

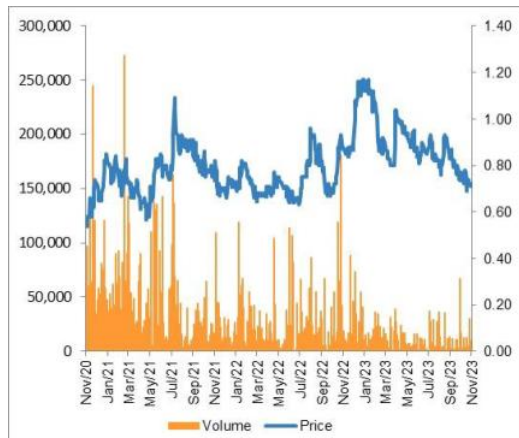
## FLYHT Aerospace Solutions Ltd.

FLY-V: \$0.71, FLYLF-OTC: US\$0.50

17 November 2023

Bruce Krugel 416-509-5593

Price	\$0.71	Market Cap	\$27.7	
Target Price	\$2.30	Debt	\$7.1	
Projected Return	224%	Cash	\$1.9	
52 Week Range	1.19/0.56	EV (\$m's)	\$36.8	
Basic Shares O/S (000's)	38,998			
FD Shares O/S (000's)	40,733			
Insiders	5.0%			
Y/E December (\$000's)	<b>2021</b>	<b>2022</b>	<b>2023E</b>	<b>2024E</b>
Revenues	11,319	23,879	21,014	33,052
EBITDA	(4,538)	251	(2,100)	3,419
EPS	-0.19	-0.03	-0.09	0.05
EV/Sales	3.2x	1.5x	1.7x	1.1x
P/E	nmf	nmf	nmf	14.6x



### Profile

FLYHT Aerospace Solutions Ltd is a Canadian designer and developer of hardware and software for the aerospace industry. Its primary product, the Automated Flight Information Reporting System (AFIRS), and when qualified, supplemented with the AFIRS Edge, operates on multiple aircraft types and provides real-time streaming functions, such as safety services, voice and text messaging, data collection and transmission, as well as on-demand streaming of flight data recorder (black box), engine and airframe data. AFIRS data is transmitted via the Iridium satellite network to its UpTime ground-based server, which in turn routes the data to customer-specified end points and provides an interface for aircraft interaction.

### Disclosure

Please refer to important disclosures on page 20.

**A MATERIALLY IN-LINE Q3/23 HIGHLIGHTS CHANGE IN SALES MIX THAT SHOULD PERSIST THROUGH F2023 AND INTO F2024. ANTICIPATING STC CERTIFICATIONS WILL DRIVE F2024 REVENUE GROWTH. TARGET PRICE \$2.30.**

- Q3/23.** While total revenues declined 24.1% to \$5.1m, excluding one-time License fees from both periods, revenues grew 44.4% reflecting a broad-based recovery: **SaaS** revenues grew 34.5% reflecting customers continuing their post-COVID recovery and the benefit of revised weather contracts; **Hardware** sales increased 108.7% as 18 AFIRS 228 units were sold vs. 8 LY and **Services** grew 28.2% as CrossConsense continued to ramp. **License fees** declined 86.0% underscoring the lumpy nature of this stream.
- Gross margins** declined YoY to 58.7% vs. 72.4% LY due to sales mix: lower contribution from higher margin Licensing revenues.
- EBITDA** was -\$0.4m vs. \$0.9m LY as the Q3/23 11.2% YoY decline in costs could not offset the loss of benefit of the higher margin License revenues LY.
- 2024 focus.** We continue to view the Edge device and the weather opportunity as the growth drivers for FLYHT. The Edge device is a competitively positioned product for airlines wanting to upgrade their wireless QAR capabilities to 5G and initial wins in weather (UK Met contract + revised NOAA contract) suggest that FLYHT is at the start of a ramp in this revenue stream. However, due to delays in supplemental type certification (STC), the Edge device is now expected to ramp in F2024 vs. our initial estimates of F2023. We have adjusted our forecasts accordingly.
- BlueSky.** To provide context for the impact of Edge device sales, we provide a back-of-envelope estimate of potential sales. Management estimates the size of the total addressable market targeted by the Edge device at 25,000 units and its potential sales channel comprises 18,000 aircraft. Based on a 20% penetration of this sales channel, we estimate that FLYHT could generate hardware revenues of \$108m and recurring SaaS revenues of \$21.6m p.a. This excludes potential additional weather related WVSS sales beyond the UK Met deal.
- Upcoming catalyst:** we view receipt of the 2 STCs for the Edge device (flange version for each A320 and 737-MAX), as critical to our 2024E revenue forecasts. These are pre-requirements for certain items in the \$77m sales funnel to move into the \$38m backlog.
- Valuation.** We forecast that FLYHT will record -12.0% revenue growth in F2023 but recover 57.3% into F2024 as initial Edge device contracts and weather devices are installed. We believe that F2024 will be a pivotal year for FLYHT. On this basis, we derive a \$2.30 target.

## Q3/23 results

Q3/23 was a tough quarter on a comparative YoY basis given the impact of the \$3.5m one-time licensing fee recorded in Q3/22. Consequently, the volatility caused by this one-time licensing fee obscures the fundamental recovery in FLYHT's underlying business.

With this in mind, the negative impact on EBITDA of a -24.2% YoY decline in revenues, combined with GMs at 58.7% vs. 72.4%, was ameliorated by an 11.7% reduction in total operating expenses resulting in an EBITDA loss of -\$431k vs. \$925k LY.

## Revenues

While Q3/23 total revenue growth was -24.2% YoY (Figure 1), if one-time licensing fees are excluded, the underlying business grew at 44.4% YoY.

Figure 1: FLYHT Q3/23 revenues (\$000's)

	Q3/23	Q3/22	% change	Explanation
SaaS revenues	2,788	2,073	34.5%	Growth driven by broad-based post-pandemic recovery of the customer base, increase in weather data and CrossConsense organic growth.
Hardware	1,002	480	108.7%	18 AFIRS 228 units shipped in Q3/23 vs. 8 in Q3/22.
Licensing	495	3,536	-86.0%	Q3/23 represents final receipt of '23 License fees.
Technical Services	815	636	28.2%	Reflects data migration project work delivered and an increase in customer requests for certification services.
<b>Reported Total</b>	<b>5,099</b>	<b>6,725</b>	<b>-24.2%</b>	

Source: Company reports; KRC Insights

**SaaS revenues.** SaaS revenues are billed on a per aircraft basis. The 34.5% YoY growth represents FLYHT's 6<sup>th</sup> sequential revenue increase as customers continue to emerge from COVID lockdowns. Of note also is the recovery in weather revenues (not disclosed separately). Referring to the geographical breakdown of revenues, meaningful movements include: YoY revenue declines of -54.5% in North America (largest geographical segment, non-repeat of Licence fee) and China -43.0% (remains constrained). However, revenue growth was recorded in Asia +135.5% (recovery of Air Asia weather services) and Europe +45.6% (CrossConsense).

**Hardware.** AFIRS hardware sales comprised sales of 18 AFIRS 228 units in Q3/23 vs. 8 units shipped in Q3/22. There were no sales of TAMDAR or WVSS weather devices (but refer to commentary below) and the new Edge device is still awaiting supplemental type certification (STC).

**Licensing.** License revenues are generated from direct installs of AFIRS 228S units on Airbus aircraft by FLYHT's long time OEM partner. This is the line fit of cockpit Iridium, SATCOM communications option of choice for Airbus customers. Hence, the pace of Airbus deliveries to end customers of the A320, A330 and A220 influence these revenues which do not generate SaaS revenues. Given the opaque nature of the OEM partner's orders, it is difficult to determine when/if follow-on orders will occur.

**Technical Services.** The 28.2% YoY revenue increase was driven primarily by data migration project work delivered, an increase in customer requests for certification services, and organic growth at CrossConsense due to its maintenance, repair and overhaul (MRO) solutions.

### Q3/23 Gross Margins

Gross margins declined due to sales mix (Figure 2).

Figure 2: FLYHT Q3/23 margins

	Q3/23	Q3/22	Explanation
<b>Gross margin</b>	58.7%	72.4%	Higher margins in Q3/22 due to size of License fees in that quarter

Source: Company reports; KRC Insights

Gross margins are a function of sales mix with the two largest swing factors in a quarter being: the mix between lower margin hardware (AFIRS, FlightLink /TAMDAR units) and higher margin License fees and SaaS revenues. In Q3/23, excluding the impact of License revenues, margins were in line with expectation. Hardware margins can vary substantially according to a number of factors including the number of software services included.

### Q3/23 Expenses

Total expenses decreased 11.7% primarily due to a reduction in Administration expenses (Figure 3).

Figure 3: FLYHT Q3/23 expenses (\$000's)

	Q3/23	Q3/22	Explanation
<b>Distribution expenses</b>	1,543	1,531	In line YoY.
<b>Administrative expenses</b>	897	1,199	Decline mainly due to a reduction in salaries and benefits and contract labour.
<b>R&amp;D</b>	1,146	1,330	Nominal decline attributable to specific project requirements.
<b>Total expenses</b>	3,586	4,060	-11.7%

Source: Company reports; KRC Insights

### Q3/23 EBITDA

The net impact of the above (lower sales, concomitant lower gross margins and decreased expenses) resulted in an EBITDA loss of -\$431k vs. \$925k in Q3/22.

### Balance Sheet

Cash balances increased to \$1.9m at the end of Q3/23 vs. \$1.7m at the end of Q2/23. The primary contributor to the increase was the \$480k decline in trade receivables in Q3/23 due to the receipt of Q2/23 balances.

Total debt was \$7.1m (Figure 4), down from \$7.2m at the end of Q2/23. Loans and Borrowings comprises low interest government debt:

Figure 4: FLYHT total debt at Q3/23 (\$000's)

	Short term	Long term	Total
Loans and borrowings	1,228	3,415	4,643
Lease liability	460	2,024	2,484
	1,688	5,439	7,127

Source: Company reports, KRC Insights

At quarter end, FLYHT had 40.7m FD shares outstanding (Figure 5), effectively flat from Q2/23:

Figure 5: Fully diluted number of shares

	Shares	Options	FD Total
At 11/9/23	38,998	1,735	40,733

Source: Company reports, KRC Insights

## Backlog and Sales Pipeline

Backlog increased 90% sequentially from \$20.0m at the end of Q2/23 to its current \$38m<sup>1</sup> and the sales pipeline is \$77m.

The sequential growth was driven by the recently announced initial Edge device contracts (both STC partner related), weather (UK Met) and several smaller contributors. Backlog comprises ~60% hardware and 40% SaaS/services.

The majority of the sales pipeline is comprised of the Edge product.

## Significant Developments (Updated)

Management continues to focus on FLYHT's two primary incremental revenue activities: The AFIRS Edge device opportunity and weather opportunity.

Here, we provide some background and updates on these two opportunities as these two related developments are central to our revenue growth forecasts.

### AFIRS Edge (Edge) device

The AFIRS Edge is FLYHT's new flagship offering. Due to its 5G capability, FLYHT is positioning the Edge device to become the avionics device of choice for Wireless Quick Access Recorders (WQAR) and Aircraft Interface

<sup>1</sup> Q3/23 conference call 10/11/23

Device functions. We continue to believe that this device, subject to Supplemental Type Certificates (STC) certification, will be a company maker for FLYHT.

Refer to Appendix I: AFIRS Edge for more detail on this product.

At a high level, the STC process can be described by the following sequential events:

- **Provisional STC** is received once all regulatory authority formalities have been complied with. This STC allows for the device to be installed on the appropriate aircraft for final testing.
- **STC** is issued once final testing on an aircraft is completed.
- **Familiarization** occurs when one regulatory airline body (e.g. Transport Canada) who issued the STC, submits its documentation supporting the STC to its equivalent authority in another country (e.g. the US Federal Aviation Authority) for approval in that country (i.e. via existing bilateral agreements). That country relies on the work performed by the country issuing the STC, and once it has determined that the STC complies with local aviation laws, it will issue its STC relevant to that country.

FLYHT’s strategy is to have the STCs completed in Canada, and then, via familiarization, have them approved in other jurisdictions as quickly as possible, including the US and Europe.

Currently, FLYHT is in the process of completing two STCs for the Edge device for aircraft that collectively cover ~70% of commercial airlines: the narrow body Airbus A320 and Boeing 737 Max. Each of these aircraft require 2 STCs: one for the standard Edge device (flange mount) and the other for the Edge Plus (rack mount 4 MCU version), which is effectively a plug-and-play replacement of the incumbent wireless product. FLYHT is targeting the flange mount first and then the rack mount later in 2024.

The STC progress by aircraft type is provided in Figure 6:

Figure 6: FLYHT flange mount Edge STC partner progress

	Airbus A320	Boeing 737-8 MAX
Customer	Canada Jetlines Operations Ltd	Flair Airlines
Date announced	4/10/23	25/6/23
STC Progress		
- Engineering tests	- Completed	- Completed
- Installation	- Completed	- Pending
- Submission	- Pending	- Pending
- Approval	- Pending	- Pending
Contract value*	US\$3.2m	US\$3.6m
Additional details	Installing both AFIRS 228 and Edge devices. Software and services includes FLYHTHealth™, FLYHTLog™ and AFIRS Gateway	Software and services includes ClearPort, FuelSense, and AFIRS Gateway

Source: Company reports; KRC Insights \* =over the life of the contracts

We expect the Airbus A320 STC to be granted early in Q1/24 and the 737-Max to follow around 2 months later.

### WVSS weather device

FLYHT's WVSS-II water vapour sensor system is installed on aircraft and must be used in conjunction with either the AFIRS 228 or an AFIRS Edge. The WVSS-II is used for real-time weather Aircraft Based Observations (ABO) for meteorologists and airlines, including contrail avoidance. Weather is constantly changing, making real-time ABOs a prime source of recurring revenue in support of weather forecasting models and aviation operations.

FLYHT acquired the WVSS device on 20/9/21 for US\$500k. Refer to Appendix IV: Water Vapor Sensing System (WVSS-II) for product details.

On 30/8/23, validation of this acquisition was received when FLYHT announced a partnership between FLYHT, the United Kingdom's Meteorological Office (UK Met) and Loganair. Salient terms of the contract include:

- The contract is valued at ~US\$6.9m (~C\$9.3m) provided that all goods and services are delivered over the eight-year term of the agreement.
- Intent is to improve the accuracy of weather forecasts, improve prediction of localized severe weather in the UK and achieve sustainability goals.
- Benefits are expected in the form of more efficient route planning and supporting aims to reduce CO<sub>2</sub> emissions.

The contract is for UK Met to acquire 30 WVSS-II atmospheric water vapour sensors devices, with the initial devices being installed on Loganair's Embraer 145 aircraft that fly across the UK and for the balance to be installed on a second airline.

The hardware portion of the initial sale (Logan Air) is for 13 units. Installation is expected to commence in Q3/24 subsequent to receipt of STCs for both the Edge and the WVSS-II<sup>2</sup>. Management estimates the 30 hardware units could generate \$2.5m in revenues, which excludes the SaaS portion.

FLYHT has the only two ABO weather devices (TAMDAR and WVSS-II) worldwide and is in discussion with several other national meteorological agencies to provide those agencies with ABO-based solutions.

### Forecasts/Estimate Changes

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We are maintaining our F2024 revenue/earnings forecasts on the belief that F2024 will be the transformational year for FLYHT as both the Edge device sales start to ramp and additional weather contracts are signed.

We summarize our principal revenue considerations for F2024 by revenue segment as follows:

- **SaaS.** The underlying recovery in the airline industry is expected to persist, driving a continued recovery in FLYHT's customer base. Layer on top of this increased weather revenues from NOAA, commencement of the UK Met contract and initial Edge device contribution.
- **Hardware.** The first half of 2024E is to be driven by existing orders for the AFIRS 228, with the latter half of the year driven by weather (UK Met: WVSS-II and Edge) and the ramp of Edge device. We

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<sup>2</sup> Embraer ERJ-145 UK STCs for both Edge and WVSS-II devices listed as "In progress" per the Q3/23 MD&A p10

believe that once the Edge device STCs are received, orders will move out of the pipeline into the order book. Recall, FLYHT has expanded its sales channels (ex-Teledyne sales employees, SITA, AWS and MBS) and is actively adding to the sales pipeline by marketing the Edge and AI suite of products to potential clients (refer to the \$77m pipeline). To provide context for the depth of these sales channels, we have included in Appendices II and III an analysis of two of these channels.

- **Licensing.** FLYHT's OEM licensing agreement for line-fit SATCOM AFIRS 228 solutions is lumpy and consequently difficult to forecast. Accordingly, we forecast nominal revenues in F2024E.
- **Technical Service** revenues are typically generated when a customer requires an AFIRS or FlightLink/TAMDAR installation on a new aircraft type. Also, CrossConsense has a component of Technical Services revenues derived from data migration projects. CrossConsense won a major, 2-year contract<sup>3</sup> (€662K) and we expect further contract wins.

**EBITDA.** Healthy revenue growth in 2024E is forecast to drive a recovery in EBITDA from -\$2.1m in 2023E to \$3.4m in 2024E.

### Bluesky

Consistent with previous reports, we include a back-of-envelope calculation of the bluesky opportunity in front of FLYHT (Figure 7).

While a portion of this is included in our F2024E revenue forecasts, we find the exercise helpful in quantifying an estimated size of the revenue potential which would flow through F2024E and beyond. Additionally, there are several trends within this macro view that FLYHT is targeting with its AFIRS Edge device. Hence, we have high expectations for adoption.

Specific trends that FLYHT is targeting with the Edge device include:

- Communication changes – 3G to 5G and Iridium Block 1 to Iridium Certus. FLYHT is now a reseller of SITA's AIRCOM® Cockpit Services
- Climate change – track emissions, weather and fleet monitoring
- Actionable Intelligence – including Aircraft Health Monitoring, APU Management, Fuel Management, Real-Time Fleet Management, Turn Management and Predictive Maintenance

Refer to Appendix I: AFIRS Edge for an overview of the product and its markets of WQAR Replacement, Edge Computing (Actionable Intelligence), Flight Deck Enabler and Data uploader.

In addition to its expanded sales force, FLYHT has access to 3 additional, significant sales channels for sale of the AFIRS Edge that it did not have with the legacy AFIRS 228 device. Specifically,

- SITA, reseller agreement, refer to Appendix II: SITA
- Amazon Web Services, refer to Appendix III: AWS Travel and Hospitality Competency Partners, and
- MBS partnership, refer to press release of 3 May 2022.

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<sup>3</sup> Announced 28/9/23

Our sensitivity analysis provides revenue estimates for both the hardware and annual recurring SaaS revenue based on a 20% penetration of both SITA and the total addressable market (TAM) of aircraft (Figure 7) based on the following:

- SITA – 400 customers comprising 18,000 aircraft,
- Total commercial aircraft addressable market of 25,000 aircraft units at a cost of \$750m

Figure 7: AFIRS Edge device sensitivity analysis

		SITA	TAM
Customer base	Aircraft	18,000	25,000
Penetration		20%	20%
Potential revenues:			
Hardware	\$000s	\$108,000	\$150,000
Recurring revenues p.a.*	\$000s	\$21,600	\$30,000

Source: KRC Insights      \*Using base case, potential for upsell opportunity exists

Our expectation is that FLYHT will achieve a market penetration between SITA and the TAM scenarios. Using the low end, we believe that **FLYHT could generate \$108.0m in hardware sales and thereby achieve at least \$21.6m p.a. in SaaS revenues.**

## Forecasts

In Figure 8 we provide an overview of our revenue forecasts:

Figure 8: FLYHT revenue forecasts (\$000's)

		Notes	2023E	2024E
Base run rate		1	14,000	20,000
Add:	Weather	2	1,000	3,000
	C919	3		2,000
	OEM licensing	4	-	1,000
	New business	5	6,014	7,052
Current estimate			21,014	33,052

Source: KRC Insights

Notes to revenue forecasts:

1. FLYHT's base run rate post COVID based on Q3/23 revenues; 2023E and 2024E represents continued post COVID recovery.
2. WVSS (weather) hardware order received in 2023 from UK Met Office to be fulfilled in 2024. Associated initial SaaS revenue contributions are incremental.
3. C919 production was ~6 aircraft for 2022. For 2023E, we forecast a ramp to 12 units. It was reported that COMAC has received over 1,200 orders for the C919 from Chinese airlines and leasing companies<sup>4</sup> and is planning to increase production to at least 150 aircraft p.a. over the next five years. Both the

<sup>4</sup> <https://simpleflying.com/comac-c919-threat-airbus-boeing-china/>



C919 and ARJ21 currently lack certification validation by U.S. and European regulators, limiting flights to the domestic market and possibly countries with close ties to China. We believe that FLYHT is competitively positioned to win a percentage of this business.

4. Licensing revenues are forecast at \$1.0m in 2024E.
5. KRC Insights estimate of new business, covered in part under the Bluesky section above and primarily driven by the contribution from the Edge device. Recall, that the company has an existing \$38.0m order book and a sales pipeline of \$77.0m.

## Valuation

Our target of \$2.30 is derived from a sum of parts approach (Figure 9):

- **SaaS.** Applied a 6.0x multiple applied to EV/2024E revenue estimates, which is in line with the average multiple of Canadian SaaS companies.
- **Hardware and Licensing.** We apply a 1x revenues multiple to both hardware and licensing revenues.

Figure 9: FLYHT valuation. Sum of parts (000's), EV/2024E Sales

	2024E	Multiple	Value
	\$000s		\$000s
SaaS Revenues	13,830	6.0x	82,980
Hardware	14,222	1.0x	14,222
Licensing fees	1,000	1.0x	1,000
Enterprise value			98,202
Debt			7,127
Cash			1,940
Equity			93,015
FD # shares (Figure 5)			40,733
Price/share			2.28
Rounded			2.30

Source: KRC Insights

FLYHT is currently trading at 1.1x EV/our 2024E revenue forecasts (Figure 10). The opportunity for investors is to benefit from multiple expansion as FLYHT delivers against our forecasts, which would be evidence of its ability to accelerate both hardware deployments (AFIRS, Edge and weather devices) and associated SaaS revenues.

Figure 10: FLYHT valuation multiples (\$m's where applicable, pricing at 15/11/23)

	Symbol	Price	Mkt Cap	EV	EBITDA		Revenues		Rev Growth	EV/Revenues	
					2022A	2024E	2022A	2024E		2022A	2024E
FLYHT Aerospace Solutions Ltd	FLY.V	\$0.71	\$27.7	\$36.8	\$0.25	\$3.42	\$23.9	\$33.1	38.4%	1.5x	1.1x

Source: KRC Insights

We note, by reference to Appendix V: FLYHT share price relative performance (12 months), that the FLYHT share price has performed in-line with the airlines and underperformed vs. the air framers.

Figure 11: FLYHT historical and forecast income statement (\$000s)

Dec year-end	\$000's	2020	2021	2022	Q1/23	Q2/23	Q3/23	Q4/23E	2023E	2024E
SaaS		7,323	5,994	8,158	2,413	2,691	2,788	2,900	10,791	13,830
% growth		-28.4%	-18.2%	36.1%	44.1%	24.8%	34.5%	28.7%	32.3%	28.2%
Hardware		2,306	3,394	4,720	1,771	1,172	1,002	1,214	5,160	14,222
% growth		-65.3%	47.2%	39.1%	-16.0%	28.4%	108.7%	-0.3%	9.3%	175.6%
Parts sales/Licensing		3,631	1,551	9,101	9	1,433	495		1,937	1,000
% growth		12.0%	-57.3%	486.8%	-99.2%	2.4%	-86.0%	-100.0%	-78.7%	-48.4%
Services		393	380	1,900	564	747	815	1,000	3,126	4,000
% growth		-61.9%	-3.2%	400.1%	406.7%	81.0%	28.2%	35.2%	64.5%	27.9%
Revenues		13,653	11,319	23,879	4,757	6,044	5,099	5,114	21,014	33,052
Total revenue growth		-35.4%	-17.1%	111.0%	-5.4%	23.8%	-24.2%	-29.4%	-12.0%	57.3%
Cost of revenue		(4,396)	(4,849)	(8,673)	(2,030)	(2,442)	(2,108)	(2,228)	(8,809)	(14,560)
Gross profit		9,257	6,470	15,206	2,727	3,601	2,991	2,886	12,205	18,492
Distribution Expenses		(5,392)	(3,870)	(5,912)	(1,759)	(1,587)	(1,543)	(1,624)	(6,514)	(6,967)
Administration Expenses		(4,057)	(3,384)	(5,082)	(1,063)	(1,060)	(897)	(973)	(3,993)	(4,693)
R&D		(3,338)	(4,447)	(4,620)	(1,412)	(951)	(1,146)	(1,009)	(4,518)	(4,132)
Total costs		(12,787)	(11,701)	(15,614)	(4,234)	(3,599)	(3,586)	(3,606)	(15,025)	(15,792)
Operating income		(3,530)	(5,231)	(409)	(1,507)	3	(595)	(720)	(2,820)	2,699
Interest and other income		465	104	40	20	0	48	(48)	20	20
Forex, Interest paid, convertible deb		(978)	(732)	(624)	(162)	(162)	(175)	(161)	(660)	(660)
Other/PWS subsidy		807								
Net income before taxation		(3,236)	(5,859)	(992)	(1,649)	(159)	(723)	(929)	(3,460)	2,059
Taxation		(1)	0	(11)	(8)	(10)	(6)	162	138	(82)
Net income		(3,237)	(5,859)	(1,003)	(1,657)	(169)	(729)	(767)	(3,322)	1,977
EPS - Basic		(\$ 0.12)	(\$ 0.19)	(\$ 0.03)	(\$ 0.04)	(\$ 0.00)	(\$ 0.02)	(\$ 0.02)	(\$ 0.09)	\$ 0.05
EPS - FD		(\$ 0.12)	(\$ 0.19)	(\$ 0.03)	(\$ 0.04)	(\$ 0.00)	(\$ 0.02)	(\$ 0.02)	(\$ 0.09)	\$ 0.05
		<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Q1/23</b>	<b>Q2/23</b>	<b>Q3/23</b>	<b>Q4/23E</b>	<b>2023E</b>	<b>2024E</b>
Gross profit	%	67.8	57.2	63.7	57.3	59.6	58.7	56.4	58.1	55.9
Operating margin	%	(25.9)	(46.2)	(1.7)	(31.7)	0.0	(11.7)	(14.1)	(13.4)	8.2
EBITDA	\$000's	(1,894)	(4,538)	251	(1,344)	168	(431)	(493)	(2,100)	3,419
EBITDA margin	%	-13.9	-40.1	1.1	-28.2	2.8	-8.4	-9.6	-10.0	10.3
Effective tax rate	%	(0.0)	0.0	(1.1)	(0.5)	(6.3)	(0.9)	17.5	4.0	4.0
Net margin	%	(23.7)	(51.8)	(4.2)	(34.8)	(2.8)	(14.3)	(15.0)	(15.8)	6.0

Source: Company reports, KRC Insights

## Appendix I: AFIRS Edge

FLYHT's AFIRS Edge solves 2G/3G obsolescence – it is FLYHT's next generation 5G (3G/4G/LTE compatible) Wireless Quick Access Recorder (WQAR), Aircraft Interface Device (AID) and edge computing platform.

The Edge device:

- Provides ground network access (3G/4G/5G)
- Has Aircraft Interface Device (AID) functions
- Is Iridium Certus capable
- Provides onboard IoT data via bluetooth
- Enables legacy aircraft data to be sourced
- Reuses existing FLYHT avionics software, and
- The prototype build is complete and initial production orders have been placed

Figure 12: AFIRS Edge device



Source: FLYHT

AFIRS Edge is targeting 4 discrete markets:

- **WQAR replacement** - 2G/3G connectivity being retired. AFIRS Edge™ is engineered and designed as a multi-channel WQAR with LTE/4G and 5G network availability. It also allows simultaneous DAR and QAR recording.
- **Edge Computing** - AFIRS Edge™ serves as an Internet of Things (IoT) gateway on the aircraft and can support new IoT sensor technologies as they are deployed. Primary focus is its application for Actionable Intelligence, enabling predictive and proactive operations in real-time.
- **Flight Deck Enabler** - As an Enhanced Aircraft Interface Device (AID), it enables enhanced EFB applications.
- **Uploader** - wireless avionics software and onboard data loading solution.

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## Appendix II: SITA reseller agreement

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On 2 February 2022, FLYHT announced a reseller agreement with SITA for its AIRCOM® Cockpit Services. This is a significant announcement in that the AFIRS Edge device (when certified) could provide connectivity via the Iridium Certus network to the SITA network. To draw a cell phone analogy, FLYHT will provide the phone (AFIRS Edge), Iridium Certus the network backhaul (Iridium Certus) and SITA the cell phone towers, connectivity and services (AIRCOM® Cockpit Services).

FLYHT shared in the press that it “looks forward to closer collaboration as our Actionable Intelligence tools roll out to integrate our capabilities with SITA's many offerings to their customers. FLYHT is developing tools for our customers to reduce turn times, increase fuel efficiency and reduce emissions, and partners like SITA will help accelerate that growth.” SITA is quoted as saying the “AFIRS Edge is a state-of-the-art solution that gives aviation customers real-time access to the latest satellite and cellular connectivity. We look forward to further developing this relationship”.

We interpret these quotes as suggesting that this is the start of deeper relations between the two companies: FLYHT selling access (hardware) and services (Actionable Intelligence), allowing SITA deeper penetration into its existing clients and the opportunity to source new clients. We expect to hear more from the FLYHT/SITA relationship once the AFIRS Edge is STC certified.

### Who/what is SITA?

SITA is the world leader in air transport communications and information technology. In 2020, it generated US\$1.34bn in revenues, down 27% from the year prior due to the impact of COVID. Its operating divisions are: SITA for Aircraft, SITA at Airports and SITA at Borders. In aggregate, it has 2,500 customers in over 200 countries, services 18,000 aircraft and has 4,700 employees.

We focus on the Aircraft division, which specifically targets the connected aircraft, digital day of operations, aircraft data management, cabin connectivity services and unified aircraft communications.

SITA's Unified Aircraft Communications involves 2,000 VHF/VDL<sup>5</sup> stations globally and 18,000 aircraft from 250 carriers. Its AIRCOM® Cockpit Services (part of the reseller agreement with FLYHT) allows airlines to communicate wirelessly between their aircraft and ground systems, as well as between their aircraft and third parties operating on the ground - such as Air Traffic Control. Its website states that it is “powering a digital shift that will reinvent the operations of aircraft, flight and on-board experience...”. The FLYHT AFIRS Edge device is part of this strategy.

SITA's major competitor in the Aircraft division is Rockwell Collins' ARINC. These two organizations are the primary worldwide providers of aircraft connectivity by VHF or satellite.

### Impact on FLYHT

FLYHT's reseller agreement with SITA, which couples its Edge device with SITA's AIRCOM® Cockpit Services, provides FLYHT with the ability to sell a “basic” service that can be used later to upsell its Actionable Intelligence suite of services. It also allows FLYHT access to or to respond to referrals from SITA's extensive network of airline clients. Commentary in the press release states that this relationship is to be developed further.

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<sup>5</sup> Very High Frequency (VHF) and VHF Data Link (VDL)

Appendix III: AWS Travel and Hospitality Competency Partners

In order to provide context for FLYHT’s Amazon Web Services (AWS) certification, we provide a description of what the AWS Competency Program envisages:

*The AWS Competency Program is designed to identify, validate, and promote AWS Partners with demonstrated AWS technical expertise and proven customer success in specialized areas across industries, use cases, and workloads. Guidance from these skilled professionals can lead to better business and bigger results.*<sup>6</sup>

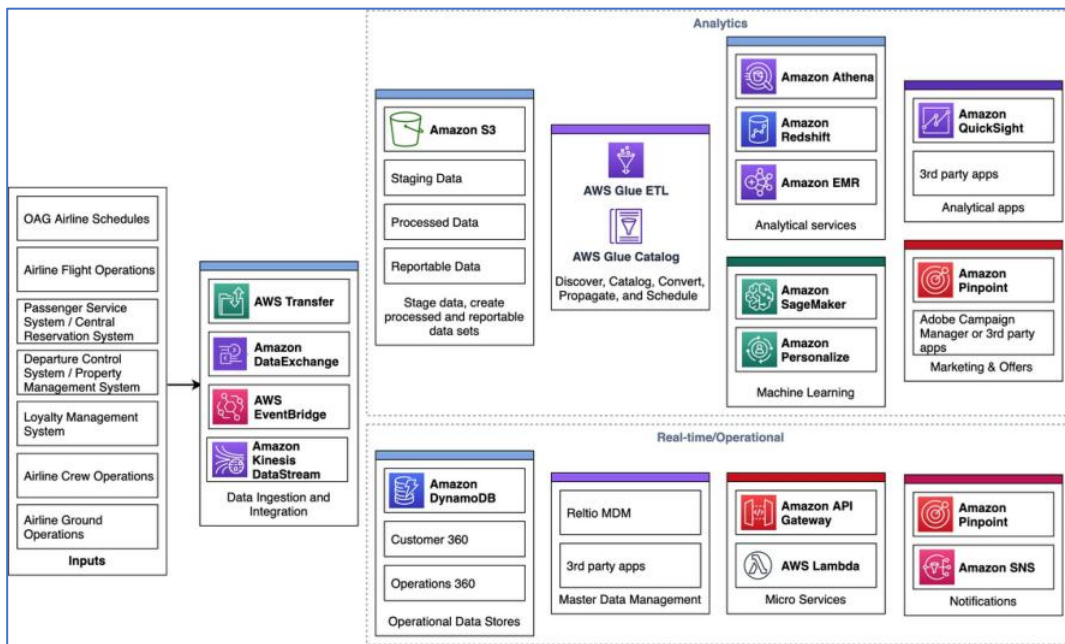
Specifically, as this pertains to FLYHT, we quote from the AWS representative in the FLYHT press release: "FLYHT's connectivity and operational efficiency solutions, powered by AWS, can help our customers transform their business by maintaining complete operational visibility to their critical aviation assets and people."

Also, AWS describes FLYHT’s competency as: Advanced - Cloud based system to receive, verify, parse, store, and report on information transmitted from aircraft, through satellite networks, to the ground.<sup>7</sup>

AWS airline customers include: Star Alliance (world’s largest airline alliance), Southwest Airlines, United Airlines, Japan Airlines, Korean Air, Qantas, Ryanair, Copa Airlines, All Nippon Airways, Emirates Group, LOT Polish Airlines, the TUI Group and Porter Airlines.

A schematic of what is involved in AWS partnership capabilities is shown in Figure 13.

Figure 13: AWS Personalization using AI/ML for Airlines & Lodging



Source: <https://aws.amazon.com/travel-and-hospitality/personalization/?nc=s&loc=2&dn=1>

FLYHT describes its UpTime Cloud service (its main AWS offering) in the context of Figure 13 as follows:

<sup>6</sup> <https://aws.amazon.com/blogs/apn/say-hello-to-61-new-aws-competency-service-delivery-service-ready-and-msp-partners-added-in-january/>

<sup>7</sup> <https://partners.amazonaws.com/partners/0010h00001hfV3QAAU/>

*Utilizing AWS' Data 360 services, FLYHT maintains low operational costs which are then passed on to the customer. FLYHT's Uptime Cloud ground application is an AWS hosted application utilizing Amazon VPC, Amazon EC2, Amazon Route 53, Amazon GuardDuty, Amazon CloudWatch, Amazon Simple Queue Service (SQS), Amazon Simple Storage Service (S3), Amazon Simple Email Service (SES) and Amazon RDS services.<sup>8</sup>*

In other words, FLYHT's UpTime Cloud service is validated on the AWS platform and uses the AWS real time and analytic processing power to support its Actionable Intelligence offerings.

### Impact on FLYHT

We view FLYHT's achievement as an AWS Travel and Hospitality Competency Partner as an important technological step forward in rolling out its Actionable Intelligence service offerings. We also believe that this competency and its scalability and security will sit well with potentially larger airlines and consequently, FLYHT will benefit from referrals from airline customers within AWS's Travel and Competency Partner network.

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<sup>8</sup> [https://flyht.com/uptime-cloud/?did=pa\\_card&trk=pa\\_card](https://flyht.com/uptime-cloud/?did=pa_card&trk=pa_card)

## Appendix IV: Water Vapor Sensing System (WVSS-II)

On 20/9/21, FLYHT announced the acquisition of Water Vapor Sensing System (“WVSS-II”) product line from SpectraSensors Inc. for US\$500k cash.

The acquisition includes manufacturing assets, inventory, aviation-specific intellectual property, and a license to SpectraSensors® Tunable Diode Laser Absorption Spectroscopy (“TDLAS”) technology for use in the weather and aviation markets. FLYHT has prepared 1,800ft<sup>2</sup> of manufacturing space at its Calgary headquarters to accommodate the sensor manufacturing equipment purchased from SpectraSensor.

No revenues are attached to the acquisition, however, at the time of acquisition, a potential order from the UK’s Met Office and transition away from Rockwell Collins as the service provider for the existing installs was expected.

Atmospheric water vapor measurements from commercial aircraft are now available to complement the real-time winds and temperatures available from the Aircraft Communication, Addressing and Reporting System (ACARS). The WVSS-II:

- Is a sensor installed on commercial aircraft,
- Provides upper air meteorological water vapour measurements in near real-time throughout an aircraft’s flight,
- Data, when combined with the atmospheric data on the aircraft, results in a complete weather sounding (temperature, wind, moisture) and consequently directly benefit weather forecasting and improve weather support to aviation,
- Is cheaper than radiosondes<sup>9</sup>, and
- Is extremely reliable, accurate and accepted by the World Meteorological Organization (WMO).

Deployment of the WVSS device is shown in Figure 14.

Figure 14: WVSS II



Source: FLYHT

<sup>9</sup> an instrument carried by balloon or other means to various levels of the atmosphere and transmitting measurements by radio.

The WVSS-II product will enhance FLYHT's weather business by adding additional hardware, integration and recurring revenue sources to its existing Tropospheric Airborne Meteorological Data Reporting (TAMDAR™) and Aircraft Meteorological Data Relay (AMDAR) programs.

The WVSS-II is fully integrated with FLYHT's AFIRS and EDGE products thereby providing real-time aircraft-based observations into FLYHT's software products.

### *Background*

Water vapor measurement has long been the meteorologist's missing forecast element. Wind and temperature measurements are routinely made for weather forecasting, but water vapor measurement does not occur as regularly. The US' National Oceanic and Atmospheric Administration (NOAA) weather balloons are launched only twice daily to measure water vapor, and at less than 100 sites in the United States. Consequently, in only a couple of hours, sudden atmospheric instability induced by water vapor can make the data collected by these balloons unusable.

Hence, aircraft-based observations (ABO) are increasingly providing soundings at locations and times when weather balloon information is not available.

To date, WVSS-II sensors have been deployed on 139 aircraft in the USA, under partnership with Collins Aerospace Systems, United Parcel Service (UPS) airlines, and Southwest Airlines (~111 aircraft). In Europe, nine aircraft have been equipped with WVSS-II under partnership with Lufthansa Technik and Lufthansa Airlines.<sup>10</sup>

*WMO is satisfied that these results, and the stability and reliability of the development and manufacturing programme of the supplier (backed by the support of the FAA and NOAA) provides confidence to continue with a programme of global sensor deployment, with the cooperation of airlines and the aviation industry.<sup>11</sup>*

### *Impact on FLYHT*

The WVSS-II product enhances FLYHT's existing weather business by adding additional hardware, integration and eventually recurring revenue sources to its existing Tropospheric Airborne Meteorological Data Reporting (TAMDAR) and Aircraft Meteorological Data Relay programs.

FLYHT already has exposure to aircraft weather via its TAMDAR system. TAMDAR equipped planes fly into nearly 200 airports across the globe, with high density across the United States, Mexico and Asia. With this extensive installation base, the sensor collects thousands of highly detailed and accurate readings from the upper atmosphere each day measuring:

- Ice presence
- Static pressure and pressure altitude
- Air temperature (Mach corrected)
- Variable sampling rate
- Relative humidity
- Indicated and true airspeed
- Winds aloft
- GPS position and time

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<sup>10</sup> World Meteorological Organization, The Benefits of AMDAR Data to Meteorology and Aviation, Technical Report 2021-1, p75

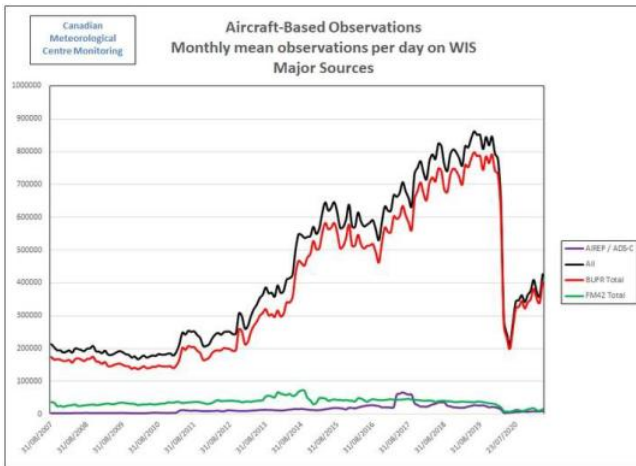
<sup>11</sup> World Meteorological Organization, The Benefits of AMDAR Data to Meteorology and Aviation, Technical Report 2021-1, p75



Below, we include selected extracts from WMO Aircraft-Based Observations Newsletter (Volume 21, April 2021) <sup>12</sup> which highlight several points as they pertain to FLYHT.

Aircraft-based observations (ABO) have decreased as appropriately equipped aircraft were grounded due to COVID-related flight restrictions.

Figure 15: ABO monthly mean observations/day



Source: <https://community.wmo.int/activity-areas/aircraft-based-observations/newsletter/volume-21#article-9>

FLYHT’s weather data revenue is derived primarily from AirAsia and NOAA. FLYHT’s weather revenues are included in its SaaS revenues which showed 34.5% growth YoY in Q3/22.

However, the strategic importance of the WVSS acquisition cannot be appreciated without understanding that there are currently only three sources of ABO (AMDAR<sup>13</sup>, WVSS and TAMDAR), and FLYHT now owns two of these sources (WVSS and TAMDAR) with WVSS and TAMDAR being the only sources of relative humidity.

There are only 148 aircraft worldwide that contribute to water vapour measurements (Figure 16). The two largest contributors to the North American number are Southwest Airlines and United Parcel Services (UPS). Rockwell Collins derives the revenues from these installs.

Figure 16: WVSSs-II installs for ABO

Operational WVSS-II Units in Service to ABOP, by WMO Region							
Region:	Africa	Asia	So. America	No. America	SW Pacific	Europe	Global
WMO RA:	I	II	III	IV	V	VI	Total
WVSS-II Aircraft:	0	0	0	139	0	9	148

Source: <https://community.wmo.int/activity-areas/aircraft-based-observations/newsletter/volume-21#article-9>

The WMO is highly supportive of WVSS and TAMDAR and makes the following comments in the Newsletter:

<sup>12</sup> <https://community.wmo.int/activity-areas/aircraft-based-observations/newsletter/volume-21#article-9>

<sup>13</sup> Aircraft Meteorological Data Relay - Modern commercial aircraft are equipped with meteorological sensors and associated sophisticated data acquisition and processing systems.

*“...these in-situ upper-air observations continue to be extremely valuable in all forecast operations, especially numerical weather prediction, and provide a significant contribution to the Global Observing System.”*

In addition, the Newsletter referred to the UK Met Office intending to proceed with the initial implementation of 30 WVSS-II installs on UK-based aircraft starting in 2022/2023. This is in the context of the expansion of observations necessary for the Met Office Numerical Weather Prediction infrastructure upgrades. On 30/8/23, FLYHT announced that the Met Office had placed a US\$6.9m order to fit Logan Air’s Embraer 145’s with FLYHT-WVSS-II.

With regards to AMDAR, which is an additional source of WVM data, “...AMDAR sounding counts are roughly a quarter of pre-COVID-19 totals and the number of daily reporting aircraft is roughly a third lower compared to pre-pandemic levels.”

Figure 17: AMDAR installs for ABO

Operational AMDAR Units, by WMO Region							
Region:	Africa	Asia	So. America	No. America	SW Pacific	Europe	Global
WMO RA:	I	II	III	IV	V	VI	Total
AMDAR Installed Aircraft:	9	9	3	155	120	32	328
AMDAR Active Aircraft:	3	2	1	80	33	8	127

Source: <https://community.wmo.int/activity-areas/aircraft-based-observations/newsletter/volume-21#article-9>

*“As the airline industry begins to rebound, the largest increase in AMDAR-equipped flights will be over the South-West Pacific and Asia regions.”*

This is consistent with AirAsia recommencing international flights.

*“The USA has also secured a longer-term agreement with FLYHT, inc. (sic) for continued provision of ... AMDAR and AFIRS-AMDAR data to all WMO members following the...temporary provision during the COVID-19 pandemic.”*

In summary, we believe that it is reasonable to expect:

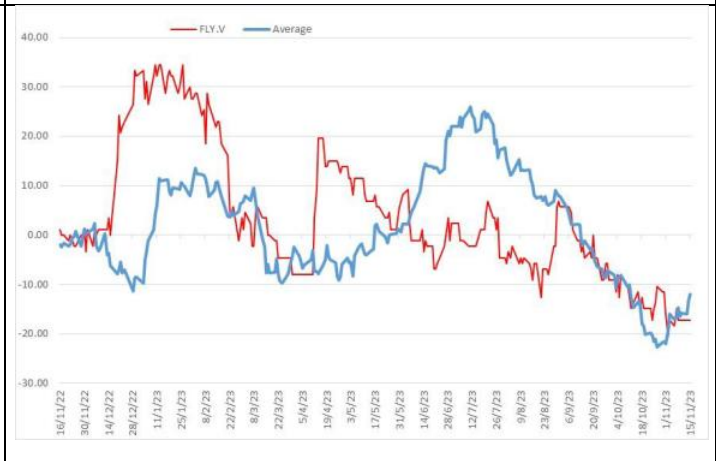
- A hardware order for ~30 WVSS units from the UK Met Office (airline to be determined), and
- A recovery in weather-related SaaS revenues as AirAsia flights recover to pre-COVID levels.

Appendix V: FLYHT share price relative performance (12 months)

Chart 1: Share prices: FLYHT vs. 5 North American airlines at 15/11/23



Chart 2: Share prices: FLYHT vs. average of the 5 North American airlines (proxy index) at 15/11/23



Source: Yahoo!Finance, KRC Insights

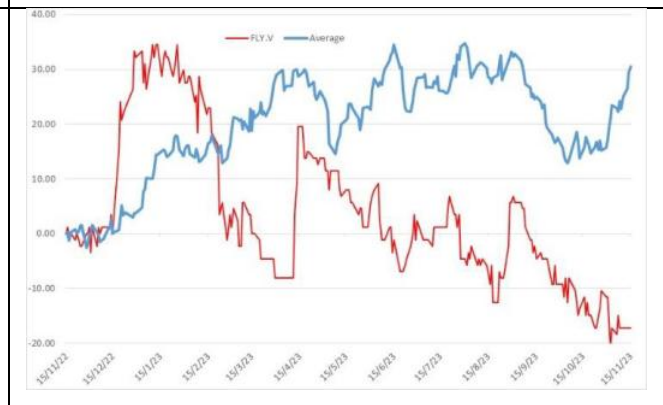
Given that FLYHT’s revenue recovery is predicated on a recovery in airline travel in general, we compare FLYHT’s share price to that of five major North American airlines (American Airlines (AAL-N), Delta (DAL-N), Southwest (LUV-N), United (UAL-N) and Air Canada (AC-T)) in Charts 1 and 2. By reference to Chart 2, the FLYHT share price has performed **in-line** with the average share price of this group over the past 12 months.

Applying the same logic, we compared the FLYHT share price to the major airframers (Boeing (BA-N), Airbus (AIR-P) and Embraer (ERJ-N)) in Charts 3 and 4, also on a 12-month basis. FLYHT has **underperformed** the average of these airframers (Chart 4) over the past year (-17.3% vs. +30.5%). The air framer average was positively influenced by the performance of Embraer (up 56.9%). ERJ’s commercial aviation deliveries have increased, and a strong book-to-bill is expected in Q4/23. ERJ has also deleveraged and reprofiled its debt.

Chart 3: Share prices: FLYHT vs. 3 Major Air Framers at 15/11/23



Chart 4: Share prices: FLYHT vs. average of the 3 Major Air Framers (proxy index) at 15/11/23



Source: Yahoo!Finance, KRC Insights

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## Disclosure

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