

SEPTEMBER 11TH, 2023

Avio HY 2023 Results



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- **Highlights (Giulio Ranzo, CEO)**

- Focus on HY 2023 (Giulio Ranzo, CEO)
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Record-high order backlog and cash, improved revenues and profits

Vega launch scheduled for October 4th, subsequent Vega launch planned by spring 2024

Vega C: Independent Evaluation Board (IEB) on Z40 firing test and Vega C return to flight plan under finalization

Vega E: Preliminary Design Review achieved, DM2 engine model successfully tested on ground

Record-high order backlog (1.4Bln€) thanks to new technology development projects and tactical propulsion orders

Improved profitability driven by technology development projects and relief of energy costs

Record-high cash position (over 100M)

FY 2023 Guidance confirmed

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Flight schedule



VA260
April

VA261
July



A6 MF

Ariane

A6 MF announced by ESA in 2024. Commercial flights to follow, to be announced by Arianespace



Z40 Firing test
June



VV23
October



VV24



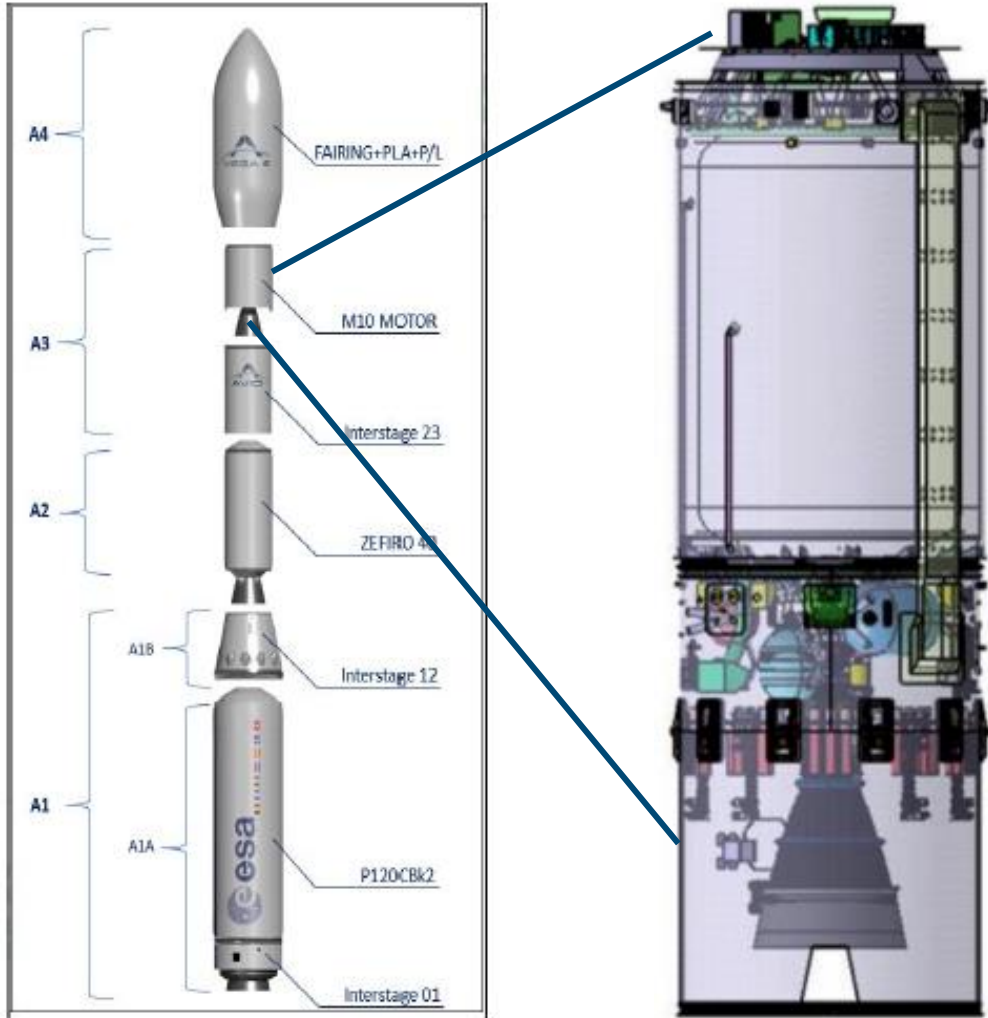
Z40
Additional testing

Vega C next launch date to be finalized upon IEB results on Z40 firing tests (1)

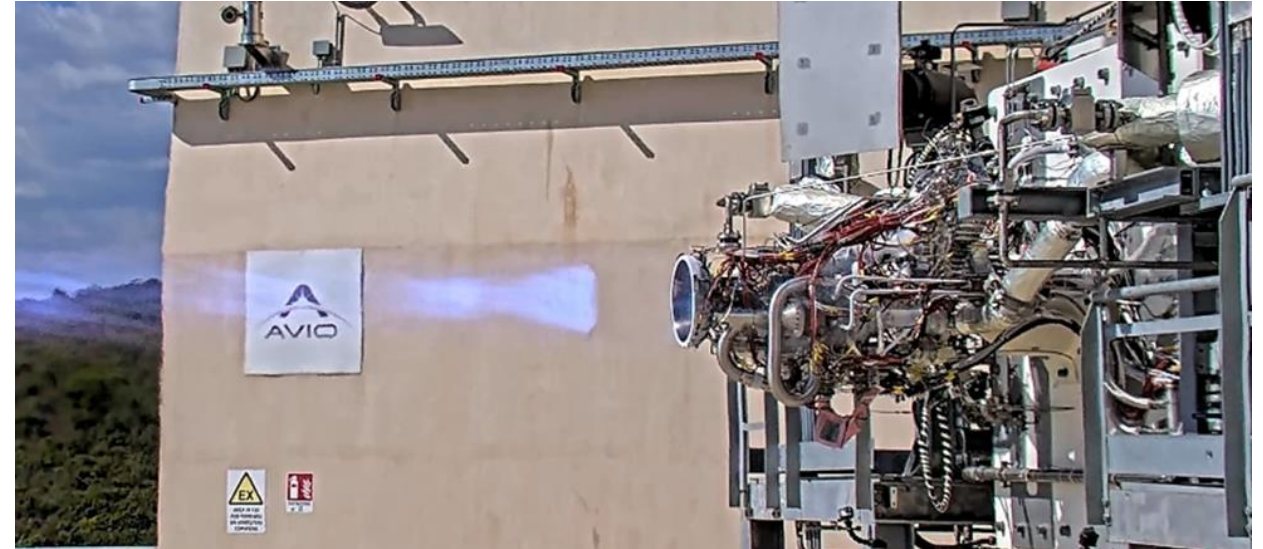


VC03 **Vega**

Vega E's M10 LOX-CH engine (new model DM2) successfully tested



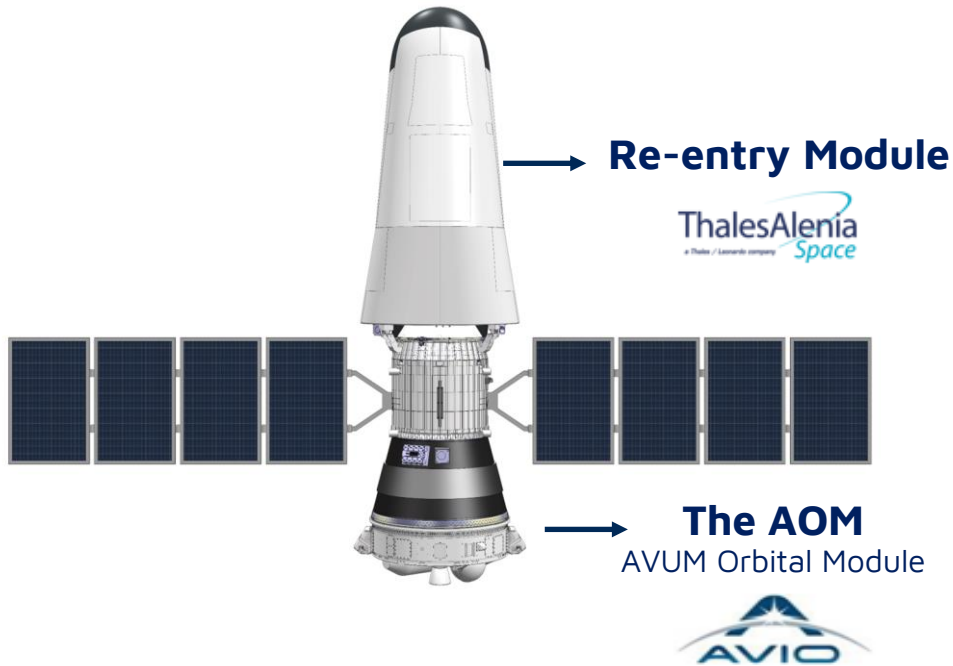
Vega E



The first 5 engine tests for DM2 were completed, introducing a new, enhanced, lighter, and fully throttleable version of Avio's upper stage engine for the upcoming M-10, the upper stage engine of the Vega-E launcher.

The engine is designed and built by Avio with **100kN** of thrust using liquid Oxygen and Methane. It is the first engine of this type in EU.

Space Rider successfully passed its Critical Design Review



Achievements:

- **Design phase completed in July 2023:**
 - System critical design review successfully passed
 - Subsystems and components critical design reviews completed (no red flags)
- **Qualification loop started:**
 - AOM HWIL test facilities in Colleferro completed

Next steps:

- AOM HWIL tests will start in Sep 2023 (duration 1 year)
- AOM Mechanical Tests: HW production ongoing, test foreseen in Apr 2024
- AOM+RM combined tests (mechanical, functional, EMC) from Sep 2024 to Feb 2025
- **Maiden flight readiness targeted in 2H 2025:**
 - Integration in Kourou (French Guyana) in July 2025
 - Launch targeted in 2H 2025



	ALEK + RM
Height [m]	7,15
Max diameter[m]	2,4
Lift off mass [ton]	3,3
Power [KW]	3,7

New technology development projects started to prepare next-gen launchers

Space Transportation Systems: €185 M

- In-flight demonstrator of a LOX-Methane two stage to orbit small launcher
- Two experimental launches (single stage and two stage respectively)
- Composite cryo tanks, simplified Avionics (software-based) and non-pyro separation systems



High Thrust Engine: €100 M

- 60ton thrust class LOX-Methane engine
- Innovative thermo-dynamic cycle, delivering high specific impulse



Multi-Purpose Green Engine: €55 M

- Highly versatile engine for orbital propulsion
- «Green» engine for in-orbit services and logistics



Propulsion for IOS Module: €35 M

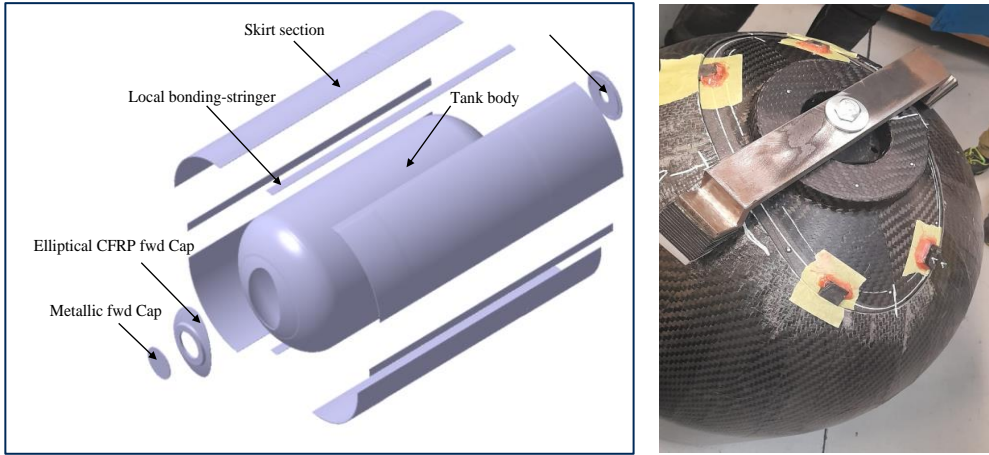
- Propulsion techs for an In-Orbit Servicing Mission
- In partnership with Thales, Leonardo, Telespazio, D-Orbit



to be developed within 2026

Space Transportation Systems – New Technologies and Sub-Orbital Demo Flights

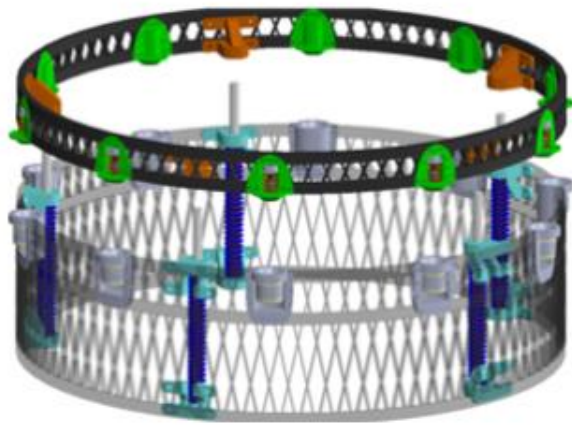
Cryogenic Composite Tank



SIA : System Integrated Avionics



NDSS : Non-Detonic Separation System



In-Flight Demonstrators



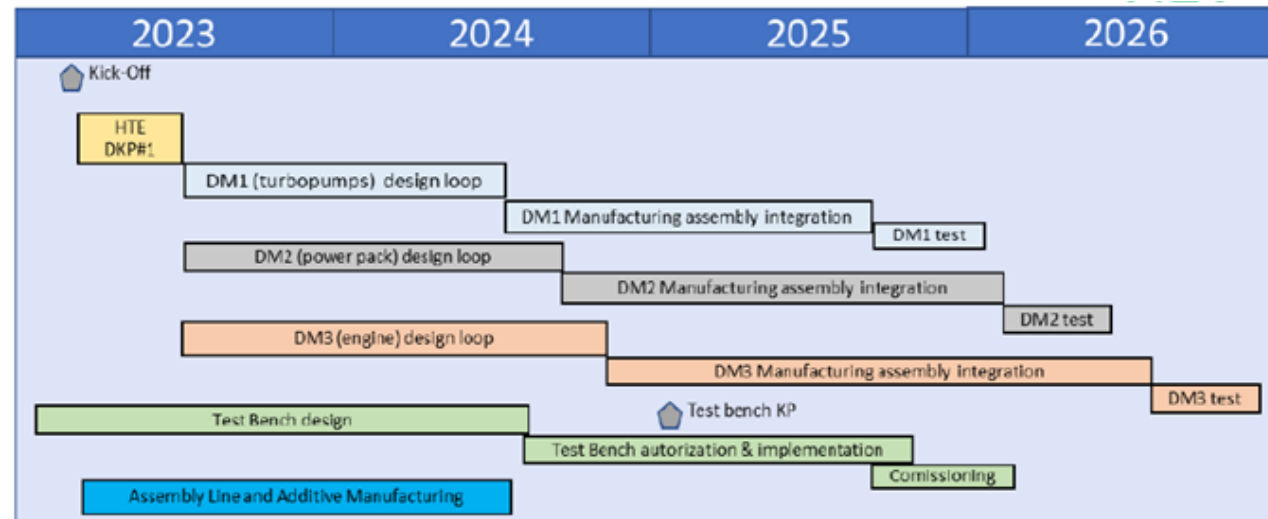
M10 LOX-Methane based Engines

High Thrust Engine – The 60 tons thrust class LOX/Methane



The most innovative component of the M60 engine is the "Liquid Oxygen Powerpack" which, via a dedicated gas generator, will supply the necessary power to the oxygen line.

Copper-based alloys represents a key element for the development of new Technology HT engines, such as 60-tons class LOxMethane cryogenic engine.



Copper Alloy CC

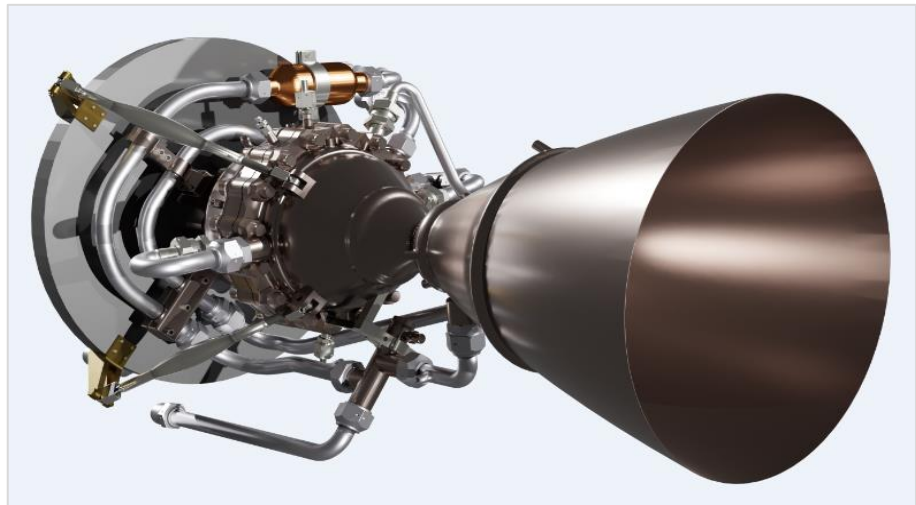
Propellants	LOX-CH4
Schematic	Hybrid cycle
Thrust in vacuum, kN	600
Minimum I_{sp} in vacuum, s	370
Weight, kg	< 530

MPGE – Multi Purpose Green Engine for orbital propulsion and In-orbit Services

2 different engine variants (2000N class) using green propellants

'GE-C' orbital engine

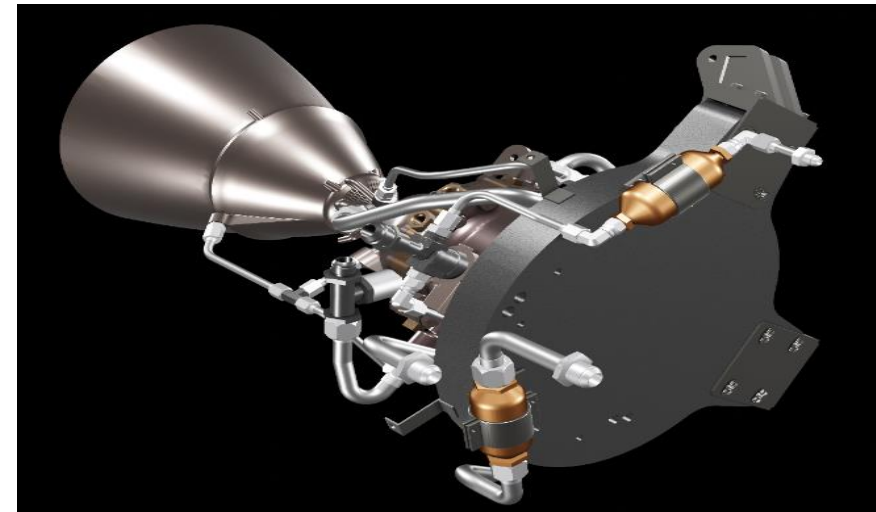
(same class as Vega C current upper stage)



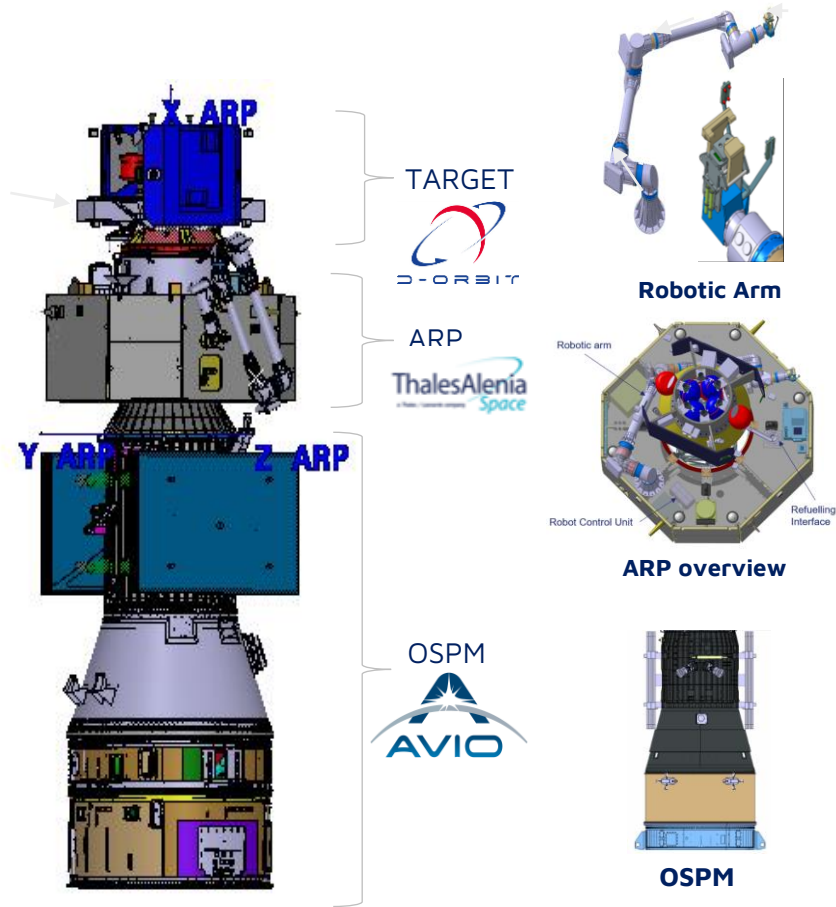
First Prototypes in ALM

'MPGE' as a throtttable evolution of the GE-C

(Space Rider 2GEN, Kick Stage Vega E, IOS 2GEN)



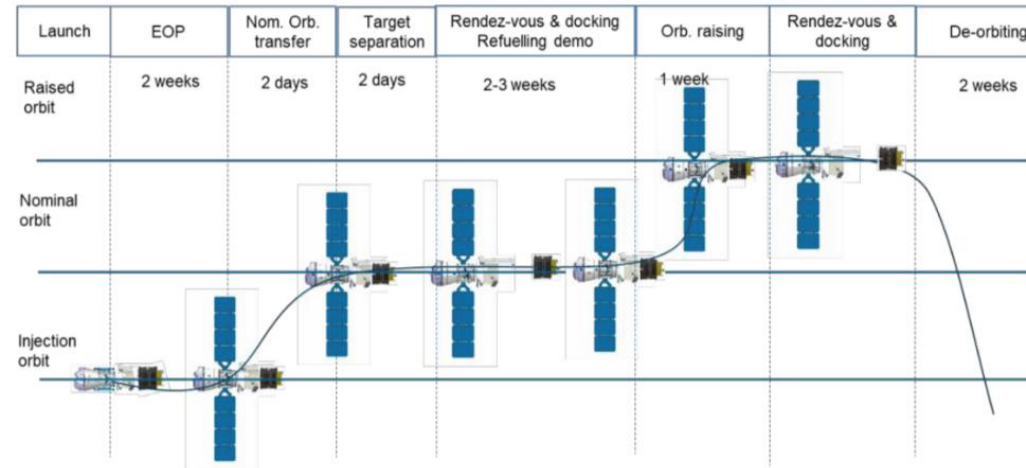
In-Orbit Services Demo missions by 2026 using Vega C



TARGET : satellite demo

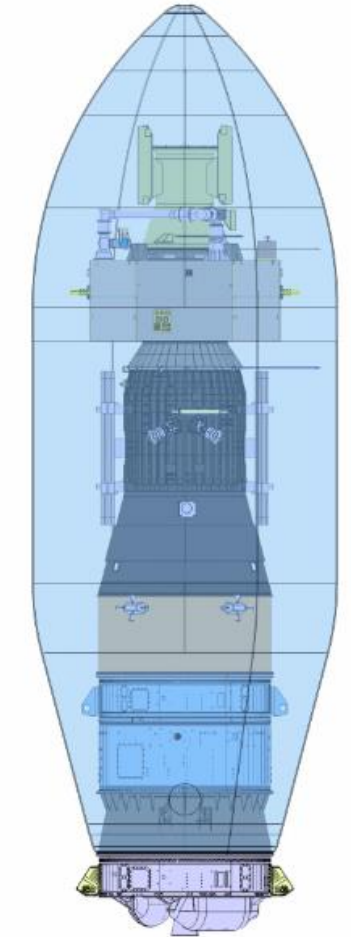
ARP : Avionic and Robotic Platform

OSPM : Orbital Service Propulsion Module



Applications:

- Refuelling
- Debris removal
- In-orbit inspection and repair



IOS module accomodation inside VEGA-C Fairing

Investment in T4i Technology for Propulsion and Innovation



2,5M

Investment in
T4i

17%

Shares of T4i
acquired

On 4th September 2023 Avio invested ~**2.5 M€** in T4i's capital, equal to approximately **17%** of the shares of T4i.

T4i, spin-off of the University of Padua, was founded in 2014 and it is specialized in **'green' storable chemical propulsion systems, electric propulsion systems, and attitude control thruster.**

The agreement will enhance the effectiveness and time-to-market for the introduction of new functional propulsion systems in our strategic plan for application on:

- GEC/MPGE Engine
- IOS propulsion module
- Vega upper stage propulsion

P160C activities update



The P160C is going to be the booster of **Ariane 6 Block 2**, with the main purpose to meet the needs of **Kuiper's constellation** and the **first stage of the next configuration of Vega Launcher**, to increase its performance, competitiveness and also versatility.

Update of the P160C activities at 30 June 2023:

- procurement of process machines, tools and means
- acceptance and process validation
- QM3 (s/n 01) manufacturing

Next steps:

- **April 2024:** first IMC shipment from Colleferro
- **Mid of 2024:** casting at Regulus plants
- **End of 2024:** static firing test



The new winding machine



The new autoclave

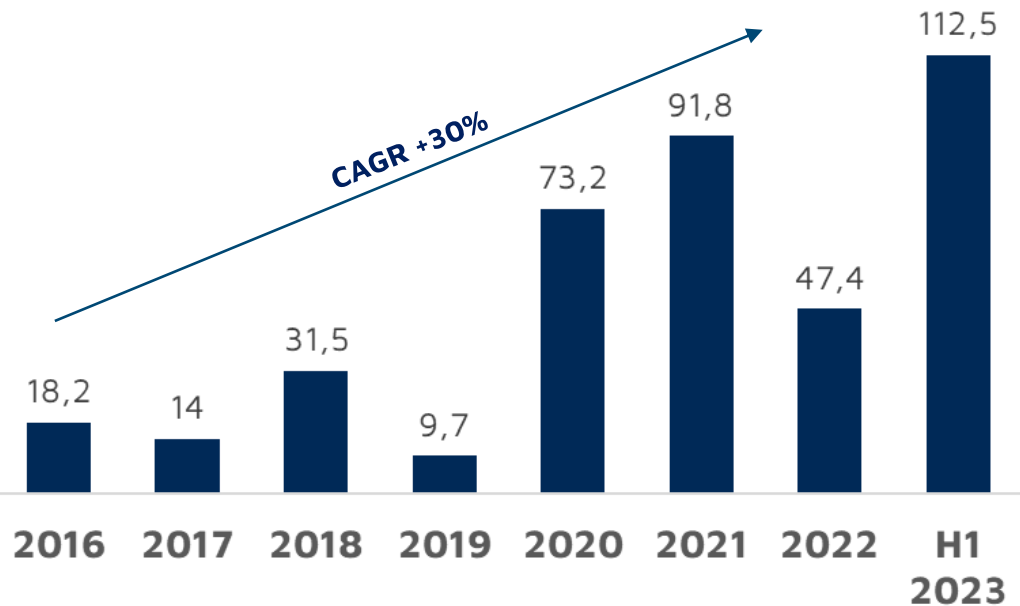


The adaptation of the present lathe

Tactical orders steadily growing, clear future roadmap



Historical Tactical Orders



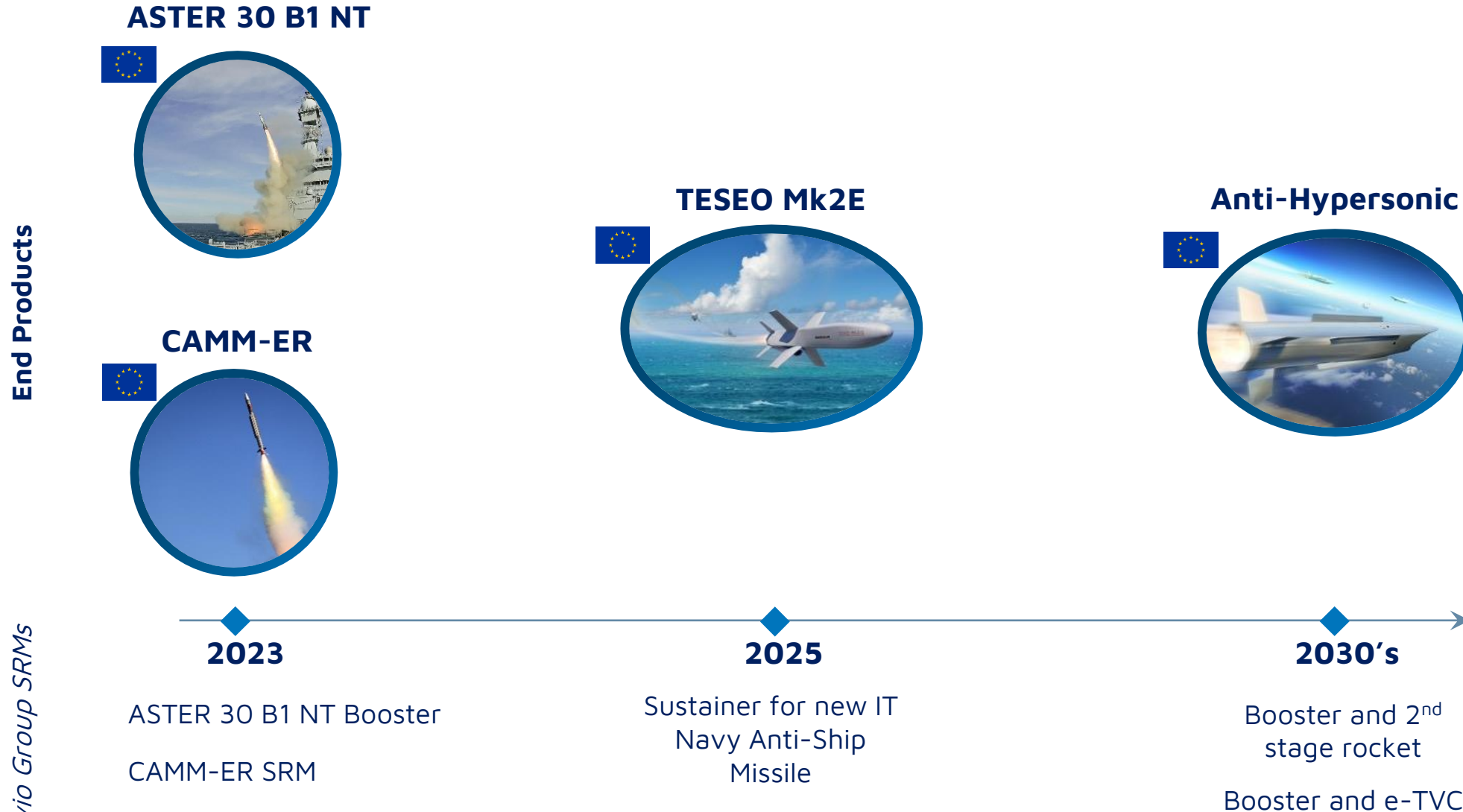
- Signed 90 EUR Million of new contracts for **Aster 30**
- Total orders for defense currently around € 300 Mln providing visibility for the next 5 years

Future Development Roadmap



Avio is partner of the **HYDIS2 consortium** for a new endo-atmospheric interceptor. Avio is part of the consortium with other 18 partners and 30 subcontractors. The company will give its contribution in providing the European Armed Forces with the most innovative **propulsion solutions**.

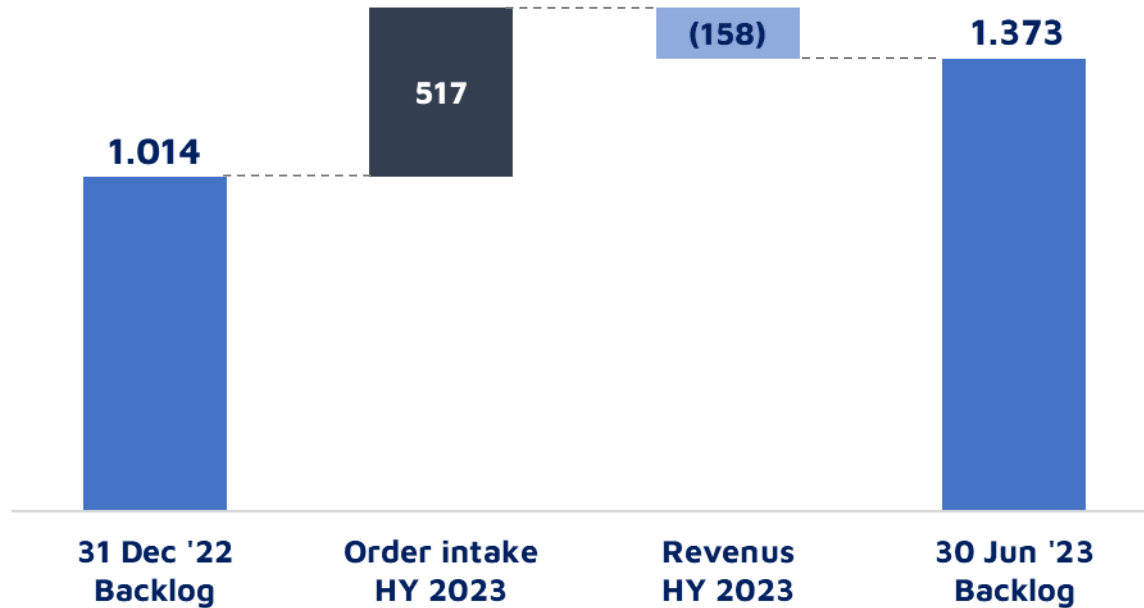
Our Tactical Products Development Roadmap



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Record Order Backlog thanks to development technology projects earlier than expected

Order Backlog evolution FY 2022-HY 2023 (€ - M)



Comments

- Order intake in HY 2023 mainly include:
- Technology development projects (~370M)
 - Defense Production (~110M)

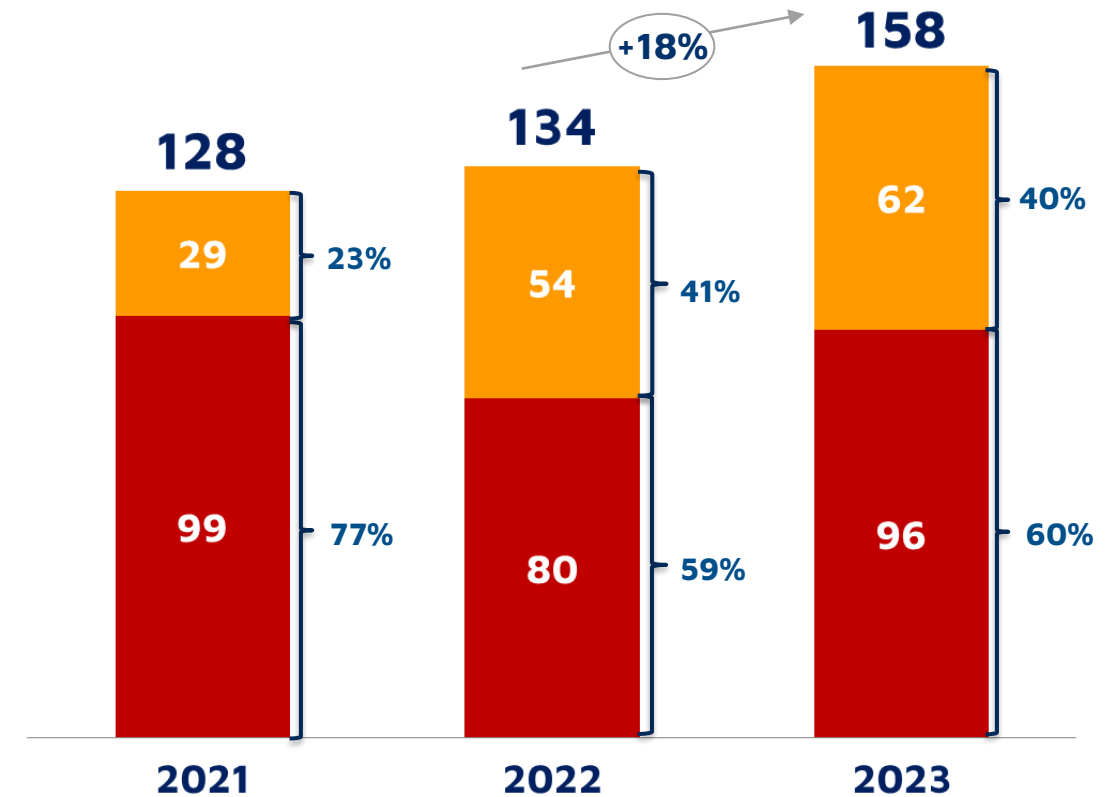
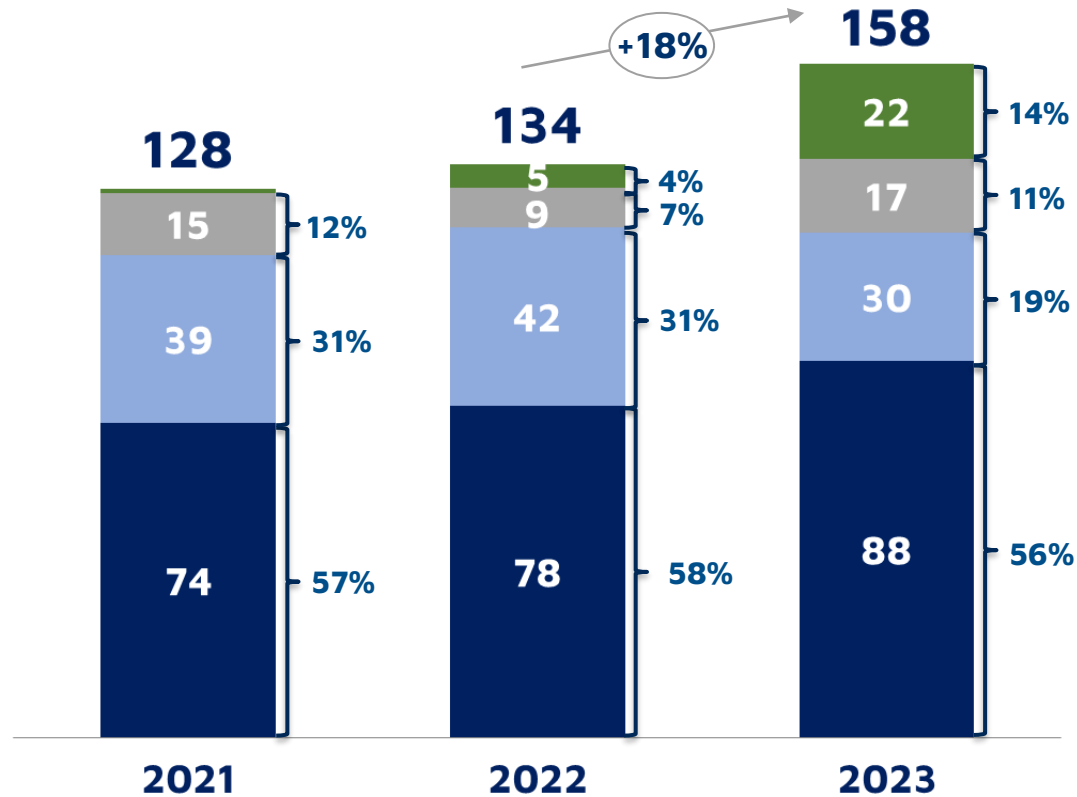
Increase in share of defense and technology development contracts

Revenues growing thanks to Technological Development projects and Defense



by Line of Business (€ - M)

by Activity (€ - M)



■ Vega ■ Ariane ■ Defense ■ Dev Tech Projects

■ Production ■ Development

Improved results driven by development and defense activities, with decreasing energy costs

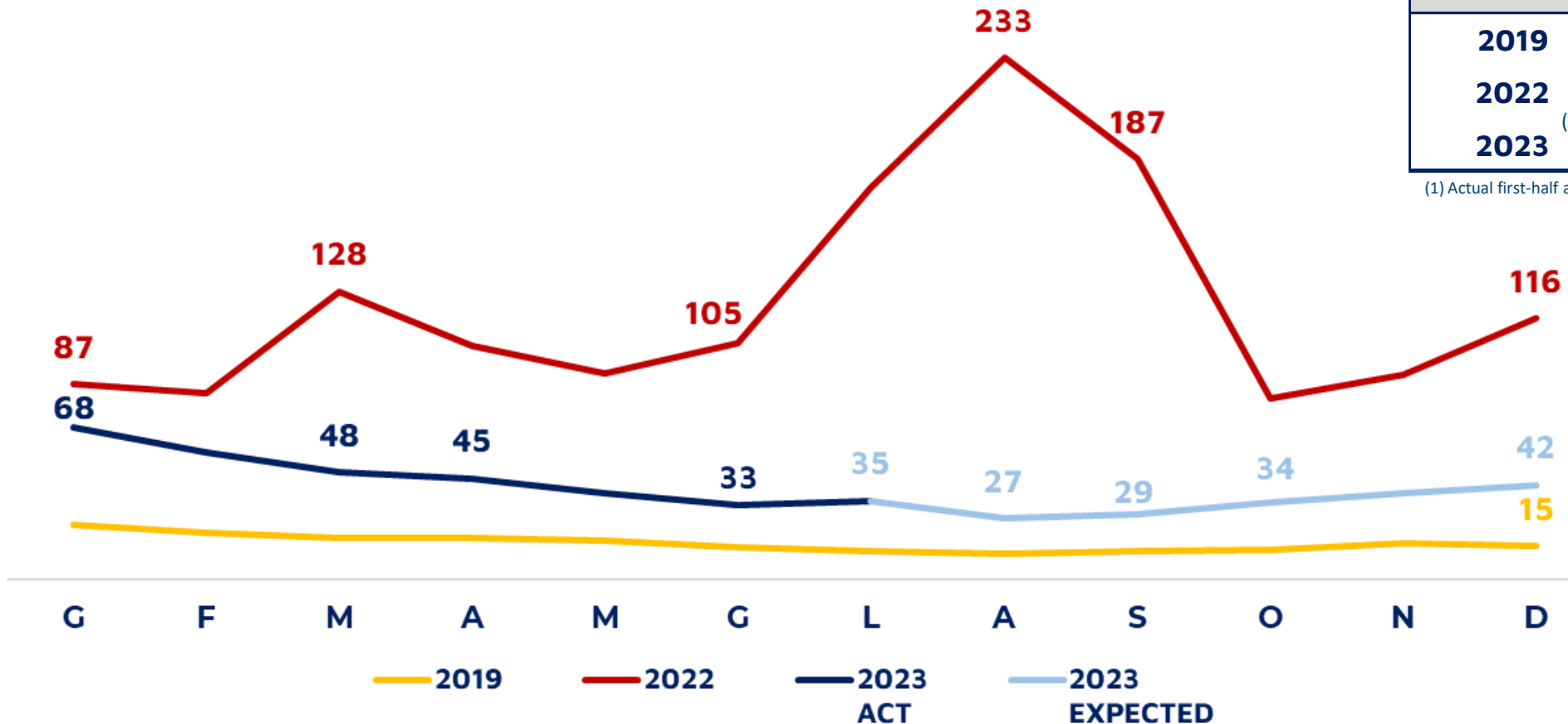
HY 2022		MAIN ECONOMICS	HY 2023		Comments
€ - M			€ - M		
	134.0	NET REVENUES	157.7		Increase in revenues thanks to technological development projects and defense production activities
N/R 2.5	3.2 2.4%	EBITDA REPORTED % on net revenues	5.2 3.3%	N/R 5.3	Improved EBITDA driven by higher revenues and relief of energy costs
	5.6 4.2%	EBITDA ADJUSTED % on net revenues	10.5 6.6%		Higher non-recurring costs mainly due to provision for the Zefiro 40 anomaly
	(6.2) N.m.	EBIT REPORTED % on net revenues	(3.9) N.m.		Depreciation unchanged
	(3.7) N.m.	EBIT ADJUSTED % on net revenues	1.4 0.9%		
	(6.5) N.m.	RESULT BEFORE TAX % on net revenues	(3.7) N.m.		Positive contribution from financial items
	(7.6) N.m.	NET RESULT % on net revenues	(3.9) N.m.		Almost neutral tax burden

Gas price decrease in HY 2023 compared to HY 2022 with positive effect on industrial production costs

Italian average monthly gas prices HY 2023 (€/MWh)

Year	Average Gas Price (€/MWh)
2019	16
2022	124
2023 ⁽¹⁾	41

(1) Actual first-half and expected second-half



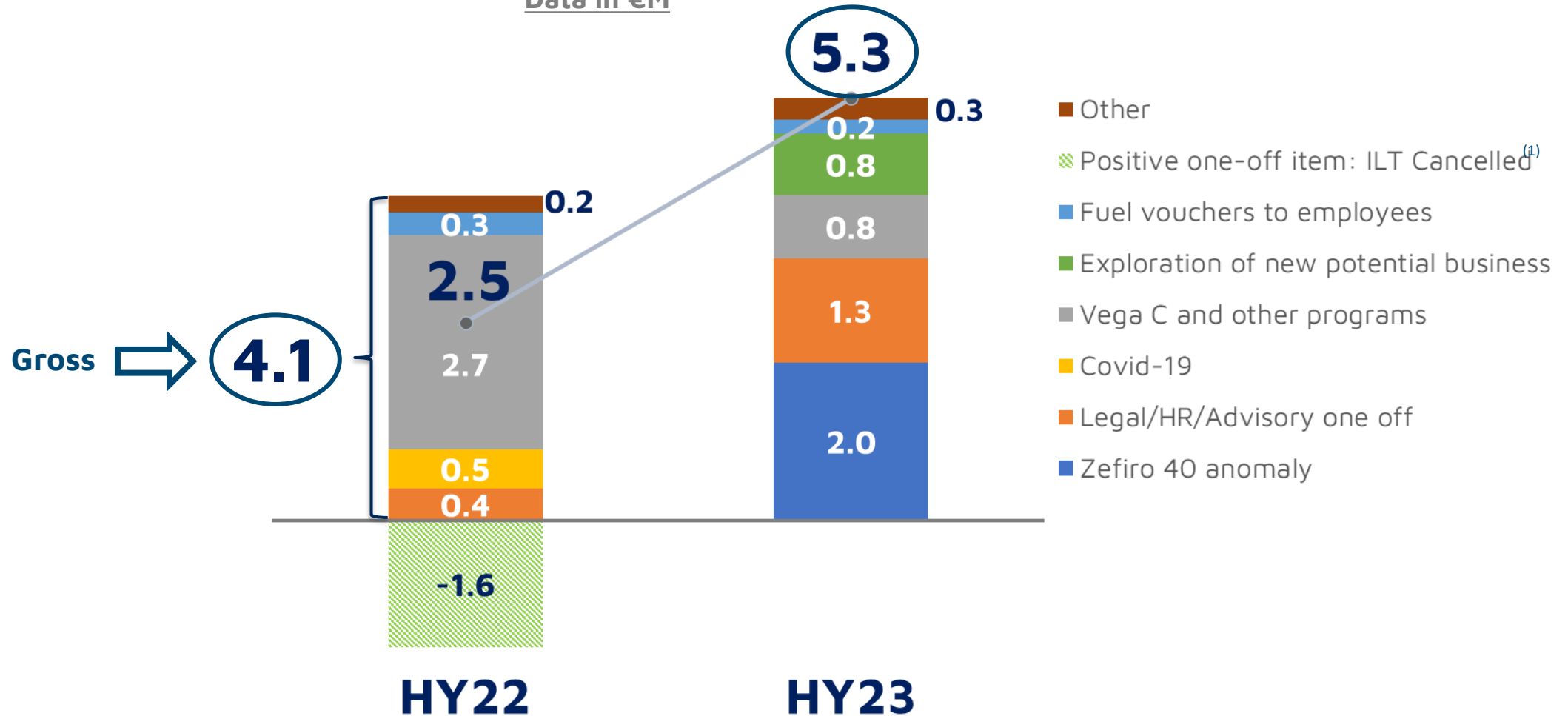
Source: GME (Gestore Mercati Energetici)

Non-recurring items impacted by the provision of the cost for an additional Zefiro 40 static firing test

Non recurring costs by nature

 = Like for like

Data in €M



Like for like N/R costs increased by 1.2M€

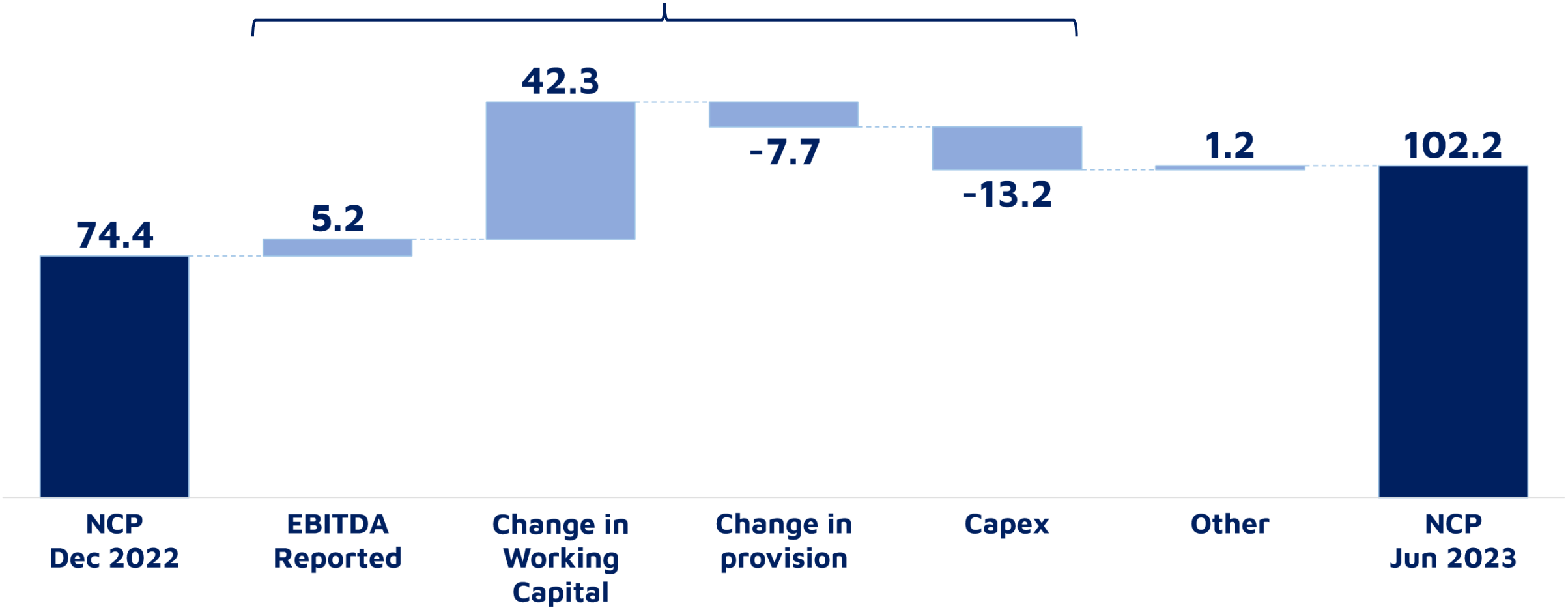
Prominent improvement in working capital and cash position

31 DEC 2022	<u>MAIN SOURCES AND USES</u>	31 JUN 2023	DELTA	<u>Comments</u>
€ - M		€ - M	€ - M	
(140.9)	WORKING CAPITAL	(183.2)	42.3	Working capital structurally negative with a prominent positive trend in HY 2023 for advance payments from development contracts
81.5	DEFERRED TAX ASSETS	80.9	0.6	
(62.9)	PROVISIONS	(55.3)	(7.7)	Decrease of provisions utilized against Vega C return to flight costs and costs for delays in execution of programs incurred in the semester and provided for in 2022
64.1	GOODWILL	62.8	1.3	
27.6	CUSTOMER RELATIONSHIP ASSET	28.0	(0.3)	Mainly for capex for P120 Vega cadence improvement, development of new launchers of Vega family and new headquarters, net of depreciation
248.9	FIXED ASSETS	253.9	(5.0)	
8.5	RIGHTS OF USE	8.3	0.2	
2.0	FINANCIAL RECEIVABLES	2.0	-	
228.8	NET INVESTED CAPITAL	197.4	31.4	
74.4	NET CASH POSITION	102.2	(27.8)	Better than seasonal typical trend principally for positive contribution from working capital
(303.3)	EQUITY	(299.6)	(3.6)	
(228.8)	TOTAL SOURCES	(197.4)	(31.4)	

Increase for advances from development contracts

Data in €-M

Operating Cash Flow €26,6M



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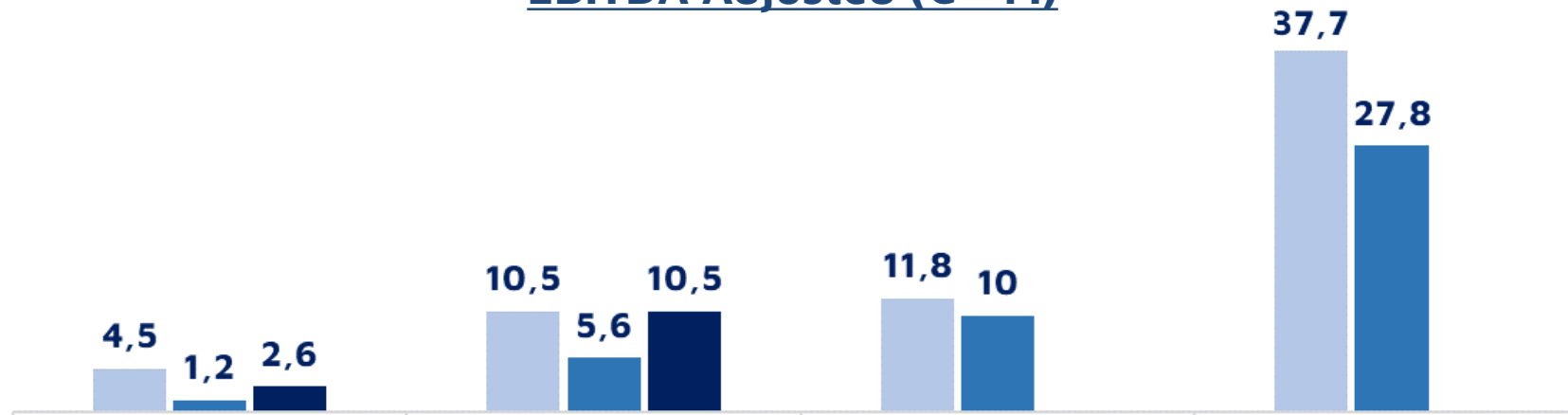
FY 2023 Guidance confirmed

<ul style="list-style-type: none"> • Net Order Backlog 	<ul style="list-style-type: none"> • Min €1,150M • Max €1,250M 	}	<ul style="list-style-type: none"> - New orders expected for both development and production - ESA MC 2022 subscriptions and new Technology projects contracts to turn into backlog
<ul style="list-style-type: none"> • Net Revenues 	<ul style="list-style-type: none"> • Min €330M • Max €350M 	}	<ul style="list-style-type: none"> - New technology development projects ramp-up (Vega E, Space Rider, VegaC+, liquid propulsion)
<ul style="list-style-type: none"> • EBITDA Reported 	<ul style="list-style-type: none"> • Min €19M • Max €25M 	}	<ul style="list-style-type: none"> - Enduring impact of inflation and under-absorption of fixed costs due to reduced level of production - Estimated impact of 6M non-recurring costs*
<ul style="list-style-type: none"> • Net Income 	<ul style="list-style-type: none"> • Min €2M • Max €6M 	}	<ul style="list-style-type: none"> - Margin net effect of financial charges and taxation

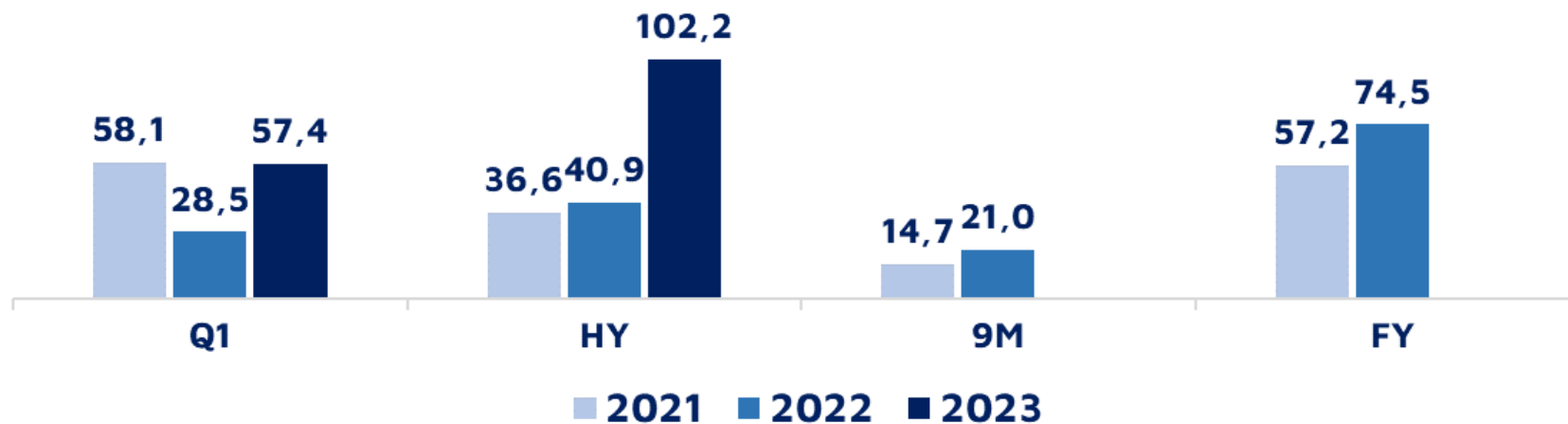
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EBITDA and Cash generation heavily concentrated on Q4s

EBITDA Adjusted (€ - M)



Net Cash Position (€ - M)



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