EDISON

Thin Film Electronics

FY20 results

Preparing for initial product sales

Tech hardware & equipment

Thin Film Electronics' (Thinfilm) FY20 results show how it has restructured operations to support the commercialisation of its proprietary ultra-thin microbattery product for applications such as hearing aids, earbuds and wearable medical devices ahead of the anticipated initial product revenues in late 2021. Operating costs were substantially lower, supporting a cash runway potentially extending through 2021, depending on the volume of warrants exercised.

Year end	Revenue ($m)	EBITDA ($m)	PBT* ($m)	EPS* ($)	DPS ($)	P/E (x)
12/17**	5.9	(50.9)	(54.5)	(0.06)	0.00	N/A
12/18**	3.4	(49.3)	(54.3)	(0.93)	0.00	N/A
12/19**	1.2	(30.6)	(35.9)	(0.61)	0.00	N/A
12/20	0.5**	(11.4)	(15.3)	(0.04)	0.00	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments. **Discontinued business.

Restructuring operations on battery development

Thinfilm generated $0.5m revenues during FY20 from sales of the legacy stock of anti-theft tags. Following the restructuring initiatives that took place in Q319 and H120, payroll costs were $12.9m lower year-on-year in FY20 and total operating costs were $19.4m lower. As a result, operating losses, excluding a $42.4m impairment loss in FY19, narrowed by $22.7m to $12.0m.

Potential cash runway through 2021

Net debt (excluding restricted cash and finance leases) increased by $2.8m to $8.8m at end FY20 as $11.9m losses from operations and $3.2m net interest payments were partly offset by a fund-raising programme generating $13.3m (net) from the issue of shares and exercise of warrants. Capital expenditure was minimal. At end FY20, cash (excluding restricted cash) totalled $4.0m, which management estimates is sufficient to fund the company through Q121 with a potential NOK170m ($20.4m) financing from warrants yet to be exercised. Management estimates that additional funding relating to the exercise of warrants requested so far this year by holders is sufficient to support operations well into Q221. Depending on the volume and timing of warrants being exercised, management estimates that the company may be able to fund planned operations through 2021. In future fund-raising efforts, management has indicated interest in pursuing institutional investment in Europe and the United States.

Valuation: Potential market of over 1bn units a year

Thinfilm is initially targeting the medical wearables and hearables markets, followed by the connected sensor and sport and fitness wearables markets. Our scenario analysis calculates that a 5–10% share of these markets represents annual revenues of $330–550m and EBITDA of $211–365m. However, we note that the company is at the early stage of its development, with execution delivery and funding availability key to its success.

1 March 2021

Price	**NOK0.92**
Market cap	**NOK958m**
	US$0.12/NOK
Net debt ($m) at end December 2020 (excluding $1.6m restricted cash and $12.2m financial lease liabilities)	8.8
Shares in issue	1,041.2m
Free float	89.3%
Code	THIN
Primary exchange	OSLO
Secondary exchange	OTCQB

Share price performance

%	1m	3m	12m
Abs	53.8	150.3	43.5
Rel (local)	51.1	133.0	33.2
52-week high/low		NOK1.22	NOK0.25

Business description

Thin Film Electronics' (Thinfilm) solid-state lithium battery technology combines advanced energy cell design with proprietary materials and manufacturing innovation to produce thin, flexible batteries that can power safer and more capable wearable devices and connected sensors.

Next event

Q121 results	26 May 2021

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Edison profile page

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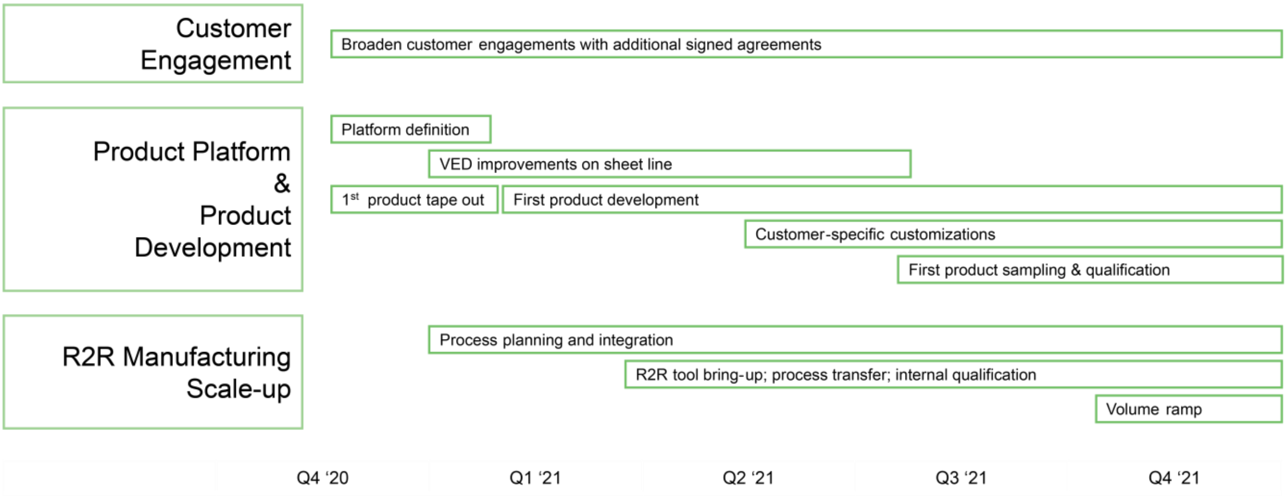
Preparing for initial product sales in late FY21

Exhibit 1: Commercialisation timeline



Source: Thinfilm Electronics

As discussed in our January flash note, at the start of FY21 Thinfilm announced that it had taped out its first product design, which was optimised for form factor-constrained applications, and signed evaluation agreements with potential customers and partners. Following that, management has provided details of the intervening steps required to meet its stated target of generating its first product revenues by the end of FY21. Activities are grouped in three areas: integrating the parts of the battery demonstrated during FY20 to create products to meet specific customer requirements; bringing the roll-to-roll facility back into operation and qualifying it for volume production of micro-batteries; and securing additional signed agreements with customers and partners. Discussions with the five top manufacturers of hearing aids globally, as well as some innovative start-ups, have established that Thinfilm's rectangular format battery with terminals at the ends is more suitable for integration with surface mount assembly processes that the lithium-ion coin cells currently used.

Partnership with Energous for simplified charging

An example of the type of partnership that Thinfilm is working on is the recently announced partnership with **Energous (WATT:US)**, which has developed a radio frequency (RF) based technology for contact and over-the-air charging at distances of up to 15 feet. The two companies intend to work together to help manufacturers of form factor sensitive electronic devices such as hearables, wearables and connected sensors to develop products that are easier to use and, in the case of hearables and wearables, more comfortable. For example, manufacturers of hearing aids deploying Thinfilm's microbattery technology will potentially be able to offer devices that are safer than those using conventional lithium-ion coin cells, work for twice as long between charges and only need the batteries replacing after three or four years of being recharged every night rather than only one year. Adding Energous's technology, which is also targeted initially at applications where space is an issue, simplifies charging. Energous's flexible antenna design enables the creation of devices with small footprints and surfaces which are not flat and thus more comfortable to wear. Wireless charging means there are no connector openings or exposed metal, which results in full waterproof and dustproof designs.

Valuation: Addressing a market of over 1bn units/year

Since Thinfilm is still at the pre-revenue stage with regard to its solid-state battery technology and there are no consensus estimates, we prefer to present a scenario analysis rather than a formal valuation based on peer multiples.

Exhibit 2: Potential annual revenues from milliWatt hour market ($m)

		Market share (%)				
		1%	3%	5%	7%	10%
Price/unit (US$)	1	11	33	55	77	110
	2	22	66	110	154	220
	3	33	99	165	231	330
	5	55	165	275	385	550
	7	77	231	385	539	770
	10	110	330	550	770	1,100

Source: Edison Investment Research

Referencing research from IDTechEx and others, management notes that the medical wearables, hearables, connected sensor and sport and fitness wearables markets are predicted to grow to more than 1bn units/year by 2025. These markets require batteries in the mWh–1Whr capacity range. This capacity range is already covered by conventional lithium-ion batteries, although the relative size of lithium-ion batteries compared to solid-state batteries makes it likely that a material percentage of device manufactures will elect to pay a premium for the solid-state option. Last year, when the company was still defining its first product, management believed that it would be able to secure a price/unit in the lower single-digit dollars for its batteries, ie at a relatively modest premium to conventional lithium-ion rechargeable coin cells. At this price per battery ($2–3/unit), our analysis shows that a 5–10% share of these markets represents annual revenues of $165–220m. Now that Thinfilm has a product design to present to potential customers, it has been able to have more detailed discussions with them on pricing, and has recently stated that it believes a price of US$3–10/unit is achievable. Our analysis shows that a 5–10% share of the target markets at this price range represents annual revenues of $330–550m. Based on management guidance of c $20m fixed costs and 30% variable costs, this gives an EBITDA range of $211–365m.

Exhibit 3: Financial summary

	US$m	2017	2018	2019	2020
Year-end December		IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS					
Revenue		5.9	3.4	1.2	0.5
EBITDA		(50.9)	(49.3)	(30.6)	(11.4)
Operating Profit (before amort. and except.)		(54.8)	(53.3)	(34.5)	(11.4)
Intangible Amortisation		0.0	0.0	0.0	0.0
Exceptionals		(3.0)	(15.6)	(42.4)	0.0
Share-based payments		(2.2)	(1.8)	(0.2)	(0.6)
Operating Profit		(60.1)	(70.6)	(77.1)	(12.0)
Net Interest		0.4	(1.1)	(1.4)	(3.9)
Profit Before Tax (norm)		(54.5)	(54.3)	(35.9)	(15.3)
Profit Before Tax (FRS 3)		(59.7)	(71.7)	(78.5)	(39.1)
Tax		0.1	(0.0)	0.0	0.0
Profit After Tax (norm)		(54.3)	(54.4)	(35.9)	(15.3)
Profit After Tax (FRS 3)		(59.6)	(71.7)	(78.4)	(39.1)
Average Number of Shares Outstanding (m)		862.7	58.6	58.6	393.2
EPS - normalised ($)		(0.06)	(0.93)	(0.61)	(0.04)
EPS - (IFRS) ($)		(0.07)	(1.22)	(1.34)	(0.10)
Dividend per share ($)		0.00	0.00	0.00	0.00
EBITDA Margin (%)		N/A	N/A	N/A	N/A
Operating Margin (before GW and except.) (%)		N/A	N/A	N/A	N/A
BALANCE SHEET					
Fixed Assets		34.2	35.3	0.6	0.8
Intangible Assets		2.2	2.4	0.0	0.0
Tangible Assets		20.5	22.5	0.0	0.2
Other		11.5	10.4	0.6	0.6
Current Assets		115.1	44.1	11.7	6.9
Stocks		0.7	2.6	0.0	0.0
Debtors		16.2	8.9	2.8	1.1
Cash including restricted cash		98.1	32.6	8.9	5.8
Other		0.0	0.0	0.0	0.0
Current Liabilities		(7.3)	(8.1)	(6.8)	(32.7)
Creditors		(7.3)	(8.1)	(5.5)	(29.5)
Short term borrowings		0.0	0.0	(1.4)	(3.2)
Long Term Liabilities		(12.1)	(11.5)	(25.1)	(21.9)
Long term borrowings excluding finance leases		0.0	0.0	(11.8)	(9.7)
Other long-term liabilities		(12.1)	(11.5)	(13.2)	(12.2)
Net Assets		129.9	59.7	(19.7)	(46.9)
CASH FLOW					
Operating Cash Flow		(52.3)	(52.3)	(29.1)	(11.9)
Net Interest		0.3	0.3	(1.4)	(3.2)
Tax		(0.0)	(0.1)	0.0	0.0
Capex		(27.1)	(11.2)	(5.1)	(0.3)
Acquisitions/disposals		0.0	0.0	0.0	0.0
Financing		103.3	(0.0)	0.0	13.3
Dividend payments and Other items		0.2	(1.6)	0.0	0.0
Net Cash Flow		24.4	(64.9)	(35.5)	(2.1)
Opening net debt/(cash) excluding finance leases		(74.2)	(98.1)	(32.6)	4.3
Finance leases initiated		0.0	0.0	0.0	0.0
Other		(0.5)	(0.6)	(1.4)	(0.7)
Closing net debt/(cash) excluding finance leases		(98.1)	(32.6)	4.3	7.2

Source: Company accounts

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