

VG SMARTGLASS BUSINESS PLAN

Q1 2016



Contents

Disclosure	3
Executive Summary	4
Technology Overview	5
Market Opportunity	6
Commercialization Strategy	11
Intellectual Property Strategy	14
The Company and Team.....	15
Financial Projections.....	20

Disclosure

If the sum of the investment commitments does not equal or exceed the target offering amount at the offering deadline, no securities will be sold in the offering, investment commitments will be cancelled and committed funds will be returned.

A crowdfunding investment involves risk. You should not invest any funds in this offering unless you can afford to lose your entire investment.

In making an investment decision, investors must rely on their own examination of the issuer and the terms of the offering, including the merits and risks involved. These securities have not been recommended or approved by any federal or state securities commission or regulatory authority. Furthermore, these authorities have not passed upon the accuracy or adequacy of this document.

The U.S. Securities and Exchange Commission does not pass upon the merits of any securities offered or the terms of the offering, nor does it pass upon the accuracy or completeness of any offering document or literature.

These securities are offered under an exemption from registration; however, the U.S. Securities and Exchange Commission has not made an independent determination that these securities are exempt from registration.

An issuer filing this Form for an offering in reliance on Section 4(a)(6) of the Securities Act and pursuant to Regulation Crowdfunding (§ 227.100 et seq.) must disclose in the offering statement that it will file a report with the Commission annually and post the report on its website, no later than 120 days after the end of each fiscal year covered by the report.

The issuer must also disclose how an issuer may terminate its reporting obligations in the future in accordance with Rule 202(b) of Regulation Crowdfunding (§ 227.202(b)).

Executive Summary

VG SmartGlass makes smart glass simple and affordable, enabling any window to go from clear to dark with the touch of a button. Traditional window treatments are awkward, easily damaged, are not effective as privacy applications, and do not significantly reduce energy use. "Smart glass" or dynamic glazing has been named a "must have" technology because of its energy savings proposition; but has failed to deliver because of high cost and disruptive wiring requirements. VG SmartGlass is a unique and versatile smart glass platform in that it is user controlled but does not rely on electric current to change tint level. This means that the VG SmartGlass solution can be much more easily implemented. In addition, VG SmartGlass leverages advancements in roll to roll optical film processing resulting in smart glass at a fraction of the cost. This makes the promise of smart glass finally achievable; delivering significant energy savings, glare reduction, and immediate privacy control. VG SmartGlass is planning to execute a strategy to capture and protect a large share of the smart glass / dynamic glazing market through:

- Expanding and leveraging an intellectual property portfolio based on the use of polarization based dynamic window systems including materials, applications, mechanical control systems, and integration with other smart home systems
- Optics, film, and window system expertise
- Strategic partnering with global value chain partners
- Development of capabilities to produce custom applications on a large scale to accommodate multiple market segments, sizes, and features.

The VG SmartGlass approach will deliver a substantial innovation to buildings, as well as other applications such as transportation. Market penetration to an already rapidly growing smart glass industry is expected to multiply with our solution. The societal impacts will include:

- Major reduction in energy use of buildings through the selective control of light and heat. This will result in reduced carbon impact on the environment.
- Increase in window lifecycles due to the aftermarket application of our products
- Glare and comfort control
- Increased privacy
- Reduction in harmful effects of UV

Given VG SmartGlass's existing research base and intellectual property, it expects to fully take advantage of this opportunity to deliver its solution. Due to the fact that the core technology is scalable to a number of solutions, VG SmartGlass is projecting substantial return to investors.

Technology Overview

VG SmartGlass is polarization based. The simplest polarization based variable window is made by placing two polarizing films one after another (the second polarizer is generally called an analyzer) and rotating one with respect to the other. Initially, when the polarization axis of the polarizer and analyzer are parallel the amount of light transmittance is maximized (50% in theory, about 38% in practice). But as one polarizer is rotated light transmission steadily decreases until the two axes are crossed and in theory no light is transmitted (0% in theory, about 1.5% in practice).

This produces a cost effective means of shading that decades ago had been used in the aerospace industry where the round windows in aircraft allowed for widespread adoption. Unfortunately, most applications for light control do not conveniently allow for the required 90° rotation of an optical film.

The goal of VG SmartGlass is to produce a variable transmission window adjustable through linearly translating one panel with respect to a second panel instead of rotation. This is achieved by patterning polarization film. If the polarization film induces varying polarization states across one dimension, linear displacement of one film with respect to the other will uniformly modulate the overall panel transmission. In practice, patterned polarization films can be created by patterning the polarization film directly or by affixing a patterned half wave plate to a uniform linear polarizer.

In direct polarization modulation the polarization axis of two linear polarizers are patterned in such a way that linearly translating one film with respect to the other changes the mutual angle between their polarizing axes and correspondingly changes the amount of light transmitted.

In contrast, indirect polarization modulation relies on two patterned half wave plates. When placed between crossed uniform linear polarizers a half wave plate rotates incoming polarized light by twice the angle between the optical axis of the incoming polarizer and half wave plate. Placing the half wave plate's optical axis at 45° to the incoming polarizer achieves a maximum transmission. But as the half wave plate is rotated light transmission steadily decreases until the optical axis of the half wave plate aligns with either of the input or output polarizers and in theory no light is transmitted. It is possible to pattern the orientation of the half wave plate's optical axis in such a way that linear displacement of one film with respect to the other changes the angle between the optical axis of the first and second wave plate. As a result the angle through which the incoming polarized light is rotated changes, thus changing the amount of light transmitted.

VG SmartGlass uses patterned half wave plates for a number of reasons. First, it gives us the flexibility to choose from numerous off-the-shelf uniform linear polarizers depending on the application. For instance, by switching from absorptive polarizers to reflective polarizers we create a smart mirror which transitions between half-mirrored (partly transparent) and mirrored states, reflecting out incident solar heat gain and greatly improving efficiency. In the case of patterned polarizers, the specifications (extinction ratio, transmission, environmental stability, etc.) are highly dependent on the manufacturing process and cannot be controlled independently. Secondly, large

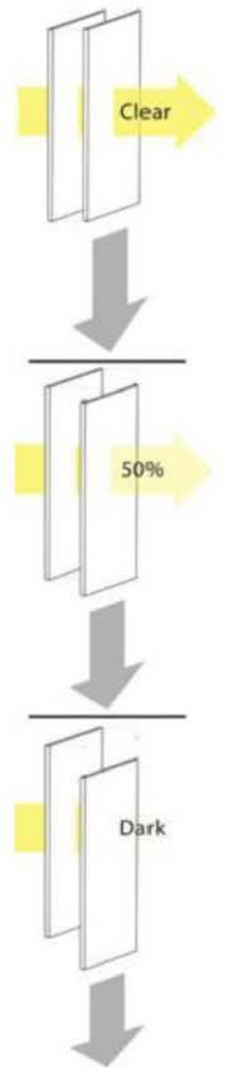


Figure 1- VG SmartGlass Operation

area patterned retarders are heavily investigated as compensation films and 3-D encoders in large area LCDs. As a result, methods of fabricating patterned retarders are often more scalable and cost effective as they must be suitable for display manufacturing.

Market Opportunity

Market need

Buildings are responsible for nearly 75% of the electricity consumed in the United Statesⁱ. They also constitute nearly forty percent of carbon dioxide emissions for the USⁱⁱ. One technological solution to reduce a buildings energy costs and carbon footprint which has been getting attention is smart glass or dynamic glazing. In the architectural application, smart glass can be integrated into windows, doors, skylights, partitions, light tubes and other products. Control systems, as basic as a simple switch or more advanced using ambient light or temperature sensors, allow building operators and occupants to adjust the light-transmission properties of smart glass, a major advancement over conventional windows that typically must be supplemented with view-blocking and space-consuming blinds or shades to control light transmission. Sleek, easy to maintain and requiring very low amounts of energy to operate, smart glass also permits dynamic light-control while preserving the view to the outside, a desired property but one that is typically not available from conventional shading systems. Most importantly to many, smart glass can reduce energy demands for interior lighting and heating, ventilation and air conditioning systems. According to the DOE, this type of light control could save as much as \$10 Billion annually on heating, cooling, and lighting costs.ⁱⁱⁱ However, there are several inherent disadvantages to smart glass technologies that prevent significant market adoption:

- The current market alternatives cost approximately \$80-100/ per square foot^{xvi, xvii, xviii}
- Complex installation that requires an electrician for specialty wiring^{iv}
- They are not dark enough to provide privacy without shades
- Slow switching speeds of five minutes or more and limited ability to variably tint between clear and dark states^v
- These solutions deteriorate over time when exposed to sunlight^{vi}

The high initial cost is the primary deterrent to commercial success. This can add as much as two to three times the cost of a normal window^{vii} resulting in too long of a payback compared to benefits. This is just the cost of the film component of the solution; adding to that is the expensive electronics and the actual cost of the window (plus specialized installation). Additional issues with currently available technologies include:

- Deterioration (fading) is noticeable in as little as two and a half years.
- Recent concerns over neurotoxicity in automotive applications.^{viii}
- Catastrophic failures with no manual backup in rear view mirror applications^{ix}
- Doubts by the National Science Foundation panel in VG SmartGlass's Phase I SBIR application review that electrochromic windows contribute to energy savings given that they only transition from clear to blue and are absorptive.

VG SmartGlass, a new technology from VG SmartGlass, is an improvement over previous technologies through simplification. VG SmartGlass uses patterned retarders paired with linear polarizers to produce a polarization based variable transmission window. The patterned retarders induce varying polarization states across one dimension in such a way that linearly translating one plate with respect to other modulates the overall window transmission. These spatially patterned

optical retarding films are designed to take advantage of existing low cost fabrication techniques currently used to produce compensation films and 3-D film patterned retarders. The result is that VG SmartGlass offers significant improvements in durability, energy consumption, and cost.

The VG SmartGlass technology is proving out to have a significantly higher performance at dramatically lower cost. This combination drives up the rate of market adoption to an already growing market segment. VG SmartGlass's commercial partners have validated this through continued commitment. "We feel there is a large opportunity in the residential and commercial fenestration market for a switchable glazing technology with the right combination of performance and cost...VG SmartGlass's invention has the potential to move down the cost curve in addition to the fact that it does not require power to operate" – CONFIDENTIAL WINDOW CUSTOMER¹

Industry Overview

The smart glass industry has a number of different players approaching the market from several angles.

Blinds and Shades

There are several traditional blind and shade manufacturers and marketers. Many of the products they produced are now motorized. The target markets for VG SmartGlass are now using these types of motorized products. These companies also have in depth knowledge about the users of their products and are capable of innovation. This transition to focusing on smart windows may be done by developing innovations internally or achieving the capability through acquisition.

Example Companies

Mechoshades- Automated and manual controlled screens on rollers

American Blinds- Traditional aftermarket blinds and shades

Blinds To Go – Manufacturer/ distributor of custom made traditional blinds/ shades

Pella - Manufacturer/ distributor of in between the glass blinds

Window and Glass Manufacturers

These are the companies that are poised to buy into smart window technologies; although at this point this has not yet happened on a large scale. Similar to blinds and shades, these companies have in depth customer knowledge and relationships. They also have the distribution capabilities to achieve scale once smart technologies become more commercialized. There are both residential and commercial sectors of this segment.

Example Companies

Andersen – Residential window and door manufacturer/ distributor

Jeld Wen Building products manufacturer including windows and doors

Marvin - Residential window and door manufacturer/ distributor

PPG – Manufacturer of architectural glass for commercial buildings

Guardian – Commercial and residential glass manufacturer

Smart Glass/ Dynamic Glazing

This segment is receiving significant attention in recent years due to an increased focus on energy efficiency. Traditional smart glass has been a high cost technology applied to the very cost sensitive window industry. Many of these companies are currently developing and licensing technologies to window manufacturers. Some companies have also decided to become window manufacturers. Despite the high cost, there has been some penetration in the automotive market, with almost \$1B in sales annually*. This is due to the low price sensitivity and small physical size of the application

¹ Letter of Support available on request

(primarily automotive mirrors). The four main technologies competing in this segment are considered direct competitors to VG SmartGlass technology and are outlined below.

Technology	Description ^{xi, xii}
Electrochromic	When voltage is applied, lithium ions travel from the positive layer through the conductor/ electrolyte layer and into the electrochromatic layer to react with tungsten oxide to form lithium tungstate. As this occurs, a charge-compensating electron flows through the circuit from the ion storage layer to the electrochromatic layer. Lithium tungstate is light absorbing and as the reaction proceeds, the glass darkens and sunlight is absorbed within the glass as heat. Darkening a window may take up to several minutes.
Suspended Particle Device (SPD)	SPD glass consists of two panes of glass (or transparent plastic) with conductive coatings on the inside surfaces. A film layer containing suspended small particles of carefully designed chemical composition is sandwiched between the two panes. When ac voltage is applied to the conductive layers, the suspended particles orient in the electrical field and allow light to pass. Constant power is required to maintain a clear state.
Liquid Crystal (PDLC)	Liquid crystals are dissolved and dispersed and placed between two layers of glass creating a conductive material. With no current, the droplets are randomly arranged creating a translucent or "white state". Constant power is required to maintain a clear state. Only "clear" and "dark" states are possible.

Additional technologies include thermochromic (temperature activated) and photochromic (light activated) films. However, these are not considered direct comparisons to VG SmartGlass because they cannot be dynamically controlled by the user.

Example Companies

Sage - Electrochromic window glass manufacturer for residential, commercial and automotive markets

View – Developer and manufacturer of electrochromic and liquid crystal glass for commercial buildings

Magna – Manufacturer of automotive rear view mirrors using electrochromic technology

Polytronix- Manufacturer of PDLC film used for some architectural applications

Research Frontiers – Technology developer/ licensor of suspended particle device technology

Competitive Assessment

Smart glass companies have done extensive research to determine which qualities are most important and who the key decision makers are. They found that LEED AP architects and engineers most often recommend products like this and that their decisions drive most purchases. They then surveyed these key decision makers to determine what qualities are most important. The following table shows three smart glass technologies and how they compare. We then added our own technology. The categories are presented in order of importance in **Figure 2**.

	Liquid Crystal	Electro-chromic	SPD	VG SmartGlass
Cost (per ft ²)	~\$70	~\$50-60	~\$100	<\$20
Best Light Blocking	N/A	97.5%	96%	99.9%
Multiple Shades	2 States (On/Off)	2+ States	Continuous	Continuous
Power Consumption	Clear state	Switching	Clear state	None (Manual)
Switching Speed	Fractions of a sec.	5-85 Mins.	2-3 Secs.	Fractions of a sec.

Aftermarket Application	No	No	No	Yes
-------------------------	----	----	----	-----

Figure 2 – Competitor Comparisons, Sources: ^{xiii,xiv, xv}

Price is the most important factor. It is currently what is holding the smart glass market to only \$1B. VG SmartGlass price estimates are based on discussions with suppliers and a detailed independent manufacturing cost study. Furthermore, VG SmartGlass has a strategic plan to steadily reduce costs over time. The VG SmartGlass cost study took into account material cost, a 15 year machinery life, 75% factory utilization, labor, and a 65% yield. With these assumptions our price to OEMs will be as low as <\$20/ft² using only existing methods. A market study by VG SmartGlass's strategic partner modeling consumer demand shows there is a dramatic impact on market penetration as costs are driven lower. Specifically, in the residential window segment, intent to purchase rises dramatically as the cost per square foot is reduced.

Total Addressable Market

There are many applicable markets. VG SmartGlass will position itself as a film expert with a proprietary application platform that can be leveraged into specific downstream applications such as residential skylights, commercial windows, automotive sunroofs and rear view mirrors, greenhouses, etc...We will leverage the various OEM's supply channels and competencies to get our products to end users and architects. The immediate addressable market will be residential and commercial fenestration. This is largely due to the current market and investment focus on energy efficiency in these applications. Once success has been achieved in this immediately addressable market VG SmartGlass will expand into other segments (**Figure 4**).

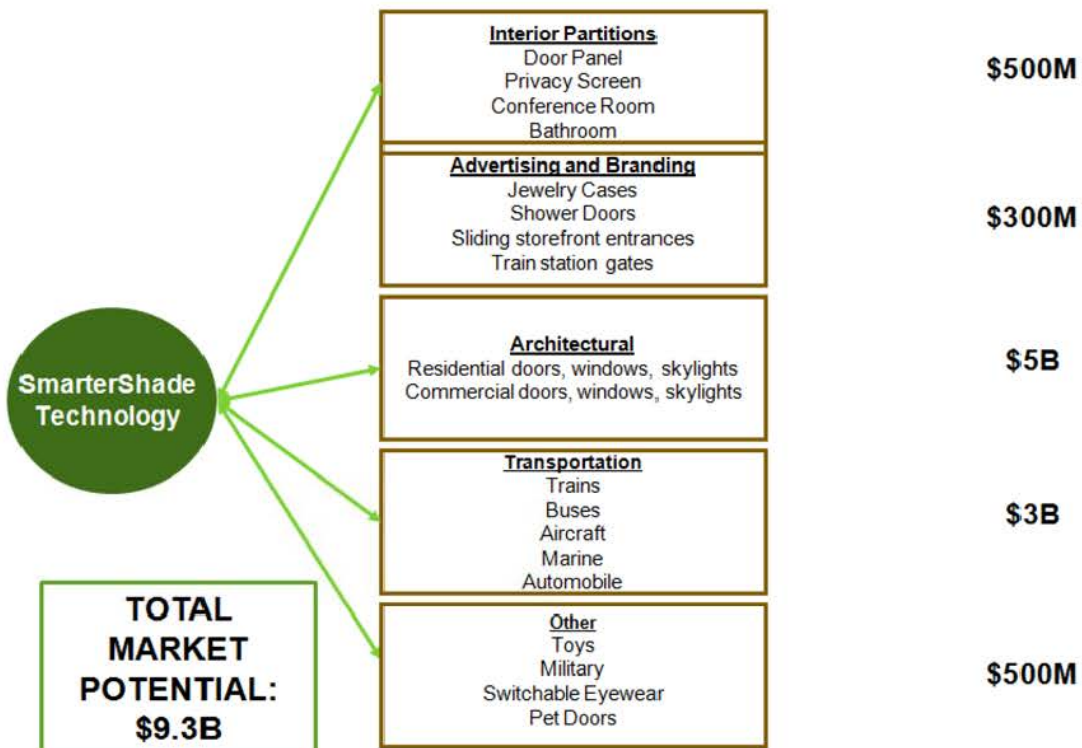


Figure 4 - Immediately addressable and markets

Addressable Market- Residential Windows

As seen in **Figure 5**, the residential glass market is significant and has been dominated by replacement/remodel units. Although there is currently a limited market for smart glass in construction related applications, VG SmartGlass's window partner has confirmed through consumer research studies that the market will grow significantly at lower price points. Specifically, at an OEM cost of \$20/ft² the market size for smart glass applications in these segments is estimated to be between 2.5% and 3.5% of all units. At an average of 3% of all units, the addressable market in this segment is projected to be approximately **\$470 Million in the U.S. alone**. This is based on the following additional assumptions:

- Projections are for U.S. Market only
- Cost of \$20/ft² for a window OEM (additional markup in retail channel)
- Average size of each product:
 - Side hinged doorglass: 22 x 64 inches
 - Patio: 21 x 73 inches
 - Window: 36 x 60 inches

In addition, as seen in **Figure 6**, it is expected that as the cost to OEM's is driven down further with technological advancements in large scale film fabrication, penetration into the residential fenestration market (measured by units sold) will increase significantly.

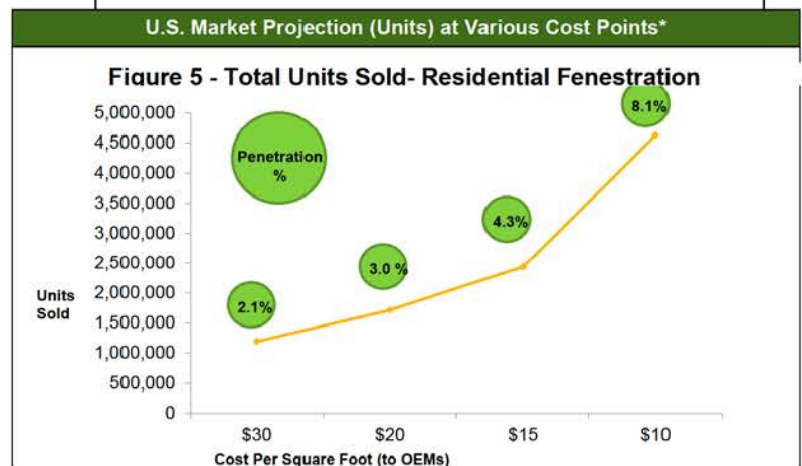
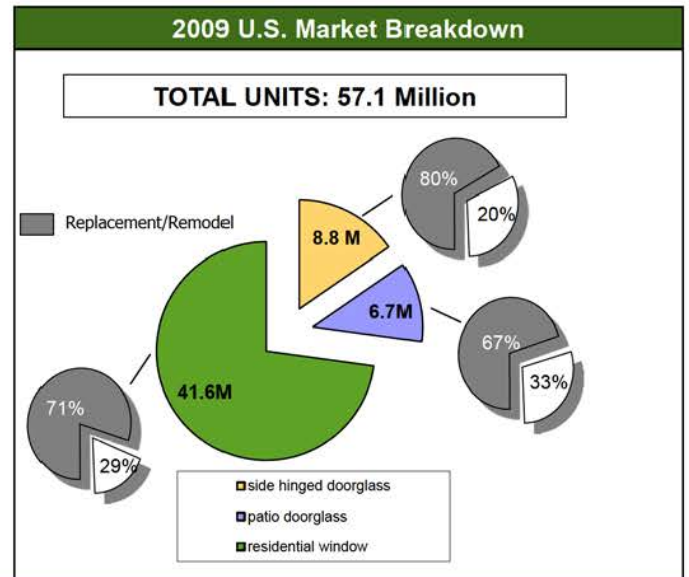
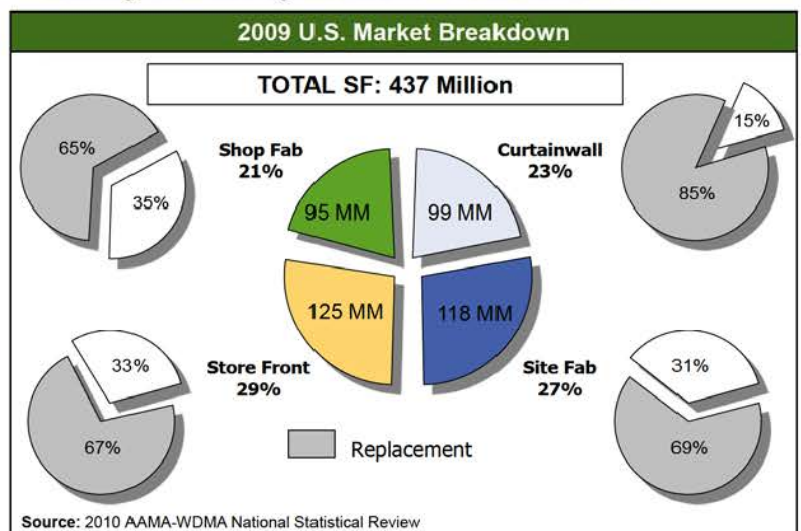


Figure 6 – Market Penetration at Lower Cost per square foot

Addressable Market- Commercial Windows

The commercial market presents some additional challenges including a number of influencers in the value chain (architects, builders, tenants/owners) and buying cycle time; however there are key advantages that the VG SmartGlass team is further exploring. These include:

- Willingness to pay a higher premium per square foot due to enhanced focus on energy efficiency and economic payback
- Concentrated showcase of VG SmartGlass product in a green building



Source: 2010 AAMA-WDMA National Statistical Review

environment

There are various segments; but similar to the residential segment, a significant share of each segment is for remodeling vs. new construction as seen in **Figure 7**.

Market Trends and Hurdles to Access Market

Figure 7 Commercial Fenestration – square footage sold

There has been a significant increase in mass commercialization of smart glass technologies in recent years. In particular, there have been a number of federal grants and private investments focused on scaling up the technology. There are a number of competing technologies attempting to capture a share of this increasing market. However, it is believed that there are limits to cost improvement to these existing technologies. This presents an investment hurdle for many existing window manufacturers due to limited estimated penetration at existing cost points. However, given that VG SmartGlass's primary advantage is cost, the investment hurdle is minimized.

Commercialization Strategy

Technology progression

Our first product is called "Invisiblind" followed up by "SmarterShade" that will be introduced in Q4 2016. The difference is that Invisiblind is a 2 state (clear/ dark) product while SmarterShade offers continuous shading. We have surveyed the market, including end user focus groups and manufacturers surveys for these two products. The response has been very positive. Some manufacturers prefer the invisiblind product due to the similar look to a venetian blind. Based on this feedback, we believe the two products can coexist; avoiding significant cannibalization of Invisiblind by SmarterShade . **Figure 8** highlights the two products and **Figure 9** highlights the specific applications suited for each.

INVISIBLIND

<http://www.youtube.com/watch?v=keJuYtXgK4&feature=youtu.be>



2 State

SMARTERSHADE

<http://www.youtube.com/watch?v=OjZq2dj2pE4>



Continuous change

Figure 8- Invisiblink and SmarterShade

Application	Invisiblink	SmarterShade
Residential doors	✓	✓
Residential windows and doors	✓	✓
Residential skylights	✓	✓
Commercial windows	✓	✓
Automotive sunroofs		✓
Window retrofit	✓	✓
Office partitions	✓	✓
Shower doors		✓
Kitchen appliance		✓
Other transport	✓	✓
Military		✓

Figure 9- Invisiblink and SmarterShade Applications

Go to Market Strategy

We have conducted a significant amount of customer exploration and discovery. The result is that we believe we have found the key entry points and partners that will allow us to achieve speed and scale. We have engaged with several of these partners to more clearly identify product- market fit, entry requirements and timeframe to develop/ test/ launch products. We are now launching our technology into the interior partition segment and have secured partnerships for subsequent phases of market rollout. **Figure 10** illustrates the go to market strategy:

Figure 10 - Go to Market Strategy



10

Value Chain

The VG SmartGlass value chain (**Figure 11**) leverages the current capabilities of upstream and downstream partners. Specifically, we take advantage of advancements in roll to roll film processing to produce our proprietary film. We have built relationships with the top film makers in the world. Our product is a simple, drop in window cartridge; which can be applied as an aftermarket retrofit or built into a window system. In this “assembly” step, we leverage existing glass fabricators to build these special units. They are then sold to Glass and Window OEMs. WE are also licensing our patents directly through a film manufacturing partner with downstream distribution in Asia.

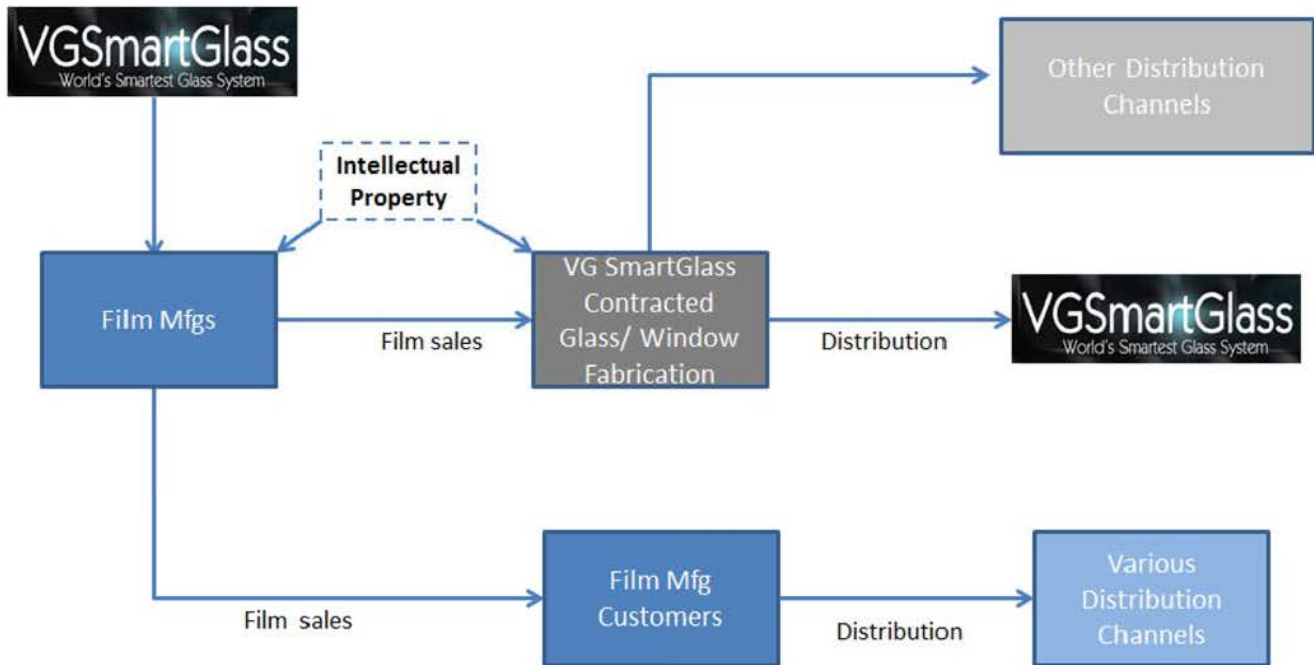


Figure 11- Value Chain

Business Model

VG SmartGlass will primarily make money by licensing its technology. License royalties will be collected from two sources: film partners in Asia and glass fabrication partners. In certain cases, we will sell film or laminated panels to customers.

Intellectual Property Strategy

VG SmartGlass Inc. fully owns all of its intellectual property. Our portfolio includes patents, trademarks, and trade secrets. Patents include the following core elements:

- Use of film composition to control light transmission
- Pattern on films required to achieve tinting effect
- Methods of film manufacture
- Mechanical (manual) control systems
- Glass laminating/ fabricating procedure
- Automation including smartphone app control

Additionally, we have trademarked the term “Invisiblind” for vinyl, metal, and wood windows

The following is a comprehensive list of all patents.

- US201061428307P (issued)
- US8,508,681B2 (issued)
- US201113339764A
- US201313961513A,
- US8,310,757B2 (issued)
- US200812199914A
- US201213422714A
- US201261589545P
- US201261639433P
- US201261639473P
- US201314396253A
- US201462000033P
- WOUS2011067754W
- WOUS2013022453W
- JP2013547664A
- EP2011853447A
- CN201180068298A
- CA2861759A
- KR20137019900A
- HK14104072.7

Validation of Intellectual Property Position

A strategic partner of VG SmartGlass conducted an independent evaluation of the patentability of VG SmartGlass's claims. This study has determined that "A polarizer in combination with a continuously variable thickness wave plate retarder appears to be patentable."

The Company and Team

The Company

VG SmartGlass is a Florida LLC operating in Chicago, IL. VG SmartGlass acquired the assets of SmarterShade Inc. in July, 2015. The following timeline depicts the timeline for both SmarterShade Inc. and VG Smartglass:

2007 – CONCEPT DEVELOPMENT

- Founding Team (Mike Stacey, Ryan Tatzel, Will McLeod meet)
- Developed initial prototypes
- Won Notre Dame business plan competition
- Formed Lono, LLC
- Awarded grants- total funding ~\$50K (non-dilutive)

2008 – PARTNER ENGAGEMENT/ TECHNICAL RESEARCH

- Engaged with RV industry to build prototypes: Challenge: film manufacturability/ cost
- Filed for full patent – August 2008
- Engaged with Optics PHDs and consultants evaluate materials and patterning methods

2009 – PARTNER ENGAGEMENT/ MANUFACTURING RESEARCH

- Built initial full size mockups. Challenge: film manufacturability
- Secured manufacturing research team
- Secured initial revenue from potential customers (consulting)

2010- RESEARCH AND FILM DILIGENCE

- Evaluated 30+ film manufacturing methods
- Chose top 3 manufacturing methods
- Engaged with first film supply partner in development relationship

2011- TRANSITION TO COMMERCIALIZATION

- Awarded NSF Phase I SBIR Grant and matches (total \$255K)
- Won Kleiner Perkins Clean Tech Prize (\$100K)
- Secured \$75K from two accelerators: MassChallenge (Boston) and Greenstart (San Francisco)
- Introductions to R&D and supply partners in Asia
- Filed second utility patent with PCT application

2012- FOUNDING OF SMARTERSHADE/ FORMALIZATION OF KEY SUPPLY PARTNERSHIPS

- Dissolved Lono LLC, Created C Corp, changed name to “SmarterShade, Inc.”
- Formalized board of directors and advisors
- Awarded NSF Phase II SBIR Grant (\$500K + \$500K match potential)
- Awarded NSF TECP Grant (\$100K)
- Filed 3 provisional patents
- Engaged with window industry experts on product development
- Initiated customer discovery
- Secured \$200K in convertible note funding from angels
- Produced small samples - \$10K in additional payments
- Built relationship with 4 new suppliers (major display industry film coaters) with help of Merck (liquid crystal maker)
- Conducted user focus groups to validate market demand
- Conducted significant (100+) customer discovery interviews to confirm product market fit
- 1st patent issued
- Awarded 3rd place in St. Gobain Global Innovation competition
- Designed window system for 1st product

2013- DEVELOPMENT AND COMMERCIALIZATION

- Secured interior partition fabrication partner with existing mechanical system
- Initiated development work to optimize film for interior partitions
- Established Chicago as main office:
 - <http://www.universitytechnologypark.com/about/tenants.php>
- Set up rapid prototype fabrication lab in Chicago:
 - Hired IIT interns to do sample fabrication and prototyping:
 - <http://www.universitytechnologypark.com/resources/idea-shop.php>
- Secured \$50K in Clean Energy Challenge:

- <http://chicagolakesidedevelopment.com/smartershade-wins-lakeside-award-clean-technology-innovation-1>
- Secured \$70K from Merck as marketing partner
- Built out 2 initial product platforms (external and internal IG) with operable mechanisms
- Build large scale prototypes for doors and windows
- Expanded film technology to include other patterns (decorative, images, logos)
- Completed UV testing on initial films
- Conducted initial offgassing tests
- Completed accelerated weathering on films
- Filed provisional patent on new film types
- Established internal lamination operation in New York to serve customer in Europe

2014- DEVELOPMENT AND COMMERCIALIZATION

- Hired dedicated product engineering team
- Developed specialized lamination procedures for certain film types
- Developed aftermarket door design platform
- Developed automated control and communication platform
- Build smartphone app control for window system
- Developed touch sensor control for window system
- Filed additional IP for "patterned image" products
- Established relationship with design firm to pursue appliance industry
- Finalized product for first market (interior door partitions)
- Secured PO for first 100 units in preparation for interior partition launch (Oct 2014).
- Formed informal partnership with glazing division of \$1B construction firm
- Partner developed initial draft of operable system for 5' X 9' window
- Narrowed partner selection down in commercial and residential industry to key go to market partners with dedicated development resources and intent to launch and scale technology
- Won Chicago Challenge Cup in the Energy Category:
 - <http://1776dc.com/news/2014/11/05/winner-spotlight-smartershades-mike-tracy-introduces-a-magic-switch-for-smart-windows/>

2015- COMMERCIALIZATION AND STRATEGIC PARTNERING

- Attracted interest from wide variety of industries at 2015 CES:
<http://us.aving.net/news/view.php?articleId=1243751>
- Awarded up to \$250K from Wells Fargo Innovation Incubator:
 - https://www.wellsfargo.com/about/press/2015/innovation_incubator_0409.content
 - <https://www.youtube.com/watch?v=wLVcwGnqcB0&sns=em>
- Developed capability to build European design for samples in Chicago
- Developed capability to do custom logos in house:
<https://www.youtube.com/watch?v=bpXVoPIRQRU>
- Developed color capability : <https://www.youtube.com/watch?v=EiQDIfo2H28>,
- Added voice activation: <https://www.youtube.com/watch?v=XoAKX5Tujm4>
- Secured commitments from 3 out of top 5 residential companies to build prototypes
- Commitments from 2 out of top 5 commercial companies to build prototypes
- Received Letter of Intent from Strategic Partner to purchase SmarterShade patents for cash and stock of new company (April 2015).
- Received royalty proposal from \$15B Film maker in Asia (April 2015)
- Mike Stacey presents the SmarterShade technology at the White House (June 2015)

- Built Commercial Window prototype (5'x9') in window factory (July 2015)
- SmarterShade Inc. is Acquired by VG SmartGlass (July 2015)
- Launch of iVision in Europe (August 2015):
<https://www.youtube.com/watch?v=vCvSVba44XA>
- VG SmartGlass selected as a finalist in the Chicago Innovation Awards (Sept 2015)
- VG SmartGlass receives the AURP Innovation Award (Oct 2015): <http://tinyurl.com/nf5q7p4>
- VG unveils their healthcare offerings in U.S. (Oct 2015):
http://www.hcarefacilities.com/exhibitors_detail.asp?reqEvent=88&ID=16939
- Automotive application demo at the SEMA Auto Show (Nov 2015):
<https://www.youtube.com/watch?v=mvfLy4gk20>
- VG SmartGlass presents at the NREL Industry Growth Forum Nov 2015):
<http://www.industrygrowthforum.org/pdfs/2015-igf-vg-smartglass.pdf>
- VG SmartGlass finalizes licensing agreement with \$15B manufacturer in Asia (Jan 2016)

2016- COMMERCIALIZATION

- Launch of interior privacy products for hospitals, schools, and office partitions in Japan (Jan 2016)
- VG SmartGlass secures contract fabrication partner in Chicago (Jan 2016)
- VG SmartGlass specified on U.S. Healthcare projects (Jan 2016)

Capitalization to Grow the Company

MILESTONES

Core Plan

**\$500K Equity
Funding
(\$100K
committed)**

1. POs for large jobs
2. Two channel partners acquired
3. VG internal designs are production ready
4. Cash flow positive operation
5. Established channel and brand in North America
6. Achieve < \$10 psf on film

Option for Internal Mfg.

**+\$200K Equity
Funding**

1. Internal mfg operation (assembly) for interior product
2. 50% - 60% gross margins on product

Management Team Profile

Tony Lambros, President/ Sales

Over 30 + years as an executive and sales expert in the window and door hardware business. Significant experience and track record in sales of new technologies. Developed innovative products and manufacturing processes related to door and windows hardware.

Mike Stacey, VP of Business Development Mike has been a strategic and operational consultant for over 12 years. He has served a number of clients across the energy and utilities, automotive, logistics, manufacturing, government, telecommunications, and healthcare industries. Michael is an accomplished project manager, being in charge of engagements with budgets as large as \$12M. Mike also has an entrepreneurial background as a successful franchisee of a home renovation business in college. Since returning full time to SmarterShade in 2012, Mike has established a global value chain for the SmarterShade technology including two revenue streams in Europe and Asia, secured several licensees, built a management and engineering team, and was responsible for the acquisition of SmarterShade by VG SmartGlass in July 2015.

Jerry Hogan, Director of Design and Engineering

Over Thirty Five (35) years of experience in custom high-performance curtainwall design, applications engineering and exterior wall systems forensics. Holds four (4) US Patents for the design of curtainwall retrofit products. As an exterior walls consultant, he has worked with and represented building owners, lenders, developers, investors, sellers, architects, managers, contractors and sub contractors.

Ryan Tatzel, COO Ryan has construction industry and machining experience and has a BS in Chemical Engineering. Ryan has been instrumental at building a team of optical experts to help define and refine the VG SmartGlass technology. He has built close relationships with the top optical engineers at Fortune 100 film and liquid crystal suppliers to further advance the development of our product; as well as to secure key technical relationships.

Additional Team Members:

Sebastian Morales: Mechanical Engineer and Product Designer

Abhi Chattopadhyay: Electrical Engineer and Prototyper

Adithya Menon: Mechanical Engineer and Prototyper

Advisors include:

- John Faour (Faour Glass Technologies): high end residential glass expert, North America
- Carmine Parente (AGM Industries): glass and metal supply industry distribution
- National Renewable Energy Lab (NREL), Window simulation and testing partner
- Steve Abramson: Window industry commercialization expert
- Ted Willoughby, Building products expert

Financial Projections

Revenue and Profitability Projections

Figure 13 summarizes revenue and EBITDA projections through 2019 in USD as well as the mix of licensing to product revenue. There are two components to the revenue stream : 1) Licenses and 2) Product sales.

INCOME STATEMENT	2015E	2016E	2017E	2018E	2019E
	FY	FY	FY	FY	FY
Revenue					
VG Product Sales	\$ 11,006	\$ 315,457	\$ 2,877,272	\$ 8,025,162	\$ 16,677,508
VG Licenses	\$ 13,626	\$ 64,000	\$ 1,345,238	\$ 3,362,528	\$ 4,961,744
VG JDA Payments	\$ 48,000	\$ 146,000	\$ -	\$ -	\$ -
Total VG Revenue	\$ 72,632	\$ 525,457	\$ 4,222,510	\$ 11,387,690	\$ 21,639,252
Operating Expenses					
SG&A	\$ 258,418	\$ 1,001,478	\$ 2,746,238	\$ 4,948,405	\$ 9,156,247
Other SG&A	\$ -	\$ -	\$ 63,338	\$ 341,631	\$ 649,178
Contingency	\$ -	\$ -	\$ 21,113	\$ 56,938	\$ 108,196
Total Operating Expenses	\$ 258,418	\$ 1,001,478	\$ 2,830,688	\$ 5,346,974	\$ 9,913,621
Earnings Before Interest & Tax	\$ (185,787)	\$ (476,021)	\$ 1,391,822	\$ 6,040,716	\$ 11,725,631
Interest Income	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Expense	\$ -	\$ -	\$ 104,000	\$ 117,000	\$ 2,379,000
Earnings Before Tax	\$ (185,787)	\$ (476,021)	\$ 1,287,822	\$ 5,923,716	\$ 9,346,631
Taxable Earnings	\$ -	\$ -	\$ 626,013	\$ 5,923,716	\$ 9,346,631
Taxes on Income	\$ -	\$ -	\$ 219,105	\$ 2,073,301	\$ 3,271,321
NET Earnings	\$ (185,787)	\$ (476,021)	\$ 1,068,717	\$ 3,850,415	\$ 6,075,310
Adjustments					
Interest, net	\$ -	\$ -	\$ 104,000	\$ 117,000	\$ 2,379,000
Taxes on Income	\$ -	\$ -	\$ 219,105	\$ 2,073,301	\$ 3,271,321
Depreciation & Amortization	\$ -	\$ 5,000	\$ 10,000	\$ 15,000	\$ 65,000
EBITDA	\$ (185,787)	\$ (471,021)	\$ 1,401,822	\$ 6,055,716	\$ 11,790,631
EBITDA Margin	-255.79%	-89.64%	33.20%	53.18%	54.49%

Figure 13 Income Statement (USD)

It should be noted that high profitability will be achieved through royalties recovered from film production and licensing of window applications and processes.

Revenue Detail

Figure 14 details revenue by application. As mentioned the initial markets will be office partition, doorglass, skylights, and residential windows. These are reflected with product revenue. Estimates on square footage sold are included. The forecasted volumes are based on the size of the market and expected penetration rate based on our price point and value proposition.

VG SmartGlass Business Plan- PROPRIETARY AND CONFIDENTIAL

Revenue												
Fabricator Product Sales			\$	73,370	\$	3,284,307	\$	23,977,264	\$	80,251,620	\$	166,775,077
Growth rate %						4376.3%		630.1%		234.7%		107.8%
Office Partition			\$	73,370	\$	1,342,998	\$	3,825,631	\$	5,806,633	\$	7,756,532
Front Doorglass			\$	-	\$	-	\$	-	\$	-	\$	-
Patio Doorglass			\$	-	\$	-	\$	-	\$	-	\$	-
Residential Windows			\$	-	\$	-	\$	-	\$	-	\$	-
Commercial Windows			\$	-	\$	1,941,309	\$	20,151,633	\$	74,444,987	\$	159,018,544
VG Commision Rate				15%		15%		12%		10%		10%
VG Commissions			\$	11,006	\$	315,457	\$	2,877,272	\$	8,025,162	\$	16,677,508
VG Licenses			\$	13,626	\$	64,000	\$	1,345,238	\$	3,362,528	\$	4,961,744
Growth rate %						369.7%		2001.9%		150.0%		47.6%
Office Partition			\$	13,626	\$	249,414	\$	568,379	\$	862,700	\$	1,008,349
Front Doorglass			\$	-	\$	3,011	\$	104,530	\$	317,123	\$	461,675
Patio Doorglass			\$	-	\$	7,493	\$	277,891	\$	845,234	\$	1,234,881
Residential Windows			\$	-	\$	9,285	\$	341,670	\$	1,164,110	\$	1,804,996
Skylights			\$	-	\$	1,375	\$	50,600	\$	129,360	\$	134,400
Automotive (Global Sunroofs)			\$	-	\$	-	\$	1,750	\$	39,167	\$	283,828
Other Transport			\$	-	\$	-	\$	417	\$	4,833	\$	33,615
Commercial Windows			\$	-	\$	-	\$	-	\$	-	\$	-
Total Revenue by Segment												
Office Partition			\$	86,996	\$	1,592,412	\$	4,394,010	\$	6,669,333	\$	8,764,881
Residential			\$	-	\$	1,962,473	\$	20,926,325	\$	76,900,815	\$	162,654,497
Total Transport			\$	-	\$	-	\$	2,167	\$	44,000	\$	317,443
Commercial Windows			\$	-	\$	-	\$	-	\$	-	\$	-
VG Grant Income			\$	-	\$	-						
VG JDA Payments			\$	48,000	\$	146,000						
Total VG Revenue			\$	72,632	\$	525,457	\$	4,222,510	\$	11,387,690	\$	21,639,252

Figure 14 Revenue Detail (USD)

Figure 15 details a cash flow statement through 2019.

VG SmartGlass Business Plan- PROPRIETARY AND CONFIDENTIAL

Projected Cash Flow Statement	2016E	2017E	2018E	2019E
	FY	FY	FY	FY
Operations				
Net Income (Loss)	(\$476,021)	\$1,068,717	\$3,850,415	\$6,075,310
Adjustments				
Depreciation & Amortization	\$ 5,000	10,000	15,000	65,000
(Increase)/Decrease in A/R	\$ (49,385)	\$ (241,104)	\$ (597,098)	\$ (854,297)
(Increase)/Decrease in Inventory	\$ -	\$ -	\$ -	\$ -
(Increase)/Decrease in Other Current Assets	\$ -	0	0	0
Increase/(Decrease) in A/P	\$ -	\$ -	\$ -	\$ -
Increase/(Decrease) in Other Current Liabilities	\$ -	\$ -	\$ -	\$ -
Cash Flow from Operations	(\$ 520,407)	\$ 837,613	\$ 3,268,317	\$ 5,286,013
Investing				
Additions to Plant & Equipment	\$ (25,000)	(25,000)	(25,000)	(250,000)
Disposals of Plant & Equipment				
Website Expenditure	\$ -			
Cash Flow from Investing	\$ (25,000)	\$ (25,000)	\$ (25,000)	\$ (250,000)
Cash Flow Available for Financing	\$ (545,407)	\$ 812,613	\$ 3,243,317	\$ 5,036,013
Financing				
Long-Term Debt	0	0	0	0
Change in Partner's Equity	500,000	0	0	0
Dividends				
Cash Flow from Financing	\$ 500,000	\$ -	\$ -	\$ -
Beginning Cash Balance	\$ 70,095	\$ 24,688	\$ 837,301	\$ 4,080,618
Increase (decrease) in Cash	\$ (45,407)	\$ 812,613	\$ 3,243,317	\$ 5,036,013
Ending Cash Balance	\$ 24,688	\$ 837,301	\$ 4,080,618	\$ 9,116,632

Figure 15 Cash Flow Statement

ⁱ U.S. Department of Energy Buildings Energy Data Book, Building Sector Energy Consumption, March 2011

ⁱⁱ U.S. Department of Energy Buildings Energy Data Book, Environmental Data, March 2011

ⁱⁱⁱ U.S. Department of Energy, Energy Blog- "Making Windows Smarter", April 2011

^{iv} <http://www.windowreplacement.com/materials/smart-windows-switchable-glazing/>, July 15, 2011

^v ASHRAE Journal, July 2009, "Technologies for Smart Windows"

^{vi}, *Building and Environment*, 2007, "Energy and visual comfort performance of electrochromic windows with overhangs"

^{vii} <http://www.windowreplacement.com/materials/smart-windows-switchable-glazing/>, July 15, 2011

^{viii} <http://tl.acurazine.com/forums/showthread.php?t=602694>, July 15, 2011

^{ix} http://www.arfc.org/complaints/1999/mercedes_benz/slk230/visibility/problem.aspx July 15, 2011

^x BCC Research, Advanced Materials, Smart glass: Technologies and Global Markets

^{xi} ASHRAE Journal, July 2009, "Technologies for Smart Windows"

^{xii} "Solar Energy Materials & Solar Cells", 2010, Baetens, Jelle, Gustavsen

^{xiii} National Renewable Energy Laboratory, NREL Newwsroom, Smart Windows- Energy Efficiency with a View, January 2010

^{xiv} Technology Review, published by MIT, "Making Smart Windows that are also cheap" August 2010

^{xv} <http://gigaom.com/cleantech/soladigm-closes-40m-for-its-first-smart-window-factory/>, July 15, 2011