). Beyond Oslo, we highlight the North American companies Loop Industries (focuses on PET plastic recycling) and Purecycle (polypropylene-focused). In Europe, Carbios also focuses on the conversion of PET.

PRE-EBIT POSITIVE CLEANTECH PUREPLAYS IN THE NORDICS – 7.3x EV/SALES YIELDS FAIR VALUE OF NOK 52

Company name	Mcap. NOK	EV/Sales	
		2023E	2024E
Hexagon Purus ASA	6,133	3.9x	n.a.
Green Hydrogen Systems A/S	3,978	17.9x	6.9x
Quantafuel ASA	968	11.2x	6.3x
Pyrum Innovations AG	1,627	34.3x	11.4x
Everfuel A/S	2,349	10.1x	8.3x
Nel ASA	20,900	12.1x	7.6x
Powercell Sweden AB (publ)	4,974	15.2x	10.4x
Aker Carbon Capture ASA	7,626	5.8x	3.7x
Scatec ASA	11,760	7.6x	6.0x
Pryme NV	375	2.9x	1.8x
Bergen Carbon Solutions AS	349	108.2x	13.8x
ReNewCell AB	2,826	8.2x	3.3x
Freyr Battery SA	10,945	305.2x	8.2x
Mean	**5,755**	**41.7x**	**7.3x**
Median	**3,978**	**11.2x**	**7.3x**

Source: Refinitiv

CURRENT PUBLIC PUREPLAY LANDSCAPE FOR ADVANCED RECYCLING OF PLASTIC WASTE



Source: Company data and Nordea estimates

Sum-of-the parts valuation

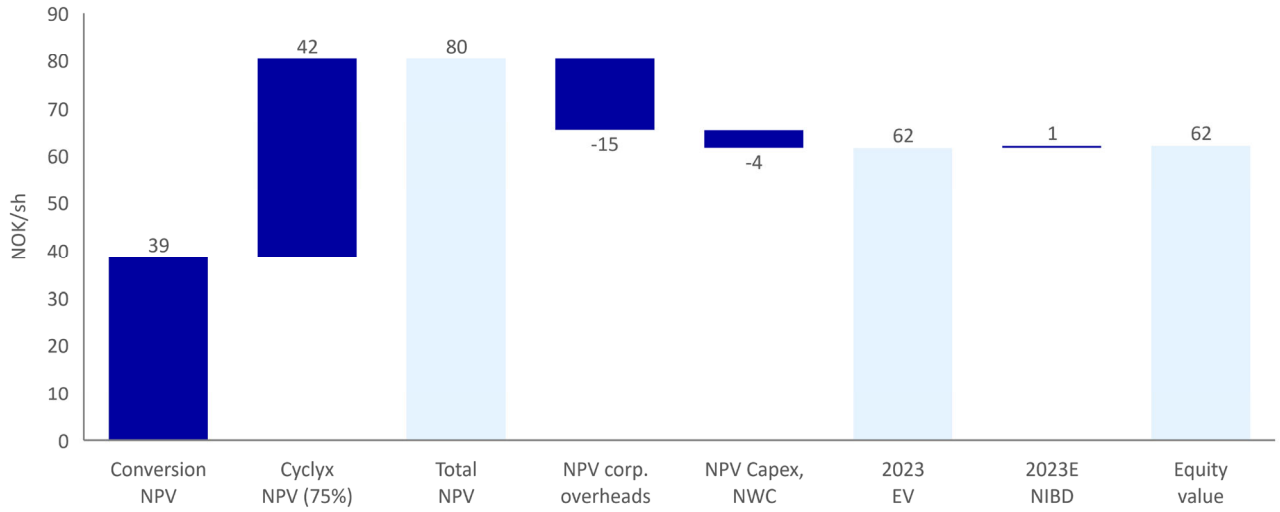
Our SOTP valuation exercise points to NOK 56 per share EV for Cyclyx (multiples-based, 100% basis) and NOK 39 per share EV for conversion facilities (NPV on facilities rolled out until the end of 2030)

Combining these and taking into consideration capex, corporate costs, etc., we arrive at our SOTP fair value of NOK 62 per share

Conversion facilities

We also highlight potential valuation levels on a sum-of-the-parts (SOTP) basis, considering the conversion side and the Cyclyx side separately. Starting with the conversion side, we calculate the NPV of our facility rollout to 2030, arriving at a NPV of NOK 3,474m, which is NOK 39 per share. We also note that if we just take a flat 100 tonne-per-day facility size, the company's current nine facilities and one facility coming online per quarter (as per company guidance) to 2030, this alone returns a NPV similar to current share price levels. The implication here is that the market currently does not apply any value to Cyclyx, which is therefore a free upside option. For Cyclyx, we illustratively showcase potential value by taking our modelled 2030 volume of 4.8 million tonnes in 2030 (which is around a 20% risking to current demand), as well as our royalty per tonne and feedstock sales management fee assumptions. Applying a ~5x multiple (given the high-margin and high recurring revenue nature of Cyclyx), we arrive at an EV per share of NOK 56 for Cyclyx on a 100% basis (taking the 6 million tonnes' long-term demand for Cyclyx, this would result in an NPV of NOK 70 on a 100% basis). Combining the above and taking into consideration the NPV of corporate costs, capex, NWC and 2023 NIBD, we arrive at a SOTP fair value of NOK 62 for Agilyx.

AGILYX SOTP BRIDGE TO VALUE

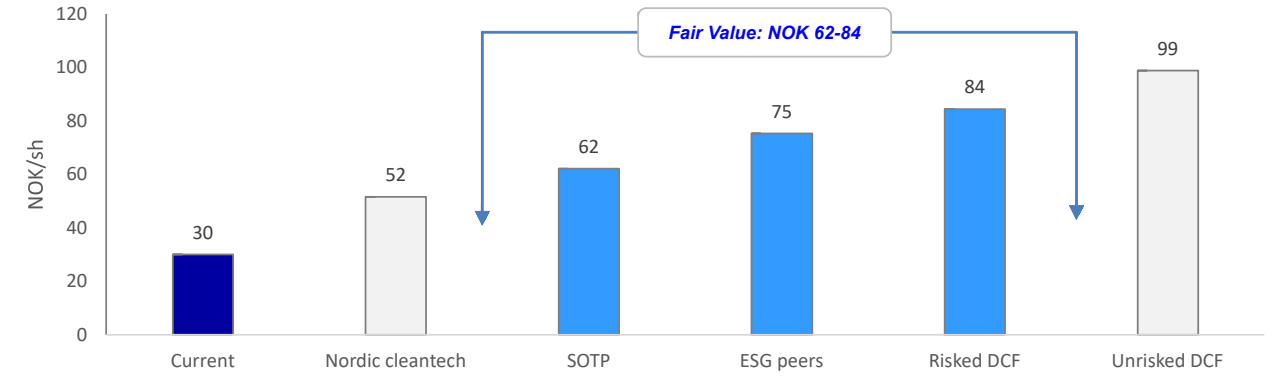


Source: Company data and Nordea estimates

Fair value summary

Taking the above into consideration, we arrive at a fair value range for Agilyx of NOK 62-84 per share, with upside to our range due to risk weightings put in place.

AGILYX VALUATION SUMMARY



Source: Company data and Nordea estimates

Agilyx valuation – sensitivity analysis

RISKED DCF - SENSITIVITY TO WACC AND TERMINAL GROWTH

WACC	Terminal growth rate (%)				
	1.0 %	1.5 %	2.0 %	2.5 %	3.0 %
8 %	107	115	123	133	146
9 %	89	95	101	108	116
10 %	76	80	84	89	95
11 %	65	68	71	75	79
12 %	56	59	61	64	67

Source: Company data and Nordea estimates

RISKED DCF - SENSITIVITY TO RISK WEIGHTING AND WACC

WACC	DCF risk weighting (%)				
	0 %	10 %	20 %	30 %	40 %
8 %	146	131	117	102	88
9 %	119	107	95	83	71
10 %	99	89	79	70	60
11 %	84	76	67	59	51
12 %	72	65	58	51	43

Source: Company data and Nordea estimates

RISKED DCF - SENSITIVITY TO ROYALTY AND HANDLING FEE

Feedstock handling base fee %	Cyclyx royalty (USD/tonne)				
	15	20	25	30	35
1 %	57	66	75	84	94
2 %	61	71	80	89	98
3 %	66	75	84	93	103
4 %	71	80	89	98	107
5 %	76	85	94	103	111

Source: Company data and Nordea estimates

RISKED DCF - SENSITIVITY TO CYCLYX HANDLING FEE

Feedstock handling base fee %	Feedstock handling fee uplift p.a. after 2026				
	0.0 %	0.2 %	0.4 %	0.6 %	0.8 %
1 %	64	69	73	77	82
2 %	69	73	78	82	86
3 %	73	78	82	87	91
4 %	78	83	87	91	96
5 %	83	87	92	96	100

Source: Company data and Nordea estimates

SOTP - SENSITIVITY TO CYCLYX EV/SALES AND ROYALTY

Royalty per tonne (USD/t)	EV/sales				
	3x	4x	5x	6x	7x
15	38	43	49	55	61
20	41	48	54	61	68
25	44	52	60	68	75
30	47	56	65	74	83
35	50	60	70	80	90

Source: Company data and Nordea estimates

SOTP - SENSITIVITY TO RISKING AND CYCLYX ROYALTY

Royalty per tonne (USD/t)	Conversion risk weighting %				
	0 %	10 %	20 %	30 %	40 %
15	51	47	43	39	36
20	57	53	49	45	41
25	62	58	54	51	47
30	68	64	60	56	52
35	73	69	65	62	58

Source: Company data and Nordea estimates

ESG MULTIPLE - SENSITIVITY TO MULTIPLES AND RISKING

Risk weighting %	ESG HIGH QUALITY PEER '25E EV/EBITDA				
	8x	9x	10x	11x	12x
0 %	80	90	99	109	119
10 %	72	81	90	98	107
20 %	64	72	80	88	95
30 %	56	63	70	77	84
40 %	48	54	60	66	72

Source: Company data and Nordea estimates

ESG MULTIPLE - SENSITIVITY TO AGILYX EBITDA

Agilyx Prop. 2030 EBITDA (USDm)	ESG HIGH QUALITY PEER '25E EV/EBITDA				
	8x	9x	10x	11x	12x
120	45	51	56	62	67
140	53	59	66	72	79
160	60	67	75	82	90
180	67	76	84	93	101
200	75	84	94	103	112

Source: Company data and Nordea estimates

Plastics overview

Overview of different types of plastic

Below we summarise the key plastic polymer resin types, touching upon current demand, typical physical properties and application.

OVERVIEW OF DIFFERENT TYPES OF PLASTIC

Plastic type	Other/common names	Symbol	Typical application(s)
Polyethylene-Terephthalate	• PET • Polyester	1 PETE	
High density polyethylene	• HDPE	2 HDPE	
Poly(vinyl chloride)	• PVC	3 PVC/ V	
Low density polyethylene	• LDPE	4 LDPE	
Polypropylene	• PP	5 PP	
Polystyrene	• PS	6 PS	
Other	• BPA • Lexan • Polycarbonate	7 OTHER	

Source: PlasticsEurope, Waste4change, BBC and Nordea

1: PET (polyethylene terephthalate)

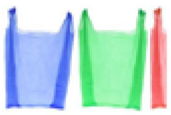
- Physical properties: typically used in layers, lightweight
- European demand: 4.1 million tonnes (8.4% of total European demand)
- Example applications: bottles, fibres
- Recycle status: relatively easy to recycle, the most commonly recycled plastic
- Monomer: ethylene glycol and dimethyl terephthalate

2: HDPE (high-density polyethylene)

- Physical properties: high strength to weight ratio
- European demand: 6.3 million tonnes (12.9% of total European demand)
- Example applications: injection and blow moulding, films and sheets
- Recycle status: one of the easier plastics to recycle, accepted at most recycle centres
- Monomer: ethylene

3: PVC (polyvinyl chloride)

- Physical properties: strong heat and chemically resistant properties
- European demand: 4.7 million tonnes (9.6% of total European demand)
- Example applications: films and sheets, pipes, tubes
- Recycle status: very little recycling occurs
- Monomer: vinyl chloride



4: LDPE (low-density polyethylene)

- Physical properties: soft material, with generally low density and cheap to make
- European demand: 8.5 million tonnes (17.4% of total European demand)
- Example applications: bags, trays, containers, food packaging films
- Recycle status: can be recycled but difficulties (e.g. tangling in recycle machinery)
- Monomer: ethylene

5: PP (polypropylene)

- Physical properties: durable, relatively hard, low density
- European demand: 9.7 million tonnes (19.7% of total European demand)
- Example applications: sweet and snack wrappers, automotive parts, hinged caps
- Recycle status: low recycle rates in some places (e.g. 1-3% in the US)
- Monomer: propylene

6: PS/EPS (polystyrene/expanded polystyrene)

- Physical properties: used typically in foam form
- European demand: 3.0 million tonnes (6.1% of total European demand)
- Example applications: disposable cups, food containers, foam peanuts
- Recycle status: hardly any recycling occurs
- Monomer: styrene

7: Other plastics

The "other plastics" segment includes other thermosets such as phenolic resins, epoxide resins, melamine resins, urea resins and others. Hardly any recycling occurs.

A brief history and timeline of plastic

The first documented human-made plastic in the UK was produced in 1855, made from cellulose

Alexander Parkes produced the first documented human-made plastic in the UK in 1855, for which he received a patent the following year. This first plastic was made from cellulose, a component of plant cell walls, and was called Parkensine. The first synthetic polymer was made in 1869 by John Wesley Wyatt, who was inspired by a New York firm's offer of a USD 10,000 incentive for anyone who could produce a substitute for ivory. The finding was significant, as this meant that humans were no longer bound by the limits of nature (there is only so much wood, bone, tusk, horn that nature can provide).

The fully synthetic polymer was produced in 1907

By 1907, the first fully synthetic polymer (meaning it contained no molecules found in nature) was produced by Leo Baekeland, who attempted to produce a synthetic substitute for shellac to aid in the electrification of the US. Baekeland coined the term "plastics".

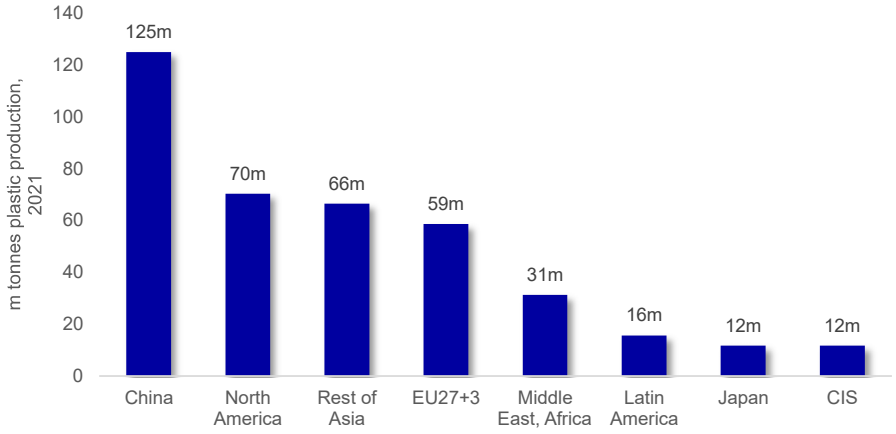
Polypropylene manufacturing began in the late 1950s

After World War I (which emphasised the need to preserve scarce natural resources), chemistry improvements meant that new forms of plastics were developed, and mass production followed (as a case in point, during World War II plastics production in the US increased by 300%). Commercial production of PVC started in the 1920s while polystyrene, first produced by BASF in the 1930s, was also part of the new wave of polymers. In 1933, polyethylene was discovered by Reginald Gibson and Eric Fawcett at Imperial Chemical Industries, followed by the discovery of PET in the UK (which was then licensed to DuPont and Imperial Chemical Industries), resulting in it being widely used to produce bottles in Europe. The manufacturing of polypropylene began in the late 1950s, while expanded polystyrene (used for packaging, building insulation and cups) was invented by Dow Chemical around the same time. The invention and subsequent commercialisation of plastics led to them replacing materials such as wood, metal, glass, ceramic, leather and rubber in many applications, and today they play a vital role in a wide range of industries.

Global distribution of plastic production

China is currently the biggest producer of plastics, with over 30% share of the global plastic production in 2021

GLOBAL PLASTICS PRODUCTION BY REGION



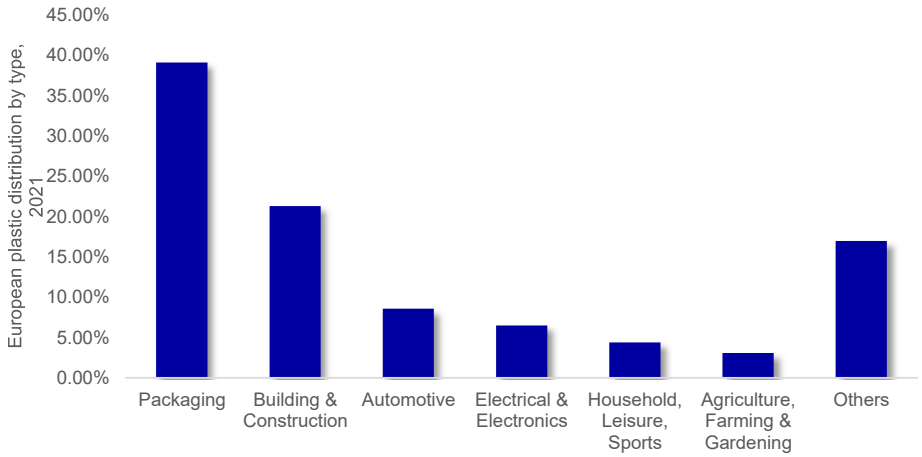
CIS = Commonwealth of Independent States

Source: PlasticsEurope

Distribution of plastic types

Packaging remains the primary application for plastics, with a 39.1% share, followed by building and construction (over 20%)

DISTRIBUTION OF PLASTIC TYPES IN EUROPE, 2021



Source: PlasticsEurope

Overview of typical plastic production steps

Synthetic plastics are typically made from crude oil, as well as natural gas (or sometimes coal). Bio-based plastics, meanwhile, are typically made from ingredients such as vegetable fats, starch and carbohydrates. A typical process for the production of synthetic plastics is as follows:

Raw material extraction

- For example, crude oil is extracted and can be used as a raw material. Crude oil is a complex mixture of many different compounds, which means it will need to be processed.

Refining

- The crude oil is transported to oil refineries, where it is heated and sent to a distillation unit, where it can separate into different components, or fractions. Each of these fractions contains hydrocarbons of a similar weight and length. One of these is naphtha, which is used extensively in the plastic production process.

Naphtha decomposition

- The naphtha fraction (important for plastics production as the hydrocarbons it contains include, for example, ethane and propane) then decomposes. This can be achieved by applying heat and high pressure in a zero-oxygen environment (steam cracking). The resulting fractions can include products such as ethylene and propylene (the olefins), the building blocks for plastics.

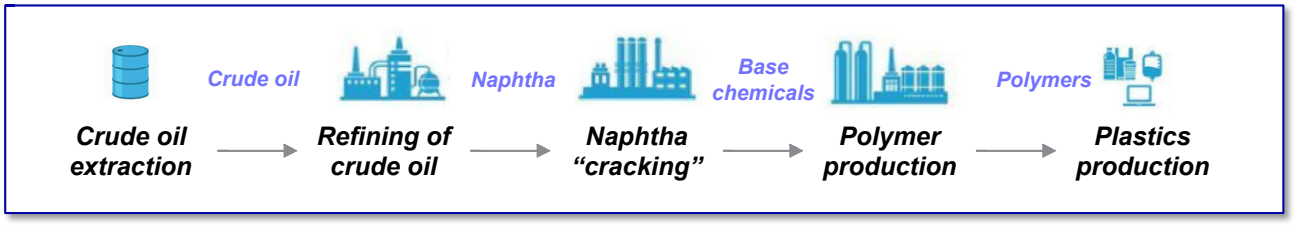
Addition/condensation polymerisation

- These monomers can then be converted into higher molecular weight hydrocarbons (polymers).
- One method is addition polymerisation, whereby one monomer connects to the next one and so on (usually aided by a catalyst). An example of this is the connection of ethane monomers to form polyethylene, or the connection of propane molecules to form polypropylene. This is also a typical method used for the production of plastics such as polystyrene and PVC.
- Another method is condensation polymerisation, which includes the joining of two or more different monomers via the removal of other small molecules (such as water), usually aided by a catalyst. Examples of polymers include polyester and nylon.

Compounding/processing

- Once this step is achieved, the feed can then be melt blended and pelletised. From here, the pellets are sent to plastics manufacturers and melted and moulded into the desired plastic product.

PRODUCTION OF VIRGIN PLASTICS: TYPICAL PROCESS



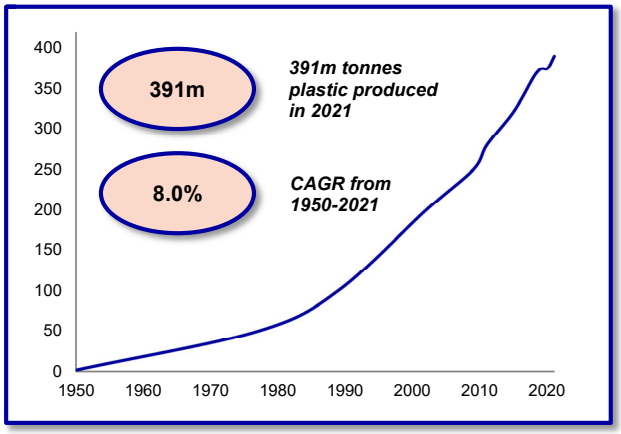
Source: Nordea, BASF

Plastics are a crucial cog in the global wheel

Given plastics' unique properties, it is almost impossible to imagine a world without them.

Plastics production has seen fast growth, making it a modern-day success story...

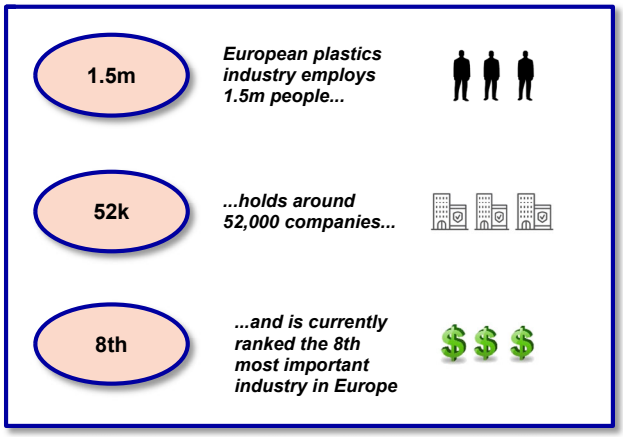
PLASTICS ARE A MODERN-DAY SUCCESS STORY, EVIDENCED BY ASTRONOMICAL GROWTH IN PRODUCTION



Annual global production growth

Source: PlasticsEurope

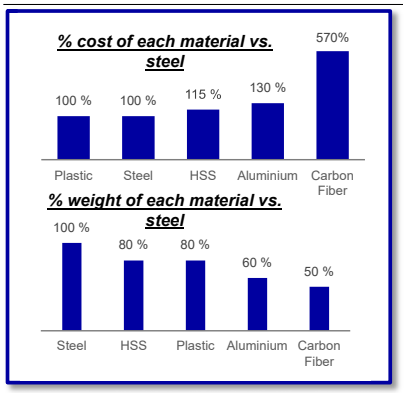
PLASTICS HAVE TURNED INTO A VITAL INDUSTRY FOR MANY PEOPLE AND COUNTRIES TODAY



Source: PlasticsEurope

...with plastics' unique properties providing the best solutions for many industries

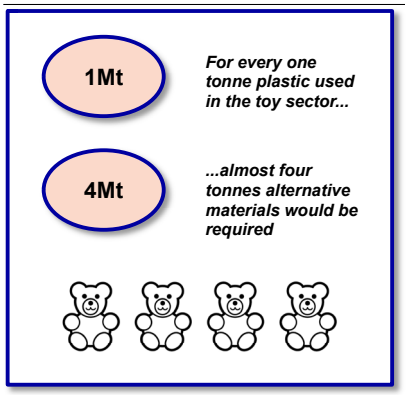
PLASTICS HAVE UNIQUE PROPERTIES



Note: Automotive fender used as example

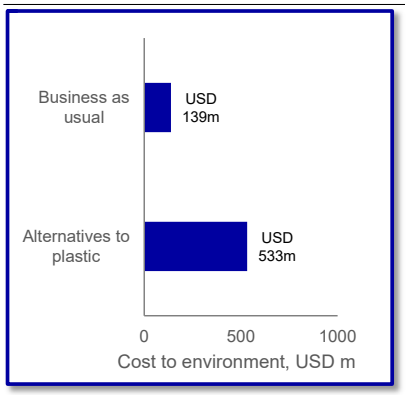
Source: McKinsey

ADVANTAGEOUS IN MANY INDUSTRIES



Source: Trucost

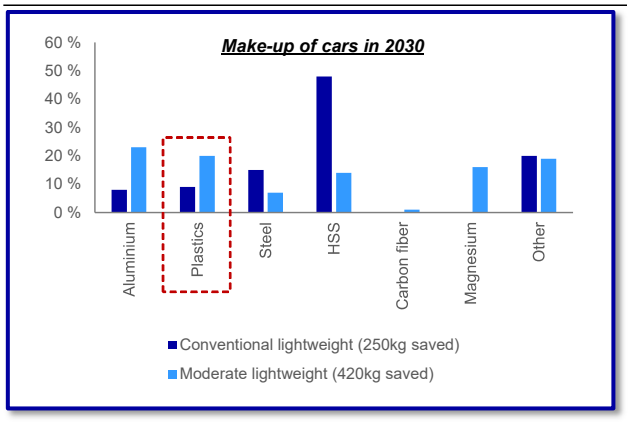
KEY ENVIRONMENTAL POSITIVES



Source: Trucost

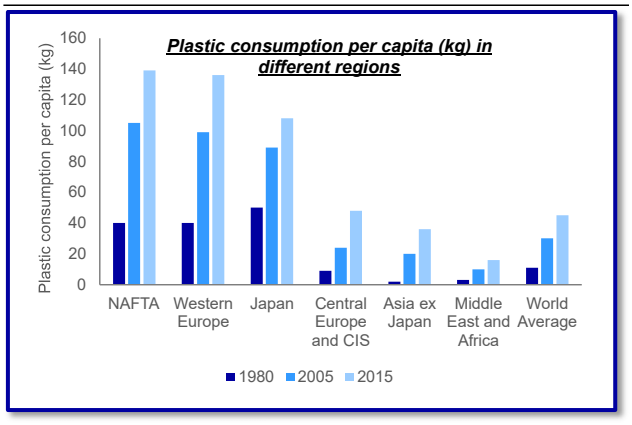
As a result, we expect plastics production to stay strong

THESE PROPERTIES WILL CONTINUE TO BE REQUIRED



Source: McKinsey

PER-CAPITA CONSUMPTION IS INCREASING IN ALL REGIONS



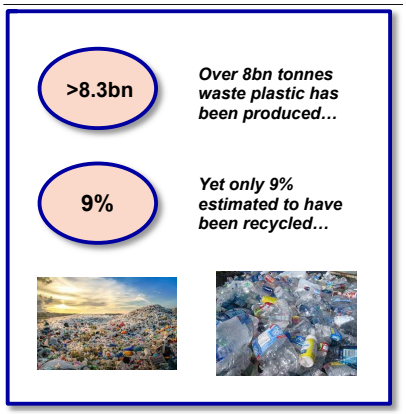
Source: ResearchGate

Plastic waste: Code red on a global scale

Due to the combination of emissions and waste generation, the plastics industry needs to undergo fundamental change. A circular economy enabled by recycling is a key solution.

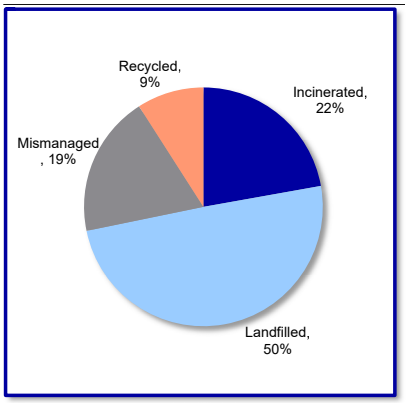
Despite the positives, we have not dealt properly with plastic waste

A SIGNIFICANT MAJORITY OF PLASTIC HAS NOT BEEN RECYCLED...



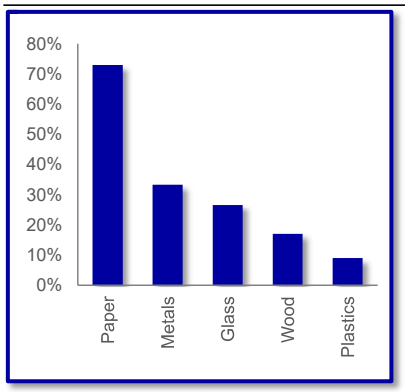
Source: UNEP and Nordea

...WITH THE REST BEING INCINERATED, LANDFILLED OR LEAKED



Source: Ourworldindata and OECD

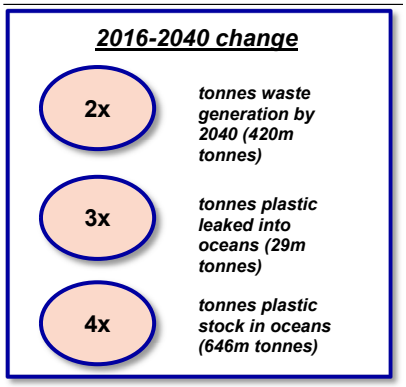
PLASTICS' RECYCLING RATE LAGS BEHIND OTHER MATERIALS



Source: CEPI, EPA, UNEP and Nordea

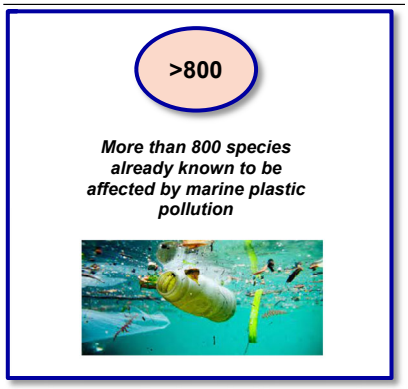
Plastic pollution causes severe damage to our environment

PLASTICS ARE DESTROYING THE ENVIRONMENT AND WILDLIFE



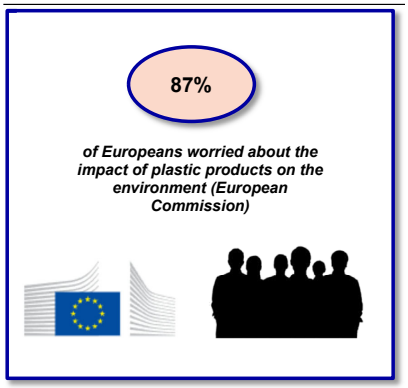
Source: SystemIQ

BUSINESS-AS-USUAL ESTIMATES SHOW THE ISSUE IS INCREASING



Source: SystemIQ

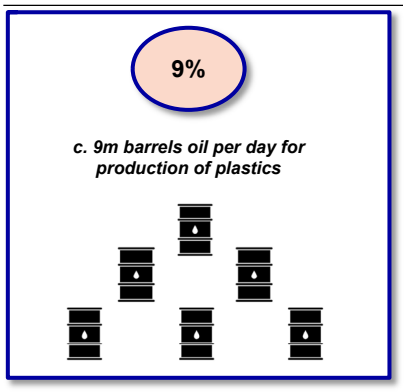
PLASTIC WASTE CONCERNS ARE FIRMLY IN THE PUBLIC MIND



Source: European Commission

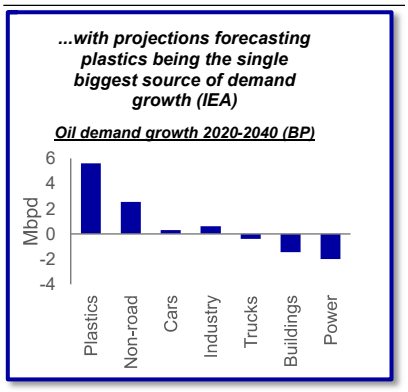
Plastics production results in dangerously high emissions

OIL USE REQUIRED FOR VIRGIN PRODUCTION OF PLASTICS



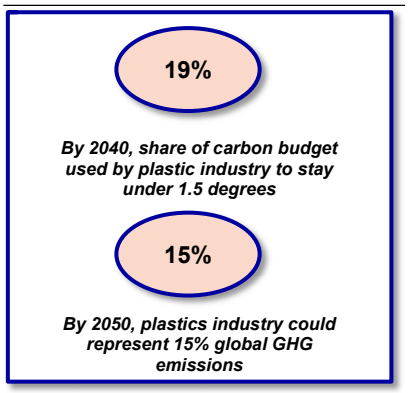
Source: Statistica and Nordea

IF NOTHING CHANGES, THIS SHARE WILL INCREASE FURTHER



Source: IEA, BP and Nordea

SIGNIFICANT EMITTING INDUSTRY FOR GREENHOUSE GAS EMISSIONS



Source: SystemIQ

Market backdrop

Plastics production is expected to almost quadruple by 2050, and we find it hard to imagine a world without plastic going forward given its integral part in the economy. However, despite its importance, plastic does not easily degrade in nature, 90% of plastics are derived from fossil fuel usage to date, and only 9% were recycled in 2021. Given these points, we see a plastics recycling industry that needs to evolve if we are to tackle a dual problem of environmental damage and greenhouse gas emissions due to plastic waste. Today, mechanical recycling dominates the industry. However, due to its technological limitations, mechanical recycling will not be able to handle all types of plastic waste, and solutions such as advanced/chemical recycling will be vital to enable future industry growth.

Plastics – a modern-day success story...

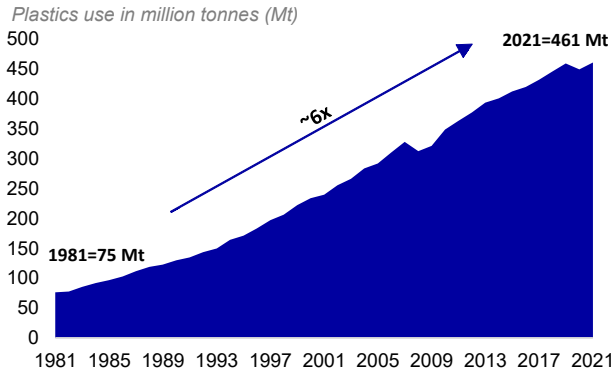
Plastics are a modern-day success story, with the material being almost everywhere you look

It is no overstatement that plastics are a modern-day success story. Their high strength-to-weight ratio, low cost and durability give a range of advantages over incumbent alternatives, resulting in adoption of plastics in a plethora of industries. Plastics have played an integral role in modernising our society, and hence it is no surprise that plastics production multiplied 20 times over, from 15 million tonnes in 1964 to 311 million tonnes 50 years later, while more than tripling in the last two decades.

The lightweight and durable nature of plastic has resulted in plastics production increasing 20-fold in the last 50 years, with further growth expected

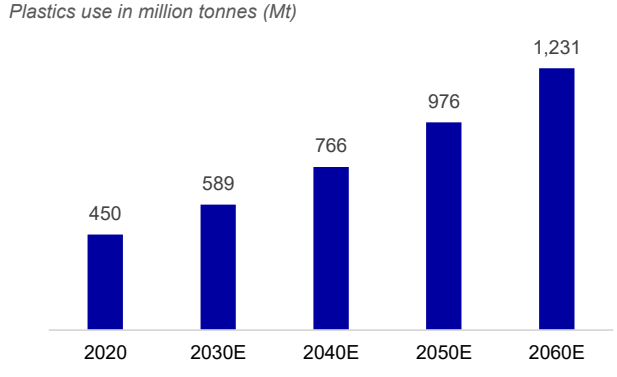
We find it hard to imagine our world without plastic going forward too – its durability in plastics packaging will help food last longer for an ever-growing population, while a world laser-focused on emissions reductions after COP27 will see decarbonisation enablers such as battery-electric vehicles needing all the help they can get regarding weight loss. Given also that plastics play an integral role in modern medicine and healthcare products, we are not surprised to see estimates for plastics continuing to grow, with production expected to almost quadruple by 2050.

THE RISE OF PLASTICS HAS BEEN ASTRONOMICAL...



Source: McKinsey, Ellen Macarthur Foundation, OECD

...WITH PREDICTIONS SHOWING NO SIGNS OF SLOWDOWN



Source: OECD

...but the waste generated is damaging our planet...

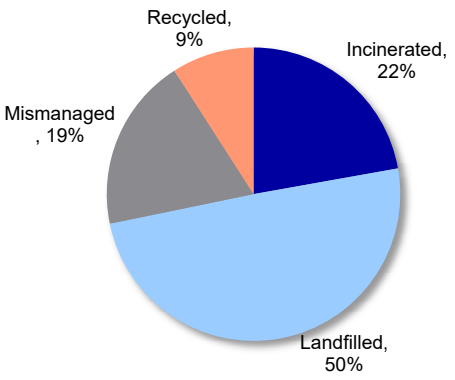
Despite all the positives, the waste that plastics leave behind causes problems to our environment

Despite plastics' vital standing in the global economy, their key strengths have become significant weaknesses. Their ultra-durable characteristics provide a range of advantages across several industries, but plastic waste does not easily degrade in nature.

To stop this going forward, we need to find solutions to take the global recycling rate up from today's levels

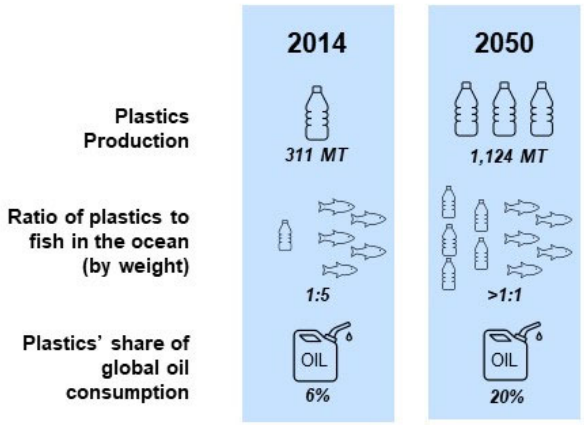
Plastics Europe estimates that the world generated around 391 million tonnes of plastic waste in 2021, with other bodies pointing towards a doubling of plastic waste over the next 15 years. The significance of this number comes to light when taking into consideration the OECD estimate that around 70% of plastic waste is leaked or mismanaged. McKinsey estimates that eight million tonnes of plastic end up in our oceans alone – the same quantum as emptying a large garbage truck into the seas every 60 seconds. To bring the point home even further, the Ellen MacArthur Foundation highlights the rather shocking statistic that if we are to continue on this path, there will be more plastic than fish in the sea by weight in 2050, illustrating the urgency to find a solution to increase global recycling levels.

391 MILLION TONNES OF PLASTIC WASTE GLOBALLY, YET ONLY 9% WAS RECYCLED – SOMETHING MUST BE DONE...



Source: OECD

...OTHERWISE THE WORLD WILL FACE SOME DIRE CONSEQUENCES



Source: Ellen MacArthur Foundation, McKinsey

...while virgin production causes significant greenhouse gas emissions

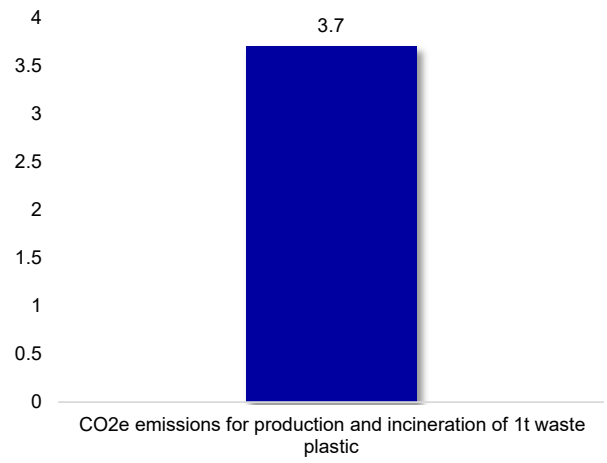
Currently, 90% of all plastics are derived from fossil fuel usage

Further environmental issues arise when taking into consideration current production methods. Currently, 90% of all plastics are derived from fossil fuel usage, resulting in plastics accounting for around 6% of global oil consumption – about the same as the global aviation sector. This is particularly troublesome when the vast majority of some plastics, for example plastic packaging, have historically been almost exclusively single-use (and hence not recycled) – recent reports in the US back this concern up, stating that plastics will release more greenhouse gas emissions than coal plants in the US by 2030.

Further, the IEA projects that plastics will be the single biggest source of oil demand growth. Also, we highlight the greenhouse gas emissions of one tonne of plastic production followed by incineration, the most common technique used in Europe for waste handling. An LCA study comparing the cradle-to-grave lifecycle for production and incineration of one tonne of plastic (LDPE) from fossil raw materials found that it results in around 3,700 kg CO_2e (CO_2 equivalent) emissions.

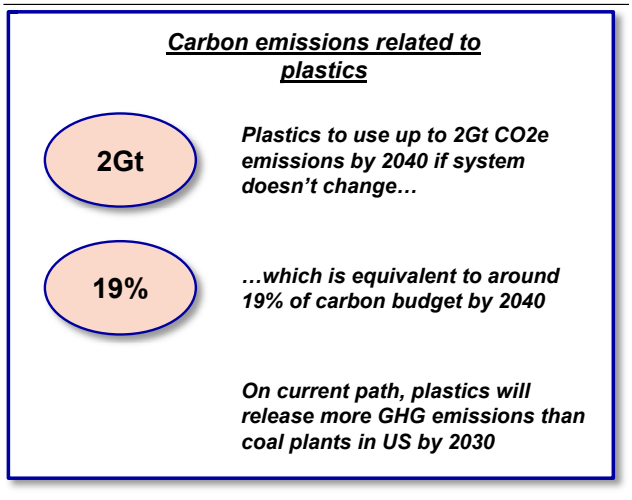
Taking into consideration the above projections for growth, it is easy to see how much of an issue this is regarding emissions, with recent reports stating that the production of plastics will release more greenhouse gas emissions than coal plants in the US by 2030, and projections that the industry could account for 19% of the carbon budget in 2040 (2 gigatonnes of CO_2e emissions) if we continue with business as usual.

FOSSIL FUEL IS PRIMARILY USED FOR PLASTICS PRODUCTION - SIGNIFICANT GREENHOUSE GAS EMISSIONS (TONNES)



Source: BASF

IF WE DO NOT CHANGE THE CURRENT SYSTEM, GLOBAL EMISSIONS FROM PLASTICS WILL BECOME A REAL PROBLEM



Source: SystemIQ and Yale

Only 14% of plastic packaging is picked up for recycling today

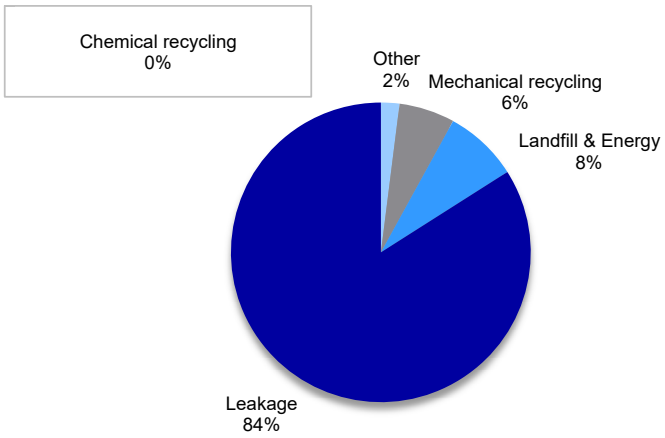
Combining the global necessity for plastics today with the emission-intensive process of creating new plastics, it is clear that recycling of these plastics is a strong way forward. However, as of today, only a fraction of these plastics are actually recycled; 14% of plastic packaging (the largest subsector of plastics) is estimated to actually be picked up for recycling, with other plastic types experiencing even lower rates. Given this, it is clear to see that we must look to increase the rate of plastics recycling to avoid any further plastic waste entering the environment – and avoid loss of economic value – while at the same time reducing fossil usage within the plastics industry.

What recycling options do we have at our disposal now?

Mechanical recycling dominates the industry today

Currently, the primary method of plastics recycling is mechanical recycling, which dominates the industry today. It is a relative success story for the recycling of plastics, becoming a well-established technology for plastic types such as polypropylene (PP), polyethylene (PE) and polyethylene terephthalate (PET).

HISTORICAL DESTINATIONS FOR PLASTIC WASTE GLOBALLY

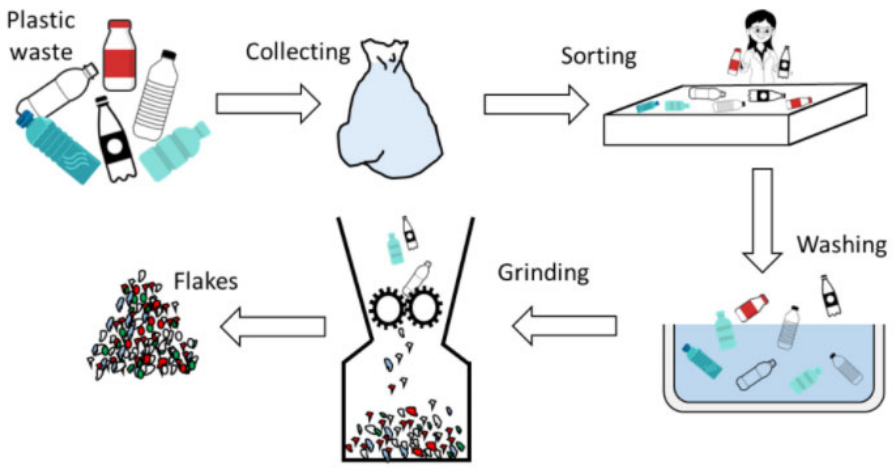


Source: IHS Markit (2020)

Mechanical recycling uses mechanical techniques to recover plastic waste

Mechanical recycling refers to recycling processes that target recovery of plastics (in this case) through the use of mechanical techniques. A typical process would involve plastic waste first being sorted by material type (an important process due to the inhomogeneous nature of plastic waste), which is then washed and milled. After this, the stream passes through some sort of separation section (for example, separation via flotation), and is then dried. The resulting materials are then recovered via techniques such as re-melting and re-granulating. Once finished (if the resulting stream is of good enough quality), the end stream can then be used in similar plastic products.

SCHEMATIC OF TYPICAL MECHANICAL RECYCLING PROCESS



Source: Ubuntoo

Mechanical recycling is well established and its growth will be crucial for increasing the recycling rate going forward

Mechanical recycling holds several advantages, such as that it is now a well-established recycling technology for the plastic feed that it can take in, removing the necessity of making new plastic using fossil fuel raw materials. Second, recycling waste streams in general are able to produce lower CO_2 emissions than producing new raw materials with fossil fuels.

However, its technological limitations mean it will not be able to take on board all types of plastic waste... it will need some help from other technologies

However, mechanical recycling possesses some disadvantages, which in our view limits the technology as it stands today. First, the melting, grinding and other methods used in mechanical recycling can result in damage caused to the plastic chains. This results in a deterioration in quality, making them unsuitable for some plastic uses (such as food-grade packaging) – this process is known as downcycling. Another limitation of mechanical recycling is that it requires a relatively "clean" feed and can be used for several plastic types only.

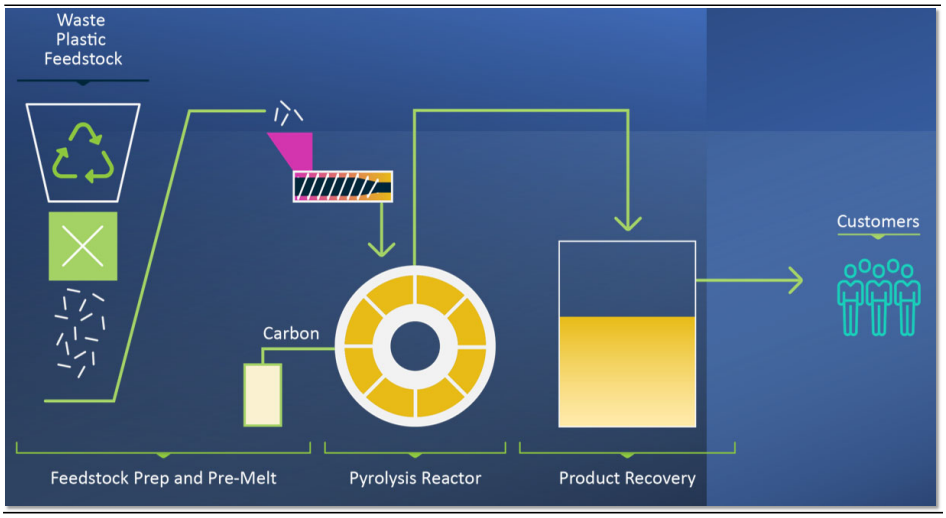
The result of this is that a large amount of plastic waste cannot currently be recycled. Given the ambitious targets put in place by governing bodies such as the EU and global majors, we must find a solution that is able to take on board these more heterogeneous, contaminated feeds and at the same time bring the plastic back up to virgin quality to avoid the need for reusing fossil fuels.

Chemical recycling – a much-needed solution

Chemical recycling primarily uses pyrolysis to break down chemical structures at high temperatures

Given mechanical recycling's limitations, alternative solutions will be required to elevate recycle rates to the targets currently set. Enter chemical recycling. Chemical recycling refers to the chemical (rather than mechanical) processing of waste plastic into raw materials. The primary technology in the current public markets is pyrolysis, which involves the decomposition of chemical structures at high temperatures, in the absence of oxygen. Thus, the long plastic waste polymer chains are fed into the reactor and broken down into smaller chains, which results in an oil formed (known as pyrolysis oil). This oil can then be purified and refined further to give virgin-equivalent plastic building blocks, which can then be taken to make plastic polymers again. As well as taking on board mixed plastic waste to make pyrolysis oil, pyrolysis (given the right technology process) can also take on board single polymers, for example polystyrene, and convert them back to their respective monomers (e.g. styrene monomer) – a point of differentiation for Agilyx.

INDICATIVE SCHEMATIC OF PYROLYSIS PROCESS



Source: Company data

This process brings several advantages to the table:

Handling of streams that cannot be handled by mechanical recycling

Several important advantages of chemical recycling

Given the fact that the technology chemically breaks down long, complex polymer chains (such as multi-layered food packaging – mechanical recycling cannot separate the individual layers easily), it is able to handle mixed post-consumer plastic waste streams that are uncleaned. Thus, chemical recycling is able to target the waste streams that mechanical recycling cannot handle. In addition, chemical recycling can also produce high-quality raw materials, thereby decreasing demand for fossil fuels and other natural resources. Unlike the recycled plastic products present in the market today, chemical recycling can produce high-quality recycled plastic which may be indistinguishable from new plastic.

Virgin-quality output

With chemical recycling, these waste plastic streams can be converted back into feedstock for the chemical industry with exactly the same properties as those manufactured from fossil feedstock. This is not always the case for mechanical recycling given its "downcycle" nature explained above.

Saving on both resources and emissions versus unrecycled feedstock

By chemically recycling waste plastic that would otherwise be incinerated, fossil fuels will not need to be used up to create new plastics. Furthermore, recent LCA studies have shown that chemically recycled products release fewer greenhouse gas emissions compared to conventional methods from primary fossil fuels (and then incinerated after use).

Given the problem at stake, both mechanical and chemical recycling (including pyrolysis and other new technologies such as dissolution, which is being developed by other public companies in the world for certain plastic types such as PET and PP) will be required to increase the recycling rate going forward. Combining all of these solutions will indeed help create a truly circular economy for plastics, in the process saving emissions and reducing waste leakage into the environment.

Policy, regulations and initiatives

Plastics are a vital part of modern-day society, but the need for change regarding waste and the use of fossil fuels in plastics production has not gone unnoticed. Going forward, reduction of waste through tools such as recycling is becoming a key focus, with governing bodies announcing supportive policies and recycling targets in order to reduce the vast amounts of plastic waste entering our environment, with several global majors following suit. We believe these actions create strong market drivers for companies, enabling the circular economy of plastics going forward.

The EU is paving the way in recycling with the Waste Framework Directive and dedicated targets

Plastics are high on the agenda; EU paving the way

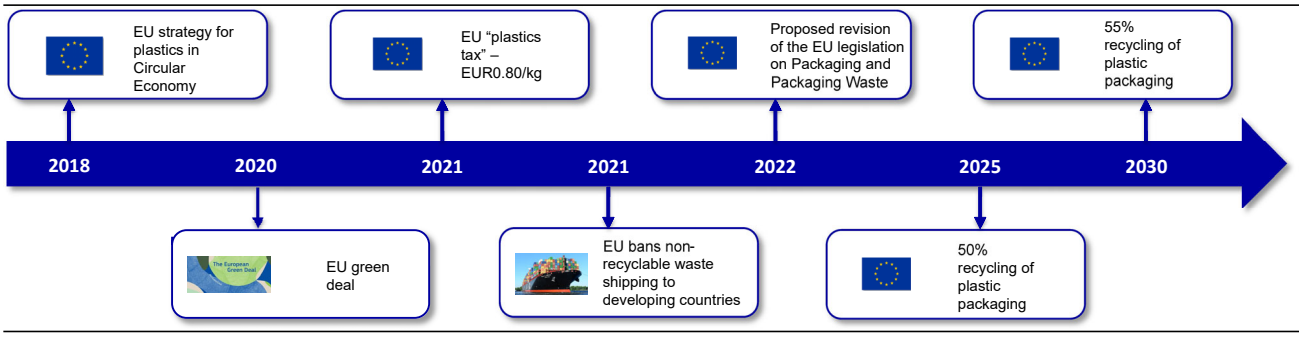
Leading from the front, the European Union has put several ambitious targets in place to reduce the environmental impact of packaging waste and to promote the reuse and recycling of packaging materials. To achieve this goal, the European Commission recently (November 2022) updated the EU Packaging and Packaging Waste Directive (PPWD), introducing a new EU-wide target to increase the recycling of packaging waste to 65% by 2025 and to 70% by 2030. This compares to the previous recycling targets for plastics of 50% and 55%, respectively (plastic packaging is one of the largest consumption sectors for plastic, accounting for around 40% of demand in Europe, according to PlasticsEurope).

In addition, the European Commission also changed the targets for mandatory recycled content in plastic packaging for 2030. Thus, by the end of the decade, recycled content will need to make up:

- 30% of contact-sensitive packaging made from PET as the major component (changed from 25%)
- 10% for contact-sensitive packaging made from other materials than PET, except single-use plastic beverage bottles
- 30% for single-use plastic beverage bottles (previously 50%)
- 35% for plastic packaging other than these above-mentioned points (previously 45%)

In order to achieve these goals, the directive promotes the development of more effective collection and sorting systems for packaging waste, as well as the use of recycled materials in new packaging. One of the main priorities of the Green Deal is to reduce the amount of plastic waste generated in the EU, and in essence, the PPWD requires producers to take responsibility for the entire life cycle of their products, including their packaging.

POLITICAL TAILWINDS – THE EU AT THE FOREFRONT OF RECYCLED PLASTICS TARGETS AND TAXES



Source: European Commission

Additional initiatives include limitations on plastic waste exports

Further to this, the region has also announced a plastics levy of EUR 0.8/kg on every kilo that is not recycled in packaging waste. A separate regulation aiming to limit plastic waste shipments entered into force on 1 January 2021. The rule was a response to the last decade's increase in uncontrolled trade in plastic waste. In 2020, the EU exported 2.37 million tonnes of plastic waste to non-EU countries. The rule bans exportation of plastic waste to non-OECD countries, the exception being clean plastic waste sent for recycling authorised under specific conditions. Exports of plastics to OECD countries must also be subject to prior notification and consent. All shipments of non-hazardous plastic waste within the EU will be excluded from the new controls, putting further pressure on the recycling rate going forward. Overall, we note that the EU has assigned ambitious targets for the plastics economy, and we see significant opportunities for players within the recycling vertical.

Other regions following suit

While we view the EU as the thought leader in pushing the recycling of plastics forward, we note several other regions that are beginning to act and follow suit, including China, Australia, the US and the UK.

China: National Sword Policy

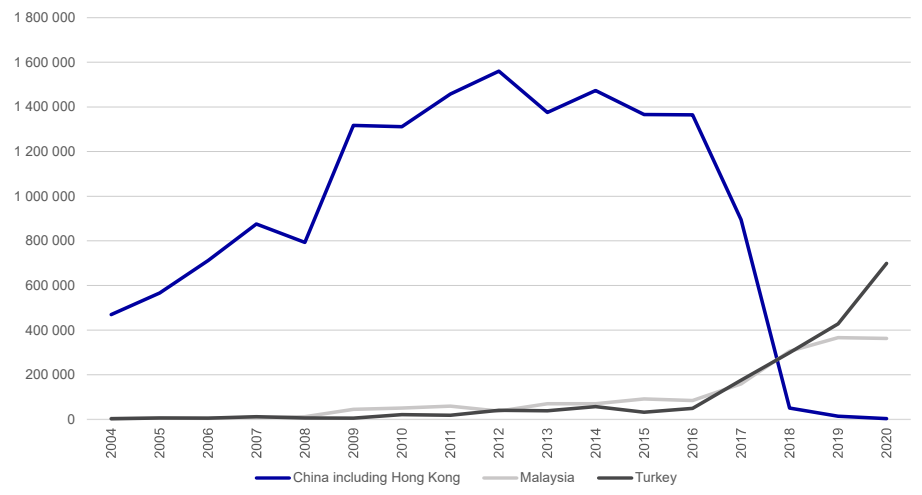
China's National Sword strategy represents a further catalyst for the global recycling vertical

One of the most significant actions has come from China, as its "National Sword" strategy announced at the beginning of 2018 placed a full ban on the import of most non-industrial waste plastics.

This was a major announcement and represented a significant change in China's strategy, considering that it was the leading importer of plastic waste in the world in the years prior to this (importing seven to nine million tonnes of waste plastic per year in the period 2010-16). China was also the largest plastic producer – according to NBS, China produced 80.1 million tonnes of plastic in 2021. The policy bans the importation of most plastic waste and limits the accepted contamination level of recyclable waste. As a result of the ban, plastic waste shipments to China were down 99% in 2018 y/y.

PLASTIC WASTE EXPORTS FROM THE EU TO CHINA, TURKEY AND MALAYSIA (TONNES)

Almost half of the world's recyclable waste was exported to China prior to its import ban



Source: Eurostat

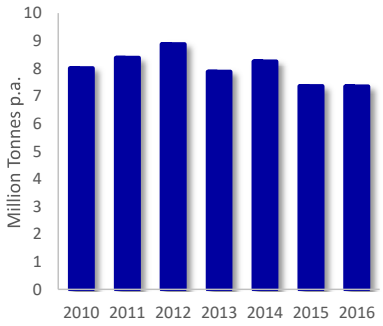
The Chinese National Sword policy has had a knock-on effect for many countries that were sending waste plastic to China and now do not have the sufficient waste streams to deal with this waste. The flows were principally redirected to other countries such as Malaysia, Vietnam, India and Thailand, which became the early destinations to replace China. However, these countries rapidly established their own import restrictions. As a result, after the Chinese ban, the global waste crisis has accelerated the adoption of new legislative frameworks, as these events drive home the necessity of an expanded and efficient recycling process.

CHINA'S NATIONAL SWORD STRATEGY – OVERVIEW

- China was the single largest importer of recyclable materials – 7-9 million tonnes of plastic waste annually during 2010-16
- 1 Jan. 2018: Ban on imports of non-industrial plastic waste
- Created a backlog of recyclable goods across the globe
- Countries now have to deal with their own waste

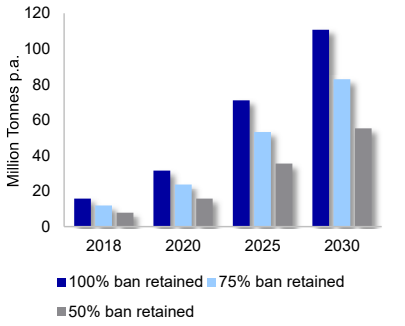
Source: Government announcements

CHINA IMPORTED VAST AMOUNTS OF WASTE



Source: Ourworldindata

TONNES OF PLASTIC WASTE DISPLACED DUE TO CHINA'S BAN



Source: Ourworldindata

Following the EU's strategy and China's ban on imported plastic, several countries are setting ambitious targets for their recycling plans

There are several examples from other regions of the world that have announced plastic recycling regulations. In the US, the Recovery Act includes around USD 500m for infrastructure related to recycling pants, while the Break Free From Plastic Pollution Act requires packaging producers to manage and finance waste and recycling programmes, and also bans certain single-use plastic products that are not recyclable.

Other examples include the UK, where a packaging tax of GBP 200 per tonne of plastic used in plastic packaging that does not contain 30% recycled content came into force on 1 April 2022. In Canada, there is a plan to achieve zero plastic waste by 2030. India introduced the India Plastics Pact, calling for 25% average recycled content across all plastic packaging and 50% of plastic packaging to be effectively recycled. Portugal recently set a target of at least 25% recycled plastic in PET bottles by 2025, increasing to 30% by 2030. In the Netherlands, the Plastic Pact NL set a target of at least 35% recycled content in new products and packaging by 2025. In Australia, exports of unsorted mixed plastics were banned in July 2021. To increase recycling, reduce plastics use and limit the negative impact of plastics on the environment, an ambitious National Plastics Plan was launched in 2021, including targets for 100% of plastic packaging to be reusable, recyclable or compostable by 2025, and for 20% recycled content in plastic packaging by 2025. Also, New Zealand will continue drafting regulations to phase out certain hard-to-recycle plastic packaging and single-use plastic items by 2025. In France, public financing is available from 2021 until 2024 to support innovation for recyclability, recycling and incorporation of recycled materials.

COUNTRIES ARE FOLLOWING THE EU'S LEAD WITH ANNOUNCEMENTS AROUND PLASTIC

Country	Announcement
	In the United Kingdom, a GBP 200/tonne tax on plastic packaging with less than 30% recycled content was introduced in April 2022.
	Japan has a goal of cutting disposal of plastic waste by 25% and to recycle 60% of household and industrial waste by 2030.
	In Peru, the provision on the use of recycled plastics (15%) in the law regulating Single-Use Plastic and Disposable Containers came into effect in December 2021.
	Portugal set a target of at least 25% recycled plastic into PET bottles by 2025, increasing to 30% by 2030.
	In the Netherlands, the Plastics Pact NL set a target of at least 35% recycled content in new products and packaging by 2025.
	Canada pushes for ban on unnecessary single-use plastics. Plan to achieve zero plastic waste by 2030, and USD 2m through Zero Plastic Waste Initiative.
	India is the first Asian country to launch plastics pact - target of 50% of plastic packaging to be effectively recycled, 25% average recycled content across all plastic packaging.
	US EPA called for 50% recycle rate by 2030. Industry-backed RECOVER ACT - USD 500m in recycling infrastructure grants.
	Chilean plastics pact aims to eliminate unnecessary single-use packaging, ensure one third of all plastic packaging is effectively reused, recycled or composted & incorporate 25% recycled content into plastic packaging.

Note: Non-exhaustive list

Source: Government announcements, Nordea

A word on taxonomy

Recycling occupies an important role in the EU Sustainable Taxonomy

Recycling also occupies an important role in the EU Sustainable Taxonomy, the framework set up by the EU for the financial markets to distinguish green activities from others. We expect the taxonomies to turn investors' and companies' attention towards recycling.

Following the finalisation of the climate taxonomies (climate mitigation and climate adaption), the EU has released a draft of the next four environmental taxonomies: water, circularity, pollution and biodiversity. The legislation of these new taxonomies came into force in 2022, with companies reporting all six objectives in 2022 and in 2024. The objective that is most relevant for plastics recycling is "Transition to circular economy". Furthermore, the draft covers 14 sectors and 102 activities, with one of the sectors being waste management.

Transition to circular economy

As commented by our ESG team, the draft report presents preliminary recommendations for technical screening criteria for the four environmental objectives. The "Transition to circular economy" objective aims to decouple growth from the extraction of non-renewable resources and reverse the depletion of the stock of renewable resources by 2030. By 2050, economic activity should be largely decoupled from resource extraction. Putting it into perspective, the EU circular material use rate was 12% in 2019. There is a significant gap between the current rate and the targets, suggesting great potential. Reaching a circular economy should be achieved through environmental design, in which waste and pollution are eliminated, and materials and products are used at their highest value. Targets presented by the objective include:

- 50% reduction of the EU's material footprint (RME) by 2030 and 75% by 2050 from a 2015 baseline of 14 tonnes/capita
- Increasing the circular material use rate for all materials to at least 25% by 2030

An activity included in the Circularity Taxonomy that is particularly relevant for plastic recycling is:

2.5. Manufacture of plastic packaging: For a product to be aligned, one of the main criteria to be met is that the feedstock needs to be 95% recycled (mechanically or chemically). Two key additional criteria relate to the existence of a recovery and recycling stream in place for the relevant material, and that the recycling rate is above the EU average for that packaging material or on track to achieve the EU objective for 2030. Other criteria include the design of the product facilitating recycling (e.g. separability) and the fact that in case of chemical recycling, the lifecycle emissions of the product must be lower than the lifecycle emissions of the equivalent primary plastic product manufactured from fossil fuel.

In the Circularity Taxonomy, there are also other relevant activities for which criteria have been defined, all included under the section "Waste Management".

Climate change mitigation

Climate change mitigation is one of the two climate objectives covered by the first version of the Taxonomy Regulation. One relevant activity covered by this objective is:

5.9. Material recovery from non-hazardous waste. This activity covers the construction and operation of facilities for the sorting and processing of separately collected non-hazardous waste streams into secondary raw materials involving mechanical reprocessing, except for backfilling purposes, in which the activity converts at least 50%, in terms of weight, of the input material.

Pressure percolating down to global majors and pacts

Leading fast-moving consumer goods companies have set ambitious targets for recycling of plastics

The global need for change in how we deal with plastics has started to percolate down to global majors, who are pushing the agenda in a direct fashion. An example of this can be seen with the leading packaging companies for fast-moving consumer goods (FMCG), which have announced ambitious targets for both reducing virgin plastic consumption and increasing the recycled content in their products by 2025.

THE WORLD'S LARGEST PACKAGING COMPANIES HAVE SET AMBITIOUS RECYCLING TARGETS

Company	Market cap (USDbn)	2021 Revenues (USDbn)	Total weight of plastic packaging, 2021 (k tonnes)	Virgin plastic reduction target, 2025	Current recycled content %	Target recycled content, 2025	100% recyclability target?
Nestle AG	322	95.2	920	33%	5%	30%	✓
Johnson & Johnson	399	93.8	125	25%	1%	15%	✓
Pepsi Co	239	79.5	2500	35%	35%	25%	✓
Procter & Gamble	326	76.1	776	50%*	12%	n/a	✓
Unilever	125	62.1	713	50%	18%	25%	✓
AB InBev	120	54.3	n/a	Avoid 1.3m tonnes	20%	50%	✓
Tyson Foods	20	47.0	n/a	n/a	n/a	17%	✓
Mars, Incorporated	-	45.0	204	25%	0%	30%	✓
Coca Cola	259	38.7	3,224	20%	14%	25%	✓
L'Oréal S.A.	215	38.2	144	33%	21%	50%	✓

** 2030 goal*

Source: Ellen MacArthur Foundation

Global majors are also investing in recycling facilities and partnership

However, it is not only the FMCGs that are driving change. Several of the global majors, such as ExxonMobil, Shell, TotalEnergies and Dow, have announced plans or already started to develop advanced recycling facilities. Neste, for example, is also specifically developing ways to chemically recycle plastic. Furthermore, chemical leaders such as BASF, Dow, Covestro and LyondellBasell are developing new methods for advanced recycling of materials – for example, Dow is currently developing Europe's largest advanced recycling facility with Mura at Dow's site in Germany.

s

Each of these global brands will need to find a recycling solution in order to achieve these goals – combining this with the strong political tailwinds mentioned above, we see a vast market for plastic recycling going forward.

GLOBAL LEADERS MAKING MOVES IN ADDITION TO THE PURE RECYCLING COMPANIES

Source: Company announcements

The Plastics Pact Network is a globally aligned response to plastic waste and pollution

The Plastic Pact Network

The Plastic Pact Network is a global initiative by the Ellen MacArthur Foundation. The network connects national and regional initiatives run by local organisations working towards a circular economy for plastics. Signatories of the pacts account for around 20% of the plastic packaging market. We note that the Ellen MacArthur Foundation is a particularly strong name in the push for circularity within plastics, with the organisation publicly tracking the targets and progress of all signatories.

UK Plastic Pact

The UK Plastic Pact, led by WRAP, is also part of the Plastic Pact Network. The pact strives to eliminate problematic plastic, increase recycling and stimulate innovation. Signatories work towards four targets:

- Eliminate problematic and unnecessary SUP packaging by 2025
- 100% of plastic packaging to be reusable, recyclable or compostable by 2025
- 70% of plastic packaging to be recycled or composted by 2025
- 30% recycled content in all plastic packaging by 2025

Signatories include Arla, Lidl, Essity, Coca-Cola EU, Danone UK, Mars, McDonald's, P&G and Unilever.

Alliance to End Plastic Waste

The Alliance to End Plastic Waste is an industry-founded and funded non-governmental and non-profit organisation, with founding members including BASF, Chevron Phillips Chemical, ExxonMobil, Dow Chemical, Mitsubishi Chemical Holdings, Proctor & Gamble and Shell. The alliance has recently noted more than 35 projects spanning 80 cities worldwide, aiming to divert and recycle up to hundreds of thousands of tonnes of plastic waste. The alliance's network had grown to around 65 members by the end of 2021, with ambitions to scale up efforts further.

ALLIANCE TO END PLASTIC WASTE: NETWORK

Source: Alliance to End Plastic Waste

US Plastics Pact

Historically, most of the plastic waste generated in the US has been sent to landfills, and only a fraction has been recycled.

Launched in August 2020, the US Plastics Pact is a part of the global plastic pact network and is led by The Recycling Partnership and the World Wildlife Fund. The goal is to reach a circular economy for plastics in the US. The pact unites NGOs, companies, government entities and research institutions. Signatories of the pact agree to deliver on four targets:

- They defined a list of plastic packaging to be labelled problematic or unnecessary in 2021 and they will take measures to eliminate them by 2025
- By 2025, all plastic packaging should by reusable, recyclable or compostable
- Undertake actions to recycle or compost 50% of plastic packaging by 2025
- 30% recycled or responsibly sourced bio-based content in plastic packaging by 2025

SIGNATORIES OF THE US PLASTICS PACT

Source: US Plastics Pact

Market outlook

Given the significant push from governing bodies and global majors, we see a vast market opportunity for companies that are able to process, source, and ultimately increase the recycle rate of plastics. Going forward, we estimate that plastics production will increase by a 2022-30 CAGR of 2.6%, which on our numbers results in an implied total 566 chemical recycling facilities globally by 2030. While mechanical recycling currently dominates the options for recycling, chemical recycling is essential to reach the target set by majors. We see plastic waste sourcing and plastic waste conversion technologies as being exposed to a vast market opportunity, with Agilyx at the forefront given its Cyclyx and conversion offerings.

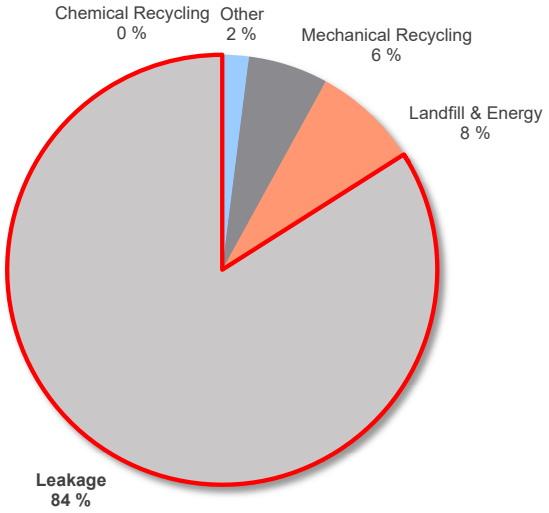
Recycling of plastic waste

Given the push to eliminate plastic waste, a vast market opportunity awaits for recycling technologies (both incumbent and new)

We see recycling technologies as being exposed to a vast market opportunity which includes both incumbent methods (i.e. mechanical recycling) and new advanced methods of recycling (required to support mechanical recycling and to take on board the waste that mechanical recycling cannot). We show the scale of the opportunity in several ways. First, we look at the current portion of plastic waste that is currently being "leaked" to the environment – which, according to IHS Market, is 84% of the 250 million tonnes of plastic waste produced in 2020. With the goal being to eliminate waste plastic lost, this 210 million tonnes results in the equivalent of well over 6,000 facilities (100 tonnes per day, operating 330 days in a year) that would require waste sourcing (i.e. through Cyclyx); even assuming just a small percentage goes to chemical recycling versus mechanical recycling (say 10%), we see a global addressable market of 600 facilities. This of course does not include the potential increase in global waste plastic production going forward in time.

Just by treating the plastic waste leaked to the environment, we calculate a market of over 6,000 facilities for sourcing and converting waste

LEAKAGE ALONE TODAY REPRESENTS A TRULY VAST MARKET FOR CHEMICAL RECYCLING



The vast majority of waste plastic today is leaked to the environment, with an insignificant portion currently being chemically recycled

To reach the targets set by global majors, this will need to change

Source: IHS Markit

Current geographies point to a similarly large opportunity

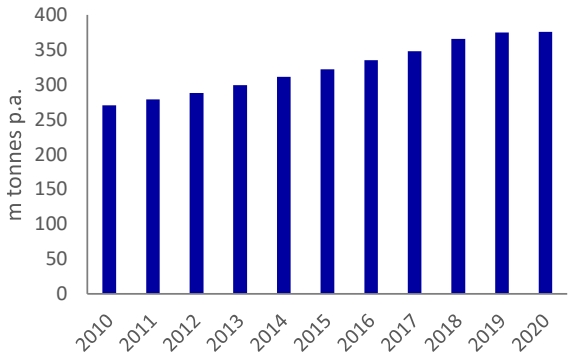
Global plastics production has historically shown a 4% CAGR (pre COVID-19)

We conservatively model a 2022 CAGR of 2.6% as we expect developed nations to focus more on re-use/recycling

However, developing nations will increase their use of plastic per capita, thus leaving upside to our estimates

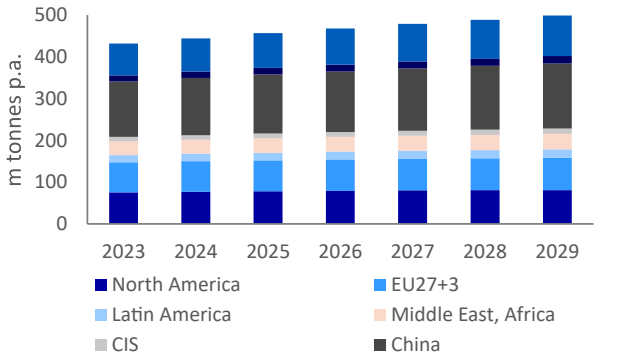
Digging further into the opportunity, we build a bottom-up model in order to approximate the addressable market size globally and in Agilyx's current announced markets. PlasticsEurope notes that plastic production to date globally has reached 391 million tonnes per year, with a historical average growth rate (pre COVID-19) of 4%. However, this has slowed slightly over the past few years due to the COVID-19 pandemic. We model a recovery in growth in the near term as the world's supply chains return to normal. Longer term, we forecast a 2022-30 CAGR of 2.6%, which is lower than seen historically, However, we expect an increased push to re-use/recycle plastic products and we also expect developing regions to increase their usage of plastics. Thus, we see upside to our estimates. Regionally, we note China as leading the charge in terms of production, with North America and Europe also as major producers. Going forward, we keep regional shares broadly similar, although we expect other regions such as Africa and Japan to gain market share.

GLOBAL HISTORICAL PLASTICS PRODUCTION 2009-20 CAGR OF 4% (EXCLUDING COVID-19)



Source: PlasticsEurope

NORDEA ESTIMATED PLASTICS PRODUCTION TO 2030 (2022-30E CAGR OF 2.6%)



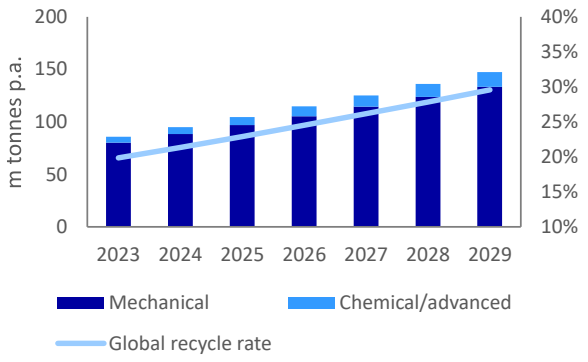
Source: Nordea estimates, PlasticsEurope

Of the plastic produced, we model that 30% will be recycled by 2030

This compares to much higher recycled content targets in Europe for plastic packaging

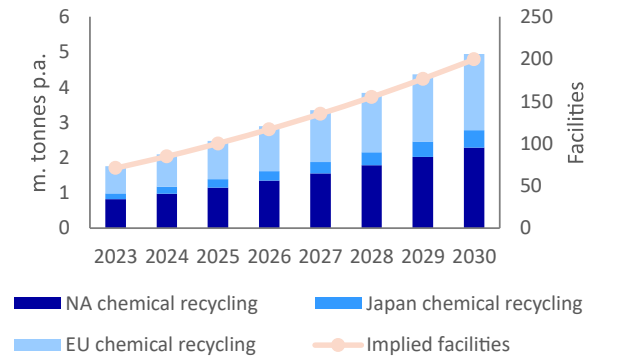
From here, we estimate the percentage of plastic consumed that will be of recycled content (driven by both policy and global majors' targets). Taking the EU as a start, we note the targets in place for recycled content by 2025 and 2030 for plastic packaging. Despite packaging representing a significant portion of plastic (39.1% in 2021), we expect: 1) the EU to have superior recycling rates than other regions, and 2) other plastic types to achieve less successful recycle rates by 2030. We therefore model a gradual increase to a 30% recycle rate of waste collected. Looking at Europe, North America and Japan (the regions where Agilyx has announced projects) and assuming just a 10% attribution to chemical recycling in 2030 results in an addressable chemical recycling market of around four million tonnes per year by the end of the decade (or 12 million tonnes if you include other regions).

CHEMICAL RECYCLING POTENTIAL OF 12 MILLION TONNES (ASSUMPTIONS: 30% RECYCLE RATE, 10% TO CHEMICAL RECYCLING)...



Source: Nordea estimates and PlasticsEurope

...WHICH IMPLIES 566 CHEMICAL RECYCLING FACILITIES GLOBALLY IN 2030, OR 200 FACILITIES IN AGILYX'S ANNOUNCED MARKETS

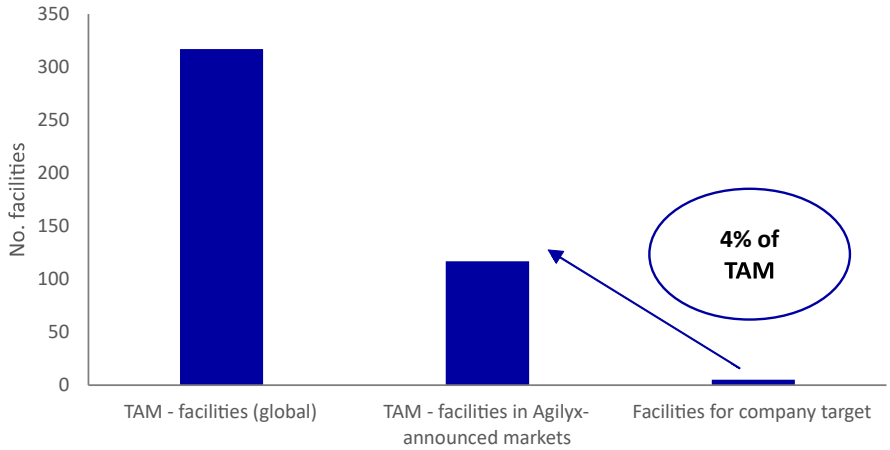


Source: Nordea estimates and PlasticsEurope

Cross-referencing with company commentary implies conservative company targets in place

Taking the same facility size, this results in a global market of 566 plants (output), or 200 plants if we look just at Agilyx's announced regions. By comparison, we highlight the company's mid-term target of around 165,000 tonnes in operation. Taking "mid-term" as meaning 2026, this equates to five facilities and just 4% of the addressable market if we only include Agilyx's announced regions.

COMPANY MID-TERM OPERATIONAL TARGET IMPLIES JUST 4% OF THE ADDRESSABLE MARKET LOOKING SOLELY AT AGILYX'S ANNOUNCED MARKETS



Note: Implies company "mid-term" target of 165,000 tonnes in operation in 2026. Facilities are 100 tonnes per day, at a 90% utilisation rate

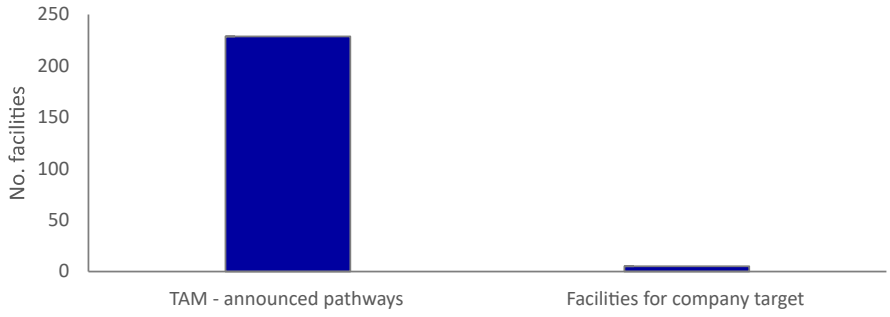
Source: PlasticsEurope, company data and Nordea estimates

Agilyx conversion pathways support vast market potential

We also analyse the potential for specific plastic conversion pathways (Agilyx notes technological robustness as a key aspect of its offering, thus allowing for more flexible conversion pathways), which may be a more precise way of assessing the chemical recycling potential (given that some plastic types such as PET are not suitable for pyrolysis). Looking at the conversion pathways announced by Agilyx at its facilities to date (mixed waste plastic, which we assume includes predominantly polyprolylene, and polyethylene, polystyrene and acrylic) and keeping the recycle rate the same as above and assuming all of these can be chemically recycled, we arrive at a global total addressable market (TAM) of 827 facilities in 2030, or 295 facilities for Agilyx-announced markets. In 2026, we see 229 facilities for Agilyx-announced markets, which points to upside to our regional-based TAM above.

ANNOUNCED CONVERSION PATHWAYS FROM AGILYX POINT TO FURTHER UPSIDE

Looking to conversion pathways available for Agilyx, we see further upside potential in terms of the addressable market



Source: Nordea estimates, PlasticsEurope, company data

Given the above, we see plastic waste sourcing and plastic waste conversion technologies as being exposed to a vast market opportunity, with Agilyx at the forefront given its Cyclyx and conversion offerings.

Risk factors

In this section, we list the most significant risk factors that we believe could affect Agilyx's financial performance. This list is not an exhaustive description of every risk the group is facing, but rather the ones that we find most important to highlight.

Changes in policy support could be concerning for the growth of Agilyx and the broader market

Policy risk
Policy decisions and regulations affect investments and adoption in the advanced recycling industry. At present, we see solid policy support in particular from the European Commission, which should provide strong tailwinds for the recycled content market to grow. Yet, if expected government policy and incentives do not materialise, this could result in a slowdown of market adoption and thus growth for Agilyx.

Geopolitical conflict continues to exert supply chain pressures that began during COVID-19

Risk of ongoing supply chain constraints and inflationary pressures
Even though the world is recovering from the COVID-19 pandemic, geopolitical conflict, such as the war in Ukraine, is exerting significant strain on global supply chains across a variety of industries. We see feedstock availability as essential to the company and its partners, so ongoing supply chain constraints might impede the smooth ramp-up of facilities going forward. Furthermore, we have seen substantial inflationary pressure, which could impact both facility capex and company-wide operating expenditure, as well as other costs. If this inflationary pressure persists, it could burden company margins as well as project delivery.

The company will be negatively affected if demand in the chemical recycling market is slow to materialise

Market risk
Although we see strong market tailwinds driving plastics recycling forward, the advanced recycling industry in particular remains at a nascent stage. If anticipated demand fails to materialise, this would affect Agilyx's ambitions and ability to expand and achieve its targets, both in the medium and long term.

The company is exposed to delays from its partners – a result of its capital-light business model

Project risk
Although we support Agilyx's capital-light business model, because its partners deploy the vast majority of project capex, project timing may be out of the company's control. This means that Agilyx is exposed to the potential for delays also on the side of its partners, which would hinder speedy progression through project phases, holding back near-term revenue potential, by extension.

Accidents at facilities with Agilyx's conversion technology could cause reputational damage

Risk due to spillage of hazardous substances
The facilities that Agilyx and its partners design and utilise often require potentially harmful materials (for example, chemicals and volatile solvents). Given this, there may be potential for Agilyx to be held accountable if there were an accident (e.g. contamination, explosion, fire, etc.). While we do not envisage Agilyx looking to operate its own facilities in the future, this still points to a reputational risk.

The company is listed in Oslo (NOK), but reports in USD and intends to embark on a global facility rollout

Foreign exchange risk
Agilyx's reporting currency is the USD, despite being listed in Norway with a share price denominated in NOK. Furthermore, the company is aiming to expand its facilities globally, and has already announced projects in the US and Japan. Given this, we see Agilyx as exposed to unfavourable (or favourable) fluctuations in the foreign exchange market, which could affect its financials. However, we note that all projects to date have been denominated in USD, which mitigates this particular risk.

Appendix: Agilyx management team

Tim Stedman, Agilyx Chief Executive Officer and board member

Mr. Stedman has close to 30 years of experience in the industry, working for sector leaders such as Trinseo and ExxonMobil Chemical. He has also served on the boards of Petrochemicals Europe and the European Petrochemical Association and was a member of the Energy and Climate Change Leadership Group of the International Council of Chemical Associations. He holds a BEng in Chemical Engineering with French and is also a Chartered Engineer.

Russell Main, Agilyx Chief Financial Officer

Mr. Main is CFO of Agilyx after having previous been CFO of Cyclyx, where he has been building organisational capabilities and structures to ensure the success of the company. He is a former CFO of Abode Systems (a DIY Home Security and Automation company) and holds over 23 years of financial leadership positions at Tyco International. Main holds a Bachelor of Science degree in Economics/Finance from Bentley University.

Chris Faulkner, Agilyx Chief Technology Officer

Dr. Faulkner has 15-plus years of technical and organisational expertise on the engineering, process, analytics and administrative fronts to deliver products and operating assets. He has held engineering, scientist and management positions in the renewable energy and chemicals industry sectors with a focus on sustainability and stewardship. Dr. Faulkner holds a doctorate in Chemical Engineering from Vanderbilt University.

Carsten Larsen, Agilyx Chief Commercial Officer

Mr. Larsen holds 25-plus years of industrial expertise, most recently having served as commercial officer, Plastics Circularity EMEA & APAC for Dow. Other positions held there included account management, marketing and business development. He also served on the boards of the American Chamber of Commerce in South Africa and the Chemical & Allied Industries' Association. Larsen holds a degree in international business administration from Copenhagen Business School.

Joe Vaillancourt, Cyclyx Chief Executive Officer and board member

Mr. Vaillancourt has 25-plus years of operational, financial and strategic experience within the energy and environment sectors, with his most recent experience being at Waste Management where he spent 15 years. Mr. Vaillancourt has co-founded ten companies to date and has helped commercialise 15 technologies. He has also led over USD 2bn of debt and equity financings in addition to M&A activities.

Kevin Paine, Cyclyx Chief Financial Officer

Mr. Paine is the interim CFO of Cyclyx. Kevin joined Cyclyx as Vice President of Finance -Business Partner following a 28 year career at Waste Management (WM). Kevin also held a variety of accounting and finance management positions at Wheelabrator Technologies and has further experience at Organic Growth Group. He holds a BS in Business Administration from University of Maine and an MBA from Temple University.

Bill Cooper, Cyclyx Senior Vice President, Strategic Partnerships

Mr. Cooper brings over 25 years of senior executive, investment banking and consulting experience working with growth companies, and has raised over USD 6bn in financings and worked on over USD 2bn in M&A transactions. Prior to Cyclyx, Bill headed the advanced fuels, chemicals and materials practice at Wedbush Securities. Mr. Cooper holds a Bachelor of Science in economics from Harvard University.

Mark Barranco, Senior VP of Engineering and Execution

Mr. Barranco is the Senior Vice President of Engineering and Execution of Agilyx. Mr. Barranco brings over 30 years of petrochemical industry experience, including working for ExxonMobil Chemical Company, where he progressed through numerous managerial and leadership assignments. He was also a Commissioned Submarine Warfare Officer in the United States Navy. Mr. Barranco holds a BS in Systems Engineering from the United States Naval Academy and an MBA from Rutgers University.

Louise Bryant, Senior VP of Investor Relations and Sustainability

Louise Bryant is the Senior Vice President of Investor Relations and Sustainability of Agilyx. Louise brings extensive investor relations experience, most notably serving as director of corporate affairs at Aggreko PLC for eight years. Previous roles include investor relations and communications at Costain Group and Thomas Cook Group, and equity research analyst at Citi. Louise started her career with PwC where she qualified as a chartered accountant.

Stephen Hamlet, Senior VP of Human Resources

Mr. Hamlet is the Senior Vice President of Human Resources of Agilyx. He brings over 20 years of diverse HR Leadership and hands-on HR operations experience. Most recently, Stephen led the Human Resources team for NeuroLogica/Samsung Medicine. Prior to NeuroLogica, he was the Director of HR for Crane Currency. Stephen also served as an Executive Coach for HR -ROI, a consulting firm in Portsmouth, NH and led the HR function for four years at BE Aerospace.

Source: Company data

Appendix: Agilyx board

Jan Secher, Chair of the board

Jan Secher has extensive chemical industry executive experience serving as CEO of Swedish specialty chemical company Perstorp Group, and as the CEO of Clariant, in addition to a variety of senior executive roles at ABB. He also has extensive board experience as a current board member of Elekta AB and is board director of the European Chemical Industry Council. Mr. Secher holds a M.Sc. in Industrial Marketing, Finance from Linkoping University.

Peter Norris, board member

Mr. Norris holds more than 35 years of experience within investment banking and business management, having worked for companies such as Barings, Goldman Sachs and Quayle Munro prior to his current role as Chair of Virgin Group Holdings, a multinational venture capital firm with holdings in a wide range of industries. Mr. Norris Graduated in Modern History and Modern Languages from Magdalen College, Oxford.

Carolyn Clarke, board member

Ms. Clarke spent 20 years in PwC, with roles within external audit, transactions, internal audit, risk, governance, conduct and controls optimisation. After admission to partnership in 2008, Clarke established PwC as the leading international firm in Mongolia. In 2015, she moved to take on an in - house Head of Audit, Risk and Control position with Centrica. She also chairs the board of Care International UK and is an independent director of Starling Bank.

Ranjeet Bhatia, board member

Mr. Bhatia is the co-founder and managing director of Saffron Hill Ventures, a global venture capital firm focused on the cleantech and software sectors. Previously, he advised and evaluated technology venture opportunities for Lord Rothschild. He holds an MBA from UCLA's Anderson School of Business, an MA in International Relations and Economics from John Hopkins University and a BA in Environmental Science from Occidental College.

Steen Jakobsen, board member

Mr. Jakobsen joined Saxo Bank in 2000 and serves as Chief Investment Officer. He has extensive experience and prior to his current position, he worked with Swiss Bank Corp, Citibank, Chase Manhattan, UBS and served as Global Head of Trading, FX and Options at Christiania (now Nordea). Steen Jakobsen holds a MSc in Economics from the University of Copenhagen.

Catherine C. Keenan, board member

With over 30 years in the Chemical and Plastics industry, Ms. Keenan has experience in sustainability, government and public affairs, stakeholder engagement, branding and reputation management. She began her career at Dow Chemical, where she held a series of leadership roles and responsibilities. She is a graduate of Lehigh University with a Bachelor's Degree in Journalism / Science Writing and a minor in Chemistry.

Martha Crawford, board member

Martha Crawford has extensive executive experience commercialising R&D as well as expertise in both ESG and waste industry businesses. She served as an independent Director of Suez, and was SVP at Areva, Director General of L´Oreal's Research and Innovation Group, and principal administrator of the OECD´s Environmental Performance and Information Division. Ms. Crawford holds a PhD and MS in Chemical and Environmental Engineering from Harvard University.

Source: Company data

Appendix: Agilyx shareholders

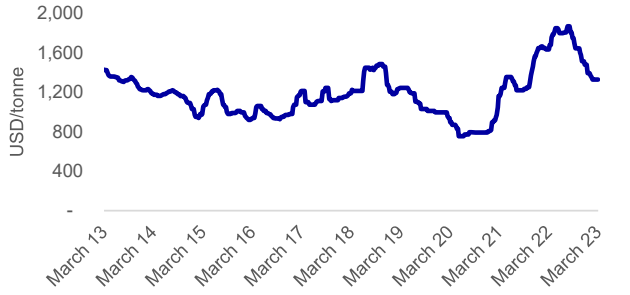
AGILYX SHAREHOLDERS, AS OF 20 MARCH 2023

#	INVESTOR	POSITION (M SHARES)	Position (% outstanding)	Country
1	Citibank, N.A.	**39.52**	46.41%	IRL
2	Six Sis AG	**6.40**	7.51%	CHE
3	Clearstream Banking S.A.	**4.21**	4.95%	LUX
4	Morgan Stanley & Co. Int. Plc.	**3.81**	4.47%	GBR
5	Merrill Lynch, Pierce, Fenner & SM	**3.75**	4.40%	USA
6	BNP Paribas	**2.21**	2.60%	LUX
7	Skandinaviska Enskilda Banken AB	**2.00**	2.35%	SWE
8	MP Pensjon PK	**1.52**	1.79%	NOR
9	Verdipapirfondet First Generator	**1.49**	1.74%	NOR
10	Pictet & Cie (Europe) S.A.	**1.11**	1.30%	LUX
11	Sundt AS	**1.07**	1.25%	NOR
12	UFI Capital AS	**1.03**	1.21%	NOR
13	Citibank, N.A.	**1.00**	1.18%	IRL
14	Verdipapirfondet DNB SMB	**0.99**	1.16%	NOR
15	Citibank, N.A.	**0.92**	1.08%	IRL
16	Verdipapirfondet Fondsfinans Norge	**0.92**	1.08%	NOR
17	DNB Markets Aksjehandel/-Analyse	**0.87**	1.02%	NOR
18	Verdipapirfondet DNB Norge	**0.78**	0.91%	NOR
19	Alden AS	**0.73**	0.85%	NOR
20	Verdipapirfondet First Globalt	**0.69**	0.81%	NOR
	Top 20	**75.0**	**88%**	
	Total	**85.2**	**100%**	

Source: Company data

Appendix: Plastics prices

PET SPOT PRICE NWE (USD/TONNE)

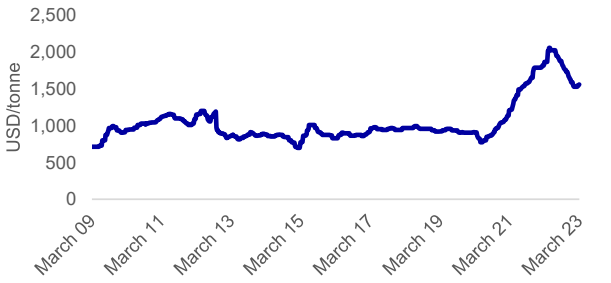


Source: Refinitiv

HDPE SPOT PRICE NWE (USD/TONNE)

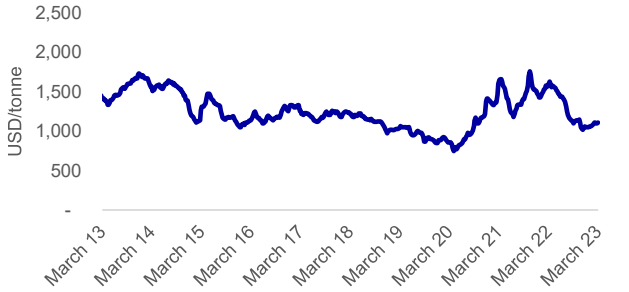
Source: Refinitiv

PVC SPOT PRICE GERMANY (USD/TONNE)



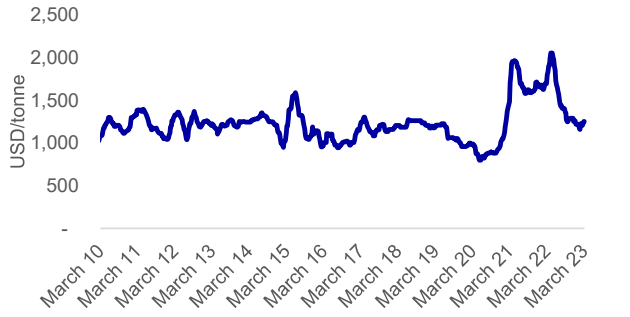
Source: Refinitiv

LDPE SPOT PRICE FAR EAST ASIA (USD/TONNE)



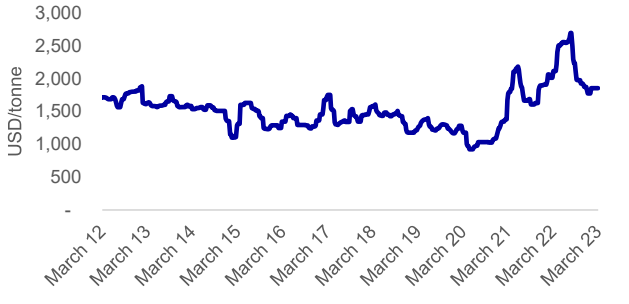
Source: Refinitiv

POLYPROPYLENE SPOT PRICE NWE (USD/TONNE)



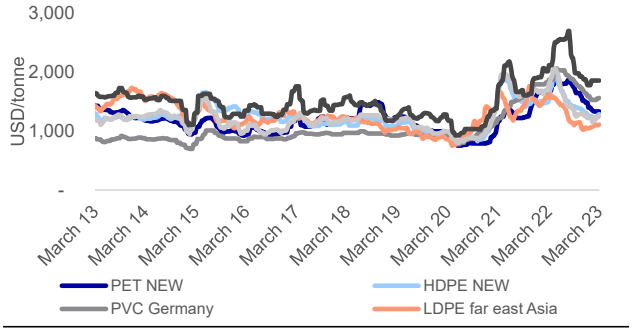
Source: Refinitiv

POLYSTYRENE SPOT PRICE GERMANY (USD/TONNE)



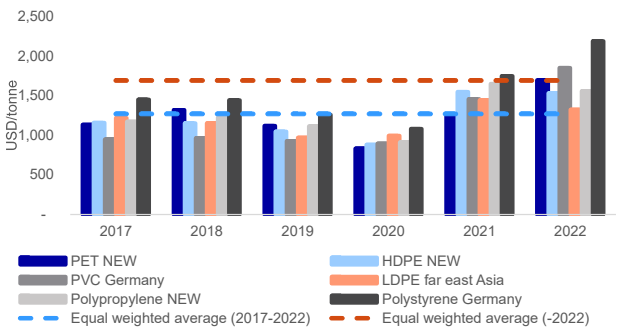
Source: Refinitiv

PLASTIC SPOT PRICES BY PLASTIC TYPE (USD/TONNE)



Source: Refinitiv

AVERAGE PLASTIC SPOT PRICES BY TYPE (USD/TONNE)



Source: Refinitiv

Reported numbers and forecasts

INCOME STATEMENT

USDm	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E
Total revenue	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**5**	**16**	**40**	**78**
Revenue growth	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	12.8%	226.7%	152.3%	93.3%
of which organic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n.a.	n.a.	n.a.	n.a.	n.a.
of which FX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	0	0	0	0	0	0	-6	-15	-20	-13	-6
Depreciation and impairments PPE	0	0	0	0	0	0	0	0	0	-1	-1
of which leased assets	0	0	0	0	0	0	0	0	0	0	0
EBITA	0	0	0	0	0	0	-7	-16	-20	-13	-7
Amortisation and impairments	0	0	0	0	0	0	0	0	0	-1	-1
EBIT	0	0	0	0	0	0	-7	-16	-20	-14	-7
of which associates	0	0	0	0	0	0	0	0	0	0	0
Associates excluded from EBIT	0	0	0	0	0	0	-3	-2	-2	-2	-2
Net financials	0	0	0	0	0	0	0	1	0	0	0
of which lease interest	0	0	0	0	0	0	0	0	0	0	0
Changes in value, net	0	0	0	0	0	0	0	0	0	0	0
Pre-tax profit	**0**	**0**	**0**	**0**	**0**	**0**	**-10**	**-17**	**-22**	**-16**	**-9**
Reported taxes	0	0	0	0	0	0	0	0	0	0	0
Net profit from continued operations	0	0	0	0	0	0	-10	-17	-22	-16	-9
Discontinued operations	0	0	0	0	0	0	0	0	0	0	0
Minority interests	0	0	0	0	0	0	0	0	0	0	0
Net profit to equity	0	0	0	0	0	0	-10	-17	-22	-16	-9
EPS, USD	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**-0.14**	**-0.22**	**-0.28**	**-0.19**	**-0.11**
DPS, USD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
of which ordinary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
of which extraordinary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Profit margin in percent											
EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-149.3%	-315.5%	-123.3%	-32.1%	-7.8%
EBITA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-151.8%	-318.3%	-125.6%	-33.4%	-8.7%
EBIT	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-154.3%	-321.1%	-127.9%	-34.7%	-9.6%
Adjusted earnings											
EBITDA (adj)	0	0	0	0	0	0	-6	-15	-20	-13	-6
EBITA (adj)	0	0	0	0	0	0	-7	-16	-20	-13	-7
EBIT (adj)	0	0	0	0	0	0	-7	-16	-20	-14	-7
EPS (adj, USD)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-0.14	-0.22	-0.26	-0.18	-0.10
Adjusted profit margins in percent											
EBITDA (adj)	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-149.3%	-315.5%	-123.3%	-32.1%	-7.8%
EBITA (adj)	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-151.8%	-318.3%	-125.6%	-33.4%	-8.7%
EBIT (adj)	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-154.3%	-321.1%	-127.9%	-34.7%	-9.6%
Performance metrics											
CAGR last 5 years											
Net revenue	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBIT	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EPS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
DPS	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Average last 5 years											
Average EBIT margin	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-86.7%	-44.8%
Average EBITDA margin	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-83.3%	-42.3%

VALUATION RATIOS - ADJUSTED EARNINGS

USDm	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E
P/E (adj)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBITDA (adj)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBITA (adj)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBIT (adj)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.

VALUATION RATIOS - REPORTED EARNINGS

USDm	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E
P/E	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/Sales	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	76.64	61.13	14.07	5.96	3.19
EV/EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBITA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBIT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.
Dividend yield (ord.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0%	0.0%	0.0%	0.0%	0.0%
FCF yield	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-2.9%	-5.9%	-6.8%	-6.8%	-4.0%
FCF Yield bef A&D, lease adj	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-2.9%	-5.9%	-6.8%	-6.8%	-4.0%
Payout ratio	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Company data and Nordea estimates

BALANCE SHEET

USDm	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E
Intangible assets	0	0	0	0	0	0	5	4	4	4	4
of which R&D	0	0	0	0	0	0	0	0	0	0	0
of which other intangibles	0	0	0	0	0	0	5	4	4	4	4
of which goodwill	0	0	0	0	0	0	0	0	0	0	0
Tangible assets	0	0	0	0	0	0	0	1	3	4	4
of which leased assets	0	0	0	0	0	0	0	0	0	0	0
Shares associates	0	0	0	0	0	0	2	2	0	0	0
Interest bearing assets	0	0	0	0	0	0	0	0	0	0	0
Deferred tax assets	0	0	0	0	0	0	0	0	0	0	0
Other non-IB non-current assets	0	0	0	0	0	0	0	0	0	0	0
Other non-current assets	0	0	0	0	0	0	0	0	0	0	0
Total non-current assets	0	0	0	0	0	0	7	7	7	8	9
Inventory	0	0	0	0	0	0	0	0	0	1	1
Accounts receivable	0	0	0	0	0	0	0	2	2	6	10
Short-term leased assets	0	0	0	0	0	0	0	0	0	0	0
Other current assets	0	0	0	0	0	0	0	1	0	0	0
Cash and bank	0	0	0	0	0	0	39	20	21	10	6
Total current assets	0	0	0	0	0	0	39	22	24	18	18
Assets held for sale	0	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.	n.a.
Total assets	**0**	**0**	**0**	**0**	**0**	**0**	**46**	**29**	**31**	**26**	**27**
Shareholders equity	0	0	0	0	0	0	0	0	0	0	0
Of which preferred stocks	0	0	0	0	0	0	0	0	0	0	0
Of which equity part of hybrid debt	0	0	0	0	0	0	0	0	0	0	0
Minority interest	0	0	0	0	0	0	0	0	0	0	0
Total Equity	0	0	0	0	0	0	0	0	0	0	0
Deferred tax	0	0	0	0	0	0	0	0	0	0	0
Long term interest bearing debt	0	0	0	0	0	0	1	0	0	0	0
Pension provisions	0	0	0	0	0	0	0	0	0	0	0
Other long-term provisions	0	0	0	0	0	0	0	0	0	0	0
Other long-term liabilities	0	0	0	0	0	0	1	0	5	5	5
Non-current lease debt	n.a.	n.a.	n.a.	0	0	0	0	0	1	1	1
Convertible debt	0	0	0	0	0	0	0	0	0	0	0
Shareholder debt	0	0	0	0	0	0	0	0	0	0	0
Hybrid debt	0	0	0	0	0	0	0	0	0	0	0
Total non-current liabilities	0	0	0	0	0	0	1	0	6	6	6
Short-term provisions	0	0	0	0	0	0	0	0	0	0	0
Accounts payable	0	0	0	0	0	0	1	1	2	7	11
Current lease debt	0	0	0	0	0	0	0	0	0	0	0
Other current liabilities	0	0	0	0	0	0	2	2	8	8	8
Short term interest bearing debt	0	0	0	0	0	0	2	1	1	1	1
Total current liabilities	0	0	0	0	0	0	5	5	11	16	20
Liabilities for assets held for sale	0	0	0	0	0	0	0	0	0	0	0
Total liabilities and equity	**0**	**0**	**0**	**0**	**0**	**0**	**46**	**29**	**31**	**26**	**27**
Balance sheet and debt metrics											
Net debt	0	0	0	0	0	0	-36	-18	-20	-9	-4
of which lease debt	n.a.	n.a.	n.a.	0	0	0	0	0	1	1	1
Working capital	0	0	0	0	0	0	-3	-1	-8	-7	-7
Invested capital	0	0	0	0	0	0	4	5	0	1	2
Capital employed	0	0	0	0	0	0	42	25	16	6	3
ROE	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
ROIC	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
ROCE	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-46.8%	-49.7%	n.m.	n.m.	n.m.
Net debt/EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Interest coverage	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	-23.8	n.m.	-94.3	n.m.	n.m.
Equity ratio	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	0.0%	0.0%	0.0%	0.0%	0.0%
Net gearing	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.

Source: Company data and Nordea estimates

CASH FLOW STATEMENT

USDm	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E
EBITDA (adj) for associates	**0**	**0**	**0**	**0**	**0**	**0**	**-6**	**-15**	**-20**	**-13**	**-6**
Paid taxes	0	0	0	0	0	0	0	0	0	0	0
Net financials	0	0	0	0	0	0	0	1	0	0	0
Change in provisions	0	0	0	0	0	0	0	0	0	0	0
Change in other LT non-IB	0	0	0	0	0	0	0	-1	5	0	0
Cash flow to/from associates	0	0	0	0	0	0	0	0	0	0	0
Dividends paid to minorities	0	0	0	0	0	0	0	0	0	0	0
Other adj to reconcile to cash flow	0	0	0	0	0	0	0	2	-4	0	0
Funds from operations (FFO)	**0**	**0**	**0**	**0**	**0**	**0**	**-6**	**-14**	**-19**	**-13**	**-6**
Change in NWC	0	0	0	0	0	0	0	-2	6	0	0
Cash flow from operations (CFO)	**0**	**0**	**0**	**0**	**0**	**0**	**-7**	**-16**	**-13**	**-13**	**-6**
Capital expenditure	0	0	0	0	0	0	-4	-3	-3	-4	-4
Free cash flow before A&D	**0**	**0**	**0**	**0**	**0**	**0**	**-11**	**-19**	**-17**	**-17**	**-10**
Proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Acquisitions	0	0	0	0	0	0	0	0	0	0	0
Free cash flow	0	0	0	0	0	0	-11	-19	-17	-17	-10
Free cash flow bef A&D, lease adj	0	0	0	0	0	0	-11	-19	-17	-17	-10
Dividends paid	0	0	0	0	0	0	0	0	0	0	0
Equity issues / buybacks	0	0	0	0	0	0	40	1	17	4	4
Net change in debt	0	0	0	0	0	0	-2	-1	-1	0	0
Other financing adjustments	0	0	0	0	0	0	0	1	0	0	0
Other non-cash adjustments	0	0	0	0	0	0	9	0	2	2	2
Change in cash	0	0	0	0	0	0	39	-19	2	-11	-4
Cash flow metrics											
Capex/D&A	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Capex/Sales	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	87.2%	53.6%	21.5%	8.9%	4.9%
Key information											
Share price year end (/current)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5	4	3	3	3
Market cap.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	368	317	245	249	253
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	332	299	225	240	249
Diluted no. of shares, year-end (m)	0.0	0.0	0.0	0.0	0.0	0.0	74.9	77.8	85.3	86.8	88.2

Source: Company data and Nordea estimates

Disclaimer and legal disclosures

Origin of the report
This publication or report originates from: Nordea Bank Abp, including its branches Nordea Danmark, Filial af Nordea Bank Abp, Finland, Nordea Bank Abp, filial i Norge and Nordea Bank Abp, filial i Sverige (together "Nordea") acting through their units Nordea Markets and Equity Sales & Research.

Nordea Bank Abp is supervised by the European Central Bank and the Finnish Financial Supervisory Authority and the branches are supervised by the European Central Bank and the Finnish Financial Supervisory Authority and the Financial Supervisory Authorities in their respective countries.

Content of report
This report has been prepared solely by Nordea Markets or Equity Sales & Research.

Opinions or suggestions from Nordea Markets credit and equity research may deviate from one another or from opinions presented by other departments in Nordea. This may typically be the result of differing time horizons, methodologies, contexts or other factors.

The information provided herein is not intended to constitute and does not constitute investment advice nor is the information intended as an offer or solicitation for the purchase or sale of any financial instrument. The information contained herein has no regard to the specific investment objectives, the financial situation or particular needs of any particular recipient. Relevant and specific professional advice should always be obtained before making any investment or credit decision

Opinions or ratings are based on one or more methods of valuation, for instance cash flow analysis, use of multiples, behavioural technical analyses of underlying market movements in combination with considerations of the market situation and the time horizon. Key assumptions of forecasts or ratings in research cited or reproduced appear in the research material from the named sources. The date of publication appears from the research material cited or reproduced. Opinions and estimates may be updated in subsequent versions of the report, provided that the relevant company/issuer is treated anew in such later versions of the report.

Validity of the report
All opinions and estimates in this report are, regardless of source, given in good faith, and may only be valid as of the stated date of this report and are subject to change without notice.

No individual investment or tax advice
The report is intended only to provide general and preliminary information to investors and shall not be construed as the basis for any investment decision. This report has been prepared by Nordea Markets or Equity Sales & Research as general information for private use of investors to whom the report has been distributed, but it is not intended as a personal recommendation of particular financial instruments or strategies and thus it does not provide individually tailored investment advice, and does not take into account the individual investor's particular financial situation, existing holdings or liabilities, investment knowledge and experience, investment objective and horizon or risk profile and preferences. The investor must particularly ensure the suitability of an investment as regards his/her financial and fiscal situation and investment objectives. The investor bears the risk of losses in connection with an investment.

Before acting on any information in this report, it is recommendable to consult (without being limited to) one's financial, legal, tax, accounting, or regulatory advisor in any relevant jurisdiction.

The information contained in this report does not constitute advice on the tax consequences of making any particular investment decision. Each investor shall make his/her own appraisal of the tax and other financial merits of his/her investment.

Sources
This report may be based on or contain information, such as opinions, estimates and valuations which emanate from: Nordea Markets' or Equity Sales & Research analysts or representatives, publicly available information, information from other units of Nordea, or other named sources.

To the extent this publication or report is based on or contain information emanating from other sources ("Other Sources") than Nordea Markets or Equity Sales & Research ("External Information"), Nordea Markets or Equity Sales & Research has deemed the Other Sources to be reliable but neither Nordea, others associated or affiliated with Nordea nor any other person, do guarantee the accuracy, adequacy or completeness of the External Information.

Limitation of liability
Nordea or other associated and affiliated companies assume no liability as regards to any investment, divestment or retention decision taken by the investor on the basis of this report. In no event will Nordea or other associated and affiliated companies be liable for direct, indirect or incidental, special or consequential damages (regardless of whether being considered as foreseeable or not) resulting from the information in this report.

Risk information
The risk of investing in certain financial instruments, including those mentioned in this report, is generally high, as their market value is exposed to a lot of different factors such as the operational and financial conditions of the relevant company, growth prospects, change in interest rates, the economic and political environment, foreign exchange rates, shifts in market sentiments etc. Where an investment or security is denominated in a different currency to the investor's currency of reference, changes in rates of exchange may have an adverse effect on the value, price or income of or from that investment to the investor. Past performance is not a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. When investing in individual shares, the investor may lose all or part of the investments.

Conflicts of interest
Readers of this document should note that Nordea Markets or Equity Sales & Research has received remuneration from the company mentioned in this document for the production of the report. The remuneration is not dependent on the content of the report.

Nordea, affiliates or staff in Nordea, may perform services for, solicit business from, hold long or short positions in, or otherwise be interested in the investments (including derivatives) of any company mentioned in the report.

To limit possible conflicts of interest and counter the abuse of inside knowledge, the analysts of Nordea Markets and Equity Sales & Research are subject to internal rules on sound ethical conduct, the management of inside information, handling of unpublished research material, contact with other units of Nordea and personal account dealing. The internal rules have been prepared in accordance with applicable legislation and relevant industry standards. The object of the internal rules is for example to ensure that no analyst will abuse or cause others to abuse confidential information. It is the policy of Nordea that no link exists between revenues from capital markets activities and individual analyst remuneration. Nordea and the branches are members of national stockbrokers' associations in each of the countries in which Nordea has head offices. Internal rules have been developed in accordance with recommendations issued by the stockbrokers associations. This material has been prepared following the Nordea Conflict of Interest Policy, which may be viewed at www.nordea.com/mifid.
Please find a list of all recommendations disseminated by Nordea Equities during the preceding 12-month period here: https://research.nordea.com/compliance

Distribution restrictions
The securities referred to in this report may not be eligible for sale in some jurisdictions. This report is not intended for, and must not be distributed to private customers in the UK or the US or to customers in any other jurisdiction where restrictions may apply.

This publication or report may be distributed in the UK to institutional investors by Nordea Bank Abp London Branch of 6th Floor, 5 Aldermanbury Square, London, EC2V 7AZ, which is under supervision of the European Central Bank, Finanssivalvonta (Financial Supervisory Authority) in Finland and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority in the United Kingdom. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request.

Nordea Bank Abp (“Nordea”) research is not “globally branded” research. Nordea research reports are intended for distribution in the United States solely to “major U.S. institutional investors,” as defined in Rule 15a-6 under the Securities Exchange Act of 1934. Any transactions in securities discussed within the research reports will be chaperoned by Nordea Securities LLC (“Nordea Securities”), an affiliate of Nordea and a SEC registered broker dealer and member of FINRA. Nordea Securities does not employ research analysts and has no contractual relationship with Nordea that is reasonably likely to inform the content of Nordea research reports. Nordea makes all research content determinations without any input from Nordea Securities.

The research analyst(s) named on this report are not registered/qualified as research analysts with FINRA. Such research analyst(s) are also not registered with Nordea Securities and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Analyst Shareholding
Nordea analysts do not hold shares in the companies that they cover.
No holdings or other affiliations by analysts or associates.

Fair value and sensitivity
We calculate our fair values by weighting DCF, DDM, SOTP, asset-based and other standard valuation methods. Our fair values are sensitive to changes in valuation assumptions, of which growth, margins, tax rates, working capital ratios, investment-to-sales ratios and cost of capital are typically the most sensitive. It should be noted that our fair values would change by a disproportionate factor if changes are made to any or all valuation assumptions, owing to the non-linear nature of the standard valuation models applied (mentioned above). As a consequence of the standard valuation models we apply, changes of 1-2 percentage points in any single valuation assumption can change the derived fair value by as much as 30% or more. All research is produced on an ad hoc basis and will be updated when the circumstances require it.

Marketing Material
This research report should be considered marketing material, as it has been commissioned and paid for by the subject company, and has not been prepared in accordance with the regulations designed to promote the independence of investment research and it is not subject to any legal prohibition on dealing ahead of the dissemination of the report. However, Nordea Markets analysts are according to internal policies not allowed to hold shares in the companies/sectors that they cover.

Market-making obligations and other significant financial interest
Nordea has no market-making obligations in Agilyx shares.

As of 18/04/2023, Nordea Abp holds no positions of 0.5% or more of shares issued by Agilyx.

As of the publication of this report, the issuer does not hold a position exceeding 5% of the total shares issued in Nordea Abp.

Investment banking transactions
In view of Nordea's position in its markets readers should assume that the bank may currently or may in the coming three months and beyond be providing or seeking to provide confidential investment banking services to the company/companies

Issuer Review

This report has been reviewed, for the purpose of verification of fact or sequence of facts, by the Issuer of the relevant financial instruments mentioned in the report prior to publication. No Nordea recommendations or target prices have, however, been disclosed to the issuer. The review has led to changes of facts in the report.

Completion Date

19 Apr 2023, 22:39 CET

Nordea Bank Abp	Nordea Bank Abp, filial i Sverige	Nordea Danmark, Filial af Nordea Bank Abp, Finland	Nordea Bank Abp, filial i Norge
Nordea IB & Equity Division, Equity Research Visiting address: Aleksis Kiven katu 7, Helsinki FI-00020 Nordea Finland Tel: +358 9 1651 Fax: +358 9 165 59710 Reg.no. 2858394-9 Satamaradankatu 5 Helsinki	**Nordea IB & Equity Division, Equity Research** Visiting address: Smålandsgatan 17 SE-105 71 Stockholm Sweden Tel: +46 8 614 7000 Fax: +46 8 534 911 60	**Nordea IB & Equity Division, EquityResearch** Visiting address: Grønjordsvej 10 DK-2300 Copenhagen S Denmark Tel: +45 3333 3333 Fax: +45 3333 1520	**Nordea IB & Equity Division, Equity Research** Visiting address: Essendropsgate 7 N-0107 Oslo Norway Tel: +47 2248 5000 Fax: +47 2256 8650