Summary Testimony by James Steiner, Senior Vice President for Corning Incorporated
House Energy and Commerce Subcommittee on Commerce,
Manufacturing, and Trade
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Corning Incorporated has been in business as an American manufacturer for over 160 years. We were founded in 1851 by Amory Houghton, the great-great-grandfather of Amo Houghton, Jr.

Corning's strategy for success is based on two key foundations. First, we invent and innovate with tenacity, consistently investing 10 percent of our sales in research, development & engineering (RD&E). Second, we drive down the cost of manufacturing through process engineering. Because of our commitment to RD&E, we have many life-changing discoveries to our credit. Our history of inventions have earned us the President's Technology Medal of Honor four times.

In 2006, we formed a small team of scientists and engineers to build on research we did in the 1960s to invent a new glass for use on mobile devices. We called the program the Gorilla program. But, we had no easy path to commercialize our invention.

Then along came Steve Jobs and Apple.

In early 2007, Apple had a technical problem. The plastic screen they used on the prototype for the new revolutionary iPhone was scratching with normal use. They needed a new more durable and aesthetic material for the iPhone's display. Steve Jobs challenged our CEO, Wendell Weeks, to provide a solution. To meet the timeline required to make the invention a success, we had to move to commercialization in just months. A typical successful Corning innovation can take more than a decade.

Apple decided to take a chance on Corning. By working closely with Apple, we were able to dramatically reduce the time from invention to full commercialization. We met Apple's requirements and successfully filled the order. The rest is history.

The iPhone was an enormous success. It transformed broadband Internet communications bringing the computing power of a PC to a mobile handheld device. This drove the demand for Corning® Gorilla® Glass. Other smartphone manufacturers follow Apple's lead. Today, Corning® Gorilla® Glass has been designed into approximately 1,000 products and more than a billion devices have been sold with Corning® Gorilla® Glass. Sales of Corning® Gorilla® Glass have surged from $19 million in 2007 to $1 billion in 2012.

We selected our Harrodsburg, Kentucky plant for the development and manufacture of Corning® Gorilla® Glass. It was the site for the development of Corning's very successful LCD glass business so we had the core manufacturing know-how in the facility. But, we needed new manufacturing equipment and increased capacity.

In 2010, we decided to invest $180 million in the Harrodsburg facility. Since then we have invested another $60 million in Harrodsburg and an additional $200 million to expand global RD&E. Across Corning's corporate footprint, our relationship with Apple has created approximately 1,000 jobs in research and development, engineering, and manufacturing.

From a commercial point of view, we have learned about the importance of a partnership with a solid technology leader. Apple drove the initial demand for Corning® Gorilla® Glass and allowed us to prove the value of the product to a wider spectrum of customers. We have also learned how to move at a much faster pace to meet the requirements of today's dynamic industries.

From a policy perspective, we have learned about the importance of local and state incentives, intellectual property protection, pro-competitive tax reform, access to foreign markets, and the need for more spectrum.

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Introduction

Thank you, Chairman Terry and Ranking Member Schakowsky, for the opportunity to appear before you today. My name is Jim Steiner. I am the Executive in Corning responsible for our world-class manufacturing facility in Harrodsburg, Kentucky that makes the revolutionary product branded as Corning® Gorilla® Glass.

I also want to thank Mr. Guthrie for his support for Corning and our Harrodsburg facility. He has witnessed the marvel of Corning® Gorilla® Glass manufacturing first hand, and we appreciate his interest and support.

Background on Corning

Let me give you a little background on Corning Incorporated to provide context. We have been in business as an American manufacturer for over 160 years. We were founded in 1851 by Amory Houghton, the great-great-grandfather of Amo Houghton, Jr. who served with many of you in the House for 18 years.

Corning's strategy for success is based on two key foundations. First, we invent and innovate with tenacity, consistently investing 10 percent of our sales in research, development & engineering (RD&E). Second, we manufacture efficiently. Invention is only valuable if you can successfully commercialize the product. So once we make a product discovery, we relentlessly drive down our cost of

manufacturing through process engineering. Today, we are the world's lowest-cost manufacturer for 80 percent of the products we make.

Simply put, invention, innovation, and low-cost manufacturing through process engineering are the keys to success in American manufacturing.

Because of our commitment to RD&E, we have many life-changing discoveries to our credit. In the 19th century, we invented the process to manufacture at low cost the glass envelope for Thomas Edison's light bulb. Lighting changed the world. Our most recent life changing inventions include the ceramic core of the catalytic converter that has removed 4 billion tons of harmful emissions from the atmosphere. Optical fiber that has enabled very high speed broadband communications to revolutionize the Internet. And, LCD glass that has provided the foundation for display technologies in a wide range of consumer electronics. Our history of inventions like these have earned us the President's National Medal of Technology and Innovation four times.

Corning® Gorilla® Glass

This history sets the context for Corning® Gorilla® Glass and the success of our Harrodsburg manufacturing facility.

In 1962 we invented a glass we called Chemcor. It never became a success for us because we failed to successfully commercialize it. In 2006, we formed a small team to take the foundations of the Chemcor work, and to invent a new glass for use on mobile devices. We called the program the Gorilla program. Again, we had no easy path to commercialization.

Then along came Steve Jobs and Apple. In early 2007, Apple had a technical problem. The plastic screen they used on the prototype for the new revolutionary iPhone was scratching with normal use. They needed a new more durable and aesthetic material for the iPhone's display. Standard glass -- called soda lime glass in the industry -- was a possibility, but it too had problems. It looked good, but it also scratched and had low damage resistance.

In early 2007, Steve Jobs challenged our CEO, Wendell Weeks, to provide a solution. To meet the timeline required to make the invention a success, we had to move to commercialization in just months. A typical successful Corning innovation can take more than a decade. Apple does not work on that slow pace. Apple decided to take a chance on Corning. They required that glass be delivered within three months of the first contact between our CEO's.

At the time, this appeared to be an impossible task. While we knew we could make the glass, we had never made it to the quality and scale needed to make it commercially viable. The development and engineering would normally take years. But, by working closely with Apple, we were able to dramatically reduce the time from invention to full commercialization. We met Apple's requirements and successfully filled the order.

The rest is history. The iPhone was an enormous success. It transformed broadband Internet communications bringing the computing power of a PC to a mobile handheld device. This drove the demand for Corning® Gorilla® Glass. Other smartphone manufacturers followed Apple's lead. Today, Corning® Gorilla® Glass has been designed into approximately 1,000 products and more than a billion devices have been sold with Corning® Gorilla® Glass. Sales of Corning® Gorilla® Glass have surged from $19 million in 2007 to $1 billion in 2012.

Harrodsburg Plant

We selected our Harrodsburg, Kentucky plant for the development and manufacture of Corning® Gorilla® Glass. It was the site for the development of Corning's very successful LCD glass business so we had the core manufacturing know-how in the facility. But, we needed new manufacturing equipment and increased capacity. Our factory had to respond at lightning pace to meet the initial order from Apple. As Steve Jobs challenged Corning, we challenged our Harrodsburg plant to deliver a new product at a record pace. And they responded and met the demand.

On August 3, 2010, we announced our decision to invest $180 million in the Harrodsburg facility. We have since invested another $60 million. Since the iPhone was first launched, we have increased employment in the facility to over 400 jobs. This growth also had a beneficial impact on our RD&E facilities in Corning, NY. Since the iPhone launched, we have invested an additional $200 million to expand global RD&E. Across Corning's corporate footprint, our relationship with Apple has created approximately 1,000 jobs in research, development, engineering, and manufacturing.

The Future is Flexible

Even as the use of Corning® Gorilla® Glass grows, we are planning our next innovative glass product -- an ultra-slim flexible glass called "Willow™ Glass" -- for use in today's most-advanced displays as well as the smart surfaces of the future. This innovative product is now being manufactured in Harrodsburg to provide samples to customers for testing and product development, leading to an additional investment of $48 million at our Harrodsburg facility.

The thinness and flexibility of Corning® Willow™ Glass has the potential to enable displays to be "wrapped" around a device or structure. Willow™ Glass will enable the industry to pursue high-temperature, continuous "roll-to-roll" processes, similar to that used to produce news print. Previously, this roll-to-roll process was not possible, but now it can be done. This enables large, thin, and low-cost displays to be used for revolutionary purposes like digital wallpaper in homes, schools and offices.

Moreover, Willow™ Glass will support thinner backplanes and color filters for both organic light emitting diodes (OLED) and liquid crystal displays (LCD) in high performance, portable devices such as smart phones, tablets, and notebook computers. This new, ultra-slim flexible glass will also help develop conformable (curved) displays for immersive viewing or mounting on non-flat surfaces. Willow™ Glass is formulated to perform exceptionally well for electronic components such as touch sensors, as well as leveraging glass's natural hermetic properties as a seal for OLED displays and other moisture and oxygen sensitive technologies.

Lessons Learned

We have learned many lessons from this experience with Corning® Gorilla® Glass, including commercial lessons and policy lessons.

From a commercial point of view, we have learned about the importance of a partnership with a solid technology leader. Apple drove the initial demand for Corning® Gorilla® Glass and allowed us to prove the value of the product to a wider spectrum of customers. We have also learned how to move at a much faster pace to meet the requirements of today's dynamic industries. This takes a combination of strong technical capabilities, flexible manufacturing, and the willingness of all of us in Corning to move fast and take more risk.

As a result of the partnership between Apple and Corning, our manufacturing facility in Harrodsburg, Kentucky is strong with a vibrant workforce of over 400 employees. Moreover, the Harrodsburg facility has cemented its role as a development center for flat-glass products, increasing its importance to our company. Throughout this effort, Apple has been a terrific customer, providing the economic incentive and encouragement for Corning to contribute important components to innovative new technologies like the iPhone. We are grateful to Apple for its leadership in consumer electronics and for its confidence in Corning as a partner.

From a policy perspective, we have learned a number of important lessons. The first policy lesson surrounds the importance of assistance from the state and local governments. To support our $180 million expansion of the Harrodsburg facility, the Governor, the State of Kentucky, Mercer County, and the City of Harrodsburg collectively provided over $5 million in incentives. Those incentives were tied to specific job growth and other conditions Corning agreed to meet. Since its inception, our Harrodsburg plant has expanded five times (1989, 1990, 1995, 1999-2002 and 2010-2011), and on each occasion the state and local governments have been steadfast partners working with us to achieve a successful outcome.

The second policy lesson is the importance of strong intellectual property protection. One important factor in siting our Corning® Gorilla® Glass development in Harrodsburg was the strength of U.S. patent law and trade secret protections. For manufacturers to invest in new products and facilities, they must have a reasonable expectation of return on their R&D and capital investment. We believe it is critical that the U.S. Government continue its support for American intellectual property. Specifically, we urge policy makers to maintain strong patent protections, enact a federal civil trade secret law, fund national protection from foreign cyber-attacks and misappropriation, and gain better IP enforcement abroad through international agreements.

The third policy lesson is that tax reform will be essential to the competitiveness of U.S. companies battling for market share around the globe. Although U.S. manufacturers often must make products close to the foreign markets they serve, many U.S. companies choose to manufacture in the United States when they can. The U.S. tax system should not discourage this investment strategy. In our view, the right reform will be one that provides a competitive corporate rate and competitive international tax system that avoids double taxation. We believe Chairman Camp's draft proposal on corporate tax reform provides a great step in this direction, and we are heartened by statements from Chairman Baucus and President Obama similarly recognizing the need for tax reform. We look forward to working with those leaders and other key policymakers on this critical matter.

The fourth policy lesson is the importance of access to global markets. Over 78 percent of Corning's sales go to foreign customers and our largest growth opportunities are markets outside the United States. Last year alone, our exports grew by 24 percent. Nearly all of the Corning® Gorilla® Glass made in Harrodsburg is exported. These exports are a tribute to Apple. To survive and prosper, Corning must be able to operate and grow domestically and internationally. We are reliant on the global trading system and that is why we support a rules-based trading system that ensures market access, encourages innovation, and embraces competition.

American companies increasingly face a host of trade barriers intended to spur local investment, R&D, and manufacturing. Many of these measures are not fully addressed by WTO disciplines. While there is no single solution to solve these complex and evolving trade distortive measures, we encourage policy makers to support efforts to increase U.S. exports and bring new disciplines to the challenges of forced localization and misappropriation of trade secrets.

The fifth policy lesson is the importance of wireless spectrum policy toward driving the demand for revolutionary technologies that have significant downstream effects. Increasingly, consumers want mobile broadband Internet services. These services drive the demand for bandwidth. Since Apple introduced the iPhone, the demand for wireless bandwidth has surged from 10 petabytes per month to over 1,200 petabytes per month today. Wireless networks struggle to keep up because of spectrum constraints.

We congratulate the Committee for its leadership in making more spectrum available through the passage of the legislation last year. And we congratulate Verizon, AT&T, and other telecommunications providers for investing the billions of dollars to build the powerful wireless networks to keep up with the demand driven by the iPhone and other smart mobile devices.

Conclusion: Success Requires Collaboration

We are grateful to Apple for taking a chance with Corning in the development, engineering, and manufacture of the Corning® Gorilla® Glass for the iPhone. It has yielded enormous benefits for the nation, driving invention, innovation, investment, and job creation in the United States. Similarly, we are grateful to wireless carriers like Verizon and AT&T for their network investment essential to making the iPhone and other smart mobile devices a commercial success.

Our experience has demonstrated that it is possible to successfully manufacture in the United States for export through rapid action to invent, to innovate, and to reduce cost through highly efficient

manufacturing. And, we have learned that commercial success requires close collaboration between and among American technology leaders.

As to public policy, we have learned that economic development incentives at the state and local level are very helpful in driving U.S. investment and job creation. We have also learned that IP protection, tax reform, trade, and spectrum policy at the federal level can have a significant impact on success in American manufacturing.

We look forward to working with this Committee and others to help forge and reinforce the policies that encourage innovation among U.S. companies.