

Price: \$8	Price Target: \$3	Mkt Cap: \$2bn	ADV: \$10m
Gross Margin, Adj.: -246%	Short Interest % of Float: 11%	Street Perception: 3 Buy, 0 Hold, 0 Sell	Recommendation: Short

DRIVING INVESTORS THROUGH THE GLASS...AGAIN

1. **VIEW's business is permanently nonviable; its foundational technology will never produce glass profitably.**
 - VIEW's technology – its patented process for making “smart glass” – sounds great as a science project but is a disaster of a business. The technology can produce glass only at a unit cost that is far higher than any customer in the market would ever pay. The result is a gross margin (even excluding inventory and warranty charges) of negative 150-450%. **The entire business is based on spending -\$4 to make a product and sell it for \$1.**
 - The “manufacturing yield” of VIEW's production process is structurally low. To make a given amount of sellable glass, VIEW must produce a huge amount of unsellable glass that must then be discarded. **This is not a fixed cost problem, it's a *variable* cost problem, meaning more production (“scale”) does little for margins. VIEW has been unable to solve this problem despite spending 15 years and \$2bn on it.**
 - VIEW can't just recklessly jack up prices, either - its own stock promoters admitⁱⁱ the company needs to do the opposite. Most of the marquee installations VIEW points to as use cases were giveaways at far lower prices. (Perhaps you noticed how VIEW likes to brag about its sale to Overstock.com? Overstock got the glass for freeⁱⁱⁱ.)
 - Our quantitative findings were subjectively supported by our interviews of former VIEW executives and outside consultants who are intimately familiar with VIEW's technology, factory, finances, etc. To quote one former VIEW finance executive we interviewed, “this isn't a manufacturing problem...it's a technology problem.” It's baked into the company's DNA. Another: “They've scaled cost down as far as they can. It [profit] can't be done.”
2. **Even post-SPAC, the balance sheet is nowhere near capitalized enough.**
 - For both the December 2019 and December 2020 financials, VIEW's auditors expressed “substantial doubt about the Company's ability to continue as a going concern.” When Cantor showed up with its SPAC in mid-July, VIEW was already at risk of defaulting on its debt payments^{iv}, and needed money desperately.
 - VIEW burned through >\$700m in operating cash flow alone in the past three years (and >\$900m in free cash flow). Additionally, the company needs to spend at least \$660m within several years to build the capacity needed to hit the rosy revenue estimates provided by VIEW/its SPAC sponsors^v. We believe that the cost to build this new capacity can be quantifiably shown to be much higher (and so do multiple former executives).
 - At the past three years' annual run rate of FCF (~\$300m cash burned/year) and assuming the next phase (2022E) of VIEW's capacity expansion costs only half per production-square-foot of what its first manufacturing investment cost (~\$300m), **VIEW will run out of cash within about one year.**^{vi}
 - VIEW received \$1.1bn in a “down round” from Softbank in late 2018; two years later it was nearly broke again. The SPAC IPO was a bailout – it not only bought VIEW another year of life, but it allowed Softbank to escape, albeit at an even-further-lowered price. (The IPO priced even further “down”^{vii}.)
 - Since VIEW's last credit facility – from Greensill, a Softbank investee and therefore arguably “related” party, no less – was priced at a stiff LIBOR +9%, new money will likely come from equity dilution. (We wonder what the rate on the debt would have been if VIEW's largest stockholder hadn't also owned its lender.)
 - “[VIEW] has needed so much capital that it just gets a little breathtaking” said one former VIEW finance executive with whom we spoke; “[T]hey are going to run out of money,” said another former executive.
3. **Consensus estimates are a joke, courtesy of Cantor, which owns (for now) 19 million shares, and Goldman, which placed its own clients into the stock and whose Buy rating makes it easier for those clients to get out.**
 - While Cantor's equity research arm pumps VIEW as a Buy with lunatic growth and profit estimates, Cantor recently filed a plan to dump its entire ownership stake. While Cantor says you need to get in, they're getting out – fast.
 - Goldman, meanwhile, was the placement agent on the PIPE investment alongside Cantor. These two firms' numbers are 2/3 of the Street estimates on the stock. (Incredibly, this is all legal.)
 - VIEW and its SPAC shills have promoted the fiction that, after 15 years and billions of dollars already invested in trying to fix a flawed technology, VIEW is **only now**, conveniently just after going public, going to make the leap into profitability via “cost cuts” and “scale.” VIEW's CEO has been peddling this fantasy for over a decade.
 - Anyone who buys a SPAC run by Cantor's CEO should consider the results of the other two companies he has taken public and overseen. They have underperformed the Russell 2000 dramatically since their respective IPOs:

NMRK (-60 percentage points) and BGCP (-400 percentage points). VIEW is well-positioned to repeat this pattern: the SPAC sponsors make obscene profits regardless of how the end shareholders make out.

- VIEW's product is a hard sell, so a decade after its first sale, the company is generating anemic revenues. **Volumes grew just 11% in 2019 and slowed to 7% in 2020.** So what revenue growth rates do VIEW's promoters at Cantor, who acknowledge that VIEW needs to cut prices^{viii}, estimate? **131%, 186%, and 116%** in 2021, 2022 and 2023.

4. VIEW is the epitome of a terrible business: A black hole from which no investor capital can escape.

- VIEW may be a new IPO and call itself an “early stage company,” but there is little new about it or its technology. It was founded in 2006 and sold its first project in 2012, and has already blown through two billion dollars of earlier investors' money – all while continually promising that profit will arrive soon thanks to “scale.”
- Use a sanity check: If VIEW's factory can produce almost ten times the revenue the company is currently doing, why is the company planning to spend so much of its precious funding building a massive second factory? It's because the current factory has much less real capacity than VIEW and its promoters let on.

5. ESG-based VIEW holders have been scammed: VIEW is an environmental nightmare.

- VIEW holds itself out to investors and customers as an environmentally and socially responsible business: saving energy (E), improving employee welfare (S), and running a transparent business that stewards capital responsibly (G). Numerous ESG funds in the US and Europe therefore own the stock. The idea of VIEW as an environmentally friendly company is the most laughable of all of VIEW's ridiculous claims we found in our research.
- Environmental or Ecoterrorism?
 - **Despite tiny demand, VIEW's factory is already the largest or second-largest user of electricity in the entire state of Mississippi.** VIEW points to (almost entirely fictional) energy savings at the customer site, but in doing so, it's misleading investors and ESG analysts about the holistic energy cost of this product.
 - VIEW overstates its prospective customers' energy savings by shocking amounts, claiming “up to 20%” reduction in HVAC consumption. This is many times higher than what independent energy modelers calculate for VIEW in nearly all cases. **There are virtually zero energy savings** from buying expensive VIEW glass.^{ix}
 - VIEW's low-yield production process is inherently wasteful. It scraps enormous amounts of treated electrochromic glass (which cannot be recycled). This flies in the face of its supposed environmental “mission.”
 - Glass – VIEW's main raw material input - is carbon-intensive. VIEW wastes this product by the truckload.
 - Glass is not biodegradable, so this inefficient process is an ongoing act of landfill abuse.
 - Only recently, VIEW's CEO instructed his people to produce at 100% capacity utilization for an entire year, despite having demand that justified only ~10% utilization. This resulted in the production of millions of square feet of fully treated electrochromic glass that was thrown away. **Why would a CEO take this ecologically abusive, reckless approach to running a factory? Because he “just wanted to see what it could do*.”** Was this guy auditioning for the role of one of the eco-villains on the remake of *Captain Planet*?
- Social or Sociopathic?
 - Multiple former VIEW leaders indicated turnover as high as ~60% in multiple years. We're told the VIEW CEO is “obsessed with firing people.” Stories abound of a leader who is cavalier about taking people's jobs.
- Governance or Grift?
 - VIEW has blown \$2bn of capital over the past decade. But somehow, management couldn't find the money to install more than a few token windows in its own humongous factory, where hundreds of people work. Labor toils indoors without the sunlight management claims is critical to its vaunted “human health” mission.
 - VIEW stock is greenwashed by Sustainabilitytics, which issued a “green-certified” opinion on VIEW. (Are you guys in on the grift too, or just lazy?)

6. Claims made by VIEW to investors are misleading, illusory, and/or withdrawn under scrutiny.

- VIEW can't seem to get its story straight on how many buildings contain its glass. In 2017, it said its product was installed in 20 million square feet of buildings; in 2018, this square footage number grew to 35 million; but in 2019, it fell to 25 million; in March 2021, it fell again to 23 million, yet concurrently was listed elsewhere at 50 million.
- We suspect that older numbers may include “design wins” of VIEW glass, while newer numbers don't. If this is the explanation, it means that a large percentage of design “wins” fail to materialize as work.
- Case in point: the company claims in its investor deck to have a “design-win backlog” of \$560m, but there's no mention of this number in its SEC documents (S-1, S-4, etc.). What is disclosed: contracted design wins of...\$7m.
- Claims of increased employee productivity, backed by university studies, drive the supposed ROI of VIEW glass. These studies were not only paid for by VIEW, but were also designed, conducted, and written by its employees.

VIEW stock is intrinsically worthless because the company has no path to profitability, the product is a solution in search of a problem, and the business consumes capital like a sinkhole. **However, if VIEW traded at 16x trailing revenues – the same multiple as TSLA – it would sport a \$0.6bn market cap, for close to 70% downside.**

TABLE OF CONTENTS

- I. Executive Summary
- II. VIEW's Technology Can Make Products but not Profits
 - a. What VIEW makes and how they make it
 - b. Why it's impossible for VIEW to make money on smart glass, Part I: Producing it
 - c. Why it's impossible for VIEW to make money on smart glass, Part II: Selling it
 - d. Spending four dollars to make one: gross margin is as bad as it looks, and isn't getting better
 - e. The difficulty of further price hikes
- III. Throwing Good Money After Bad: VIEW is a Black Hole of Capital, and Still Undercapitalized
 - a. "Aaand it's gone!"
 - b. VIEW's cap table has been a carousel of each financier bailing out the last for a decade
 - c. The entire backlog will be delivered at additional losses
 - d. VIEW will likely need another billion dollars over the next 2-3 years – in the optimistic scenario
 - e. Why not say who your "finance provider" is, guys?
- IV. Why Are the Consensus Estimates so Unrealistic? Oh, That's Why. (Or, *A Window Into Wall Street*)
 - a. Cantor sells its stake in VIEW with the right hand while promoting it to investors with the left
 - b. Consensus estimates for VIEW don't make sense...unless they're goal-seeking a stock price
 - c. Even if VIEW could hit its insane revenue "estimates," what would that mean for cash burn?
 - d. How much do Cantor and its executives stand to make by convincing people to buy VIEW?
- V. An ESG Charade: VIEW Makes its Products in the Dirtiest and Most Resource-Intensive Way
 - a. Factory power consumption: VIEW's electricity usage is, uh...shocking?
 - b. End user power consumption: Energy savings by VIEW's customers are minimal
 - c. Carbon intensity: Glass is a necessary evil, but VIEW chronically overconsumes it
 - d. Landfill abuse: Glass isn't biodegradable, and VIEW throws tons of it away
 - e. Some of it is intentional: The CEO overproduced his ecologically costly product by ~900%
 - f. Social injustice: An egregious employee turnover rate caused by corporate waste and abuse
- VI. Hiding in Plain View: Some More of VIEW's Misrepresentations
 - a. Changing the numbers on installations: up and down and up again
 - b. Investment needed to add capacity is far in excess of what VIEW claims
 - c. VIEW falsely claims it has a "high yield" (unless they're referring to their credit facility!)
 - d. The softer side of backlog
 - e. Also, the less profitable side
 - f. Well, that depends on how you define "productivity"
- VII. Disclaimer
- VIII. Endnotes

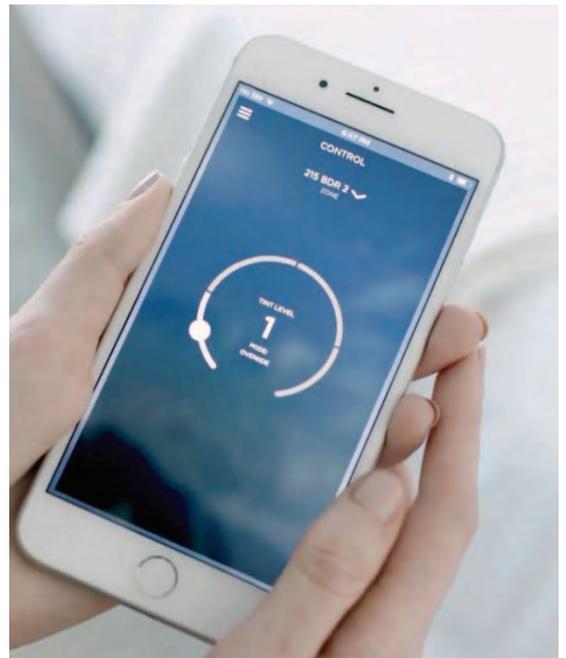
VIEW'S TECHNOLOGY CAN MAKE PRODUCTS BUT NOT PROFITS

a. What VIEW makes and how they make it

View Inc. (VIEW) is a manufacturing business. Their product, electrochromic glass (also known as “switchable glass”), is rather nifty in theory – an electrified window that can be adjusted to darken or lighten. It’s meant to be environmentally friendly, in that its tinting allows occupants to run their air conditioning less because of less heat buildup from the sun. Its presence takes the place of blinds, shades, traditional static tinting, etc. without the binary choice between full daylight and fixed opacity.

If this were all you knew about VIEW, you’d think it sold an economically compelling, environmentally friendly product and had a gigantic runway for growth.

VIEW glass can be pre-set to darken and lighten along a certain schedule, or in response to ambient conditions, or it can be adjusted manually. VIEW glass is very expensive – currently priced at \$40-50/square foot, it’s 4-5x the price of regular window glass and far more expensive than regular window tinting.



VIEW glass, and its control system. (Not shown: The 30 minute delay between command and completion of the tinting. Source: VIEW marketing materials)

VIEW manufactures its glass in a gigantic factory in Olive Branch, MS. (The first question you might ask is, Where are the windows? A simple Google Maps tour around the factory confirms that it has almost none. “The cobbler’s children have no shoes,” bemoans one online review of life as an employee working in windowless conditions at VIEW^{xi}.)



(Source: VIEW investor presentation)

One of the reasons this facility is gigantic is that VIEW's patented process of manufacturing smart glass requires an enormous (and unfortunate) amount of horizontal space. This process entails the following, as described by a former VIEW finance executive (paraphrased as closely as possible):

*Inside is an LCD display line, where we're taking huge pieces of glass, putting them on cranes, and loading them into the world's biggest particle deposition tool. **It's 1,000 feet long.** We shove those pieces of glass into the machine, and **the glass has to travel through that machine for nine hours at a constant rate**, going through numerous chambers. At each chamber, various materials are deposited onto the glass. We're doing this at atomic-level precision. And this is the part where it doesn't work all the time. [Note: More on this part later when we discuss manufacturing yield and profit margins.]*

Then after nine hours, you check whether the coatings are good – and if so, it goes into a glass factory where you turn it into an IGU (Insulated Glass Unit). Then you seal it, and then bake it. So you have three factories in one: a flat-panel display factory, a semiconductor factory, and a glass factory.

Essentially, VIEW is taking regular glass, treating it with a series of complex additives and processes, and turning it into “smart glass.” It's a very high-tech, insanely complicated process. There's a lot of scientific rigor behind it, and former employees and outside consultants tell us that the result is, usually, a product that works. Where the product disappoints – more on this later – is on the level of energy savings, which VIEW massively inflates in its pitch to prospective clients and investors. (There are some reports of problems with the product breaking down too, and we'll discuss these where relevant, but they aren't the focal point of this report.)

The problem with VIEW isn't that customers don't “like” the product. The problem is that the product is a business-to-business product where economics are everything, and it isn't worth nearly as much to customers as it costs VIEW to produce it. It never has been, and it has no hope of becoming so.

b. Why it's impossible for VIEW to make money on smart glass Part I: Producing it

Manufacturing smart glass is difficult, and this is especially true for VIEW. The finance executive we cited above had plenty more to say about VIEW's manufacturing process once we got to its financial utility:

You're gonna have yield loss all along that process. You have almost all the yield loss in the middle part of the process, which is the deposition – and that's where all the cost is. Once you spend 15 hours in total, you come out at the end, put it into a

test bed, and look at the glass for imperfections in the coating...[if the glass has any imperfections above a certain level]...it happened 4 out of 5 times [when I was there]. And then you have to start over, another 15 hours, and lose all that material...

[Management would] always manage the definition of yield so they could get those numbers to look better. If they were getting [a higher level of yield], I think their margins would be better.

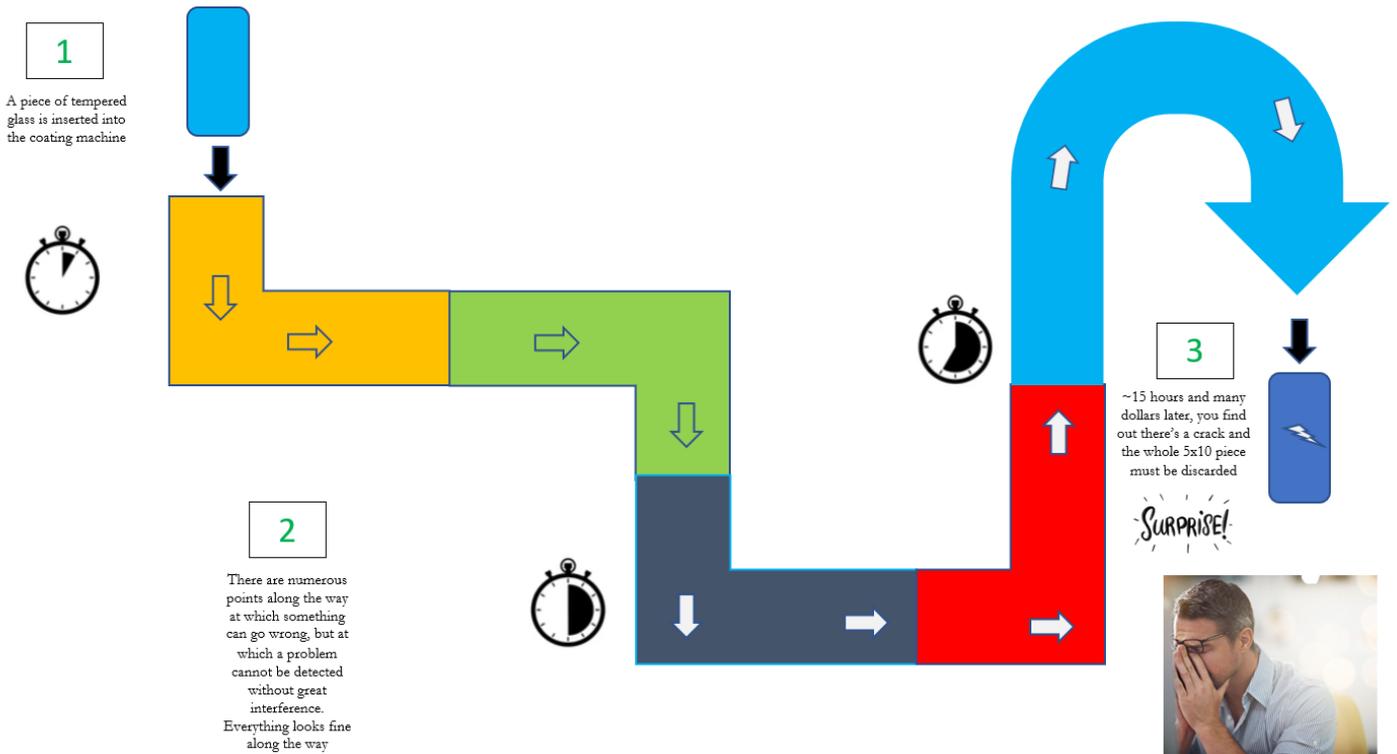
[We found this last idea about VIEW management managing the definition of yield increasingly more relevant as we conducted our interviews with former employees. We found that even recent employees had varying impressions of what the manufacturing yield was, even as recently as last year. We got the impression that VIEW management uses multiple definitions of yield and keeps even important employees in the dark about it. **We would advise investors use caution when told by VIEW management or sell-side analysts that the company has a certain yield. Investors should ask for precision on any yield definition they're given.**]

This former VIEW executive above described a process whereby if something is going to go wrong, you can't expect to identify it until most of the process is complete and you've spent lots of resources and time on it. You have to throw away the entire, fully-treated glass sheet if it comes out even a little badly, and then you start over – another sheet of glass, another 15 hours, another round of coatings, etc.

This makes for a manufacturing process that is more difficult than your typical semiconductor fabrication process. It results in lower manufacturing yields – that is, a lower percentage of production that's sellable.

Below is our graphical representation of this “opaque process” theory of VIEW’s chronically low yields, as explained to us by one former VIEW executive:

THE “OPAQUE PROCESS” CHALLENGE AS ILLUSTRATED BY ONE FORMER C-LEVEL EXECUTIVE



A different former executive of VIEW offered an entirely separate reason for why VIEW's manufacturing yields are so low, and this second explanation was also corroborated by the finance executive we mentioned above. **We think this issue is probably more of a problem, as multiple former employees raised it in interviews.**

This second problem relates to the difference between the one-size-fits-all machinery on which VIEW must rely, and the reality of windows needing to be different shapes and sizes in different buildings. One former sales executive explained the challenge as follows:

*A building is never all the same size glass (panes) even if it looks like it. Every piece is a little different. There's this thing [in the production process] called a carrier, and it's two 5x10 slots, side by side. You have to fill up that carrier with two 5x10 sheets of glass to go into the machine. **But if your customer's project calls for 4x8 panes of finished product, you still have to put 5x10 sheets into the machine and put them through that whole (15-hour) process. Then you cut the filler off at the end. So if you have 100 pieces of glass that are 5x10 [50 sq. ft.], but you made them for a project calling for 4x8 [32 sq. ft.], then the highest yield you're getting [on that project if everything goes perfectly] is 70%** [note: this appears to have been a mental math mistake as $32/50 = 64\%$, not 70%]...*

*...so if the order needed 4x8, we'd cut glass to 4x8, and then put dummy, or filler, pieces in to fill it out to 5x10... **you cut the glass to the size the client wants, then you add in dummy space to fit it into the carrier. And that 5x10 is what runs through the factory [and the extra gets discarded at the end].***

Can you explain this yield problem further? Can they get yields above 70% on that specific hypothetical example you gave?

No.** [This process was designed by] people who fell in love with the science. They don't understand the real estate world. They were shocked that developers weren't clamoring for this product – it's too expensive. And they didn't understand that you can't do this with just 5x10s. It would be great if all the customers ever wanted were 5x10 panes. **Even if it were all 5x10s being demanded, you couldn't get yields above 90%. But buildings come in different shapes and sizes...so your yield can never be that high. [But] that's the way the [VIEW] technology works.

Another former executive described this exact same problem:

The other problem is, when you have a book of business of 6,000 windows of all sizes – “lights” as we called them – they're not all 5x10. So then you have a piece of software that picks the different sizes to optimize that 50 square feet on the carriage. But you'll end up with dead space. The dead space has to be covered regardless – glass has to go there, otherwise the deposition process will be disturbed and you throw even more material away.

And VIEW is building a BIGGER line now with a bigger carriage, so they can do bigger windows, but you end up throwing MORE material away with this new bigger line. So they have to invest in this new machine that's, say, 8x10, but every project they do that's smaller than that, they'll have to throw away even more.

So you actually think yields will go down even further with this new line?

Correct.

Here's an analogy that may be familiar to anyone who has ever invested in the semiconductor industry before. Imagine a semi fab that produces chips for smartphones. It can run at 99% utilization because it's mass-producing chips that are built to a standard.

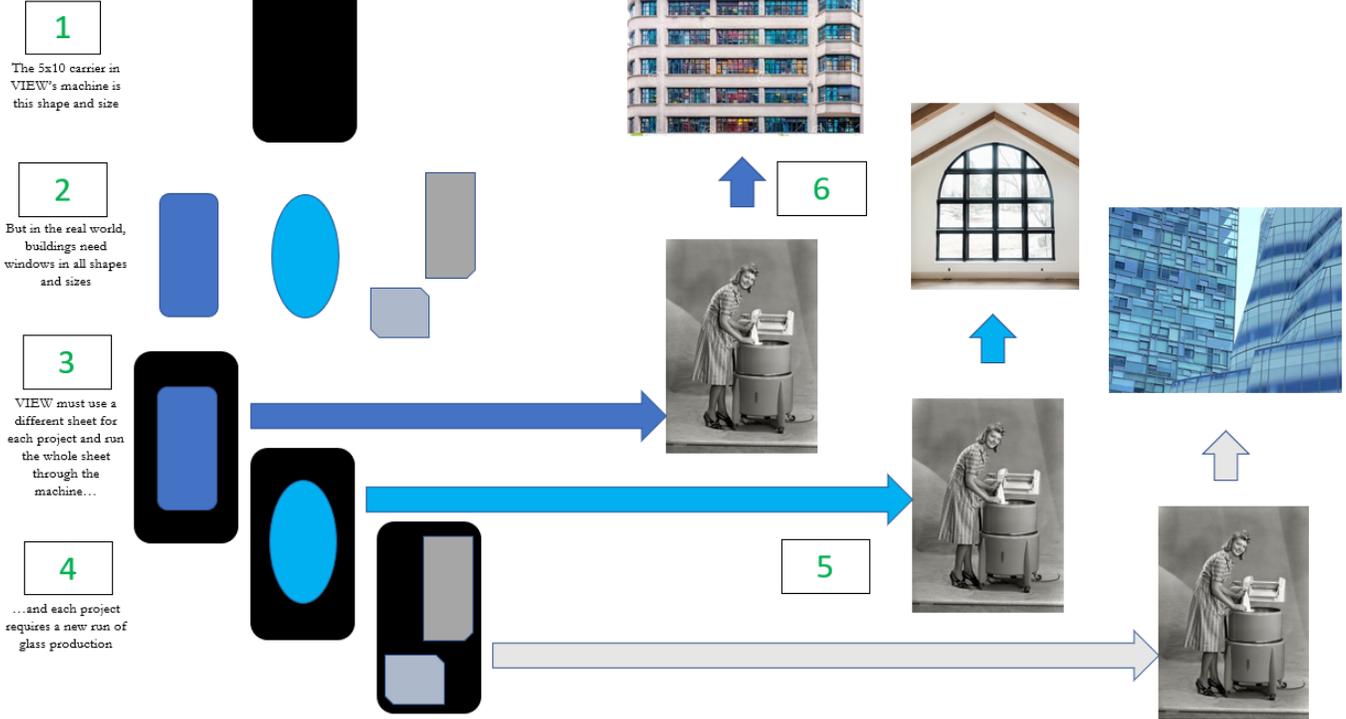
If Apple needs to make ten million phones, then it places an order to the fab making the chips for those phones. The fab gets the order, and it produces 10 million chips, all replicas of one another to go into 10 million smartphones.

But now, imagine if every smartphone were different. Now, the fab has to produce unique chips for 10 million different phones of 10 million different shapes and sizes and electrical specifications. Nobody would even attempt to turn that fab into a business. It would be a nightmare, it would never scale, and phones would cost so much that only the ultra-rich would be able to afford them. **This is VIEW's "every project is bespoke" problem. VIEW's manufacturing process is like a semi fab whose projects are 100% custom-made.**

Office buildings and airports are not produced en masse – each is a different project, and the windows for each vary within each project. VIEW can never fix this problem: if it tries to standardize the shapes of its glass, it will never make a sale again, but if it keeps producing different glass for every customer, it will never be able to mass-produce and get the scale needed to make a profit.

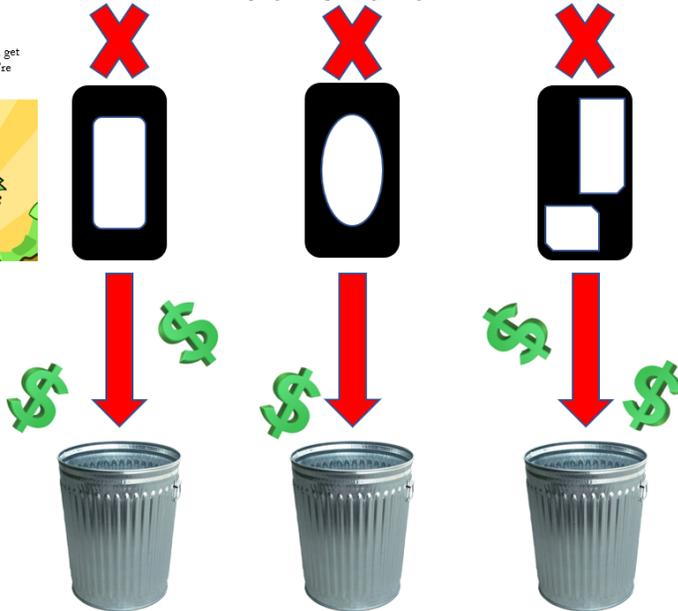
Below is our graphical representation of the "all work is bespoke" theory of chronically low yields, as described to us by two different former VIEW executives:

THE "BESPOKE" CHALLENGE AS ILLUSTRATED BY TWO FORMER EMPLOYEES



The glass around the edges, which cannot be used in the project and is oddly shaped, is wasted - oftentimes this is a huge percentage of the total glass put through the deposition process

Management is HAPPY! They make sales, get paid bonuses, and get to tell people they're saving the environment!



Investors are SAD. This process not only wastes enormous physical resources to virtue-signal about climate change, but also destroys billions in shareholder value



These different, fundamental explanations for why VIEW has had such an abysmal experience with yields for so long all lead to the same conclusion: **VIEW does not have a path to profitability, ever.** VIEW is not a business, it is a charity that exists to donate investors' money to its suppliers, its management, and (now) Cantor Fitzgerald and Goldman Sachs.

We also spoke to a glass industry veteran who allowed us to use his name: Max Perilstein of Sole Source Consultants. Max has been in the glass/glazing industry for decades and now does consulting for consumers of commercial glass. (If you plan to study VIEW independently, we would highly recommend Max as your first call, as he has helped dozens of clients evaluate dynamic glass for their own projects and understands both the supply and demand sides of the product.) He has been following the dynamic glass business since the 2000s and has been intimately involved in the production, consumption, and evaluation of glass products his entire career.

We asked about yields, and Max described what he saw in the VIEW factory on a plant tour:

We've been told by numerous former employees that VIEW has a problem with low manufacturing yields. Are you familiar with this issue?

*Yeah, that's correct. I have been to their plant. I'm a glass geek, so the tour was amazing for me. Their plant is gigantic, and very impressive, state-of-the-art. **But I will never forget, standing at their QC [Quality Control] section and looking at the things they were rejecting, and I was aghast. They were rejecting SO much finished product. And I asked them – you have to reject all this? And they said, 'Yeah, we can't have any mistakes, even a tiny pinhole in the upper right corner that you can barely see'...this makes their production numbers suffer.***

Max's comments dovetailed well with something we were told by one of the former VIEW executives with whom we spoke, who described why the quality control must be so stringent:

When the coating [manufacturing output] is not perfect, even if just a little granule gets in, you can't fix it. You can try to zap it with a laser and burn around it...but that only works if the hole is small enough to pass according to ASTM standards. If you have a piece of glass with a little hole or two in it...it's a heartbreaker.

And this happens all the time?

It happened 4 out of 5 times [over some periods]. And then you have to start over, another 15 hours, all that material...

What both of these folks are describing is a process that is extremely difficult to get right, regardless of how much money, technology, and manpower is thrown at it. You can't just science your way into making this product roll off the assembly line – and we're confident that if anyone were going to succeed in it, it would have been VIEW, and it would have certainly happened by now. VIEW has been at this for 15 years and has spent more money on trying to get it right than most tech firms would ever dream of having access to.

Producing electrochromic glass with VIEW's process isn't anything like producing regular or tinted glass. VIEW's process is physically limited by a variety of factors – bespoke sizing and shaping, a process that provides visibility only after great amounts of resources have been used, stringent industry requirements for a finished product - that make generating high, consistent yields of sellable product impossible. This problem is specific to VIEW and its process and it's why VIEW cannot ever hope to sell this product for as much as it costs to produce it,

outside of corner cases with clients who are willing to spend lavishly for little performance benefit and no energy savings.

One fascinating thing we found during our research that helped us understand this problem was what one employee told us about the VIEW CEO's misadventure in mass production. It turns out that when VIEW actually did produce useless glass at a standardized size, as it did when it was running its factory full-out "just to see how it would do," (more on this insane decision later) it was able to get yields higher. This fits perfectly with what the other executives told us: the problem is the lack of ability to mass-produce.

If all buildings had the same size and shape windows, most of this yield problem wouldn't exist. And the proof was, incredibly, delivered when the CEO wasted gigantic amounts of money, glass and power producing millions of square feet of glass to one, standard sheet size that virtually nobody wanted: yields went up. **But buildings, as we know, are never standardized. Every building, or building project at most, is unique.**

We also found some online reviews that touch on this problem indirectly. We aren't always big fans of online reviews because it's impossible for us to verify their authenticity, but we do take notice when multiple reviews, posted far apart from one another, speak to findings from elsewhere in our research. Two online reviews of the VIEW workplace, three years apart, described the problem rather succinctly in the underlined sections:

1.0 Sinking Ship



Engineering (Current Employee) - Olive Branch, MS - April 17, 2020

View has been in business for 10 years and has never shown a profit. They have a good product but the process to make it will never allow them to be profitable. They are wasting large amounts investor money and are quickly running out of money with no short or medium-term plan to become profitable. They give you stock options when you join, but the chances of the stock ever being worth something is very slim. The company is run by people that are very good technically but don't have a clue how to run a company or manage people.

That review had echoes of one from three years prior:

1.0 ★★★★★ ✓

Former Employee, more than 1 year

Disfunctional and unhealthy across the board.

Feb 9, 2017 - Anonymous Employee in Milpitas, CA

 Recommend
 CEO Approval
 Business Outlook
Pros

The product concept is very cool, but still underdeveloped. It doesn't seem to be at all cost effective for View to sell, manufacture, ship, install, or maintain.

Cons

This company is the absolute worst organization I have ever seen.

The HR team is unprofessional, unintelligent, non-communicative and not at all capable of creating a positive environment for its employees. They intentionally avoid transparency, and instead of making positive changes- they force employees to write positive reviews on Glassdoor to combat all the (accurate) negative commentary.

The CEO is an absolute nightmare. He believes in abuse and humiliation as key tactics for driving productivity. On the spot firings of new hires in their first week, irrational expectations for 24/7 commitment, a deep lack of understanding of key business disciplines, and erratic narcissistic behavior are not uncommon. Rao is disrespectful, self-obsessed, brags about breaking people down, and uses business resources to build his personal brand and reputation.

The entire marketing team has turned over in the last 6 months, the churn of sales professionals is record-setting, the burn rate is nauseating, customers are consistently disappointed by unmet expectations, deadlines, and quality; and despite raising north of \$600M, they continue to raise because they can't produce and sell the product without significant loss, and they overspend in unnecessary marketing to appease egos.

The fact that this problem of cost-*ineffective* manufacturing has been present for so long without any apparent improvement demonstrates how “native” it is to VIEW’s technology and manufacturing process. They aren’t having production problems because they have the wrong manager, or the wrong pricing, or the wrong factory. They have the wrong foundational technology. Different employees spoke to different reasons for these problems, but the overall picture as well as the numbers state clearly that something is broken in this business.

It’s important to note that not all smart glass is produced this way – just VIEW’s glass. This is a function of the technology around which VIEW’s process was designed. Competing smart glass companies, such as Sage (owned by Saint-Gobain) and Halio, use their own production processes and rely on their own patents. Some competitors, such as Halio, don’t make the glass at all, just the electrochromic technology that then goes into someone else’s glass (and makes for an infinitely better business if you think about it for a minute, but Halio isn’t public yet). There are different methods by which to do this – but VIEW’s method was not designed in a way that a business could use it. From an economic perspective, this is a fatal design flaw.

To understand this problem is to understand that it cannot be fixed by any amount of money, ingenuity, time, or people – and VIEW has thrown enormous amounts of all of these at this problem. The company has over 1,000 patents and patent filings, has spent billions of dollars, and has turned through countless employees (employee turnover is often cited as a problem by online reviews, and one former employee told us that VIEW had 400% employee turnover during his tenure there). As the S-1 states, the company also has “full control over [its] manufacturing processes, allowing us to rapidly scale while reducing production costs and maintaining quality.”

If VIEW were going to fix this problem, it would have happened already – but it hasn’t. A third former employee with whom we spoke – this one with deep operational experience – told us that to the best of his knowledge, VIEW’s yields are presently in the 50% ballpark (we spoke to this person in calendar Q221).

And as we will discuss, the company going public now is not because it has reached some sort of inflection point in its business. Getting acquired and quickly flipped to the public by Cantor Fitzgerald’s SPAC was just the latest funding lily pad onto which this promotional management team has managed to land itself. Don’t confuse hype

with fundamental change – relatively little has changed at VIEW over its long, disappointing history, except for the size of its negative retained earnings balance and the makeup of its workforce (well over 100% employee turnover over any period of just a few years).

c. Why it's impossible for VIEW to make money on smart glass, Part II: Selling it

VIEW's inability to make money is a function of both its cost base and its pricing power. If VIEW could charge egregious prices for its product, of course it could make money. And we acknowledge that in theory, VIEW's is a very cool product. We would never be caught dead paying these prices for it ourselves – let alone paying the prices VIEW would need to charge to make money on it, which would be 300-400% higher than current prices – when there are plenty of cheaper substitutes that offer virtually the same performance on any important feature and do it with far less environmental impact. But there's a sucker born every minute and some of them are going to overpay for an overrated, wasteful product.



Sidebar: One of the better-known scenes from *The Simpsons* is Homer (dressed as Krusty the Clown) going to a car dealership and looking at a potential purchase. During his visit, gangsters looking for Krusty shoot at him, miss, and hit the car, but Homer doesn't notice. He then asks the dealer, "Hey, what are all these holes?" The dealer promptly adjusts and says, "those are speed holes, they make the car go faster." Homer replies, "oh yeah, speed holes!"

In a later scene, Homer tells Flanders that he's putting speed holes in his car to make it go faster...because Homer is insanely gullible. For some reason, we thought of this scene while studying VIEW's product.

Unfortunately for VIEW, there aren't that many suckers, which is why the company's sales are still tiny a decade after its first sale. To begin with, consider these online employee reviews complaining about how hard it is to sell this glass:

3.0 Amazing new tech, not sure if it will make it

★★★★☆ Sales Support Specialist (Former Employee) - Milpitas, CA - February 6, 2019

It was great to be around the leading minds in sustainable real estate design. It was fun to represent an innovative new product. It was not fun to try to force people to buy a product they didn't see any real need for. It wasn't cool when the CEO would make fun of the customers in all hands meetings. Old school "super smart PhD" tech culture didn't fit with culture of rough and tumble contractors.

Current Employee, less than 1 year

Product simply does not work

Mar 6, 2018 - Field Service Engineer

✗ Recommend ✗ CEO Approval ✗ Business Outlook

Pros

Good conceptual idea for the product.

Cons

It is a simply not possible to sell this product. The customer is told about all the wonderful things the glass c of the day, the product has a lot of technical deficiencies and does not function as intended.

The software has a lot problems and most of the features and updates do not work. Engineering team always custom solution for different problems. In most cases the solution does not work and people in direct contz

Current Employee, more than 3 years

Sinking Ship! Avoid at all costs!

Dec 4, 2019 - Solutions Architect in Mérignac, 33, Aquitaine

✗ Recommend ✗ CEO Approval ✗ Business Outlook

Pros

Free Coffee and Free Parking

Cons

Chairman Mao, Oops I mean CEO Rao is clueless on running this company. There are more D Bank! Trying sell a "Nice to have" is NOT going to cut it! If you like to have a meeting about a meeting this is the place!

2.0 View is a Silicon Valley Start up

★★★★☆ Sales Executive (Former Employee) - New York City, NY - August 14, 2018

Some really fine people, most who have left the company for greener pastures. Best people ended up leaving or being terminated for not meeting the unrealized demands of CEO. This created a toxic environment on almost every level.

I had 7 different supervisors in about 22 months.

Never exercised my share options because they are worth less than the paper they are printed on. Unfortunate, as there were many peoples' dreams attached to those incentives, that are essentially worthless.

Still learned a lot, and had fun meeting some fine people. Could have been a worse way to spend almost two years. Very difficult product to sell...easy to talk about, and show and demo...but the push back from building owners and the design teams was often monumental, when push came to shove.

At this point, a defender of VIEW’s stock might point out the fact that VIEW has named a variety of customers as reference points, and offer the rebuttal that if VIEW’s product is so hard to sell, why have so many building owners nonetheless purchased it? Are they all just “suckers”?

No. In fact, many of them are quite the opposite – they got an insanely low price on VIEW’s glass because VIEW was giving the product away for peanuts. One former senior executive of VIEW explained this to us as follows:

VIEW raised price by something like 25% last year. Do you think the company has room to raise price another 25%, 50%, 100%?

*I would say two things: one, the time it takes to get a design win...to recognize as revenue, is 1-2 years. It can even be a 3-year lag. The Graystar building took 4 years. **That building was probably sold at ten bucks a square foot. They'll say now they're selling at \$50/square foot. And you asked if there is room to raise prices there? It's getting expensive. It's costing a developer a couple million additional dollars per building. So no, price hikes aren't gonna be their panacea [for their upside down gross margins].***

So you think there was just a lagged price hike tailwind flowing into their revenues in 2020?

*I know some of the chronology. **In 2014 or so, we took price to zero just to see what demand we could get if we literally gave the product away.***

*In 2015 we were probably \$15. In 2016 probably \$25. In 2017 probably \$28. **And in 2018-19, [we] were selling a lot more jobs around \$40, and maybe \$40-48 in 2020.***

I remember us saying we thought this should be worth \$70-80/sq ft, but we never really believed that would be the price. Once you got past the \$50 range, a lot of the ROI came from soft benefits

*– fewer sick days from having more UV light and things like that – rather than hard ROIs. Hard ROIs are always easier to sell. **And we found out that the market-clearing price for this glass was \$18 – meaning at \$18/square foot, we could sell out the factory. [This is an enormous problem when VIEW can’t even get close to making money selling at \$50/square foot.]***

So \$50 or so is kind of a natural cap on price?

Yeah I think so...And I remember Sage selling specifically at \$40.

We can fact-check this claim pretty easily – VIEW has reported in its S-1 that most of its sales growth in 2020 was due to price hikes. This tracks with the VIEW executive’s story that prices were raised in prior years, as revenues being recognized on glass shipment today are based on deals that were signed years ago, before the building was ready to receive the glass. **VIEW is in a nice-sounding “23 million square feet of buildings” (more on this misleading and varying metric later), but most of that was sold at pathetically low prices even lower than what prevailed in 2020 (and 2020 had an abysmal gross margin).**

Further, the WSJ reported in early 2017 that View had shipped 2.5 million square feet of glass^{xiii}:

View has a long way to go to grow its business. The company’s glass has been installed in about 300 buildings, and 150 more are on order. Customers are in the hospitality, education, health care and other industries. The company has shipped about 2.5 million square feet of glass, the CEO said. It is churning the glass out in a factory at Olive Branch, MS.

That sounds like a lot – but if that glass had been sold at \$50/square foot, then VIEW would already have done \$125m worth of revenues by that point. This obviously isn’t the case (VIEW did just \$20m in 2018; 2016 was only its fourth full year of sales). **This is just further evidence that all that glass sitting in buildings around the country is there because VIEW gave it away at prices that could never possibly sustain its business; not because customers buy into the hype that this glass is worth many times more than the alternatives.**

At today’s prices, the ROI decision for building owners is far less favorable to VIEW – but unfortunately, today’s prices are still far below VIEW’s cost of production.

Also unfortunate for VIEW is the fact that all four of the employee reviews we shared above were penned *before* the start of the COVID pandemic, which ushered in what is shaping up to be the worst office property market in 30 years. And despite the fact that office construction hasn’t slowed terribly *yet*, office property developers are still in vacancy hell right now, and in no mood to waste money^{xiii}:

“Moody’s issued the forecast last week, punctuating its findings with an assertion that U.S. office vacancy would rise to 19.4 percent in 2021. That figure would represent a 30-year high, surpassing the national vacancy rate of 17.6 percent that occurred in 2010 toward the end of the Great Recession.”

Selling an expensive “nice to have” to office buildings will go from challenging in 2018-2020 to nearly impossible in 2021-beyond, as office project completions slow. But perhaps it’s worth asking, Why was selling VIEW glass so challenging in the first place?

For one thing, there have always been good substitutes for VIEW's product. Here are some of those substitutes with which VIEW's electrochromic glass (~\$40-50/sq ft) must compete, along with approximate prices per square foot:

- Plain, untinted window glass (\$10)^{xiv}
- Blinds, curtains, shades, electric shades (run the gamut in price)
- UV film (additional \$5-7, available on Amazon for DIY)^{xv}
- Low-E window film or low-e glass (\$14)^{xvi}
- Photochromic window film (\$18, available on Amazon for DIY)^{xvii}
- Photochromic glass (varies, but less expensive and more environmentally friendly than electrochromic/VIEW)^{xviii}

Max Perilstein, our glass industry veteran we mentioned previously, explained to us in a nutshell why the product TAM is so limited. Only a tiny handful of clients are willing to spend so lavishly on a product that is a nice-to-have, when you can achieve most of that performance for ~1/5 the cost with low-e glass:

VIEW has some pretty robust revenue expectations penciled in by Wall Street. Is there ever a way for VIEW to grow sales this fast and to such a huge level?

Yeah, I've seen them. They're insane.

Insane?

Yeah.

(Interviewer laughs)

When they talk about their future – the thing is, they're in a niche space. Portions of airports that like the look and the status, universities who fight each other for enrollment and have lots of money to spend, etc. But VIEW is not going to find success in typical building construction projects, because of the cost and the lack of performance. People just aren't going to pay that much, in general.

*I don't mean to dog VIEW. I think that what they're trying to do is incredible. **But in the glass industry, everyone understands their value prop, understands that it isn't good and isn't a compelling substitute for regular low-e glass which is 1/5 the cost. You're competing with things that will be \$10/sq. ft. Mayyyybe in the teens, if you use really expensive gold coatings in the glass. VIEW can't ever get anywhere near that low of a price because it costs too much to make, so VIEW is always far and away the most expensive option, but the product doesn't actually do much more than the \$10 stuff.***

*Viracon [another glass maker that produces simple low-e, or UV tinted, glass] for instance, can make the exact same unit, but VIEW switches from clear to dark. **So at the end of the day, by buying VIEW, the customer is paying 4-5x for that switchability luxury. The energy savings are basically the same with either this \$10 [or so] low-e glass or VIEW at \$40-50...***

*...when the general contractor would put this out for bid, and VIEW is specified on the glass package, **VIEW's prices were always insanely high compared to what else you could get.** The architect would then allow the GC to engineer it out.*

[We note with continued amazement that these “insanely high” prices still don’t get anywhere close to making VIEW profitable.]

So, one problem for VIEW from a demand-side perspective is that it costs far more than the default choice, but saves no energy versus that choice. It’s beyond a nice-to-have; it’s a gaudy luxury that adds little value. And this is just the backdrop to many other problems selling this product. Here are some others:

- Developers are extremely cost-conscious, making them a terrible audience for an absurdly priced luxury
- VIEW glass isn’t sold to a single decision-maker
- VIEW glass in a building construction plan adds risk, complexity, and tradespeople
- VIEW glass adds risk of ongoing owner challenges due to product downtime

Let’s review these one by one.

Developers are extremely cost-conscious, making them a terrible audience for an absurdly priced luxury

“It’s not a little bit more expensive, it’s very expensive,” said a former VIEW salesman with whom we spoke. “Glass is normally \$10/square foot, and we were charging \$50-60/square foot...it’s a nice to have, not a have to have.” This sales executive, who spent years with VIEW, was pretty blunt about how unrealistic VIEW’s sales expectations were from inside the ivory tower of senior management: “Our path to profitability always included unrealistic sales volume...the [engineers] thought ‘this technology is great and developers will change their buildings to adapt to our 5x10 panes!’ but nobody did!”

Another former executive was negative for a different reason: *“If you’re a developer, you don’t care about the people in the building. You just care about the debt service and your cash flows. So it’s a tough road to argue – we would build these beautiful books of how VIEW’s glass would lower your energy footprint, how many fewer sick days people will get...but just getting people to care, to spend 2-4x for your glass, that’s hard.”* [VIEW glass today is more like 4-5x since the price hikes we previously discussed.]

VIEW glass isn’t sold to a single decision-maker

We’ve mentioned architects and developers, and the fact that we’ve had to mention both is also part of the problem.

The same executive (second one of the two above) who described developers often not caring about the people in their buildings described a general difficulty in selling the product to multiple or disparate decision makers:

We found that most developers don’t care about the glass that goes into a building. So the choice happens at the architect level, and it gets farmed out to the glazier subcontractor...the people who make the decisions on budgets are not the ones making the decisions on glass. So VIEW has to overcome that problem [in every potential sale] – they have to go to building

developers to get them to care about the product and convince them to care about the people in the building, then go to the architect...

A good product sells itself, while a bad product forces its seller to beg for an audience with a skeptical buyer who is only part of the decision process to begin with.

VIEW glass in a building construction plan adds risk, complexity, and tradespeople

To understand this point requires understanding how VIEW is installed. Unlike regular glass, which is installed solely by professional glaziers, the installation of VIEW glass requires additional tradespeople to be brought to bear to a project. It also requires installation of electrical cabling to a building façade, inviting lawsuits against the general contractor and developer if something goes wrong. Developers don't like risk, and if VIEW's salesperson does manage to convince the developer, it must also convince the GC (to some extent) to add a new "trade" (electrician) to the façade. The architect of course must sign off on this increased risk – and if daylight and heat reduction are important, remember, this can be achieved far more cheaply with a variety of films or simpler glass.

VIEW glass adds risk of ongoing owner challenges due to product downtime

Unlike UV-filtering film or other heat- and light-reducing window treatments, or even photochromic glass, VIEW glass requires continual throughput of electricity to remain "dynamic." Of the many options a developer has for reducing light and/or heat via window choices and treatments, only VIEW glass runs the risk of failing, with substantial downtime, once onsite. (As one former employee said about a common pushback from customers: "Wait a minute – shouldn't my windows just *work*?")

We have been unable to quantify the amount of VIEW's product failures in the field; all we know is that it has happened more than a few times. For instance, we know that VIEW incurred an enormous warranty charge (a dollar amount equivalent to virtually all of that year's sales) in 2019 due to problems with some of its deployed product in the field:

In 2019, Legacy View identified a quality issue with certain materials purchased from one of its suppliers utilized in the manufacturing of certain IGUs. Legacy View stopped using the affected materials upon identification in 2019. As of December 31, 2020, Legacy View had a low warranty claim rate related to this matter. Legacy View replaced, and View expects to continue to replace affected IGUs for the remainder of the period covered by the warranty. Legacy View analyzed the risk of failure of the affected IGUs by analyzing failure rate as a function of time required for the IGU to fail since it was installed, and the geographical region where the IGU was ultimately installed. Based on this analysis, Legacy View estimated the number of IGUs expected to fail in the remaining warranty period and applied an estimated cost to calculate the cost to replace the IGUs. The estimated cost includes Legacy View's expectations regarding future reductions in production costs, which comprise of materials, labor, and factory overhead. Based on its analysis, Legacy View recognized \$24.5 million of expense for the estimated future cost to replace defective IGUs classified in cost of revenue in Legacy View's consolidated statement of comprehensive loss for the year ended December 31, 2019. Legacy View recognized a corresponding warranty liability of \$1.6 million in accrued expenses and other current liabilities and \$22.9 million in other liabilities on its consolidated balance sheet as of December 31, 2019. As of December 31, 2020, the warranty liability related to this matter included in accrued expenses and other current liabilities and other liabilities was \$3.8 million and \$18.3 million, respectively, on Legacy View's consolidated balance sheet. It is reasonably possible that the amount of costs to be incurred to replace the defective IGUs could be materially different from the estimate. Considering the limited failure rate data available to-date and the uncertainty inherent in the failure analysis, including the projected costs to replace defective IGUs in future years, the actual timing of the failures, and the number of defective IGUs, View is unable to estimate the amount of any potential additional losses.

VIEW blamed this problem on materials from its supplier, but we also learned in our research about "Type 2 failures." In such situations, VIEW glass allows moisture inside and shorts out the entire window panel:

The number 1 reason you have failure in [VIEW] glass is that the seal fails and moisture gets in. You can't go and squeegee moisture off in this case because it's inside the window. If moisture gets into a View IGU, it's game over, it shorts out, and it looks like the whole window is frosted.

This isn't necessarily a pervasive issue for VIEW glass, but for the developer and architect making the decision about whether to incorporate it, it adds a layer of downtime/disruption risk to a building that virtually no other window or treatment option contains.

d. Spending four dollars to make one: gross margin is as bad as it looks, and isn't getting better

When you combine a fundamentally terrible manufacturing process with a limited market, a complicated selling process, notoriously price conscious real estate developer customers, and a range of effective, lower-cost product substitutes from which to choose, you can imagine what gross margin like look like for such a business.

Or rather, you don't have to imagine – here's what VIEW's annual gross profit margins look like, even giving them the benefit of removing charges for warranty expenses and inventory obsolescence:

<i>(\$ in millions)</i>	FY18	FY19	FY20
Revenues	\$20.2	\$24.3	\$32.3
YOY Revs		20%	33%
ASP Contribution to Growth		9%	26%
Volume Contribution to Growth		11%	7%
COGS	\$142.6	\$179.7	\$123.1
of which: Warranty accrual		\$24.5	
of which: inventory valuation provision	\$65.3	\$22.4	\$11.2
COGS ex-warranty and inv provision	\$77.3	\$132.8	\$111.9
GP ex-warranty and obs inventory provisions	(\$57.1)	(\$108.5)	(\$79.6)
GM ex-warranty and obs inventory provisions	-283%	-447%	-246%

The average publicly traded, American manufacturing company has gross margins in the ~25-30% range (using each company's most recent year of numbers).^{xix} As you might guess, publicly traded manufacturing companies with negative gross margins over the past year are extremely rare – out of over 1,500 US “manufacturers,” as defined by Bloomberg, with a market cap over \$100m, only 44 had negative gross margins:

Selected Screening Criteria	Matches
Security Universe	1500431
51) :: Trading Status: Active	524320
52) :: Security Attributes: Show Primary Security of company only	96764
53) :: Sector (SIC): Manufacturing	4252
54) :: Exchanges: United States	3094
55) :: Current Market Cap > 100M	1544
56) :: Latest FY Gross Margin < 0	44

And of these, only 8 had an entire year with gross margins below negative 200%. So just in case it doesn't go without saying, VIEW's gross margin is not just "bad," nor even just "terrible," but more like "among the worst gross margins in the free world."

For the purposes of shorting a stock, we want to understand what the chances are that the company can fix its problems. If the core problem of VIEW is that it doesn't make money, we asked, what are the chances that it can fix what's keeping it from making money? We've triangulated the answer somewhere between "zero" and "a snowball's chance in hell."

To start with, consider the fact that growth in volumes has done virtually nothing to improve the margins of this business. In 2019 and 2020 combined, volume growth contributed \$4.1m of growth, while price contributed \$8.0m of growth:

Our total revenue increased by \$4.1 million or 20.6% from \$20.2 million in fiscal year 2018 to \$24.3 million in fiscal year 2019. Of the total revenue increase, the increase in total volume resulted in an increase in revenue of \$2.3 million, and the increase in average selling price resulted in an increase in revenue of \$1.8 million. The increase in total volume was attributable to a trending increase in design wins year-over-year because of greater

Legacy View's total revenue increased by \$8.0 million or 32.8% from \$24.3 million for the year ended 2019 to \$32.3 million in the year ended December 31, 2020. Of the total revenue increase, the increase in average selling price resulted in an increase in revenue of \$6.2 million, and the increase in volume resulted in an increase in revenue of \$1.8 million. The increase in total volume was attributable to a greater market awareness of its

This is how we concluded the contribution to revenue growth from volume as distinct to the contribution from price. Volume growth (actual demand growth, not just producing lots more glass for no reason as we're told the CEO liked to do) from 2018 to 2020 was ~20%, while price added ~40% to revenues. 100% of price improvement drops to the bottom line, so we should expect gross profit to improve greatly in those two years of price gains, excluding inventory write-offs. But VIEW lost *more* money on the gross profit line in 2020 than in 2018, and its gross margin percentage improved by a number not much different than the ~40% improvement it should have gotten from price (it improved by 37 percentage points).

Aside from these incredibly low gross margins indicating that something must be terribly wrong with VIEW's manufacturing model, this "margin stagnancy" also tells us that decent volume expansion of 20% over this time did basically nothing to improve VIEW's gross margins. There are always puts and takes in any given year's gross margin, but this led us to ask, *Why doesn't increased throughput appear to be helping VIEW's profit margin?*

In our fieldwork on VIEW, we consulted with numerous former senior employees or outside industry consultants who had relevant insight on this specific topic of VIEW's gross margin profile. They included a former VIEW sales executive, a former VIEW finance executive, two former VIEW operational executives, and one person, Max Perilstein, who never worked for VIEW but has worked in the glass industry for decades and knows all the relevant suppliers like the back of his hand. What we found was consistent with our other findings: VIEW's margins are chronically bad because its manufacturing process is chronically bad, and because it can't raise prices enough to overcome that problem. This goes back to VIEW's low manufacturing yields.

We found evidence that VIEW was able to improve its yields on the margin for a brief time, but that this short-lived halcyon moment was misleading: It coincided with the CEO's insane decision to run the plant full-out for an entire year, producing millions of square feet of glass at a single, standard size that nobody wanted to buy. This "improved" yields for a time, because the company was able to take advantage of the key to mass production that has been around since the Industrial Revolution: standardization. The only problem was...there were virtually no buyers for the glass made that way. One more time: in the real world, yields on VIEW's product can't be strong.

The bottom line is that VIEW has never been able to produce consistent, high yields to make product that real-world buyers can use, and this means enormous amounts of expensive finished materials must be thrown away continually. Some of the qualitative things we were told on this specific topic (noting each person's functional focus) included:

- Sales: "The cost to manufacture that glass is so high. You'd have to sell it at like \$100 per square foot to be profitable. They've scaled that cost down as far as they can. It [profit] can't be done."
- Finance: "Anyone who says 'It'll scale' assumes that the only issue is overhead. But that's not the problem. This isn't like, say, a TSMC [Taiwan Semiconductor] fab. It doesn't take a ton of people to run it; that's not the issue. The issue is the variable costs are so high because the manufacturing yield on the process is so low."
- Finance: "In our model it made money at 80-84% yield. But that was obviously theoretical, we never got there... I just don't see that they made a lot of progress on yield."
- Operations Person 1: "What I'm hearing today [Q221] from my friends, my former colleagues there, is that the yield is running about 50%...this is very low for a glass company."
- Operations Person 2: "*[Sighs when asked what has held VIEW back from profitability all these years]* Everything about this company is expensive, and everything about electrochromic glass is expensive...Like, just selling a window. The prospective customer finds out they need to pay us to monitor their window, and they're like...wait a minute, shouldn't my windows just work?"
- Operations Person 2: "They probably lopped off \$10m a year in annual costs (for 2020, by firing people.) They've reduced quite a bit of overhead and spend." *[We thought this statement was interesting because gross margins were still horrendous in 2020, even after all these cost cuts.]*

One of these executives summed it up best, when we asked where the company might be going: "I think they're gonna run out of money."

e. The difficulty of further price hikes

At this point, a stubborn bull might say, "The company raised price in 2019 and again in 2020, so clearly they have momentum and interest in their product. Can't they just raise price until they exceed their cost of production?" We asked the same question in our research. The answer is no, they can't, for several reasons.

But first, just to clarify, the sales and project cycles for VIEW are 1-3 years long in almost all cases. So, the "price hikes" we see in 2019 and 2020 were due to deals that were signed over the course of the past several years. VIEW's prices going up by ~26% in 2020 does not equate to the company telling customers in 2020 that it's raising prices.

This brings us to the first reason that VIEW can't raise prices much more: Their prices have already reached their approximate natural cap, and that's if we generously assume that VIEW's promises of ROI are legitimate and convincing to their customer. (We don't actually believe that, but if we pretend to believe it, it makes the math simpler.) As we explained previously, as prices get to about \$50/square foot, the selling process is forced to move past "hard" ROI savings (reduced HVAC use, avoidance of window treatments such as blinds, etc.), and starts to rely on "soft" ROI offerings such as higher employee productivity (an effect that VIEW uses university studies

it paid for and conducted itself to demonstrate), happier employees, etc. These “soft” ROI measures are, not surprisingly, far less convincing to financially oriented developers.

It's certainly possible that VIEW can raise prices on the most sanguine (or stupid) customers a little more, but we wouldn't count on that as a reliable method. In fact, even Cantor Fitzgerald, VIEW's leading shill and a major owner of its stock via its SPAC sponsor, admits that prices need to go down, not up, for VIEW to access its supposed TAM:

It is important to note that this entire annual TAM estimate is not obtainable for View today, as many new construction and renovation projects would not be able to afford the company's premium product. However, we believe the entirety of this TAM will slowly become obtainable as View continues to reduce per unit costs.

(Source: Cantor initiation report, page 3)

The other part of the equation showing why price hikes won't lead to profit is that profit is a function of revenues minus costs. It isn't enough for VIEW to raise price; it would have to raise price to a level high enough to exceed its expenses. Given that fixed overhead is not VIEW's problem – i.e., VIEW can't “make it up on volume” – how much would VIEW have to raise prices to generate an operating profit?

We know that many SPAC investors don't look at income statements anymore, but we're old-fashioned:

View Operating Corporation (formerly known as View, Inc.)
Consolidated Statements of Comprehensive Loss

(in thousands, except share and per share data)

	Year Ended December 31,	
	2020	2019
Revenue	\$ 32,302	\$ 24,324
Costs and expenses		
Cost of revenue	123,110	179,675
Research and development	69,491	77,696
Selling, general and administrative	77,445	72,905
Income from legal settlement	—	(22,500)
Total costs and expenses	270,046	307,776
Loss from operations	(237,744)	(283,452)
Interest and other income (expense), net		
Interest income	499	5,591
Interest expense	(26,820)	(10,594)
Other expense, net	(32)	(108)
Gain on fair value change	7,155	1,750
Loss on extinguishment of debt	—	(3,040)
Interest and other income (expense), net	(19,198)	(6,401)
Loss before provision of income taxes	(256,942)	(289,853)
Provision for income taxes	(40)	(51)
Net and comprehensive loss	\$ (256,982)	\$ (289,904)
Net loss per share, basic and diluted	\$ (3.56)	\$ (4.29)
Weighted-average shares used in calculation of net loss per share, basic and diluted	72,176,256	67,571,844

VIEW lost -\$238m before interest and taxes (EBIT) in 2020, on \$32m of revenues. **To achieve EBIT breakeven on 2020 sales using price hikes alone, VIEW would need to increase its prices by \$238m, or...a little over 600%. No biggie.**

THROWING GOOD MONEY AFTER BAD: VIEW IS A BLACK HOLE OF CAPITAL, AND STILL UNDERCAPITALIZED

Any *South Park* fans in the house?



- a. “Aaand it’s gone!”

View has now raised close to \$2 billion since its inception as Soladigm 11 years ago from investors including Corning, Madrone Capital Partners, Khosla Ventures, GE, TIAA Investments, Reinet Investments, NanoDimension, DBL Investors, Navitas Capital, Sigma Partners and The Westly Group.

Some of Silicon Valley’s past forays into building markets have exposed the region’s arrogance and myopia; the long-gone *Serious Materials* comes to mind. But, View seems to have made it through many of the obstacles of early startup death. A decade in, the company is growing sales, scaling its manufacturing and there’s money in the bank.

This hopeful-sounding article snapshot above might read like a post-SPAC review of VIEW’s prospects, but it’s actually from 2018^{xx}. Merely one year after the article was published, VIEW was back into the “going concern risk” (verge of bankruptcy) category, having already burned through this latest \$1.1bn investment from Softbank.

We studied VIEW’s history of fundraising round after fundraising round after fundraising round after fundraising round:

Redeemable Convertible Preferred Stock.

Redeemable convertible preferred stock consisted of the following (in thousands, except share and per share data):

Series	Shares Authorized December 31, 2020 and 2019	Liquidation Preference per Share December 31, 2020 and 2019	Shares Outstanding December 31, 2020	Shares Outstanding December 31, 2019	Carrying Value December 31, 2020	Carrying Value December 31, 2019	Liquidation Preference December 31, 2020	Liquidation Preference December 31, 2019
A	999,999	\$ 0.3000	793,165	929,665	\$ 166	\$ 195	\$ 238	\$ 279
B	67,604,204	0.3600	52,346,933	52,372,210	19,210	19,219	18,845	18,854
C	97,839,400	0.4365	26,155,627	26,155,627	11,495	11,495	11,417	11,417
D	114,997,875	0.5020	26,365,354	26,365,254	13,263	13,263	13,235	13,235
E	320,000,000	0.6024	198,141,237	198,159,222	100,225	100,233	119,361	119,371
E-1	5,659,523	0.6626	—	—	—	—	—	—
E-2	4,980,080	0.7530	—	—	—	—	—	—
F	450,000,000	0.9000	209,103,548	209,103,548	175,182	175,182	188,193	188,193
G	2,700,000,000	0.1125	2,059,431,740	2,059,431,740	330,466	330,466	231,686	231,686
G-1	40,000,000	0.9000	—	—	—	—	—	—
H	3,233,440,076	0.4400	456,481,633	456,481,633	197,488	197,488	200,852	200,852
H-1	2,616,505,173	0.4400	2,194,032,815	2,194,032,815	965,183	965,183	965,374	965,374
	9,652,026,330		5,222,852,052	5,223,031,714	\$ 1,812,678	\$ 1,812,724	\$ 1,749,201	\$ 1,749,261

...and compared it to its accumulated deficit (or negative retained earnings) of \$2bn...

	March 31, 2021	December 31, 2020
Assets		
Current assets		
Cash and cash equivalents	\$ 506,457	\$ 63,232
Accounts receivable, net	12,086	12,252
Inventories	7,134	6,483
Prepaid expenses and other current assets	6,793	6,881
Total current assets	532,470	88,848
Property and equipment, net	279,278	282,560
Restricted cash	10,464	10,461
Other assets	4,318	8,946
Total assets	\$826,530	\$ 390,815
Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' Equity (Deficit)		
Current liabilities		
Accounts payable	\$ 8,688	\$ 14,562
Accrued expenses and other current liabilities	17,085	36,480
Accrued compensation	13,305	14,665
Deferred revenue	2,543	2,111
Debt, current	—	247,248
Total current liabilities	41,621	315,066
Debt, non-current	15,430	15,430
Redeemable convertible preferred stock warrant liability	—	12,323
Sponsor earn-out liability	23,983	—
Other liabilities	34,051	36,731
Total liabilities	115,085	379,550
Redeemable convertible preferred stock	—	1,812,678
Stockholders' equity (deficit):		
Preferred stock	—	—
Common stock	22	—
Additional paid-in capital	2,667,127	89,789
Accumulated deficit	(1,955,704)	(1,891,202)
Total stockholders' equity (deficit)	711,445	(1,801,413)
Total liabilities redeemable convertible preferred stock, and stockholders' equity (deficit)	\$ 826,530	\$ 390,815

...and it reminded us of a scene from an old episode of *South Park* about the 2008-9 financial crisis. In that episode, well-meaning investors and depositors – such as Stan – bring their money to the bank to deposit it. The banker offers to put Stan's money into some exciting investments, and within seconds, Stan's money is gone. The video is duplicated here:

<https://www.youtube.com/watch?v=-DT7bX-B1Mg>

Stan is also aghast when the banker suddenly and completely loses interest in him, turning his attention to the next depositor...a little old lady whose money the banker, of course, promptly takes and destroys in the same fashion:

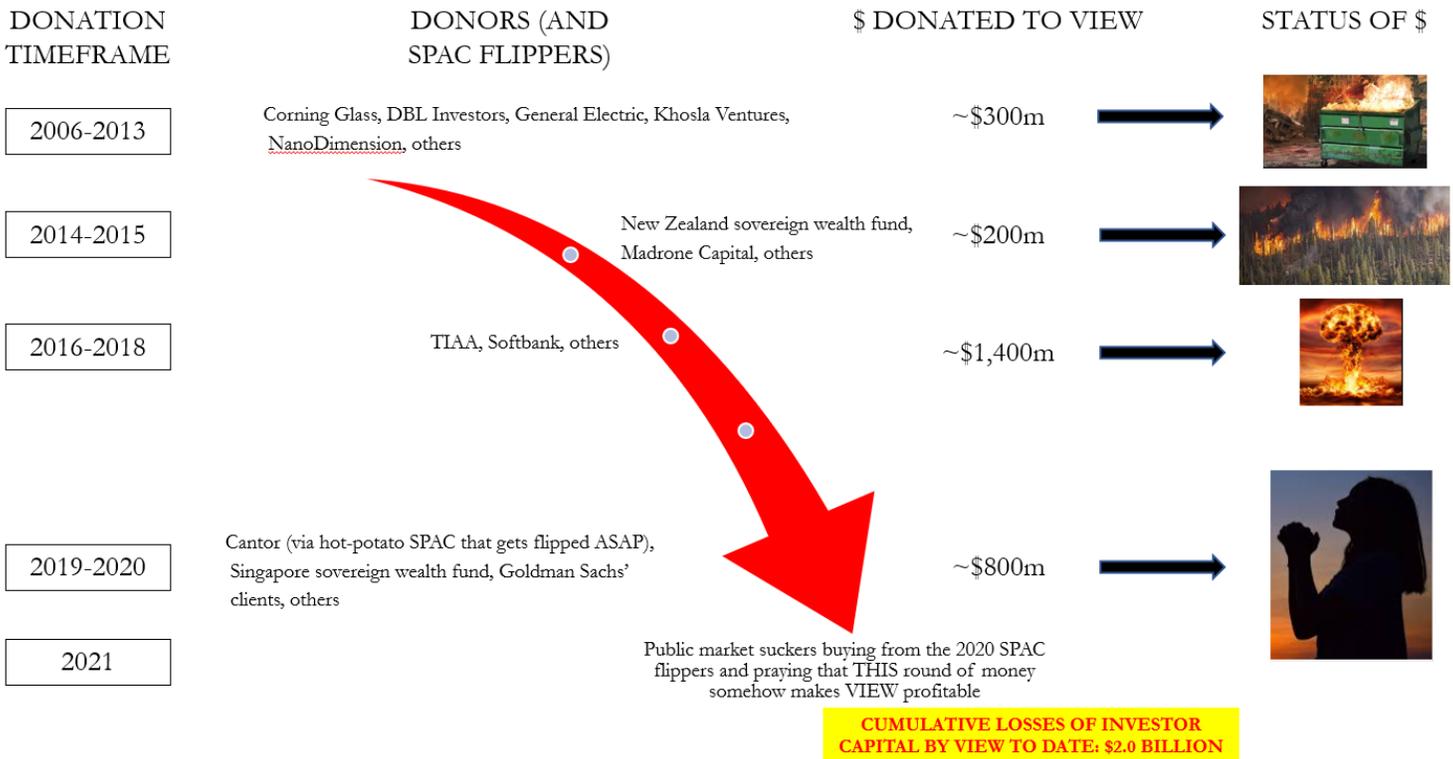


VIEW reminds us of Southpark Bank in how it manages to bring in round after round of new investors and proceed to light their money on fire (or, if you prefer the original analogy, disappear investors' money down a black hole). Yes, of course we realize that VIEW has not literally lit money on fire, it has spent it on equipment, people, materials, research, and marketing but made only a tiny fraction of that back in sales.

It's hard for a small company to rack up \$2bn in losses, but VIEW has managed to do it. In fact, according to multiple accounts from former employees, liquidation preference disclosures, and multiple "going concern" warnings from its auditor, VIEW was on the verge of running out of money and/or raising "down rounds" *multiple times, before* COVID affected the US economy in March 2020, and when stock market valuations were booming.

b. VIEW's cap table has been a carousel of each financier bailing out the last for a decade

VIEW's cap table has seen a succession of more and more investors coming in to bail out the company before it runs out of money. The following graphic shows our approximation of the timing and amounts of money that have gone into keeping this business alive until the next round, as operating losses have accumulated. Most of them are inadvertent "donations" as opposed to investments in our view, and most of the rest are just SPAC flippers who took VIEW public in an attempt to offload it as quickly as possible to the public markets:



Note: Amounts and dates are estimates based on a variety of news sources and filings, including press releases issued with funding events. VIEW capital losses reflect cumulative net losses in aggregate on balance sheet as Accumulated Deficit. "Status of \$" reflects money lost to date by VIEW PnL. And of course, these amounts are not literal donations.

We would urge readers to ask what makes this latest round of new money for VIEW so special, when so many other rounds were unable to turn this into a company that could survive on its own profits. VIEW eventually needed to take a high-interest loan from an affiliate of one of its equity investors (more on that later), and was still on the edge of insolvency when Cantor's SPAC showed up to acquire and flip the company to somebody else. *Are you that somebody?*

And if recent VIEW investors get burned on their ownership of this stock, it wouldn't be the first time. VIEW has previously had to restructure its balance sheet using desperate "down round" fundraising when the company has run into dire straits before. Prior investors couldn't have been happy about this:

Series F, G, and G-1 Redeemable Convertible Preferred Stock Warrants

From 2016 through 2017, the Company issued 15,846,967 Series F redeemable convertible preferred stock warrants, 2,222,222 Series G redeemable convertible preferred stock warrants, and 38,888,888 Series G-1 redeemable convertible preferred stock warrants to various investors and convertible promissory note holders. These warrants had down round provisions which, in the event of a subsequent round of financing at a price per share lower than the exercise price, the warrants will be exchanged for new warrants of equivalent value to purchase the new shares of redeemable convertible preferred stock at a price per share equal to the price paid by investors in the subsequent financing. In 2018, the Company closed Series H redeemable convertible preferred stock financing at \$0.44 per share. Due to the more beneficial pricing, the warrants previously disclosed as shares of Series F, G and G-1 redeemable convertible preferred stock warrants are now disclosed as an aggregate of 116,505,174 series H redeemable convertible preferred stock warrants. The warrants were not exercised as of December 31, 2019 and will expire through November 2028.

2018 was the Softbank-led round. Softbank must have been excited at the time to slot into the company's ownership structure at a lower price than prior investors. We doubt that Softbank expected that within just one year, VIEW would need to borrow an additional \$150m (and then another \$100m on top of that) at the steep rate of LIBOR +9%, and then nearly end up in bankruptcy.

We noticed a review from an employee in 2018 about the company going “bankrupt two times in 7 years”:

3.0 **This company better do something quick**
 ★★★★★ Machine Operator (Current Employee) - Olive Branch, MS - January 16, 2018

The priorities of this company are not in line. The company is in debt and has a lawsuit against them. They have been bankrupt two times in 7 years. I don't think it will last much longer.

- ✓ **Pros**
good insurance, all the overtime you want
- ✗ **Cons**
not much paid time off, not much pay

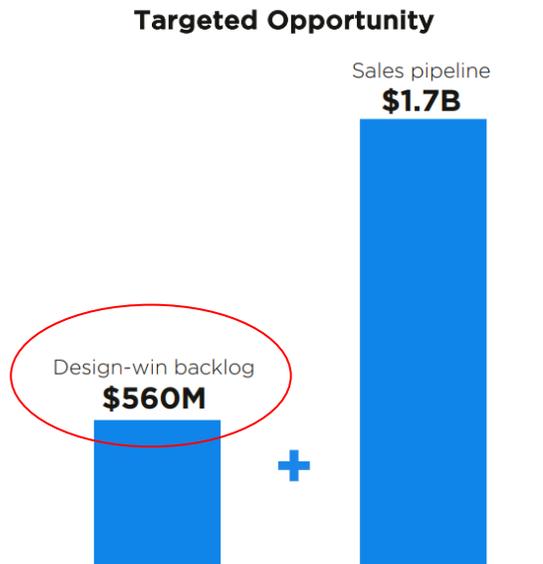
VIEW didn’t go bankrupt, but we suspect this non-financial employee was using the idea of actual bankruptcy interchangeably with the more generic situation of being out of or almost out of funds. Notice that he wrote this review almost a full year before Softbank showed up. VIEW is a capital-consuming machine that is regularly flirting with insolvency, and everyone from the CEO to the front-line machine operator understands that on some level.

VIEW just has a way with money – as in, money goes into the business, and then it goes “a way.”

- c. The entire backlog will be delivered at additional losses

The latest prospectus indicates the following: “View believes that it will continue to incur substantial losses until at least the time it meets the demands of its current order backlog, assuming such backlogs can be sustained.”

VIEW’s backlog is not anything close to a firm number, as we will demonstrate later in this report. And while VIEW isn’t willing to commit to backlog in its S-1, it does mention it in its investor presentation:



VIEW claims that its current factory has nameplate capacity of \$300m. We don't agree – and we spoke with multiple former employees who confirmed our prior suspicion that this number is grossly overstated by any realistic measure – but for the purposes of this issue it doesn't matter. Whether VIEW's factory can deliver production equal to \$100m, \$200m or \$300m a year, this disclosure is essentially telling us that despite a backlog that could utilize its factory approximately 2-to-6 times over, it can't make money producing all of that backlog.

This business as it currently exists could not make money even at full utilization and healthy pricing, and even under optimistic assumptions about capacity. This is why a dollar that goes into VIEW ends up as a dollar in the hands of its suppliers, management, and stock promoters, but not as a dollar of shareholder returns.

d. VIEW will likely need another billion dollars over the next 2-3 years – in the optimistic scenario

Speaking of what the “real” capacity is, let's talk about that. Here's what VIEW claims through its lead promoter, Cantor, in Cantor's initiation report on VIEW – and we've put red boxes around everything we have reason to believe is misleading, and green boxes around other items worth noting:

Exhibit 17: Summary Manufacturing Capacity

Phase	Timing	Annual Capacity	Capital Cost	Glass Revenue
1	Current	5.0M ft ²	NA	\$300M
2	2022E	12.5M ft ²	\$160M	\$750M
3	2024E	20.0M ft ²	\$500M	\$1,200M

Note: “Capacity” represents the annual nameplate capacity and therefore could be lower in reality.
 “Glass Revenue” is a Cantor Fitzgerald estimate and applies a \$60/ft² rate to the nameplate capacity.
 “Timing” is a Cantor Fitzgerald estimate and represents when the timing of capacity expansion.
 “Capital Cost” for Phase 2 of \$160M includes automation improvements.
 Source: Cantor Fitzgerald. View Inc.

The red box around “5.0M ft²” is there because we believe this number is a gross overstatement of the real-world, effective current capacity of this plant. The top speed of this plant was approximately 3 million, and that was under extremely unrealistic conditions (producing standardized, “made-to-stock” glass). We suspect that under more realistic conditions it may be more like 2 million (50% yield on 4 million best-of-all-possible-worlds actual nameplate capacity).

- **Reason 1:** We spoke to a well-placed former operational executive who told us, point-blank, that the most they could ever get out of this plant was approximately three million square feet (in one year). This executive's view was that with great yields, and with great uptime (few breakdowns), the plant “should be able to produce 3.5 million, maybe close to 4 million.” He later added, “there is no way that VIEW will be able to produce 5 million square feet out of line 1. The machine is not physically capable of doing that.”
- **Reason 2:** This approximately-3-million-square-foot peak output occurred during a year when VIEW was producing millions of square feet of “Made-To-Stock” (“MTS”) inventory it had no business use for. This artificially inflated yields. The company can't do 3 million square feet of glass for real customers who demand all shapes and sizes of glass.
- The executive described this MTS lunacy as: *The sales were very light...so [the CEO] wanted to know [what it could produce. He thought,] “I commissioned this factory to build 4m square feet of glass, but we never had the*

opportunity to do that, so when you don't have anything to run, let's make glass on a 'standard size basis'. There is no standard size for the commercial glass industry, so he just decided, 'Let's make this random size of glass and look for secondary markets, let's look for places where we can...find a buyer and incentivize them to take this glass [that we're going to produce anyway].' So a great amount of glass was produced in late 2018 through 2019, factory running nonstop...so we filled up with this made-to-stock inventory, which we then [mostly] gave away. We made an AWFUL lot of glass. VIEW went from making 75,000 square feet of glass a quarter in 2017 to 750,000 by Q419. [NOTE: At \$30/sq. ft., 75,000 sq. ft. of glass a quarter annualizes to \$9m in sales per year.] Most of this extra glass was shipped to India or stayed in the warehouse and they looked for a market for this glass. [NOTE: The employee did not know why the glass was shipped to India.]

- As we discussed previously, you can enhance your yields greatly when you're producing glass that is one-size-fits-all. **The customer base doesn't work like this – which is why VIEW had to give so much glass away** – but hey, lots of glass got made. And even with that “dry run,” the factory never produced more than approximately three million square feet.

The red box around “\$300m” in glass revenue is there because we believe that this is a layered cake of faulty assumptions. In addition to the problems above – the plant can't produce 5 million sellable square feet of glass or anywhere close to that – the price assumption (\$60/sf) is also aggressive. Sage, VIEW's direct competitor who is owned by international materials maker Saint-Gobain, sells glass at \$40/sq.ft., according to one former VIEW executive with whom we spoke. VIEW itself is currently selling glass at \$40-50/sq.ft. according to multiple interviews we conducted. And as we've discussed previously, even Cantor itself – **the firm that made this \$60/sq. ft. assumption** – has written about how VIEW needs to cut costs so that it can cut price. So, we aren't really understanding why the \$60/sq. ft. assumption is being used to price the output of these plants.

The red boxes around “12.5M ft²” of capacity for Line 2 and “\$160M” capital cost for that expansion is there because, similar to the 5.0m square foot claim for Line 1, we don't think these claims make sense. There is, however, a little more opacity here, as we understand that VIEW has already begun some of the construction of this second line, but was forced to stop when it nearly ran out of funds in 2020. It is unclear exactly how much of this construction has been completed already.

What's clear on its face, however, is that given VIEW's first plant started out at an expected cost of \$130m:

Soladigm plans to use some of the money for its first factory, which will cost about \$130 million, be located in Mississippi, and be set to start shipping its electrochromic windows in the first quarter of 2012, the company said.

(Source: <https://www.reuters.com/article/idUS78165695520110215>)

...but ended up spending \$400m ultimately on the plant, per its investor presentation:

High barriers to entry

Technology leadership	Execution at scale
<p>1,050 patents 365 patents issued 685 patent applications</p>	<p>End-to-end ownership Vertically integrated</p>
<p>12 years of R&D</p>	<p>\$1.8B Net capital invested</p>
<p>Complete product Hardware, controls, software</p>	<p>\$400M Invested in manufacturing</p>

We also spoke to a former finance executive at VIEW who put it more bluntly: “I bet it ends up being \$300m [to build line 2] by the time they’re done.”

Line 2 is promised to be 7.5 million square feet of capacity, and it’s just too early to say whether this will be possible. What’s clear is that even if VIEW were being misleading about the first line’s capacity but straightforward about the second line’s capacity – which we doubt, as we assume VIEW is using equally ridiculous “standard production” assumptions for the second line as for the first – you can’t get to 12.5 million square feet by adding 7.5 million and 3 million.

But zooming out, let’s think through VIEW’s full-spectrum capital needs over the next 2-3 years:

- 2020 was a year of minimal investment for VIEW, with unusually low capex, layoffs, and a struggle just to keep the lights on. Despite this bare-bones operation, VIEW still burned through just over \$200m of FCF.
- 2019 saw FCF of negative \$354m.
- 2018 saw FCF of negative \$375m.

Let’s cherry pick the best of the past three years, 2020, which saw bare-bones spending and investment. This means that over 2021-22, assuming no other growth investments, VIEW should burn at least \$400m.

But on top of this amount, VIEW plans to build another factory that it claims will cost \$160m, and to build it by the end of 2022. Now we’re at \$560m of cash needed by the end of 2022, assuming that VIEW continues to run the business like it did in 2020, as if on the verge of bankruptcy. This means no new hiring either.

In other words, even in a blue-sky scenario assuming VIEW’s capacity cost estimates are honest, and assuming cash burn stays at rock-bottom, 2020-type levels consistent with a company playing defense, VIEW is going to be out of money (or issue more stock), again, by the end of next year. VIEW only has just over \$500m in cash as of March 2021:

VIEW, INC.
Condensed Consolidated Balance Sheets
(unaudited)
(in thousands)

	March 31, 2021	December 31, 2020
Assets		
Current assets		
Cash and cash equivalents	\$ 506,457	\$ 63,232
Accounts receivable, net	12,086	12,252
Inventories	7,134	6,483
Prepaid expenses and other current assets	6,793	6,881
Total current assets	532,470	88,848
Property and equipment, net	279,278	282,560
Restricted cash	10,464	10,461
Other assets	4,318	8,946
Total assets	\$826,530	\$ 390,815

e. Why not say who your “finance provider” is, guys?

VIEW’s S-1 and S-4 filings indicate that it borrowed a lot of money from someone in 2019 and 2020 and paid back this loan in 2021 with SPAC proceeds. But those filings don’t say who did the lending – all they provide are repeated references to a mysterious “finance provider”:

Revolving Debt Facility

In October 2019, the Company entered into a secured revolving debt facility pursuant to which the Company may draw amounts in a maximum aggregate principal amount of \$200.0 million until January 3, 2020 and \$250.0 million after such date, for the purpose of paying payables and other corporate obligations (“Revolving Debt Facility”). In October 2019, the Company drew a principal amount of \$150.0 million under the facility with weekly maturity dates ranging from 8 days to 364 days. In May 2020, the Company drew the remaining principal amount of \$100.0 million available under the facility, which is repayable in May 2021. The facility expires on October 22, 2023, at which time all drawn amounts must be repaid in full. The interest rate applicable to amounts outstanding under the facility is LIBOR, plus 9.05%. As security for the payment and performance of all obligations under the facility, the Company has granted the **finance provider** a security interest in substantially all of the Company’s assets.

Draws under our revolving debt facility were contractually due through October 23, 2023; however, we have classified the outstanding balance of \$250.0 million as a current liability as of December 31, 2020 as we violated the stockholders’ equity covenant which was waived by the **finance provider** only through March 31, 2021. We paid off the facility in full in March 2021 prior to the expiration of the limited waiver.

We normally wouldn’t pick on a company for not disclosing who its lender is, as we don’t believe in diluting one’s message by throwing low-quality accusations to the wall and seeing what sticks. What we are picking on VIEW for is the fact that its finance provider was a “related party,” not officially, but indirectly, insofar as it was related to VIEW’s major investor, Softbank. That finance provider is the now-notorious Greensill, mentioned nowhere in VIEW filings but in various other places around the internet:

We looked at the summary sheet for a Credit Suisse fund which invests in Greensill originated supply chain finance receivables. It had had net assets of \$6.8bn as at January, 2021, and its top 10 positions were disclosed as:

CS Supply Chain Fund Top Positions 1/21		
	% Fund	\$m
MSC Mediterranean Shipping Company SA	4.72	321.1
View Inc	4.04	274.9
BCC Bingera	3.85	261.9
OYO Hospitality UK limited	2.94	200.0
Shop Direct Holdings	2.84	193.2
Tradeshift Holdings Inc	2.40	163.3
Guazi Ltd	2.21	150.4
Primevere Limited	1.51	102.7
Deutsche Boerse	1.39	94.6
BCC Fairymead	1.23	83.7
Total	27.13	1845.9

Source: BTBS from Credit Suisse Data

(Source: <https://www.behindthebalancesheet.com/blog-1/greensill-revisited>)

\$274.9m outstanding investments in VIEW in January 2021 is remarkably close to the \$247.2m of current debt on VIEW's balance sheet as of December 31, 2020 (which it paid off a few months later with the SPAC proceeds):

**View Operating Corporation (formerly known as View, Inc.)
Consolidated Balance Sheets**

(in thousands, except share and per share data)

	December 31,	
	2020	2019
Assets		
Current assets		
Cash and cash equivalents	\$ 63,232	\$ 138,218
Short-term investments	—	32,866
Accounts receivable, net of allowances of \$224 and \$200 as of December 31, 2020 and 2019, respectively	12,252	12,147
Inventories	6,483	7,049
Receivable from litigation settlement	—	22,500
Prepaid expenses and other current assets	6,881	9,425
Total current assets	88,848	222,205
Property and equipment, net	282,560	278,595
Restricted cash	10,461	8,456
Deposits with suppliers	1,084	3,074
Other assets	7,862	2,118
Total assets	\$ 390,815	\$ 514,448
Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' Deficit		
Current liabilities		
Accounts payable	\$ 14,562	\$ 18,488
Accrued expenses and other current liabilities	36,480	19,999
Accrued compensation	14,665	9,233
Deferred revenue	2,111	1,197
Debt, current	247,248	5,143
Total current liabilities	315,066	54,060
Debt, non-current	15,430	158,233

Cash Flows from Financing Activities

Net cash provided by financing activities was \$96.5 million for the year ended December 31, 2020, which was primarily due to proceeds from draws related to revolving debt facility of \$250.0 million as reduced by repayments of \$150.0 million under the same facility, offset by the repayments of debt obligations of \$1.7 million and payment of capital lease obligations of \$1.5 million.

Net cash provided by financing activities was \$399.2 million for the year ended December 31, 2019, which was primarily due to proceeds from the issuance of redeemable convertible preferred stock of \$299.8 million and proceeds from draws related to our revolving debt facility, net of issuance costs, of \$146.0 million, offset by the repayments of debt obligations of \$44.8 million and payment of capital lease obligations of \$2.6 million.

Bloomberg Opinion wrote in March about the questionable nature of Softbank leaning on Greensill and Credit Suisse to plug holes in its investments' working capital:

Bloomberg Opinion

reported.

The unicorns financed by Greensill are among the Vision Fund's larger investments. Katerra, View, Oyo and Chehaoduo all received more than \$1 billion in cash injections each before the pandemic. For SoftBank, they are a bit too big to fail. But they just might.

One question is why SoftBank used Greensill and Credit Suisse to lubricate the supply chain financing of its own portfolio companies. Why didn't it fund its unicorns directly instead? Last July, SoftBank had to pull out about \$700 million from the Credit Suisse funds as the bank grew wary of potential conflicts of interest. This, combined with SoftBank's messy entanglement with failed German mobile payment Wirecard AG, raised eyebrows about its corporate governance.

We're less concerned about the corporate governance issues here – if Softbank wants to prod Greensill to lend money to VIEW, that's Softbank's business, and Softbank's investors can deal with that – than we are about the question of what will happen the next time VIEW needs funding and Greensill isn't there. Greensill, despite likely getting a nod from Softbank to help VIEW (and Softbank) out, took more than a pound of flesh from VIEW. It was financed VIEW at the steep rate of LIBOR +9%, and it was collateralized:

under the facility, which is repayable in May 2021. The facility expires on October 22, 2023, at which time all drawn amounts must be repaid in full. The interest rate applicable to amounts outstanding under the facility is LIBOR, plus 9.05%. As security for the payment and performance of all obligations under the facility, the Company has granted the finance provider a security interest in substantially all of the Company's assets.

Greensill demanded a spread to LIBOR that you simply don't see in healthy companies, and VIEW accepted it. What would a true arm's length lender have demanded, or would such a lender even have been willing to lend money to VIEW? What happens when VIEW inevitably burns through its latest cash cushion (again)? Do they do yet another equity issuance, or do they borrow at a similarly usurious rate? Do they get funding at all?

WHY ARE THE CONSENSUS ESTIMATES SO UNREALISTIC? OH, THAT’S WHY (OR, A WINDOW INTO WALL STREET)

- a. Cantor sells its stake in VIEW with the right hand while promoting it to investors with the left

To understand why VIEW is going to miss consensus estimates in the future, we need to understand how ridiculous these estimates are. And to understand that, we need to understand how they got there. It’s all due to incentives. Really bad incentives set the table for a pair of firms to anchor the “consensus” estimates at ludicrous levels.

VIEW’s Street estimates today consist of numbers put forth by just three firms: Goldman Sachs, Cantor Fitzgerald, and Raymond James. This is because these are the only three sell-side firms covering VIEW for investors, so their estimates get put into the “EPS forecasts” you see everywhere:

Showing 3 of 3 sources					
	Firm	Analyst	Recommendation	Tgt Px	Date↓
1)	Raymond James	Pavel S Molchanov	◆ outperform	11	05/18/21
2)	Goldman Sachs	Mark Delaney	buy	10	05/13/21
3)	Cantor Fitzgerald	Josh Cohen	overweight	16	05/13/21

2 of these 3 firms have serious conflicts of interest, as they are also the two firms who promoted VIEW’s stock to their investors via a private investment in public equity (PIPE):

Following execution of the LOI, during the week of September 21, 2020, CF II, View and their respective financial advisors and attorneys organized their efforts for the PIPE Investment, including CF II and its advisors providing comments on the investor presentation and CF II and the Placement Agents identifying potential investors to approach regarding the PIPE Investment. The parties planned to launch the PIPE Investment solicitation process on October 5, 2020.

On October 2, 2020, CF II received a report from the consulting firm it had engaged, which included an analysis of the industry in which View operates and competes and View’s competitive position. CF II shared the report with View.

On October 3, 2020, a special meeting of the CF II Board was held. In addition to the full CF II Board, the meeting was attended by officers of CF II, representatives of the Sponsor and CF&Co. At the meeting, the CF II Board approved the engagement of Goldman Sachs as co-lead placement agent for the PIPE Investment. In addition, on October 3, 2020, a special meeting of the audit committee of the CF II Board (the “CF II Audit Committee”) was held. In addition to the full CF II Audit Committee, the meeting was attended by officers of CF II, representatives of the Sponsor and CF&Co. At the meeting, the CF II Audit Committee approved the engagement of CF&Co. as co-lead placement agent for the PIPE Investment and as financial advisor to CF II for the Business Combination.

To break this down into simple terms: “CF” stands for “Cantor Fitzgerald.” Cantor Fitzgerald is the firm that formed a SPAC to acquire a private company whose stock they could then flip to public market investors through an IPO process. They settled on acquiring View.

Cantor and View collaborated on who would promote this stock (which would become VIEW), and settled on...another arm of Cantor, plus Goldman Sachs. Cantor and Goldman then went out and called a bunch of their rich, connected clients and told them to look at buying the PIPE of this stock for purchase. Cantor and Goldman’s credibility with their investors is on the line; they can’t have their rich clients in a stock that goes down, it would look bad.

And now, who is providing research telling *other* investors to buy VIEW, much of which stock will inevitably end up being purchased from those earlier Cantor and Goldman clients who bought in the PIPE? Why, Cantor and Goldman, of course.

The first firm to publish estimates on VIEW was Cantor. Goldman was second. By the time an arm’s-length firm showed up – Raymond James – there was already a “consensus” that analysts have a notoriously difficult time going against. Almost like clockwork, the Raymond James analyst appears to have aimed his estimates at hugging

the existing two-firm consensus. His price target came in at a level neatly in between the Goldman and Cantor targets.

So when you see “estimates” for VIEW’s earnings, remember...those were established by, and are still 2/3 driven by, by Cantor and Goldman...the same Wall Street firms whose clients are eventually going to sell to you if they can.

This is nice work if you can get it. (It’s also perfectly legal, for the record.)

Cantor especially has an even bigger conflict of interest here: Different arms of that organization own a large percentage of the stock *themselves*, including the Chairman. We wonder what the chances were that Cantor would put a “Sell” rating on the stock that Cantor has recently filed to sell its own stake in? Check out the table from the S-1 filing, indicating the intention by stockholders to sell their stock when their 180-day lockup expires:

Shares of Class A Common Stock

Name of Selling Holder	Beneficial Ownership Before the Offering		Shares to be Sold in the Offering		Beneficial Ownership After the Offering	
	Number of Shares	%	Number of Shares	%	Number of Shares	%
CF Finance Holdings II, LLC ⁽¹⁾	18,570,000	8.6%	18,570,000	8.6%	0	0%
Robert Hochberg ⁽²⁾	20,000	*	20,000	*	0	0%
Charlotte Blechman ⁽³⁾	10,000	*	10,000	*	0	0%
Cantor Fitzgerald & Co. ⁽⁴⁾	750,000	*	750,000	*	0	0%
SVF Excalibur (Cayman) Limited ⁽⁵⁾	66,194,110	30.5%	7,500,000	3.5%	58,694,110	27.0%
Madrone Partners, L.P. ⁽⁶⁾	32,142,010	14.8%	3,750,000	1.7%	28,392,010	13.1%
Guardians of New Zealand Superannuation ⁽⁷⁾	27,183,149	12.5%	3,750,000	1.7%	23,433,149	10.8%
Variable Insurance Products Fund III: Growth Opportunities Portfolio ⁽⁸⁾	179,413	*	179,413	*	0	0%
Fidelity Advisor Series I: Fidelity Advisor Growth Opportunities Fund ⁽⁹⁾	1,205,473	*	1,205,473	*	0	0%
Fidelity Advisor Series I: Fidelity Advisor Series Growth Opportunities Fund ⁽¹⁰⁾	47,232	*	47,232	*	0	0%
Fidelity U.S. Growth Opportunities Investment Trust by its manager Fidelity Investments Canada ULC ⁽¹¹⁾	12,580	*	12,580	*	0	0%
Fidelity NorthStar Fund by its manager Fidelity Investments Canada ULC ⁽¹²⁾	55,302	*	55,302	*	0	0%
Alyeska Master Fund, L.P. ⁽¹³⁾	2,065,137	*	683,242	*	1,381,895	*
Atlantic Glass, LLC ⁽¹⁴⁾	3,341,947	1.5%	250,000	*	3,091,947	1.4%
CVI Investments, Inc. ⁽¹⁵⁾	266,666	*	200,000	*	66,666	*
Jane Street Global Trading, LLC ⁽¹⁶⁾	986,826	*	500,000	*	486,826	*
Kepos Carbon Transition Master Fund L.P. ⁽¹⁷⁾	95,000	*	95,000	*	0	0%
Linden Capital L.P. ⁽¹⁸⁾	2,322,061	1.1%	255,000	*	2,067,061	1.0%
BEMAP Master Fund LTD ⁽¹⁹⁾	485,030	*	485,030	*	0	0%
Bespoke Alpha MAC MIM LP ⁽²⁰⁾	56,278	*	56,278	*	0	0%
DS Liquid Div RVA MON LLC ⁽²¹⁾	314,300	*	314,300	*	0	0%
Monashee Pure Alpha SPV I LP ⁽²²⁾	271,382	*	271,382	*	0	0%
SFL SPV I LLC ⁽²³⁾	75,553	*	75,553	*	0	0%
Monashee Solitario Fund LP ⁽²⁴⁾	297,457	*	297,457	*	0	0%
Braslyn Ltd. ⁽²⁵⁾	70,000	*	70,000	*	0	0%
Future Solution Investments, LLC ⁽²⁶⁾	2,190,535	1.0%	1,000,000	*	1,190,535	*
Kaul Family Trust ⁽²⁷⁾	30,105	*	25,000	*	5,105	*
GIC Private Ltd. ⁽²⁸⁾	21,382,056	9.8%	16,024,914	7.4%	5,357,142	2.5%
Rao Mulpuri ⁽²⁹⁾	16,220,713	7.5%	7,500,000	3.5%	8,720,713	4.0%
Rahul Bammi ⁽³⁰⁾	2,191,913	1.0%	700,000	*	1,491,913	*
Vidul Prakash ⁽³¹⁾	1,653,908	*	1,000,000	*	653,908	*
Anshu Pradhan ⁽³²⁾	1,020,862	*	700,000	*	320,862	*
Martin Neumann ⁽³³⁾	1,009,861	*	700,000	*	309,861	*
Sridhar Kailasam ⁽³⁴⁾	1,003,271	*	700,000	*	303,271	*
Nitesh Trikha ⁽³⁵⁾	957,699	*	700,000	*	257,699	*
Bill Krause ⁽³⁶⁾	704,031	*	500,000	*	204,031	*

* Less than 1%

(1) CF Finance Holdings II, LLC (“CF Holdings II”) is the record holder of such shares. Cantor Fitzgerald, L.P. (“Cantor”) is the sole member of CF Holdings II. CF Group Management, Inc. (“CFGM”) is the managing

general partner of Cantor. Howard W. Lutnick is the Chairman and Chief Executive Officer of CFGM and the trustee of CFGM's sole stockholder. As such, each of Cantor, CFGM and Mr. Lutnick may be deemed to have beneficial ownership of the shares held directly by CF Holdings II. Each such entity or person disclaims any beneficial ownership of the reported shares other than to the extent of any pecuniary interest they may have therein, directly or indirectly. The business address of CF Finance Holdings II, LLC is 110 East 59th Street, New York, NY 10022.

- (2) Robert Hochberg served as an independent director of the CF II board from August, 2020 until March 8, 2021. The business address of Robert Hochberg is c/o CF Finance Holdings II, LLC, 110 East 59th Street, New York, NY 10022.
- (3) Charlotte Blechman served as an independent director of the CF II board from November, 2020 until March 8, 2021. The business address of Charlotte Blechman is c/o CF Finance Holdings II, LLC, 110 East 59th Street, New York, NY 10022.
- (4) Howard W. Lutnick, through indirect beneficial ownership of the general partners of Cantor Fitzgerald & Co., has voting and investment control over the shares. Mr. Lutnick disclaims beneficial ownership of the shares except to the extent of any pecuniary interest therein. Based on information provided to us by the selling securityholder, the selling securityholder is a registered broker-dealer. Based on such information, the selling securityholder acquired the shares of common stock being registered for investment or transaction-based compensation for investment banking or similar services. The business address of Cantor Fitzgerald & Co. is 499 Park Avenue, New York, New York 10022.

b. Consensus estimates for VIEW don't make sense...unless they're goal-seeking a stock price

Expectations for VIEW's revenue growth are insane. They're insane!

To start, observe the difference between VIEW's volume growth and price growth to date. As we discussed previously, VIEW benefited from latent price hikes flowing into revenues over recent years, and even Cantor's initiation report acknowledges that prices need to come down for VIEW to access its TAM.

Let's remove price hikes from historical numbers for a minute and focus simply on volumes. VIEW's volume growth was 11% in FY19 and slowed to 7% in FY20. Growth in unit sales is not exactly explosive at today's prices.

VIEW's actual revenues were \$20.2m in FY18, \$24.3m in FY19, and \$32.3m in FY20. Let's "deflate" these values, assuming no price hikes had taken place (we know how much pricing added to revenues in FY19 and FY20, and how much volume added, so let's focus on changes from volume only). This will help us understand what expected future growth looks like in comparison to historical growth, given large price hikes are a pipe dream.

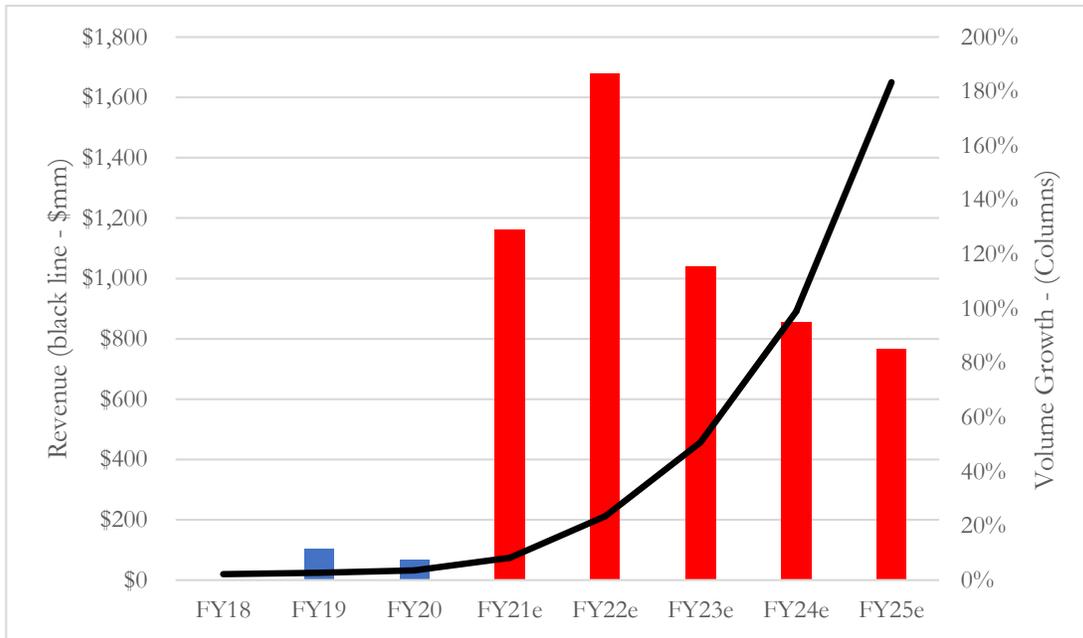
Had FY20 prices been in place all three years, revenues would have been \$27.0m in FY18, \$30.1m in FY19, and \$32.3m in FY20. The math is:

- hold FY20 the same = \$32.3m
- FY19 revenues = FY20 revenues divided by $(1-0.07)$ = \$30.1m
- FY18 revenues = \$30.1m divided by $(1-0.11)$ = \$27.0m

Here's what you get for historical and consensus revenues – what's wrong with this picture?

<i>(\$ in millions)</i>	FY18	FY19	FY20	FY21e	FY22e	FY23e	FY24e	FY25e
Revenues	\$20.2	\$24.3	\$32.3	\$74.0	\$212.0	\$457.0	\$891.0	\$1,650.0
YOY Rens		20%	33%	129%	186%	116%	95%	85%
ASP Contribution to Growth		9%	26%	0%	0%	0%	0%	0%
Volume Contribution to Growth		11%	7%	129%	186%	116%	95%	85%

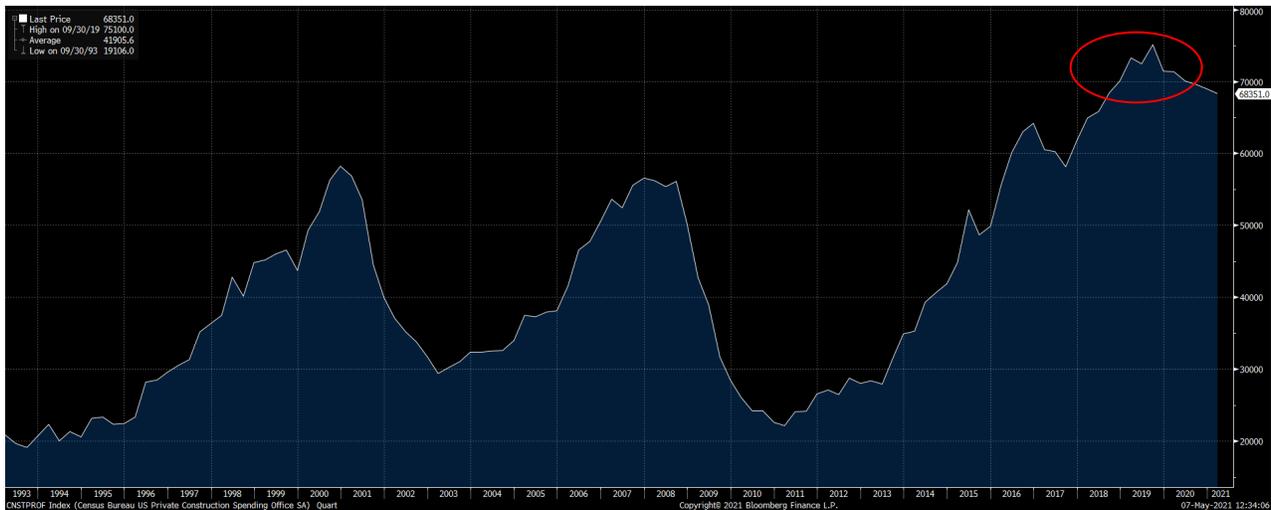
The problem here might be clearer in graphic form, so that you can see what's needed for VIEW to hit its forecasts (blue boxes are historical growth rates, red are "estimated" by the tainted consensus):



Remember, this company has been selling its dynamic glass since the early 2010s. It’s thrown hundreds of millions of dollars at marketing – its aggressive marketing strategies were a recurring feature of our conversations with industry experts/former employees. There’s been no shortage of exposure to VIEW’s glass around the architectural and building construction industries.

But if you’re Cantor or Goldman, and you want people to ascribe a multi-billion-dollar valuation to a company that did \$0.03bn in massively unprofitable revenues last year, you need to forecast an insane level of growth. That’s, of course, how these estimates came to be – with a healthy dose of input from VIEW, of course.

How about office market trends? We suspect that some eager investors are hoping that the slowdown from FY19 to FY20 was just a fluke, with volumes slowing only because of a COVID-driven slowdown in commercial construction. Those investors will be waiting a long time. Office construction during 2020 was historically robust, as projects continued throughout most of the country. Here’s the Census Bureau’s index of US private construction spending, which shows that 2018-2020 was actually the best of all office construction environments for VIEW to be selling in:



It was in this historically wonderful office construction environment that VIEW managed to sell just \$77m in glass in three years combined.

To round out this section, consider what some of VIEW’s own former employees, plus our independent consultant Max, had to say about the revenue projections floating around Wall Street for VIEW. We asked each person with whom we spoke whether they thought VIEW could make the projected numbers provided by Wall Street for the coming years:

1. Glass industry consultant Max Perilstein: “Yeah I’ve seen them. They’re insane.”
 2. Former VIEW sales executive: “No.” [Laughs.] “No!” and “Their predictions are outrageous. It took us ten years to get to \$15m in sales!”
 3. Former VIEW operations executive: “No, I don’t think there’s a billion dollars’ worth of demand they can get within four years. I don’t believe it’s available.”
 4. Former VIEW finance executive: “That sounds like a stretch to me...and I’m sure VIEW had to give some very rosy estimates to get the SPAC deal done...and there’s a track record of missing numbers [by VIEW], let’s just say.”
 5. (The other former VIEW operational executive didn’t give us a straight yes/no answer when we asked. He simply listed reasons why VIEW hasn’t been able to sell much to date.)
- c. Even if VIEW could hit its insane revenue “estimates,” what would that mean for cash burn?

With a gross margin like VIEW’s, the company has a “sell more, lose more” model. We talked previously about how VIEW is likely to run out of cash within a couple of years, but that scenario was, critically, based on the assumption that cash burn stays at roughly the same level from 2020 (when the company was cutting costs left and right). What happens if a company with worse than neg-100% gross margins goes from selling \$32m worth of glass to selling multiples of that?

What happens is simple – the company burns through cash much faster than it did before. If VIEW actually hits its revenue estimates, it’s going to add hundreds of millions of dollars to its cash burn, and it’s going to need far more suckers to pony up more cash than we’re already expecting. This is a “lose-lose” for shareholders – heads you miss your topline numbers, tails you burn through your cash cushion at an eye-popping rate. (This is why most businesses try to, you know, make a profit when they sell stuff.)

f. How much do Cantor and its executives stand to make by convincing people to buy VIEW?

SPACs are a phenomenally lucrative business for the people who sell them to you. VIEW, a “de-SPACed” stock ticker, is a company that previously sported the ticker “CFII.” Upon merging with View, Inc., CFII adopted the new ticker. CFII was a blank-check public vehicle formed by Cantor for the purpose of merging with a private company, and in so doing, taking the private company public. This process serves as a “workaround,” circumventing the typical IPO process. Many (though certainly not all) businesses that go public through this process do so because they suck at business.

If your business has no hope of qualifying for a traditional IPO, it might get in through the back door via SPAC if the sponsors and their placement agents can find enough suckers.

CFII found a real gem in VIEW – a company that has been horribly unsuccessful at almost everything *except* raising money. This makes for a damn good SPAC candidate, because it means the company is too low-quality to go public through IPO but has a story that can be sold to sanguine investors, provided those investors are willing to ignore traditional business considerations like “profit” and “solvency.”

Here are some gems from the prospectus for CFII:

Q: What interests do the Sponsor and CF II’s current officers, directors and affiliates have in the Business Combination?

A: The Sponsor and CF II’s directors, officers and affiliates have interests in the Business Combination that are different from or in addition to (and which may conflict with) your interest. These interests include:

- the fact that upon completion of the Business Combination, an aggregate amount of \$17.5 million in business combination marketing fees, \$7.5 million of M&A advisory fees payable in shares of CF II Common Stock and \$4.5 million of placement agent fees will be payable to CF&Co., an affiliate of CF II and the Sponsor;
- the Placement Units, including the Placement Shares, and Placement Warrants, purchased by the Sponsor will be worthless if a business combination is not consummated;
- the fact that Sponsor paid an aggregate of \$25,000 for its Founders Shares and such securities will have a significantly higher value at the time of the Business Combination;
- Cantor, an affiliate of Sponsor, has entered into a financing assistance contract with View, pursuant to which Cantor intends to establish one or more financing entities together with View to support the purchase and sale of View’s products and services, and such financing entities will have the right to purchase View’s products at a discount to the then actual selling price for comparably featured orders;
- View appointed Newmark (as defined herein), an affiliate of the Sponsor, as its exclusive provider of real estate services and commissioned house agent for referrals of sales of View products or services installed in buildings in North America (other than certain verticals and customers, and subject to certain other exceptions) and Newmark will be entitled to commissions in respect of such sales and will also receive commissions on its referrals that are no less than the commissions granted to other referring parties; and

All of these “interests” are notable and provided a powerful incentive for three Wall Street entities – Cantor, CF&Co, and CF II - to find a company, any company, that they could slip through as many investors’ screens as possible. We boxed the three selected items for a particular reason: not only did Cantor Fitzgerald et al. stand to collect \$30m for getting VIEW taken public, but they (or their related parties) paid just \$25,000 for their investment in 12.5 million shares:

You will be entitled to vote or direct votes to be cast at the Special Meeting if you owned shares of CF II Common Stock at the close of business on January 27, 2021 which is the Record Date. You are entitled to one vote for each share of CF II Common Stock that you owned as of the close of business on the Record Date. If your shares are held in “street name” or are in a margin or similar account, you should contact your broker, bank or other nominee to ensure that votes related to the shares you beneficially own are properly counted. On the Record Date, there were 63,600,000 shares of Common Stock outstanding, of which 50,000,000 are Public Shares, 12,500,000 are Founders Shares held by the Sponsor and independent directors of CF II and 1,100,000 are Placement Shares held by the Sponsor.

At \$7, those 12.5 million shares the Founders paid \$25,000 for are worth \$88 million dollars. Nice work if you can get it – but of course, you can't. What you get is a stock that those three Wall Street guys made nine figures just to talk you into buying. It's kind of a joke, really.

How about another joke? What do you get when you cross two billion dollars of capital with a disastrous business model that abandons ESG principles and treats the ecosystem like trash?

AN ESG CHARADE: VIEW MAKES ITS PRODUCTS IN THE DIRTIEST AND MOST RESOURCE-INTENSIVE WAY

Because of its horrendously wasteful production process and lack of energy savings by its customers, the use of VIEW glass is holistically a destructive decision for the environment. The decision to purchase VIEW's EC glass over simple low-e glass means purchasing the output of a process that is energy-, carbon- and landfill-intensive. (As we discussed, low-e glass happens to cost a fraction of the price and deliver almost entirely the same performance benefits as VIEW's glass. But the bigger problem with VIEW glass is how it is made.)

We would make a comparison between the glass industry and the airline industry to bring this concept home to investors. Both are necessary evils as far as the environment is concerned: We need to get around and we need windows, but both processes have environmental costs. That's fine. But the choice between buying standard low-e glass or buying VIEW glass is like choosing between flying in a modern, comfortable commercial jet in first class, or flying private in a Learjet in which you're the only passenger and the fixtures are made of rhinoceros horns.

Purchasing VIEW glass is remarkably similar, from an environmental point of view, to flying around in a Learjet in order to get a great selfie for the 'gram. It looks cool, it feels luxurious, and you can brag about it to your friends, but it doesn't accomplish anything meaningful versus the far-cheaper default option and it's terrible for the environment.



Look how much these people suck. They have a surprising amount in common with VIEW's customers.
(Source: Our sick, sad world)

a. Factory power consumption: VIEW's electricity usage is, uh...shocking?

We've learned from two former employees in two separate conversations that VIEW's gigantic factory is either the largest or second largest consumer of electricity in the entire state of Mississippi. From a former sales executive:

***VIEW's factory is the largest, or maybe it was the second largest, consumer of power in the state.**
How I learned that – [COO] Martin Neumann used to mention that on factory tours. He never said that when he had potential clients on tour, but he told us. Lots of people know about this.*

To see if someone else could verify this claim, we next asked one former operational executive with intimate knowledge of the plant's operations, and they did indeed confirm:

A former VIEW employee told us that the factory is the biggest or second biggest user of power in Mississippi, is that true?

***Oh yes. It's either the first or the second; when that second line fires up, it's definitely gonna be first if it isn't already.** VIEW spent \$1.8 million on electricity in 2018 [NOTE: This was the year BEFORE they decided to run full-out just to see what the factory could do, we are told]. And they have a great, low rate on electricity. [NOTE: We were told about this best-in-class rate by another former employee as well].*

It isn't terribly surprising that VIEW's million-square-foot factory uses a lot of energy, but this is really something else. VIEW's manufacturing process consumes so much electricity it would make a Bitcoin miner blush.

Sidebar: That \$1.8m of electricity costs may not sound like much in the context of a business that lost almost \$300m last year, but it is. (Sanity check: Think about your own home's monthly electricity bill.)

Let's use some publicly available sources to estimate how much power this plant was consuming in 2018 if this former employee's memory serves correctly on the exact amount of electricity costs, and benchmark it against typical factories:

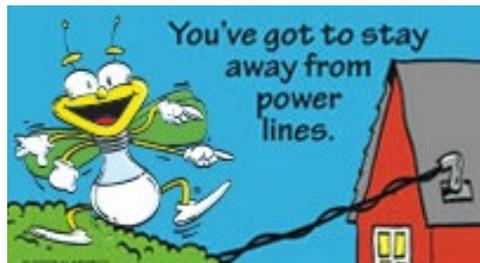
Average annual electricity usage for industrial businesses in Mississippi, 2019: **1.5 gWh^{xxi}**

Average annual electricity usage for industrial businesses in United States, 2019: **1.1 gWh**

Average cost in Olive Branch, MS for industrial electricity use: 6.42/kWh^{xxii}

VIEW plant's annual electricity used if \$1.8m of cost per year at above rate: **28,037,383 kWh**, or **28.0 gWh**

(Average annual electricity usage for a typical American home: 0.01 gWh)^{xxiii}

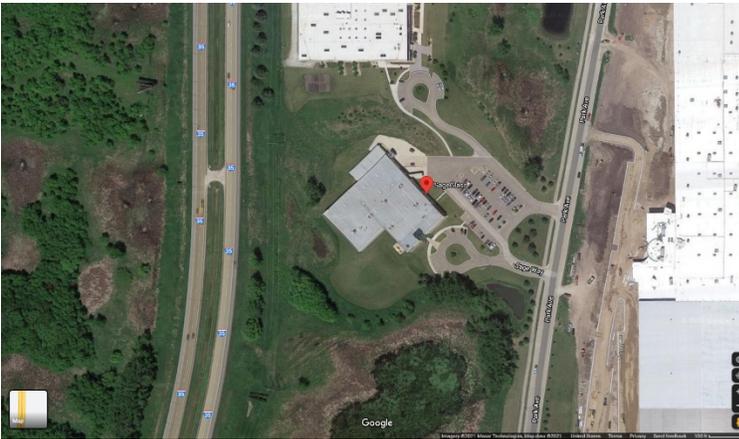


VIEW's factory is also much bigger than that of its direct peer, Sage Glass. Compare the two on Google Maps, using a nearly equivalent scale (the bottom right shows the scale is almost the same for the two photos, or you can just eyeball the cars in the parking lots):

VIEW's factory in Mississippi, 1 million square feet with claimed nameplate capacity of five million square feet:



SAGE's factory in Minnesota, only 320,000 square feet with claimed nameplate capacity of four million SF^{xxiv}:



(The building above Sage's factory is an unrelated equipment dealer business.)

VIEW's manufacturing process is incredibly wasteful. Glass production is an energy-intensive process to begin with, but VIEW's process takes in already-manufactured glass and adds an entirely new layer of energy consumption in order to produce the finished electrochromic glass product. Were a builder to use regular low-e glass, or really any number of alternatives, in place of VIEW glass, they would be purchasing a far less energy-intensive product, and the resulting value chain would be far better for the environment from an energy consumption perspective.

But what about VIEW's purported energy savings to the customer? These are bunk, or at the very best creatively massaged, and they in no way offset the incredible power waste needed to produce the VIEW glass.

b. End user power consumption: Energy savings by VIEW's customers are minimal

Before we jump into the details around this, let's just use a little common sense. VIEW's product is a tinted glass that darkens and lightens. It does so either automatically based on the sun's intensity, or manually as the user tells it to do. Its closest competitor is UV glass (or low-emissivity/"low-e"), which is just tinted glass that doesn't switch. Just think about this. Forget what VIEW tells you, forget what we tell you, and just imagine: Glass that's always tinted, or glass that can (slowly) change its tint. How much more energy does one save than the other?

If this thought experiment made you think that the energy saving from having your tinted glass darken or lighten is not that impressive, then your thought process matches what happens in the real world. Both an internal VIEW salesperson (former) and an external consultant (Max Perilstein of Sole Source Consultants) told us the same thing: There is minimal, if any, energy saving taking place if a customer purchases VIEW's switchable glass instead of regular, and far cheaper and simpler, UV glass.

The former VIEW sales executive, who was out in the field selling VIEW glass, found that prospective customers always figured this out eventually (if they hadn't figured it out quickly through the thought experiment):

We did an extensive energy model and found that our product yielded only a 3% reduction in energy usage, as opposed to the up to 20% that our marketing materials claimed. We ran energy models for every building – this low-single-digit score was not unique. The issue is, most buildings today are really energy-efficient to begin with...Developers always say, No, the best we're gonna get is 1%, or maybe as much as 5%. If I went to a developer and said "you can get 20% savings," he'd always say, Okay fine, give all the data points to my energy modeler, and he'll run the numbers. The developers are all sophisticated. They'd come back to us and say, "This isn't 20%, it's 2%."

What does 3% energy savings translate into? Can you quantify that?

*Not much at all. The only reason VIEW is getting their total ROIs to look good [in their marketing/investor materials] is that they're mixing apples and oranges, and including things like increased employee productivity. **That last one is embarrassing to talk about with clients, so as salespeople most of us took that out [of our pitch]. But as an investor, you guys wouldn't know that.***

We wanted to confirm with an external source that this former employee had a fair perspective on VIEW's modest energy savings. This led us to Max Perilstein, who came recommended to us as an independent expert, and his findings were even starker: There is virtually zero energy saved by using VIEW glass versus using simple low-e glass (which also costs 1/5 the price of VIEW glass and has no wiring or other complexities):

*When push comes to shove and you look at the energy [savings], **all I'm paying for with VIEW glass is the luxury of switchability [and not any energy savings]**...when you've compared the numbers [between VIEW and a basic UV glass alternative], they just didn't fly. So VIEW can only sell to people who want that super-high amenity in their building. This is very luxury stuff – a high-end condo owner wants to show off his glass switching from a touch of his phone. But this does not work for your regular everyday building, not at all. Those owners care about energy.*

So from an energy (or electricity) perspective, a holistic analysis of the environmental impact of this product has to take into account the enormous energy consumption required to turn regular glass into VIEW electrochromic glass, and also take into account the trivial energy savings by using said glass in a building project...and compare that to simply using modern tinted glass, which requires none of the upstream electricity hogging, and a comparable downstream electricity-use profile for the customer.

- c. Carbon intensity: Glass is a necessary evil, but VIEW chronically overconsumes it

Glass production is a "necessary evil" – a carbon-intensive activity that enables humans to live better. According to Lawrence Berkley National Laboratory:

"...glass production is a significant source of carbon dioxide (CO₂) emissions. According to the International Energy Agency (IEA), the container and flat glass industries (which combined account for 80% of glass production) emit over 60 megatons of CO₂ emissions per year (IEA 2007), which is more than the annual emissions from the country of Portugal."^{xxxv}

VIEW's main cost input is float glass, which is then processed, sandwiched, coated, etc. by VIEW's advanced manufacturing operation to create the finished product of electrochromic glass. As we've discussed, VIEW's manufacturing yields are chronically low, so VIEW ends up producing a great deal of glass that must then be thrown away. This means that VIEW is taking an already-carbon-intensive process – the production of glass – and making it even more carbon-intensive than it has to be, by purchasing huge volumes of this glass and wasting around half of it.

We sanity-checked our findings here with a former employee who confirmed for us that “electrochromic glass gets thrown away [if it isn't used].”

d. Landfill abuse: Glass isn't biodegradable, and VIEW throws tons of it away

In addition to the power wastage and carbon intensity of this manufacturing process – which consumes enormous amounts of electricity, and ends up throwing tons of finished goods away which required a large carbon output in order to be brought to VIEW – there is also the obvious problem of landfill abuse by VIEW's process. Glass is not biodegradable.^{xxvi} When VIEW throws glass away, it has to go somewhere. So, the overproduction of glass waste is worse than the overproduction of many other products.

e. Some of it is intentional: The CEO overproduced his ecologically costly product by ~900%

This is possibly the most upsetting finding we uncovered during our research on VIEW – the CEO choosing to run his plant at 100% utilization for an entire year, knowing he had nowhere near the amount of demand to justify such production. We described this egregious action previously, but from the perspective of its impact on the business rather than on the environment. As the former operational employee described it, VIEW had demand for approximately 75,000 square feet of glass per quarter, but produced approximately 750,000 square feet per quarter in this disgraceful misadventure.

When we learned that this CEO was willing to trash his local and global environments by producing ~900% more glass than needed from his massive, power-hogging factory just to satisfy his curiosity about what 100% utilization would look like (and by the way, we doubt he'll ever need to know, given how badly his product has been selling for the past ten years), it reminded us of one of the eco-villains from the cartoon series, *Captain Planet*. Do these faces look familiar to Millennial or Gen-X readers?



(Pictured left to right: Sly Sludge, Hoggish Greedly, Looten Plunder, Verminous Skumm, Dr. Blight. Top: Duke Nukem)

We think Looten Plunder is the most applicable comparison to the CEO of VIEW. Numerous industry experts shared the opinion that the CEO of VIEW is a very slick fundraiser who presents well at industry events, etc. He is a gifted marketer, which certainly explains VIEW's ability to survive on round after round of other people's money while destroying so much shareholder value. Looten Plunder was the handsome, slick, well-dressed eco-villain. (Generally if a businessperson has good ideas but looks like Verminous Skumm, he'll end up at a hedge fund, not as the face of a large corporation.)

Fortunately for our capitalist system, whether you're more *Captain Planet* or more *Wall Street*, environmentalists and shareholders alike can unite around the common theme of wastefulness – be it of the investor's resources or the planet's. They just need to know about it:



To be fair, early in our research we worried that our initial impressions of VIEW's wasteful activities might be too harsh. After all, we're outsiders looking in – and there are always two sides to every story. So we asked a former member of plant management: Could VIEW really be this...*gross*? Here's his response:

Doesn't all this, I don't know, conflict with VIEW's claim to be good for the environment? If they have to use such a huge amount of power to make a product that supposedly saves their customers little power...(etc.)?

...It was not a consideration. We could care less. As long as we could produce as efficiently as possible, carbon footprint and energy efficiency was not a big consideration. It just wasn't a priority. What the CEO wanted was, "let's produce four million square feet of glass, do what you need to do to get there."

f. Social injustice: An egregious employee turnover rate caused by corporate waste and abuse

There are a number of vantage points from which we can see that VIEW's employee turnover rate is enormous. We learned that this high turnover rate is due both to an abusive management style, which results in firings and

resignations, and to wasteful financial management, which necessitates widespread layoffs. In the latter case, the company still does not appear to have recovered from its last round of layoffs.

First, what we were told by some former employees. From a former salesperson:

- ***It was OUTRAGEOUS, the number of employees we fired...I'd say well over 50% turnover per year.*** *Maybe 70%. We fired people so fast, it's not even funny. Just firing people left and right.*
- *They fired three times as many employees as they had...Firing people is kind of their MO.*
- *They fired all the good project managers. **They blamed it on the pandemic, but they needed to do it anyway** [because of cost overruns].*
- *One guy got fired, he works for Sage now and is doing great. He was new to View, had been with the company two weeks. He went to the annual sales meeting two weeks into his tenure, while he was still in training. We had this game we'd play where people would get asked questions about the company, as mock sales exercises. This kid was doing well, and then he answered two questions in ways the CEO didn't like. So after the meeting, the CEO tells someone to fire him. The whole point of the game was just to practice and test salespeople's knowledge of the company and the product – the kid had been there two weeks! No [the CEO doesn't care about people's careers.]”*

From a former finance executive:

- *We went through 3 factory leads in 3 years.*

From a former operations executive:

- ***VIEW blamed the pandemic for the layoff, but they were running out of money [before COVID] so they had to do the layoff anyway.*** *They laid off more than half the people who had built the manufacturing process.*
- *They were burning more than \$200m a year, far away from breakeven, no company could sustain that. And now they're trying to staff up again, as you can see from the careers site.*
- *VIEW had in excess of \$1.3bn in working capital after those fundraisings [in late 2018]. What happened with that money? VIEW hasn't done a good job explaining where it went. [And the waste necessitated all these people losing their jobs.]*
- ***I knew the employee turnover numbers well as they were part of our operational challenges. Turnover in 2017 was 62%. In 2019, it was more like 26%. In 2020, they laid off half the workforce, I'm guessing turnover for that year was back in that 50-60% range.***

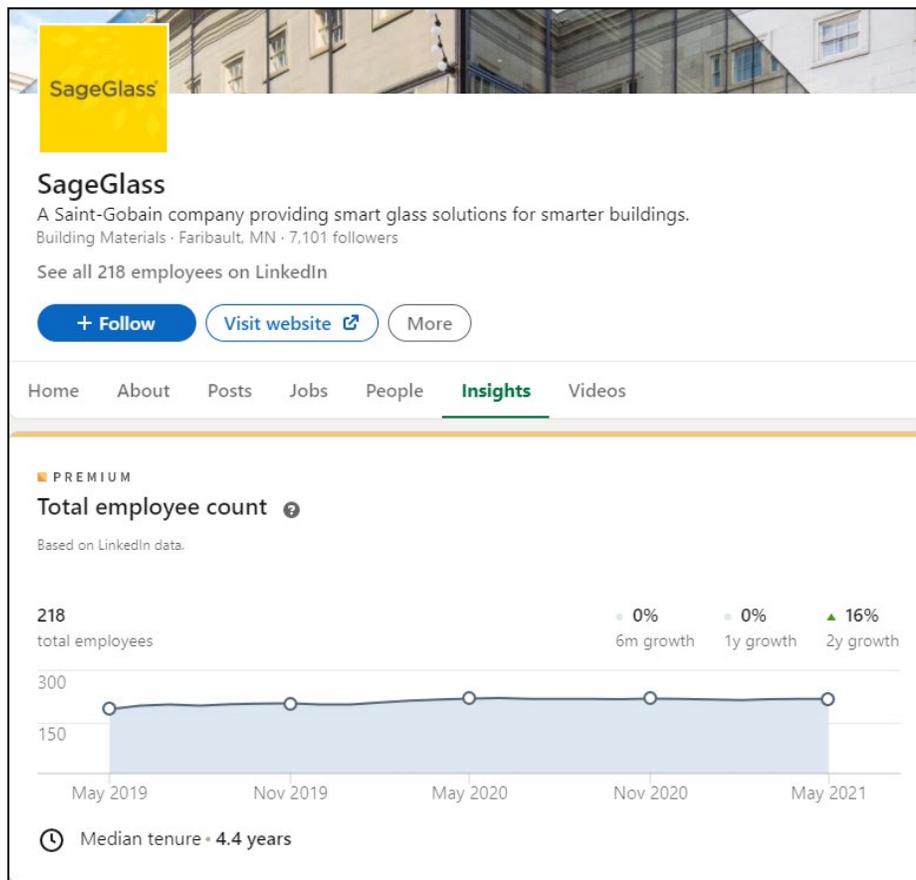
From another former operations executive:

- *They dramatically reduced the Field Services staff, from 30 down to 12 people. They probably cut \$10m in costs by doing that [in 2020]. There was always a bit of concern of, Did you throw the baby out with the bathwater, did you get rid of too much institutional knowledge through all of those layoffs?*

LinkedIn also shows a company whose employee count is still 13% below where it was two years ago:



Oh, but there was a pandemic, you might say. That pandemic doesn't seem to have created a staffing or cost problem for VIEW's most important competitor, whose employee base is 16% larger than it was two years ago (and who never instituted mass layoffs):



LinkedIn of course provides only a snapshot of employees, but directionally, we think this is useful to corroborate what we're told by company veterans about VIEW being uniquely cavalier when it comes to employee retention.

Lastly, stories abound on Glassdoor and Indeed of a company that has massive turnover, but those tend to sound like every other disgruntled former employee story on those websites, so we don't include them here. If you're so inclined, browse those sites – although beware: According to one former employee and a great many of these online reviews, VIEW's CEO would frequently implore employees to go online and leave five-star reviews on such sites, in order to bolster the company's impression with investors like you.

One such employee review, however, spoke volumes to us because of a single detail. Think about all of the money that VIEW has spent over the years, how much stock the CEO owns personally, and what VIEW tells investors and customers about its value proposition. Then look at the red box:

I've never written a GD review....until now.

May 28, 2018 - Anonymous Employee

✗ Recommend ✗ CEO Approval ✗ Business Outlook

Pros

Colleagues are very hard working

Cons

-C level completely out of touch with working ppl

-CEO is driving a culture of fear and dominance

-Sales in Bay Area are non-existent due to severe problems with quality and reputation among partners

-Sales leadership severely lacking. RMs placed from internally with no sales or management background

-Orwellian surveillance and blame game (company wide)

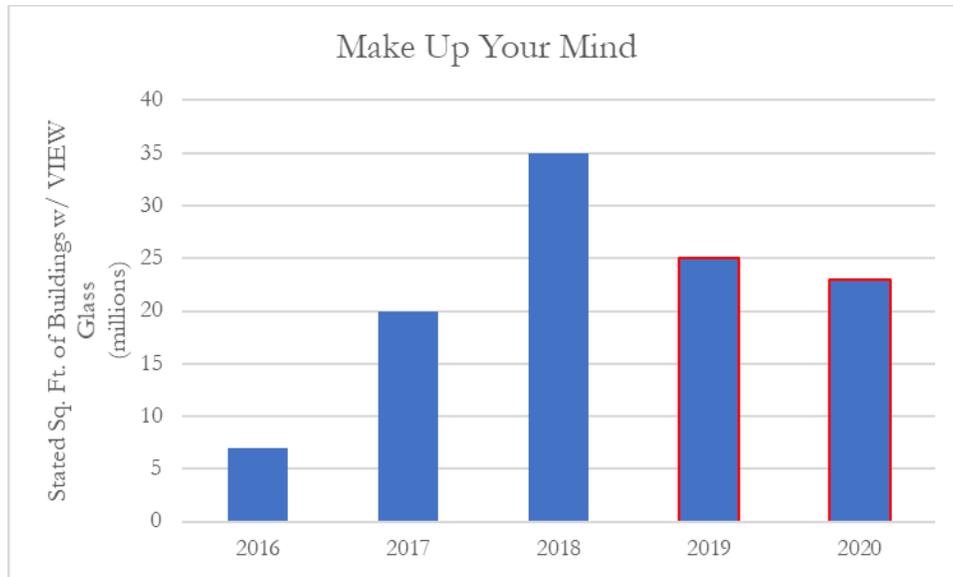
-'The cobblers children have no shoes'--While the key message is the value that VG provides is natural light, HQ is an old bldg w fluorescent lightning and very little windows resulting in no access to sunlight

-When there are problems (and this is frequent), everyone runs to it. They throw resources to fix it and then they all run to the next problem. They don't learn from it or grow. Systems are foreign=this is NOT scalable

HIDING IN PLAIN VIEW: SOME MORE OF VIEW’S MISREPRESENTATIONS

a. Changing the numbers on installations: up and down and up again

VIEW has a bizarrely difficult time getting its story straight on a metric that should be incredibly simple. How many square feet worth of buildings have VIEW glass in them? Yet, VIEW has apparently been having trouble defining the parameters of this metric. If you track the company’s paper trail of claims about its installed base of glass, you’ll find that this number has **fallen** at least twice:



- In 2016, VIEW said: “With over 12,000 occupants enjoying View Dynamic Glass across **7 million** square feet of space everyday [sic], we’re seeing significant growth...”^{xxvii}
- In 2017, VIEW said: “View is now installed across **20 million** square feet of buildings and continues to experience tremendous growth across commercial offices, healthcare, education, multi-family residential, and airports,’ View CEO [name] said in a statement. ‘This investment enables us to scale our operations to meet rapidly growing demand.’”^{xxviii}
- In 2018, VIEW said: “View Dynamic Glass is installed in **35 million** square feet of buildings and is growing rapidly.”^{xxix}
- In 2019, VIEW said: “25,000 people enjoy View daily in **25 million** square feet of space”^{xxx}
- In 2020, VIEW said: “View Smart Glass has now been installed in over 20 million square feet of buildings of significant scale and prominence.”^{xxxi} (In 2021, VIEW apparently refined this to “...the windows have been installed in more than 500 buildings with over **23 million** square feet of space.”^{xxxii})

On top of this bizarre up-then-down trend, we see that VIEW’s website right now says the company’s windows are in over **50 million** square feet of space:



We asked several former employees about this metric and received virtually the same response from all: VIEW management plays fast and loose with numbers all the time, and this is just one example of that. Likely, what happened here is that increased scrutiny – perhaps from the SEC or from lawyers – forced VIEW to backtrack on earlier claims that could not be supported. This may relate to the fact that VIEW can be more “slithery” in its disclosures to prospective customers than it can to public market investors.

We suspect that the scrutiny on its website is more lax than on its SEC filings, which could explain why the website number is higher than all of these other numbers we found. (What we don’t think happened is that huge numbers of customers removed VIEW’s glass. There’s never a reason for a customer to do that, because VIEW pays for all corrective work.)

b. Investment needed to add capacity is far in excess of what VIEW claims

We previously discussed how much more capital VIEW will need to get its capacity to 12.5 million square feet. Former VIEW employees know this, and the numbers are also obvious considering how VIEW uses its \$400m spent on its existing factory as a selling point. (“Barrier to entry,” they call it – yes, we agree, having two billion dollars of willing investors line up to flush their money down the toilet is not an asset common to most businesses.) We are fairly certain VIEW knows it too, but is understating its planned expenditures in order to make its path to “profitability” look less costly.

As glass expert Max told us, “The thing we [in the glass industry] always heard about VIEW was that the idea was, ‘go public and the rest will take care of itself. We’ll worry about then, then – we gotta go public.’” We think that VIEW is still “worrying about then, then” when it pencils in unrealistic expenditure requirements for its capacity expansions.

c. VIEW falsely claims it has a “high yield” (unless they were referring to their credit facility!)

Significant investment and progress in scale-up

Olive Branch, MS panel manufacturing
1.3 million SF facility
Scales to \$1 billion annual revenue
\$400 million invested to date
Robust process resulting in high yield

Seeing VIEW claim this in its investor presentation was a “WTF” moment for us. If you’ve read this far, you’ll surely understand why. Of course, we wondered whether we (and all those VIEW employees/consultants) had missed something huge...but we notice that VIEW, wisely, does not put this “high yield” claim anywhere in its SEC prospectus, nor do they quantify it in writing.

The only mention of “yield” in a manufacturing sense in the S-1 is in a risk factor, and it refers only to “planned yield.” Nowhere, that we could find, does VIEW quantify its actual or historical manufacturing yield...and we’ve been warned by former employees to press hard if VIEW does throw out a “yield” in 1x1 conversations, given how fast and loose the company is with so many of its metrics.

d. The softer side of backlog

VIEW says in its investor presentation that its “design-win backlog” is \$560m, but this number doesn’t appear in the S-1. In the S-1, what appears is this:

Remaining performance obligations represent the amount of contracted future revenue, including both deferred revenue and non-cancelable contracted amounts that will be invoiced in future periods, not yet recognized as revenue as the amount has been allocated to performance obligations not yet completed, or only partially completed, as of the end of the reporting period. The Company applies the practical expedient to not disclose information about remaining performance obligations that are part of a contract that has an original expected duration of one year or less. The transaction price allocated to remaining performance obligations as of December 31, 2020 and 2019 was \$7.3 million and \$7.1 million, respectively, that the Company expects to recognize as it satisfies the performance obligations over the next 12 to 24 months which are, among other things, dependent on the construction schedule of the site for which the Company’s products and services are delivered.

A few things jump out here and none of them are good. First, what VIEW has actually contracted for future revenue to deliver between 12 and 24 months from 12/31/2020 is only \$7.3m. Secondly, that number has grown by only \$0.2m since 12/31/2019. This does not suggest much in the way of either future demand or growth.

Thirdly, there’s a strangely large discrepancy between “backlog” and remaining performance obligations.

What’s the difference between that impressive \$560m of “backlog” and this deeply unimpressive \$7m of actually contracted future revenue? One former VIEW sales executive explains that VIEW’s backlog, which consists of letters of intent, is far less meaningful when your product is a glaring “nice-to-have”:

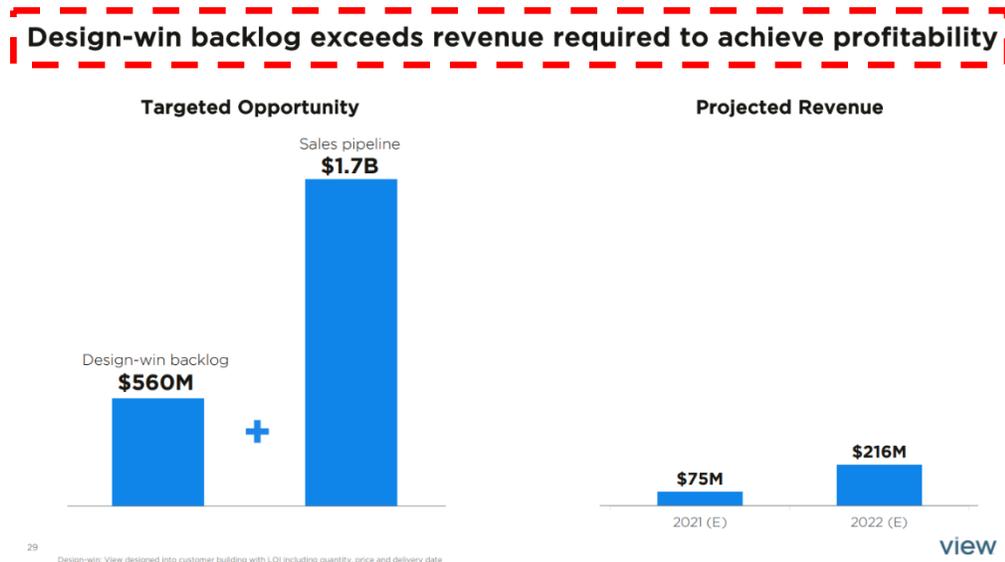
So what we’d do, we’d get in and ask owners to sign an LOI (or in California it’s called an MOU, Memorandum of Understanding). Then we’d show those MOUs to investors – “look at all these MOUs we have, give us money.”

*Well, they [VIEW] don’t show you numbers of how those MOUs fell through over time. Sometimes the developer decides not to build the project. Sometimes the developer downsizes the project. Sometimes the developer starts digging and sees there is a lot more risk, or cost...that’s the nature of construction. You can set a budget, put a POD, even put your shovels into the ground, but you can’t understand the risks you face until you start digging. **And once your budget [starts going the wrong way], costly stuff goes by the wayside. That was us. Our stuff isn’t a little more pricey, it’s 5x the price.***

A developer isn’t going to cancel the toilets and replace them with holes in the ground if his project is going a little over budget. He isn’t going to cancel the windows either, but he might cancel the pricey ones that change from dark to light, save virtually no energy, and cost 5x what regular tinted windows cost. There’s more cancellation risk for bells and whistles than for staples, and VIEW’s product is the epitome of a bell or whistle. **Our rule of thumb: When management gives you a huge number in a less-scrutinized document and a tiny number in a more-scrutinized document, start with the smaller number.** We suspect that VIEW is taking a kitchen-sink approach to including things in the backlog...possibly, similarly to the approach they took to including things in “square footage of buildings with VIEW glass in them” until someone ostensibly called them out on it?

e. Also, the less profitable side

Why does VIEW say this:



...when it also says this?

View incurred a net loss of \$289.9 million and \$201.7 million for the year ended December 31, 2019 and the nine months ended September 30, 2020, respectively. View believes that it will continue to incur substantial losses until at least the time it meets the demands of its current order backlog, assuming such backlogs can be sustained. There can be no assurance that positive cash flows from operations can be achieved or sustained and may

(That was a rhetorical question.)

f. Well, that depends on how you define “productivity”

In addition to its emphasis on environmental friendliness/energy savings, VIEW’s product pitch to investors and prospective customers is based heavily on academic findings of productivity improvement from access to sunlight, as well as to sunlight via electrochromic glass. (Apparently, investors and customers are supposed to overlook the fact that the first of those benefits can be obtained through plain old windows.) For instance, in VIEW’s investor presentation:

Improving human health and productivity



Cornell University
 The State University of New York
 UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

¹ Cornell University. Hedge A and Nou D. (2018). Worker Reactions to Electrochromic and Low-E Glass Office Windows. Ergonomics International Journal, 2(7). 000167. DOI: 10.23880/eoij-16000166.
² University of Illinois Urbana-Champaign and SUNY Upstate Medical University. Woo M, MacNaughton P, Lee J, Tinianov B, Satish U, Boubekri M. Impact of Daylight and Views on Physical and Emotional Wellbeing of Office Workers. Journal of Environment & Behavior, In Press.
³ University of Illinois Urbana-Champaign and SUNY Upstate Medical University. Boubekri M, Lee J, MacNaughton P, Woo M, Schuyler L, Tinianov B, Satish U. The Impact of Optimized Daylight and Views on Sleep Duration and Cognitive Performance of Office Workers. International Journal of Environmental Research and Public Health, 2020, 17(9).
⁴ University of Illinois Urbana-Champaign and SUNY Upstate Medical University. MacNaughton P, Woo M, Tinianov B, Boubekri M, Satish U. Economic Implications of Access to Daylight and Views in Office Buildings from Improved Productivity. Journal of Applied Social Psychology, In Press. Researchers derived productivity results from cognitive scores and US Department of Labor salary source data.
 Note: Authors include View employees.

view

Let’s zoom in on that fine print:

¹ Cornell University. Hedge A and Nou D. (2018). Worker Reactions to Electrochromic and Low-E Glass Office Windows. Ergonomics International Journal, 2(7).
² University of Illinois Urbana-Champaign and SUNY Upstate Medical University. Woo M, MacNaughton P, Lee J, Tinianov B, Satish U, Boubekri M. Impact of Daylight and Views on Physical and Emotional Wellbeing of Office Workers. Journal of Environment & Behavior, In Press.
³ University of Illinois Urbana-Champaign and SUNY Upstate Medical University. Boubekri M, Lee J, MacNaughton P, Woo M, Schuyler L, Tinianov B, Satish U. The Impact of Optimized Daylight and Views on Sleep Duration and Cognitive Performance of Office Workers. International Journal of Environmental Research and Public Health, 2020, 17(9).
⁴ University of Illinois Urbana-Champaign and SUNY Upstate Medical University. MacNaughton P, Woo M, Tinianov B, Boubekri M, Satish U. Economic Implications of Access to Daylight and Views in Office Buildings from Improved Productivity. Journal of Applied Social Psychology, In Press. Researchers derived productivity results from cognitive scores and US Department of Labor salary source data.
Note: Authors include View employees.

We recognized the name “Tinianov B” as it came up in our research. Mr. B. Tinianov is this guy, a senior business development executive for VIEW (also mentioned in VIEW press releases):

Experience

view [View, Inc](#)
9 yrs 5 mos

- **VP Industry Strategy**
Oct 2017 – Present · 3 yrs 8 mos
Milpitas, CA
- **VP Business Development**
Oct 2015 – Oct 2017 · 2 yrs 1 mo
Milpitas, CA

Key responsibilities include:

 - * Definition, development and execution of View's Healthcare, Higher Education and Commercial Real Estate vertical market strategy
 - * Creation and dissemination of the View value proposition and value-based sales strat ...see more
- **Senior Director, Business Development**
Jan 2012 – Oct 2015 · 3 yrs 10 mos
Milpitas, CA

But this gets better. VIEW’s fine print disclosure says the authors “include” VIEW employees. But that’s a bit of an understatement; in fact, the majority of the people who are running these studies are VIEW employees. If you go to the fine print of Study #3, for instance (you have to go to the full text version):

Conflicts of Interest

Piers MacNaughton, Brandon Tinianov, May Woo, and Lauren Schuyler are employed by View Inc., the sponsor of the research study. Their roles in the study conceptualization, fieldwork, data analysis, and writing are listed in the author contributions section. View Inc. manufactures the electrochromic glazing system that was installed in the Optimized Daylight & Views condition.

These VIEW executives had tremendous impact on this study’s entire process – conceiving it, designing it, crafting the fieldwork, analyzing the data, writing the draft, and – of course – having final editorial say:

Author Contributions

Conceptualization, M.B., P.M., B.T., M.W., and U.S.; methodology, M.B., P.M., B.T., M.W., and U.S.; fieldwork, M.B., P.M., L.S., B.T., M.W., and U.S.; data analysis, M.B., J.L., P.M., M.W., and U.S.; writing—original draft preparation, M.B., P.M., and M.W.; writing—review and editing, M.B., J.L., P.M., B.T., M.W., and U.S. All authors have read and agreed to the published version of the manuscript.

Most importantly, VIEW is paying the bills for these studies as well. Here are two screenshots from the study texts:

Funding information:

This research was funded by View Inc. through sponsored research grants to the University of Illinois Urbana Champaign and SUNY Upstate Medical Center

Funding

This research was funded by View Inc. through sponsored research grants to the University of Illinois Urbana Champaign and SUNY Upstate Medical University.

(Sources: <https://experts.illinois.edu/en/publications/the-impact-of-optimized-daylight-and-views-on-the-sleep-duration->, <https://onlinelibrary.wiley.com/doi/10.1111/jasp.12764?af=R>)

Does VIEW need to disclose in its investor or customer materials that it paid for all this research to be done? No. But would you have preferred to have known about it if you're going to base the product ROI considerations on it?

(That's also rhetorical.)

DISCLAIMER

This report is not investment advice. By reading, downloading or printing this report you agree to the following Terms of Service. Use of this research is at your own risk. In no event should Jehoshaphat Research or any affiliated party be liable for any direct or indirect trading losses caused by any information on this site. You further agree to do your own research and due diligence, consult your own financial, legal, and tax advisors before making any investment decision with respect to transacting in any securities covered herein. You should assume that as of the publication date of any short-biased report or letter, Jehoshaphat Research (possibly along with or through our members, partners, affiliates, employees, and/or consultants) has a short position in all stocks (and/or options of the stock) covered herein, and therefore stands to realize significant gains in the event that the price of any stock covered herein declines. Likewise, you should assume that as of the publication date of any long-biased report or letter, Jehoshaphat Research (possibly along with or through our members, partners, affiliates, employees, and/or consultants) has a long position in all stocks (and/or options of the stock) covered herein, and therefore stands to realize significant gains in the event that the price of any stock covered herein rises. Following publication of any long or short report or letter, we intend to continue transacting in the securities covered herein, and we may be long, short, or neutral at any time hereafter regardless of our initial recommendation, conclusions, or opinions. This is not an offer to sell or a solicitation of an offer to buy any security, nor shall any security be offered or sold to any person, in any jurisdiction in which such offer would be unlawful under the securities laws of such jurisdiction. Jehoshaphat Research is not registered as an investment advisor in the United States nor does it have similar registration in any other jurisdiction. To the best of our ability and belief, all information contained herein is accurate and reliable, and has been obtained from public sources we believe to be accurate and reliable, and who are not insiders or connected persons of the stock covered herein or who may otherwise owe any fiduciary duty or duty of confidentiality to the issuer. However, such information is presented "as is," without warranty of any kind – whether express or implied. Jehoshaphat Research makes no representation, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results to be obtained from its use. All expressions of opinion are subject to change without notice, and Jehoshaphat Research does not undertake to update or supplement this report or any of the information contained herein. If you are in the United Kingdom, you confirm that you are subscribing and/or accessing Jehoshaphat Research materials on behalf of: A) a high net worth entity (e.g., a company with net assets of GBP 5 million or a high value trust) falling within Article 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "FPO"); or B) an investment professional (e.g., a financial institution, government or local authority, or international organization) falling within Article 19 of the FPO. The failure of Jehoshaphat Research to exercise or enforce any right or provision of these Terms of Service shall not constitute a waiver of this right or provision. If any provision of these Terms of Service is found by a court of competent jurisdiction to be invalid, the parties nevertheless agree that the court should endeavor to give effect to the parties' intentions as reflected in the provision and rule that the other provisions of these Terms of Service remain in full force and effect, in particular as to this governing law and jurisdiction provision. You agree that regardless of any statute or law to the contrary, any claim or cause of action arising out of or related to use of this website or the material herein must be filed within one (1) year after such claim or cause of action arose or be forever barred.

ENDNOTES

ⁱ FY20, excluding charges for obsolete and excess finished goods inventory.

ⁱⁱ Page 3, Cantor Fitzgerald's "Made in the Shade" report on VIEW indicates that accessing the TAM requires unit cost reduction, i.e., requires price reduction to make the product interesting to most buyers.

ⁱⁱⁱ According to Max Perilstein: "I do remember when they were giving things away for free. Overstock was at no charge, I believe. I know for a fact that Levi Stadium was at zero charge, too."

^{iv} Page F-27 of the company's S-1 indicates that VIEW's 2019 financials were filed on July 29, 2020, and that there was substantial doubt at that time about the company's ability to continue as a going concern.

^v Page 22 of Cantor initiation report – VIEW must spend \$660m to build enough capacity for \$1.2bn in revenues (we believe this is too low of a spend estimate and too high of a revenue estimate, and so do former employees, but this is what the company is claiming).

^{vi} VIEW reports on page 21 of <https://view.com/sites/default/files/documents/View-Investor-Presentation-High.pdf> that it has invested \$400m to date in its current manufacturing plant. Cantor's initiation report indicates that the expansion planned to come online in 2022 will add capacity equal to 150% of VIEW's existing footprint (taking total claimed capacity from 5m to 12.5m sq ft capacity). At equivalent per-square-foot cost, this new facility would cost \$600m. At half that cost, it would cost \$300m. (Cantor assumes it would cost \$160m, a number that one former executive told us "seems low.") As of Q121, VIEW had just \$506m in cash on its balance sheet, meaning that if it burns through \$300m of free cash flow per year (its prior run rate which included limited investment) and additionally invests \$150m per year in plant expansion, it would run out of money sometime in 2022.

^{vii} Softbank invested \$1.1bn in 2018 in a down round as we discuss in this report; it owns 30% of the current equity, implying a nearly \$3bn valuation for VIEW. VIEW has been progressively raising more and more money at lower and lower valuations, despite capital markets throwing higher and higher valuations at unprofitable companies.

^{viii} "It is important to note that this entire annual TAM estimate is not obtainable for View today, as many new construction and renovation projects would not be able to afford the company's premium product. However, we believe the entirety of this TAM will slowly become obtainable as View continues to reduce per unit costs." – Cantor initiation

^{ix} Defining "energy savings" leaves open plenty of room for VIEW to be cute with definitions. Energy is certainly saved by using a window instead of an opaque wall, because a window saves money on lighting. Additional energy is saved by window tinting, as this cools the space and reduces the need for HVAC consumption. To the extent the window darkens and lightens dynamically, however, very little if any energy is saved – and this feature of "switchability" is the only differentiating selling point for VIEW. VIEW's windows also take 30 minutes to darken and lighten fully, so the investor or prospective customer is wrong to imagine a window that responds quickly to changing sun conditions. One former VIEW salesperson explained that sunny weather with rolling clouds wreaks havoc on the system, because the tinting can't keep up with the pace of outdoor darkening and lightening. Our interviews with former employees and consultants indicate that VIEW has either "no" energy savings (Max Perilstein, Sole Source Consultants CEO and glass industry expert who has advised many customers on VIEW versus other glass choices) or "tiny" energy savings, usually low-single-digits (former sales executive from VIEW who described the frequent disappointments that arose when customers responded to VIEW bids and found that energy savings from VIEW glass were tiny compared to other window options that cost a fraction of the VIEW price).

^x Discussed more fully in the report, but this quote and its context come directly from our interview of a former manufacturing executive at VIEW who was involved in carrying out this request.

^{xi} <https://www.glassdoor.com/Reviews/Employee-Review-View-Inc-RVW20780198.htm>

^{xii} <https://www.wsj.com/articles/view-raises-100-million-for-smart-windows-1486423253>

^{xiii} [https://rebusinonline.com/office-rents-until-2026/#:~:text=\(NYSE%3A%20MCO\)%2C%20issued,end%20of%20the%20Great%20Recession.](https://rebusinonline.com/office-rents-until-2026/#:~:text=(NYSE%3A%20MCO)%2C%20issued,end%20of%20the%20Great%20Recession.)

^{xiv} Former VIEW employee; <https://homeguide.com/costs/window-glass-replacement-cost>; Goldman initiation report

^{xv} <https://homeguides.sfgate.com/cost-replacing-window-pane-62131.html>; "BDF EXS35 Exterior Window Film High Heat Rejection Silver 35" on Amazon.com

- ^{xvi} <https://www.buildings.com/articles/31395/new-low-e-glass-or-window-film-comparison-help-you-decide>;
<https://www.thermalwindows.com/products/lowe/>; <https://www.askthebuilder.com/window-glass-replacement/>
- ^{xvii} <https://www.amazon.com/HOHOFILM-X20-Photochromic-Window-Film/dp/B07SRRF667>
- ^{xviii} Former employee comments on photochromic vs electrochromic glass; “photochromic is generally less expensive”;
<https://www.smartglassworld.net/what-is-photochromic-smart-glass>: “does not need electrical power”
- ^{xix} Bloomberg screen of 2,004 US “manufacturing” classified companies with gross margin data available.
- ^{xx} <https://www.greentechmedia.com/articles/read/view-gets-massive-1-1-billion-investment-from-softbank>
- ^{xxi} https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_c.pdf (“Average Monthly Consumption” column x 12)
- ^{xxii} <https://www.electricitylocal.com/states/mississippi/olive-branch/#:~:text=The%20average%20residential%20electricity%20rate%20in%20Olive%20Branch%20is%2010.08,rate%20of%2011.88%C2%A2%2FkWh>. (May 2021)
- ^{xxiii} www.enerdynamics.com
- ^{xxiv} <https://mgmcrath.com/portfolio/sage-headquarters-and-manufacturing-facility/>, <https://www.wbdg.org/additional-resources/case-studies/sageglass>
- ^{xxv} https://china.lbl.gov/sites/default/files/lbl_glass_final.pdf
- ^{xxvi} <https://education.seattlepi.com/burning-trash-hurt-ozone-4512.html>
- ^{xxvii} <https://view.com/blog/view-completes-200-projects-and-secures-the-largest-dynamic-glass-installation-in-the-world>
- ^{xxviii} <https://www.bizjournals.com/sanjose/news/2017/06/27/view-dynamic-glass-raises-200m-blackrock.html>
- ^{xxix} <https://view.com/sites/default/files/documents/press-release-view-softbank-11-2-18.pdf>
- ^{xxx} <https://view.com/sites/default/files/documents/developer-brochure.pdf>
- ^{xxxi} <https://www.sec.gov/Archives/edgar/data/0001811856/000119312520326207/d299053ds4.htm>
- ^{xxxii} <https://www.bizjournals.com/sanjose/news/2021/03/08/view-set-for-market-debut-after-unusual-spac-drop.html>