



**Investor Overview Q4 2016**  
[www.vgsmartglass.com](http://www.vgsmartglass.com)

# PROBLEM



**Traditional window treatments have wide adoption, BUT...**

- Are awkward to use
- Interrupt view
- Mechanics break
- Have limited Energy Control

**The Department of Energy named smart glass a “must have technology,” BUT...**

- Are too expensive
- Require special wiring
- Are slow to switch
- Do not replace blinds



Photo courtesy of DOE/NREL

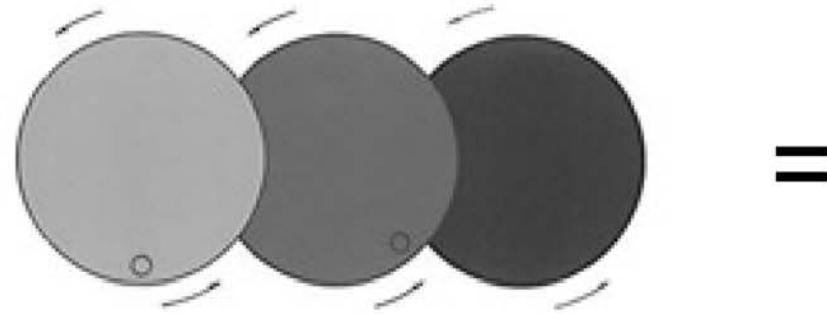
**THERE MUST BE A SIMPLER SOLUTION !**

\* Smart Glass is defined as glass that changes opacity when electric current is applied

# OFF THE SHELF SOLUTION: POLARIZATION

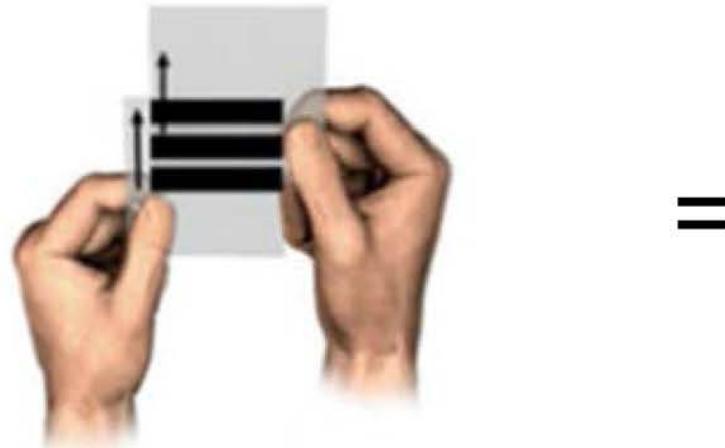
Glass privacy and shading actuated by movement...

Traditional  
Approach-  
ROTATION



Only for round windows

VG SmartGlass  
Innovation-  
LINEAR SHIFT



For nearly all windows

TECH DEMO: <https://vimeo.com/175640795>

**VG SMARTGLASS OWNS BROAD PATENTS ON THIS INNOVATION.  
IT CAN BE APPLIED TO MANY GLASS AND WINDOW APPLICATIONS.**

# APPLICATIONS OF VG TECHNOLOGY



**PRODUCT DEMO:** <https://vimeo.com/187932297>

# ADDRESSABLE MARKET (USD)

## Small Format- Privacy

- Up to 32 x 32"
- Hospitals/ Labs
- Hotels
- Schools/ Universities
- Government buildings
- Recreational Vehicle/ Boats

Market: \$2.1B

## Larger Format Privacy / Residential/

- Up to 32 x 64" or 64 x 32"
- Interior Office
- Hotels
- Luxury/Smart Homes
- Residential Door

Market: \$5B

## Exterior Commercial and Automotive

- Up to 72 x72"
- Commercial building
- Residential Window
- Automotive

Market: \$6.5B

Total Market: \$13.6B

# MARKET DETAIL- SMALL FORMAT PRIVACY

Price per square foot	\$75		
Average size	24	x	24
Total Square foot	4		

Verticals	Number of facilities in US	Average Number of viable rooms per facility	Market Size
Hospitals	5,700	160	\$273,600,000
Hotels	37,000	10	\$111,000,000
Schools	135,000	40	\$1,620,000,000
Universities	4,140	50	\$62,100,000
			<b>\$2,066,700,000</b>

# MARKET DETAIL- LARGE FORMAT PRIVACY

<u>INTERIOR PRIVACY</u>				
Price per square foot	\$75			
Average size	30	x	46	
Total Square foot	9.5833333			
Verticals	Number of facilities in US	Average Number of viable rooms per facility	Market Size	
Hospitals	5,700	40	\$163,875,000	
Hotels	37,000	30	\$797,812,500	
Schools	135,000	30	\$2,910,937,500	
Universities	4,140	0	\$0	
			<b>\$3,872,625,000</b>	
<u>RESIDENTIAL DOOR</u>				
Price per square foot	\$60			
Average size	30	x	60	
Total Square foot	12.5			
Application	Units	Smartglass Penetration	Applicable Units	Market Size
side hinged doorglass	11,600,000	10.00%	1,160,000	\$870,000,000
patio doorglass	3,879,000	10.00%	387,900	\$290,925,000
		<b>Total</b>	<b>\$1,547,900</b>	<b>\$1,160,925,000</b>
		<b>TOTAL MARKET</b>	<b>\$5,033,550,000</b>	

# MARKET DETAIL- COMMERCIAL AND TRANSPORT

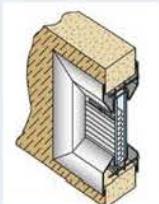
<u>RESIDENTIAL WINDOW</u>				
Application	Units	Smartglass Penetration	Applicable Units	Market Size
residential window	54,100,000	7.50%	4,057,500	\$3,043,125,000
Price per square foot	\$75			
Average size	60	x	96	
Total Square foot	40			
<u>COMMERCIAL WINDOW</u>				
Application	Available Square Feet	Smartglass Penetration	Market Size	
Commercial Window	437,000,000	7.50%		\$2,458,125,000
Price per square foot	\$50			
Average size	32	x	22	
Total Square foot	4.888888889			
<u>AUTOMOTIVE</u>				
Application	Sunroofs sold	Smartglass Penetration	Market Size	
Automotive Sunroof	15,567,500	25.00%		\$951,347,222
<b>TOTAL MARKET</b>		<b>\$6,452,597,222</b>		

# UNIQUE BENEFITS OF VG APROACH

- Simple user interface
- Fraction of the cost of “smart glass”
- No electricity/ phase change
- Instant switch
- Built-in + aftermarket formats
- 20% to 30% energy savings
- Wide range of film options...

THE PROPRIETARY VG SMARTGLASS TECHNOLOGY UNIQUELY SOLVES PRIVACY, GLARE, AND ENERGY PROBLEMS FOR WINDOWS AND GLASS APPLICATIONS

# COMPETITIVE FRAMEWORK\*

PRODUCT SEGMENT	PRIVATE	DURABLE	RELIABLE	LOW MAINTENANCE	FULL VIEW	ROOM DARKENING	EASE OF USE	LOW COST	TOTAL
Traditional Blinds and Curtains	3	1	2	1	2	2	1	3	16
									
Blinds Between Glass	3	1	1	2	2	1	2	2	17
									
<b>VG Technology</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>26</b>
<b>White Vision Panel</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>21</b>
									
Electric "Smart" Glass	3	1	1	2	3	1	3	1	18
									

\* Based on attributes evaluated by the architectural community

# PRICE (PSF) COMPARISON

Size (In.)	Aftermarket Blind	Built in Minblinds	VG SmartGlass	Vision Panels	SmartGlass
22x36	44	60	65	145	190

- Mfg Price to jobsite/ OEM, installation cost not included
- Pricing for initial sizes
- Target size is 30" x 60" coming online Q1 2017

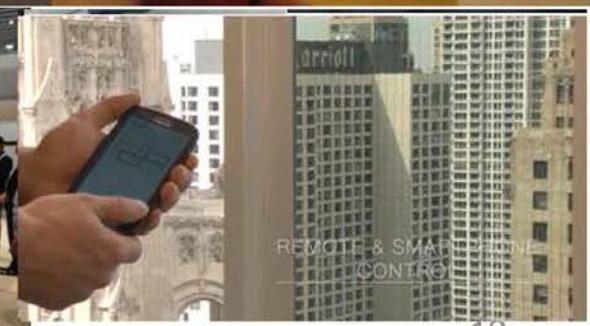
# INTERIOR PRIVACY MARKET VALIDATION

- 600+ units sold in UK
- 10+ hospital installations in UK
- Licensed technology in Japan to \$15B company
- Initial installations complete in U.S. and Japan
- \$400K in architectural specifications in N.A.
- Executed contract manufacturing agreement in Chicago
- Multiple VG product platforms developed
- Developing fire rated product with top fabricator in N.A.
- Commitment to promote by #1 commercial door company
- Product development + promotion commitment by RV industry

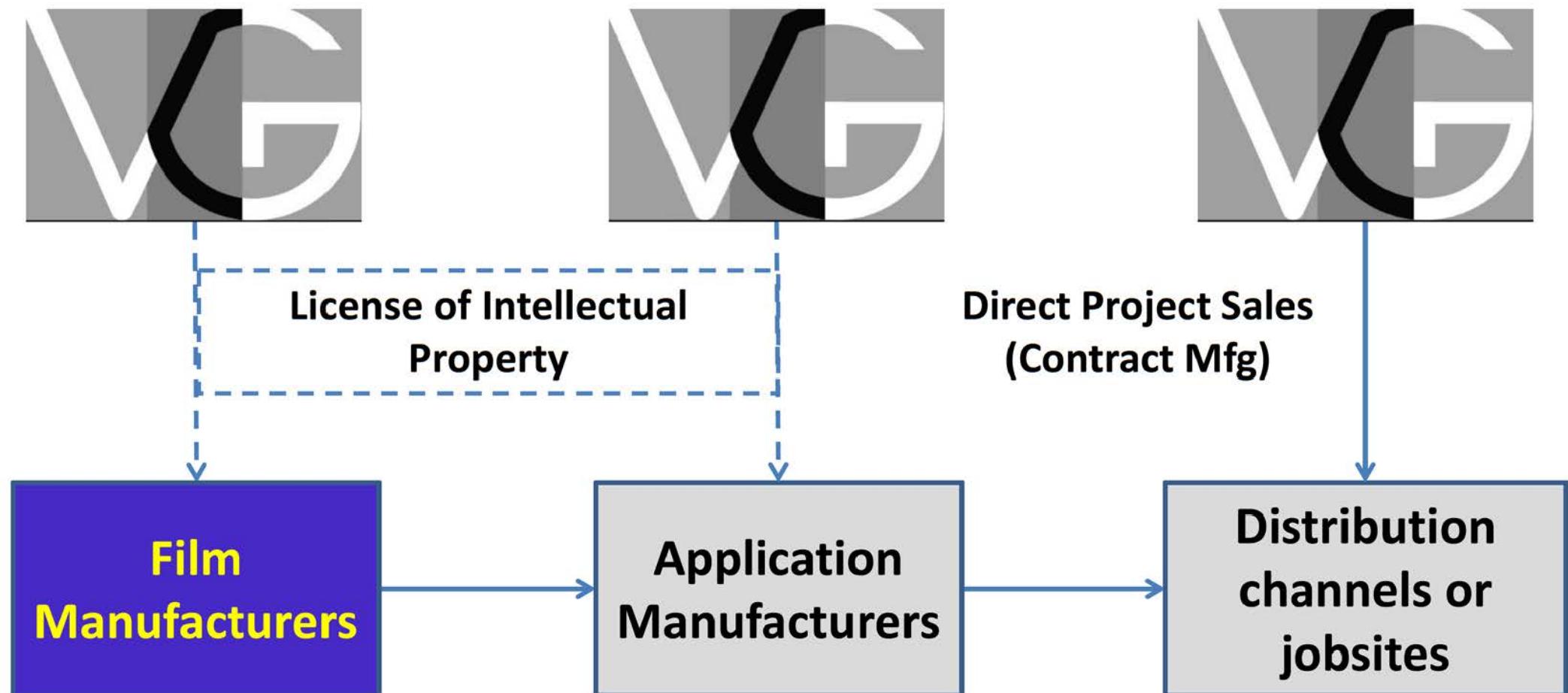


# OTHER MARKET VALIDATION

- \$50K+ orders from top residential and automotive companies
- Demo installations complete
- License agreement in place with residential and commercial window manufacturer in Chicago
- \$100K+ developmental commitments by commercial glass/window companies
- Product development in Japan and Detroit with top automotive companies
- Executed joint development agreement for remote automation
- Large format product design complete



# BUSINESS MODEL



# LICENSING REVENUE MODEL

Avg. Suggested Selling Price Per / Sq. Ft.	\$65
Avg. License Fee* %	12.5%
Avg. License Fee Per / Sq. Ft.	\$8.13

**\* License fee is 15% when VG acquires customer/ job and 10% if fabricator acquires customer/ job**

# UNIT EXAMPLE - 22" x 36" Window



Fabricator  
Revenue  
**\$385**

Fabricator  
License fee paid  
to VG  
**\$48.13**  
Smartglass\*



# GO TO MARKET PLAN

## 1

Interior Privacy; 32x32 max (2017-18)

- Up to 32 x 32"
- Hospitals/ Labs
- Hotels
- Schools/ Universities
- Government buildings
- Specialized Transportation (RV, Boat)

### Key Milestones

- 1) VG Product Launch in U.S. (Q1 2017)
- 2) Fire rated launch through strategic partner (Q2 2017)
- 3) \$2M in sales (Q4 2018)

## 2

Interior Privacy; Larger Formats (2018-20)

- Up to 32 x 64" or 64 x 32"
- Interior Office
- Hotels
- Luxury/Smart Homes
- Residential Door
- Specialized Transportation (Buses, etc)
- Remote/App/Voice controls

### Key Milestones

- 1) 20 + installations (Q4 2018)
- 2) 5 agreements with strategic partners (Q1 2019)
- 3) \$15 M in sales through Q4 2020

## 3

Exterior Commercial and Automotive (2019-21)

- Up to 72 x72"
- Commercial building
- Residential Window
- Automotive
- Remote/App/Voice controls

### Key Milestones

- 1) 50+ installations (Q2 2020)
- 2) 10 agreements with strategic partners (Q4 2020)
- 3) \$25M in sales (Q4 2021)

# MANGAGEMENT TEAM

## Management Team



### **Mike Stacey, CEO**

Co- founder of SmarterShade Inc., 15+ years experience in strategy, operations, business development as entrepreneur and management consultant



### **Jerry Hogan, Design and Engineering**

Over 35+ years of experience in custom high-performance window design, and applications engineering (Sears Tower, Pentagon, US Embassy in Moscow)



### **Mike Harshfield, Operations**

20+ years as operations specialist for large corporations and PE/ VC backed companies. Experience across various industries including high technology and manufacturing sectors

## Key Advisors

- **Ron Spielman** (Monda Window and Door), Residential and commercial window executive
- **National Renewable Energy Lab (NREL)**, Window simulation and testing partner
- **Michael Gruber**, Financial Advisor
- **Will Glaser**, High Technology Expert
- **Carl Cobb**, Optical Expert
- **Akhil Choudary**, Social Media Expert

## Product Engineering Resources



**Ryan Tatzel**, Optical film specialist



**Adithya Menon**, Mechanical and Electrical



**Abhi Chattopadhyay**, Electrical and Mechanical

# CORE TEAM

## Management Team



### **Mike Stacey, CEO**

SmarterShade Founder, 15+ years experience as strategy and operations entrepreneur and management consultant



### **Jerry Hogan, Director of Design and Engineering**

Over 35+ years of experience in custom high-performance window design, and applications engineering



### **Tony Lambros, Sales**

Over 30 + years as an executive and sales expert in the window and door hardware business



### **Ryan Tatzel, Optical Film R&D**

SmarterShade Founder, 8+ years experience conducting optical film and chemical engineering background

## Key Advisors

- **Ron Spielman** (Monda Window and Door): residential and commercial window executive
- **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

## Product Engineering Resources



**Abhi Chattopadhyay**, Electrical and Mechanical



**Sebastian Morales**, Mechanical and Rendering



**Adithya Menon**, Mechanical and Electrical

# FINANCIAL OVERVIEW

	2017	2018	2019	2020	2021
<b>Revenue</b>	\$814,800	\$4,970,000	\$13,635,000	\$23,180,000	\$34,680,000
<b>Expenses</b>	\$1,100,183	\$3,119,000	\$7,101,003	\$11,609,094	\$17,530,866
<b>EBITDA</b>	-\$285,383	\$1,851,000	\$6,533,997	\$11,570,906	\$17,149,134
<b>EBITDA Margin</b>	-35.0%	37.2%	47.9%	49.9%	49.4%

**VG SMARTGLASS IS SEEKING \$500K IN  
EXCHANGE FOR 9% OF THE COMPANY**

- 130K committed to date**

# USE OF FUNDS SUMMARY

Category	Amount	Detail	Milestones achieved
Intellectual Property	\$75,000	<ul style="list-style-type: none"> <li>File new patents on film, window design</li> <li>Pursue individual country patents in Europe (EPO)</li> </ul>	<ul style="list-style-type: none"> <li>Multiple moles of protection (film, mechanical, window design, automation)</li> <li>Broaden geographic IP coverage</li> </ul>
Sales and Marketing	\$225,000	<ul style="list-style-type: none"> <li>Hire VP of Sales</li> <li>Promote current product in trade shows</li> <li>Setup local product showroom</li> <li>Architect Education</li> </ul>	<ul style="list-style-type: none"> <li>Add 5 licensees</li> <li>Grow job pipeline to 5X</li> <li>Add 5 channel partners</li> <li>Add geographies</li> </ul>
Operations and Engineering	\$200,000	<ul style="list-style-type: none"> <li>Hire dedicated engineering team (2 FTE)</li> <li>Build design library for products</li> <li>Formalize licensee fabrication procedures for lamination and fabrication</li> <li>Automation</li> <li>Ongoing film R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>Universal mechanical designs across products</li> <li>Licensee “Playbook”</li> <li>Turnkey automation system for select products</li> <li>\$10 per square foot for film</li> </ul>

# USE OF FUNDS DETAIL

	2017												TOTAL 2017
	31-Jan	29-Feb	31-Mar	30-Apr	31-May	30-Jun	31-Jul	31-Aug	30-Sep	31-Oct	30-Nov	31-Dec	
Payroll	\$24,583	\$36,875	\$36,875	\$44,250	\$44,250	\$44,250	\$44,250	\$44,250	\$44,250	\$44,250	\$44,250	\$44,250	\$496,583
Marketing	\$1,000	\$1,000	\$1,500	\$2,500	\$2,750	\$2,750	\$3,750	\$3,750	\$4,000	\$4,000	\$4,000	\$4,000	\$35,000
Accounting and Legal	\$1,000	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$39,500
IP	\$3,000	\$4,000	\$3,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$55,000
Office Expenses	\$1,961	\$3,211	\$3,211	\$3,211	\$3,211	\$3,365	\$3,365	\$4,365	\$5,200	\$5,200	\$5,200	\$5,200	\$46,700
T&E	\$700	\$2,500	\$2,200	\$3,000	\$4,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$51,400
COGS	\$7,250	\$7,500	\$5,250	\$10,000	\$10,500	\$11,500	\$24,000	\$24,000	\$39,000	\$64,000	\$69,000	\$69,000	\$341,000
<b>TOTAL</b>	<b>\$39,494</b>	<b>\$58,586</b>	<b>\$55,536</b>	<b>\$71,461</b>	<b>\$73,711</b>	<b>\$75,865</b>	<b>\$89,365</b>	<b>\$90,365</b>	<b>\$106,450</b>	<b>\$131,450</b>	<b>\$136,450</b>	<b>\$136,450</b>	<b>\$1,065,183</b>

# INVESTMENT PROFILE

Investment	\$500,000
Ownership	9%
Year 4 EBITDA	\$ 11,570,906
Exit Multiple	7X
Exit Value	\$80,996,344
Investor Receives	\$7,289,671
<b>Return</b>	<b>14.5X</b>
<b>IRR</b>	<b>282%</b>

# SUMMARY

- ✓ Proprietary technology with VAST MARKET POTENTIAL
- ✓ Solution for privacy/ light/ heat in MANY APPLICATIONS
- ✓ TRACTION in Europe, Asia, and North America
- ✓ RIGHT TEAM to execute
- ✓ CAPITAL-LIGHT business model with high margins



**For more information contact:**

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